

# ELECTRICAL SYSTEM

## SECTION **EL**

When you read wiring diagrams:

- Read GI section, “HOW TO READ WIRING DIAGRAMS”.

When you perform trouble diagnoses, read GI section, “HOW TO FOLLOW FLOW CHART IN TROUBLE DIAGNOSES” and “HOW TO PERFORM EFFICIENT DIAGNOSIS FOR AN ELECTRICAL INCIDENT”.

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#### WIRING DIAGRAM REFERENCE CHART

ECCS (Ignition system) .....	EC SECTION
AUTOMATIC TRANSAXLE CONTROL SYSTEM .....	AT SECTION
ANTI-LOCK BRAKE SYSTEM .....	BR SECTION
SRS "AIR BAG" and "SEAT BELT PRE-TENSIONER" .....	RS SECTION
HEATER AND AIR CONDITIONER .....	HA SECTION

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NOTE

## PRECAUTIONS AND PREPARATION

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### Precautions

#### **SUPPLEMENTAL RESTRAINT SYSTEM (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”**

The Supplemental Restraint System “Air Bag” and “Seat Belt Pre-tensioner”, used along with a seat belt, help to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of an air bag module (located in the center of the steering wheel and on the instrument panel on the passenger side, where fitted), seat belt pre-tensioners, a diagnosis sensor unit, warning lamp, wiring harness and spiral cable.

In addition to the supplemental air bag modules for a frontal collision, the supplemental side air bag used along with the seat belt help to reduce the risk or severity of injury to the driver and front passenger in a side collision. The supplemental side air bag consists of air bag modules (located in the outer side of front seats), satellite sensor, diagnosis sensor unit (one of components of supplemental air bags for a frontal collision), wiring harness, warning lamp (one of components of supplemental air bags for a frontal collision). Information necessary to service the system safely is included in the **RS section** of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative (which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation), all maintenance must be performed by an authorized NISSAN dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses (except “SEAT BELT-TENSIONER” connector) can be identified with yellow harness connector (and with yellow harness protector or yellow insulation tape before the harness connectors). Not use electrical test equipment on any circuit related to the SRS.

# HARNESS CONNECTOR

## Description

### HARNESS CONNECTOR (TAB-LOCKING TYPE)

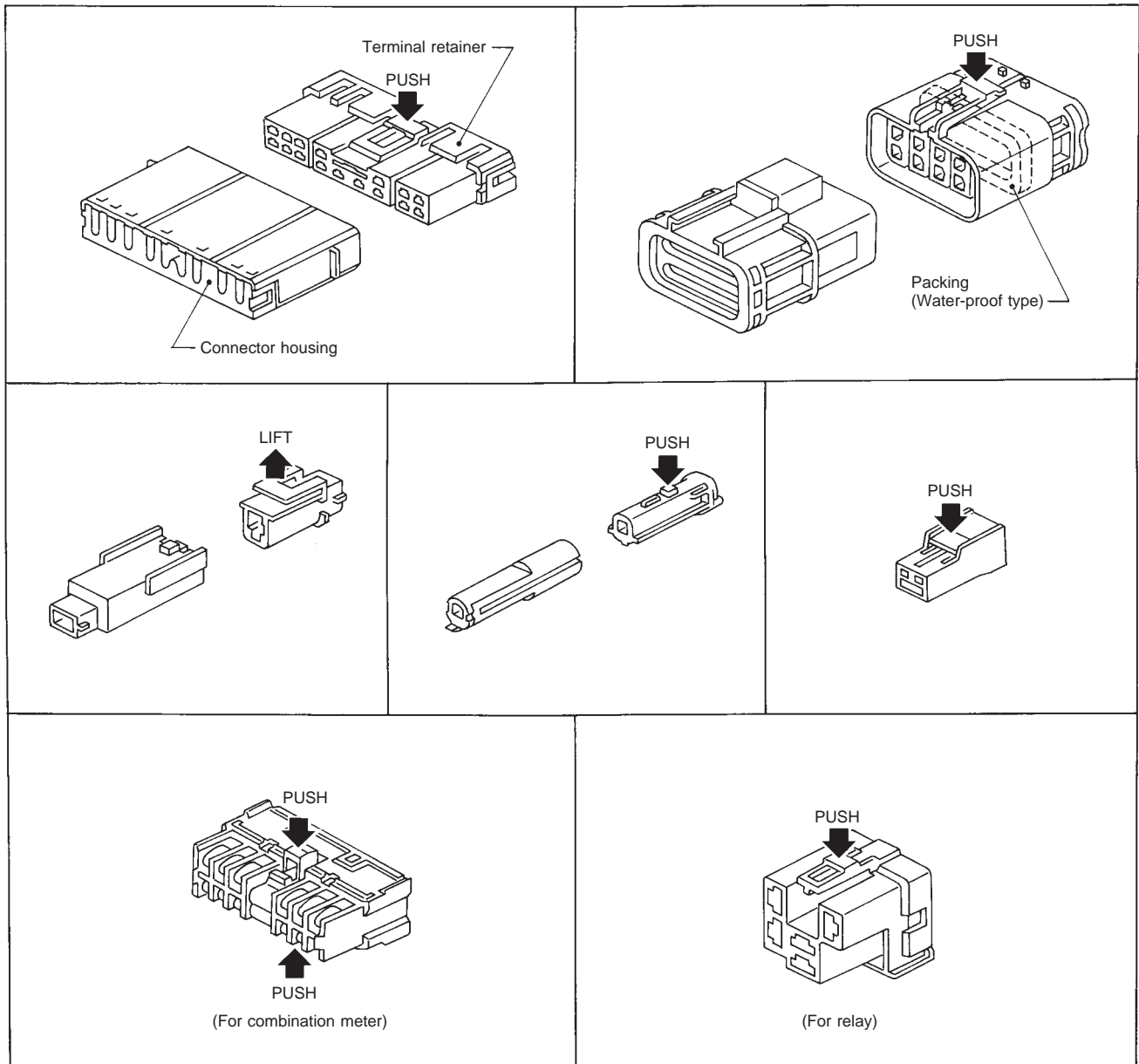
- The tab-locking type connectors help prevent accidental looseness or disconnection.
- The tab-locking type connectors are disconnected by pushing or lifting the locking tab(s). Refer to the illustration below.

Refer to the next page for description of the slide-locking type connector.

#### CAUTION:

Do not pull the harness or wires when disconnecting the connector.

[Example]



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## HARNESS CONNECTOR

### Description (Cont'd)

#### HARNESS CONNECTOR (SLIDE-LOCK TYPE)

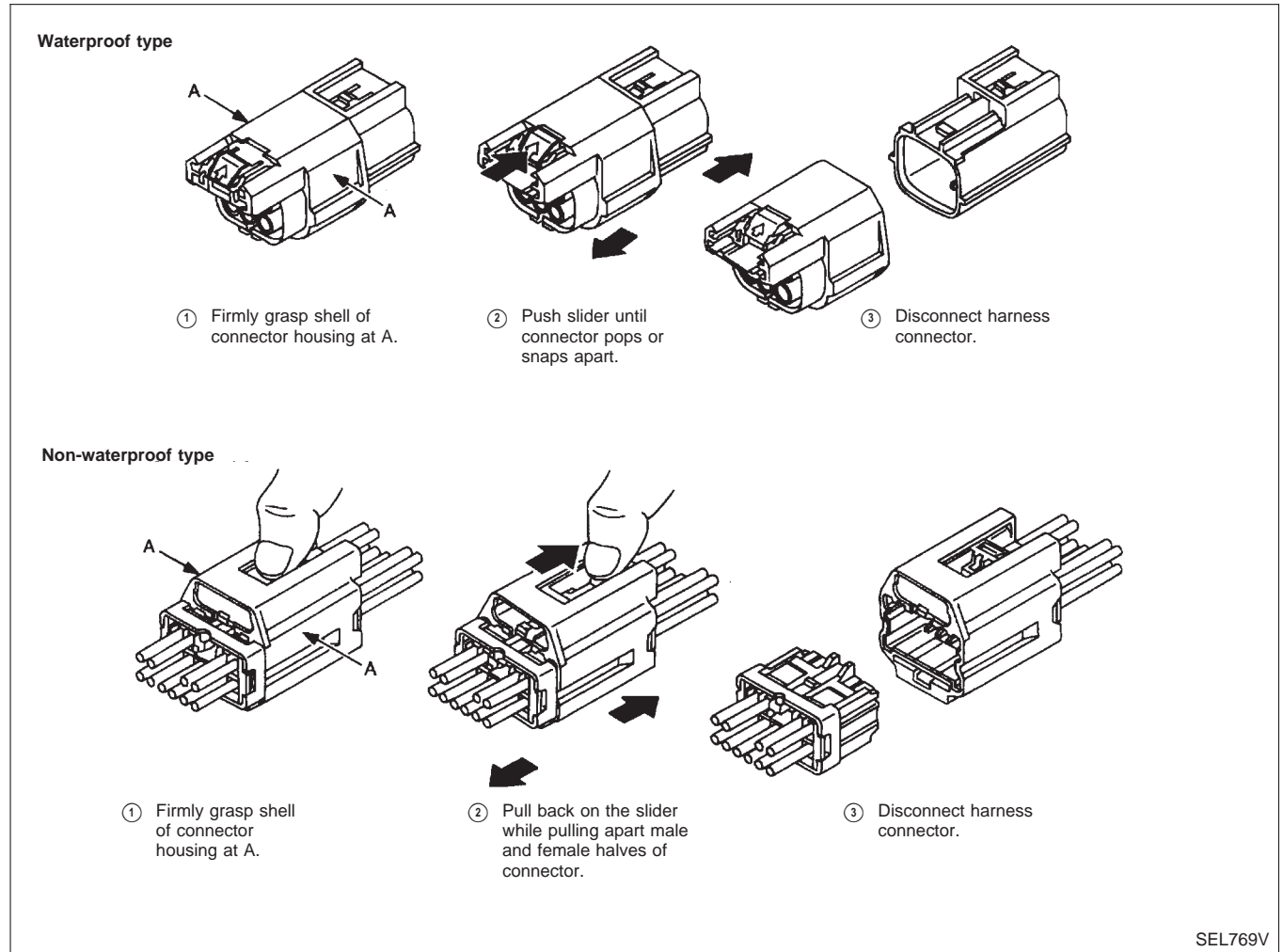
- A new style slide-locking type connector is used on certain systems and components, especially those related to OBD.
- The slide-locking type connectors help prevent incomplete locking and accidental looseness or disconnection.
- The slide-locking type connectors are disconnected by pushing or lifting the slider. Refer to the illustration below.

#### CAUTION:

Do not pull the harness or wires when disconnecting the connector.

Be careful not to damage the connector support bracket when disconnecting the connector.

[Example]

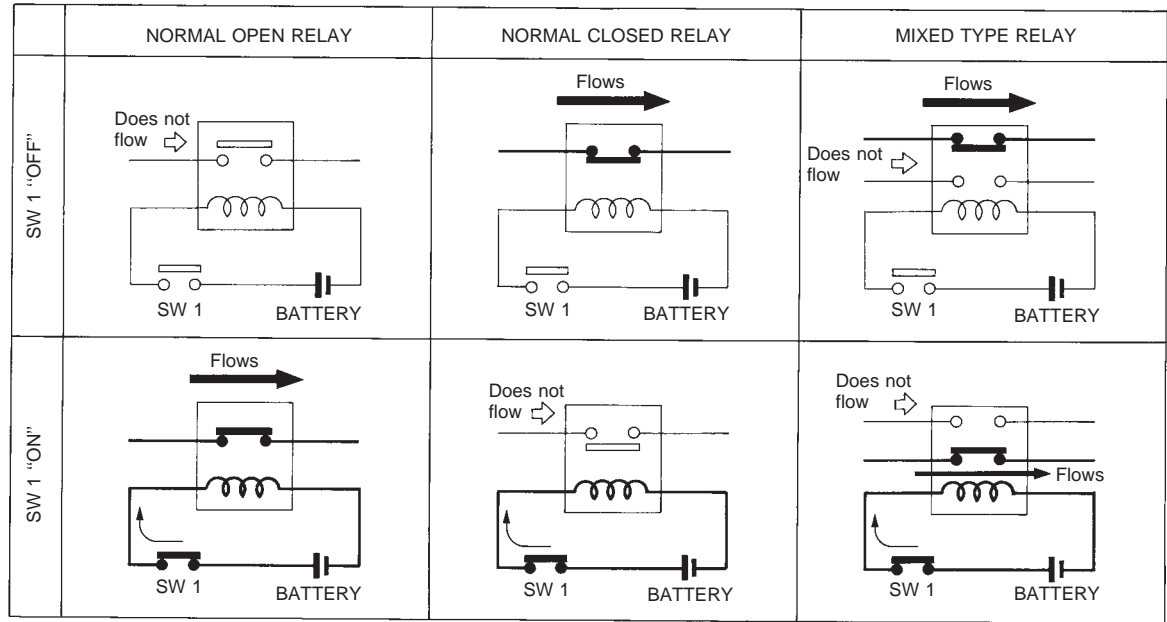


STANDARDIZED RELAY

Description

NORMAL OPEN, NORMAL CLOSED AND MIXED TYPE RELAYS

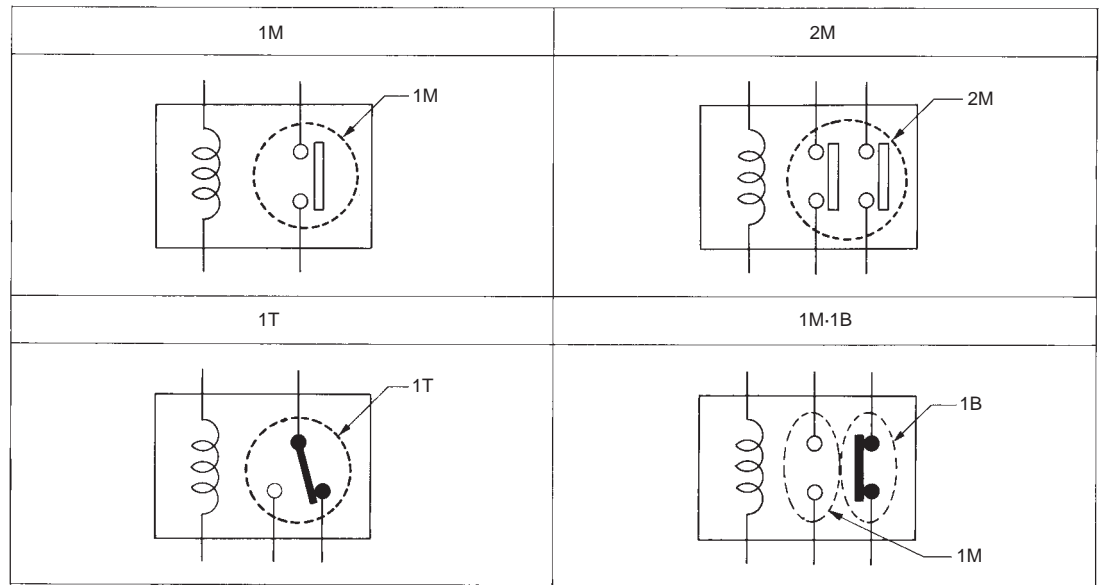
Relays can mainly be divided into three types: normal open, normal closed and mixed type relays.



SEL881H

TYPE OF STANDARDIZED RELAYS

- 1M ..... 1 Make
- 2M ..... 2 Make
- 1T ..... 1 Transfer
- 1M-1B ..... 1 Make 1 Break

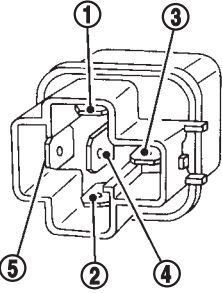
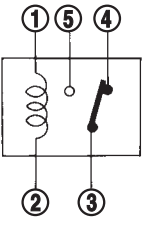
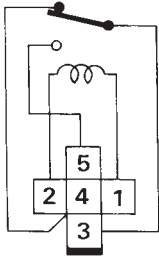
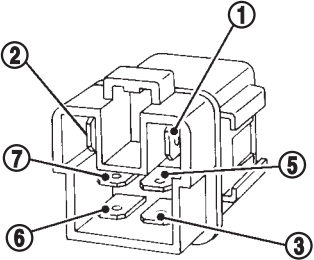
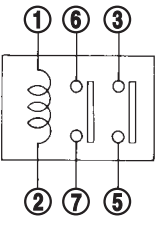
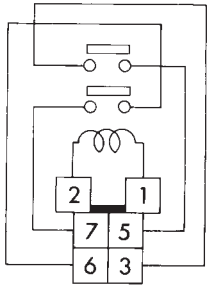
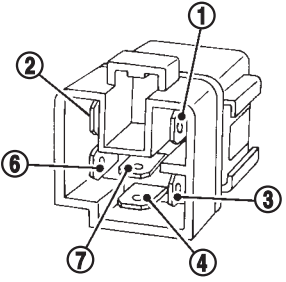
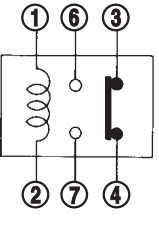
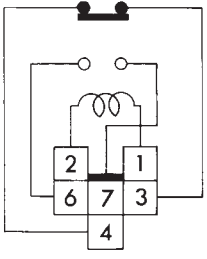
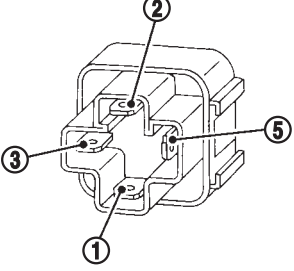
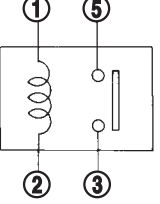
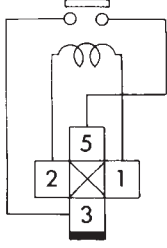
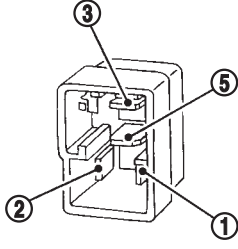
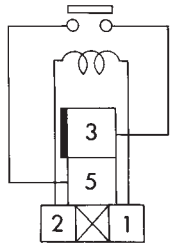


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STANDARDIZED RELAY

Description (Cont'd)

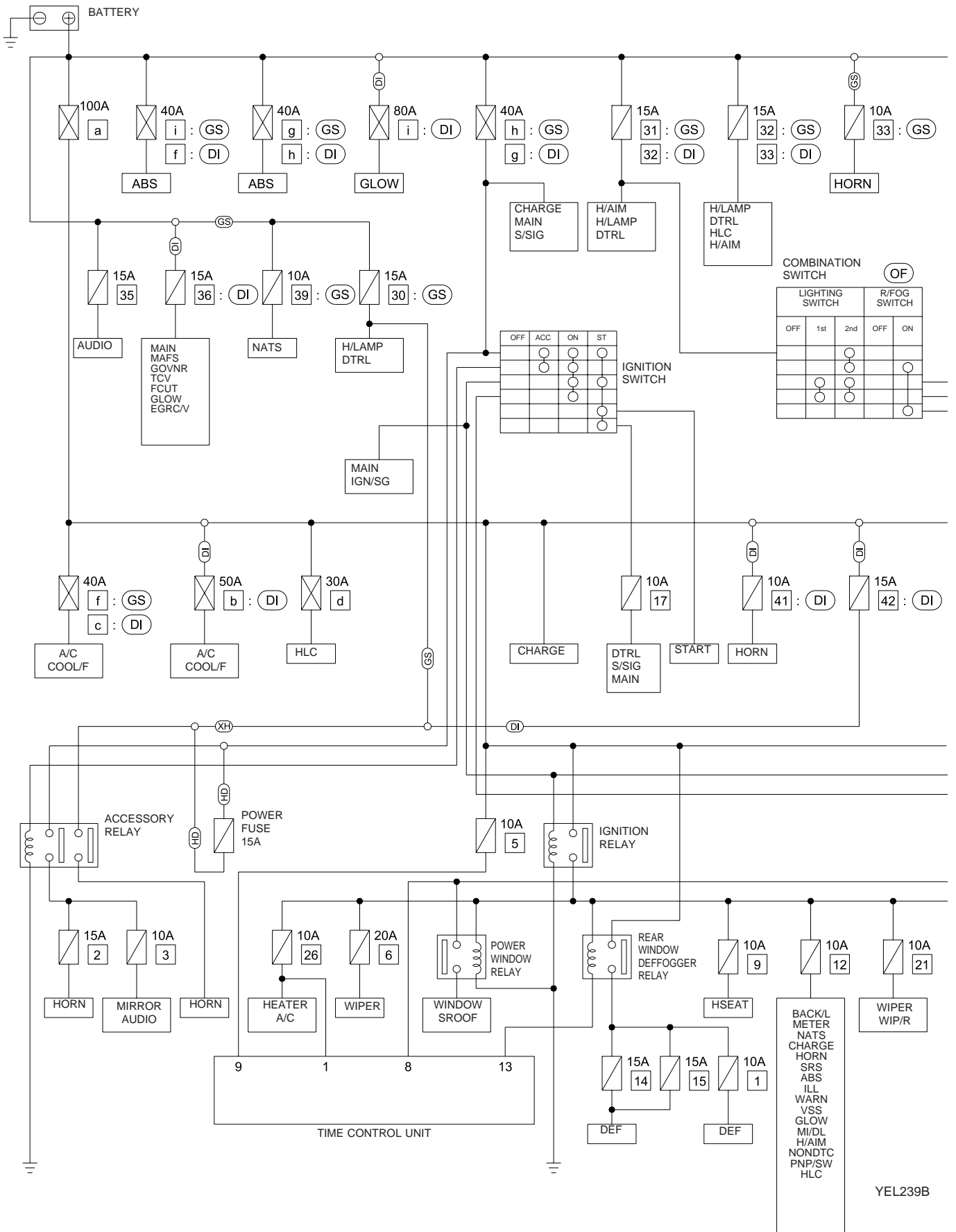
Type	Outer view	Circuit	Connector symbol and connection	Case color
1T				BLACK
2M				BROWN
1M•1B				GRAY
1M				BLUE
				

The arrangement of terminal numbers on the actual relays may differ from those shown above.

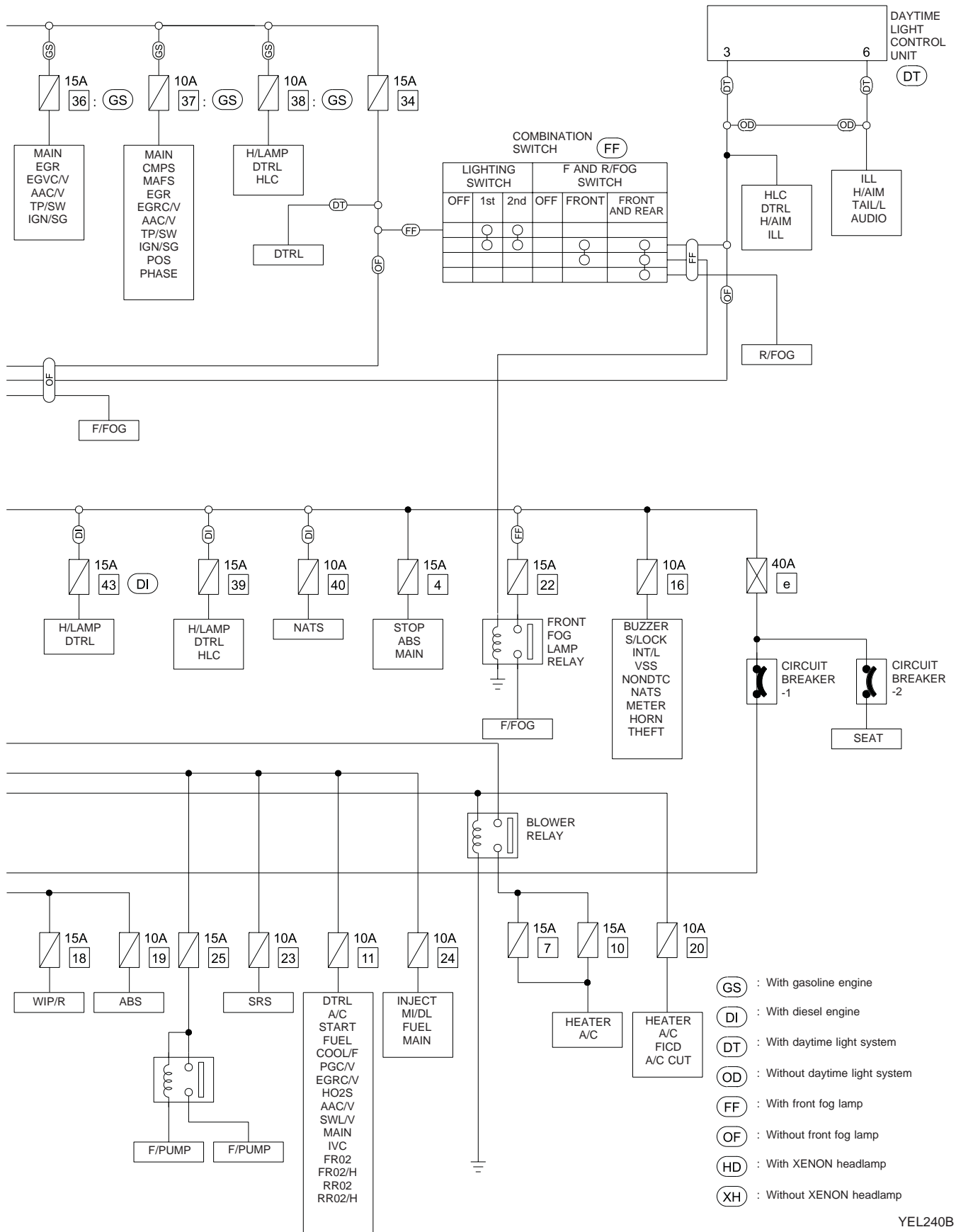
SEL188W

# POWER SUPPLY ROUTING

## Schematic



# POWER SUPPLY ROUTING Schematic (Cont'd)



YEL240B

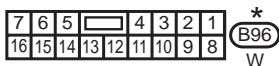
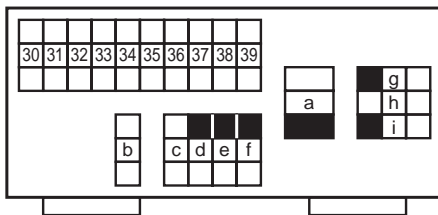
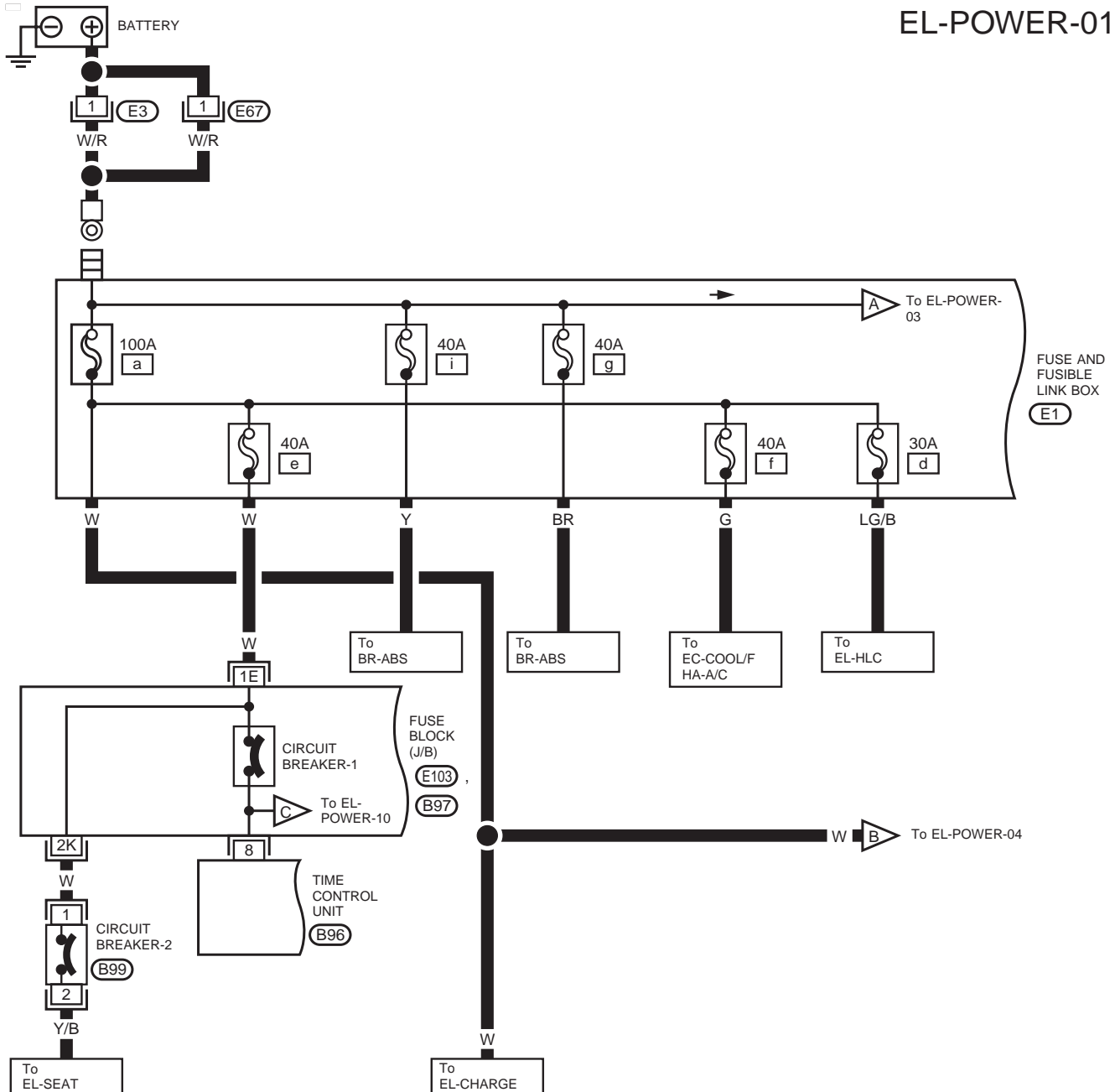
# POWER SUPPLY ROUTING

## Wiring Diagram — POWER —

### BATTERY POWER SUPPLY — IGNITION SWITCH IN ANY POSITION

#### Gasoline engine models

EL-POWER-01



REFER TO THE FOLLOWING

(E103) FUSE BLOCK - Junction Box (J/B)

(B97) FUSE BLOCK - Junction Box (J/B)

YEL241B

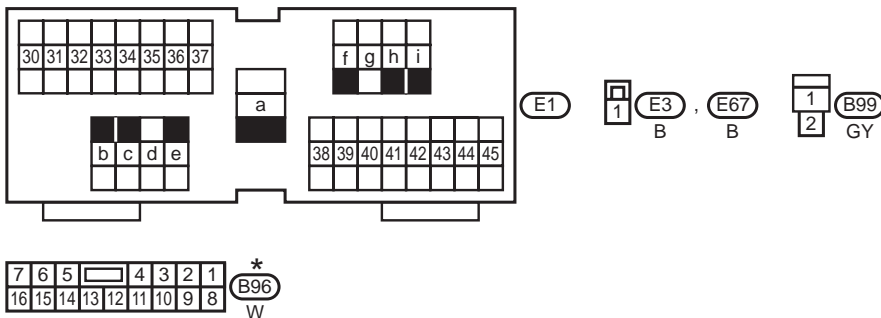
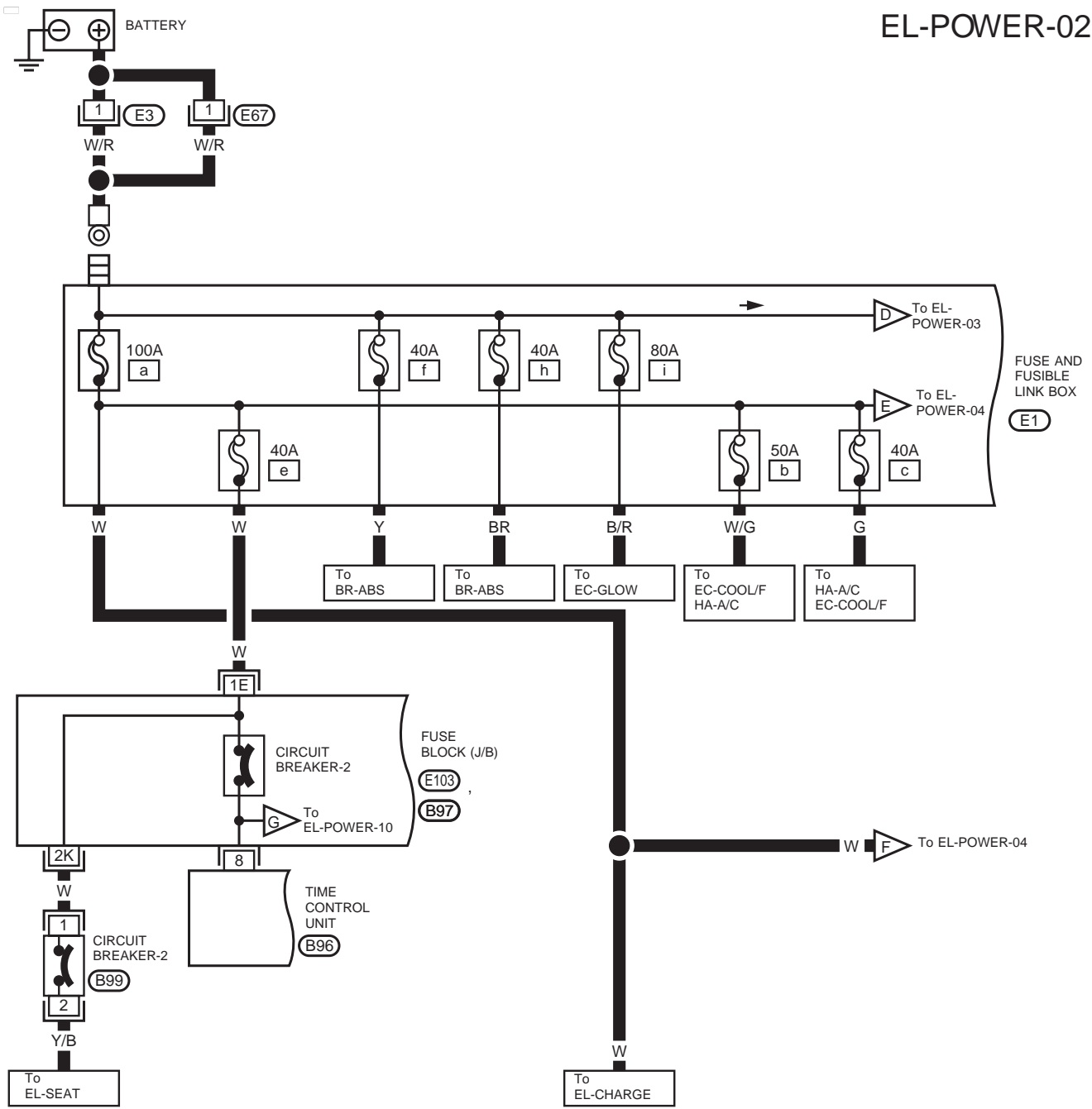
\* : This connector is not shown in "HARNESS LAYOUT" of EL section.

# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

### Diesel engine models

EL-POWER-02



REFER TO THE FOLLOWING

(E103) FUSE BLOCK - Junction Box (J/B)

(B97) FUSE BLOCK - Junction Box (J/B)

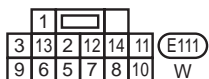
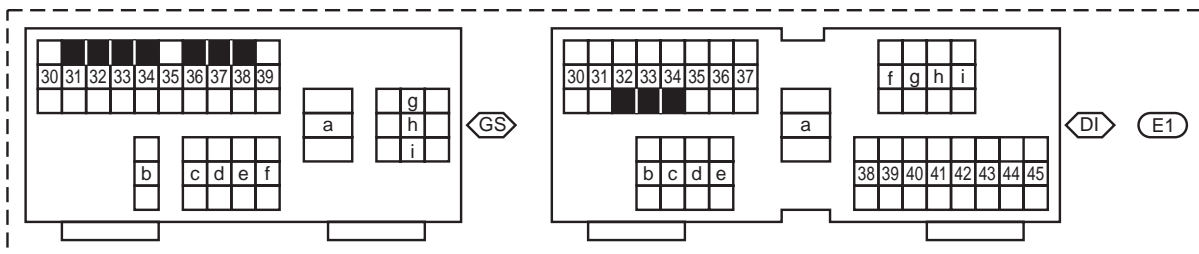
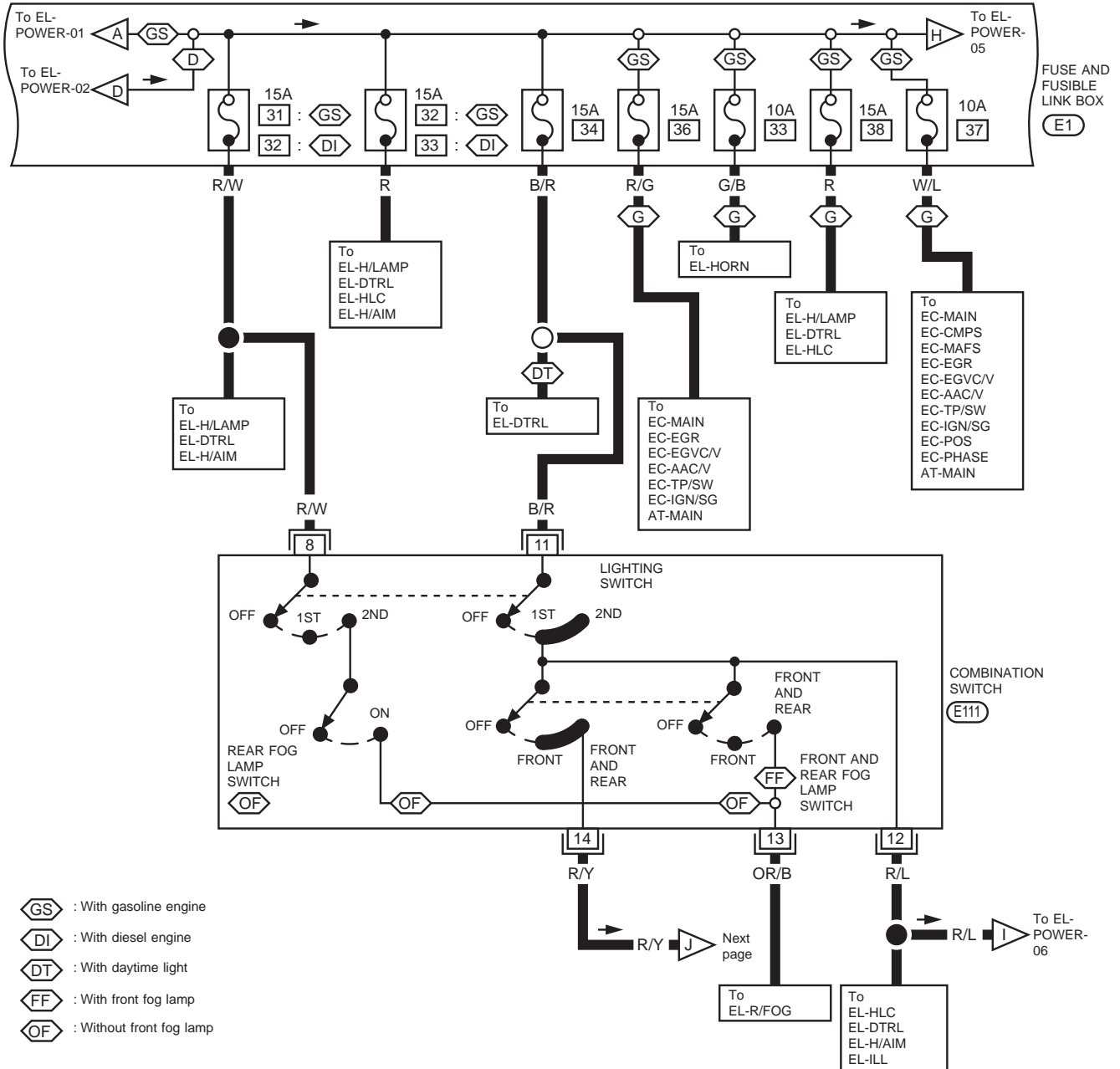
\* : This connector is not shown in "HARNESS LAYOUT" of EL section.

YEL242B

# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

### EL-POWER-03



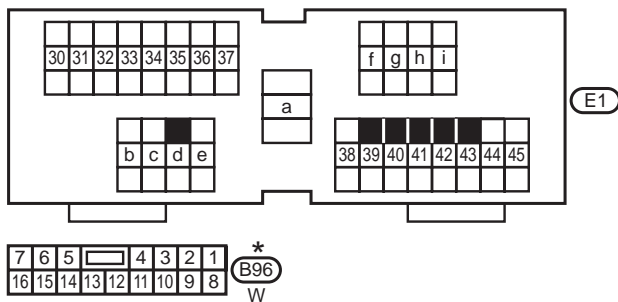
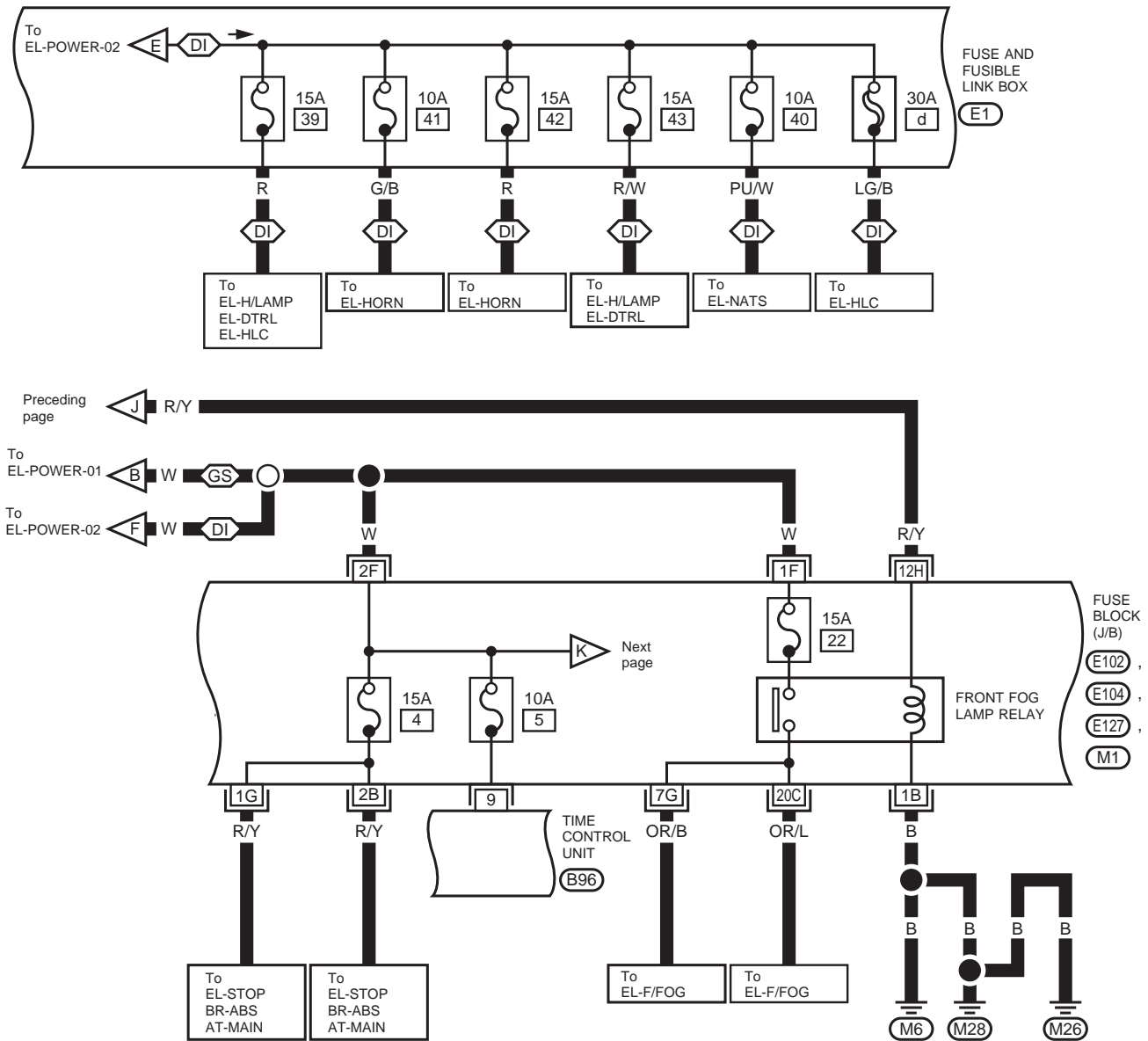
YEL243B

# POWER SUPPLY ROUTING

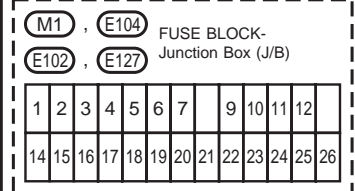
## Wiring Diagram — POWER — (Cont'd)

### EL-POWER-04

GS : With gasoline engine  
DI : With diesel engine



REFER TO THE FOLLOWING

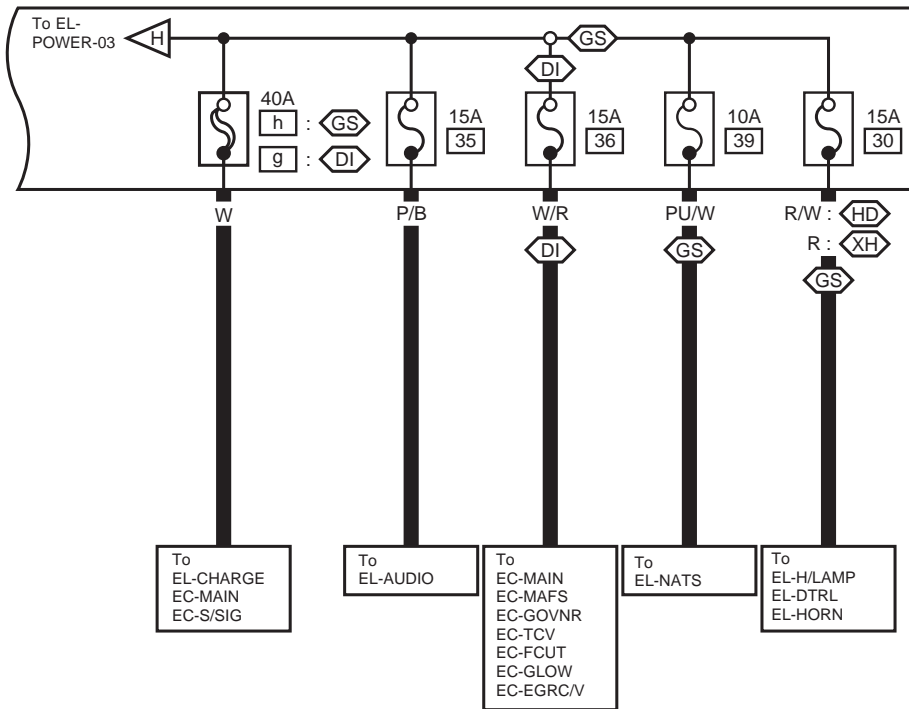


YEL244B

# POWER SUPPLY ROUTING

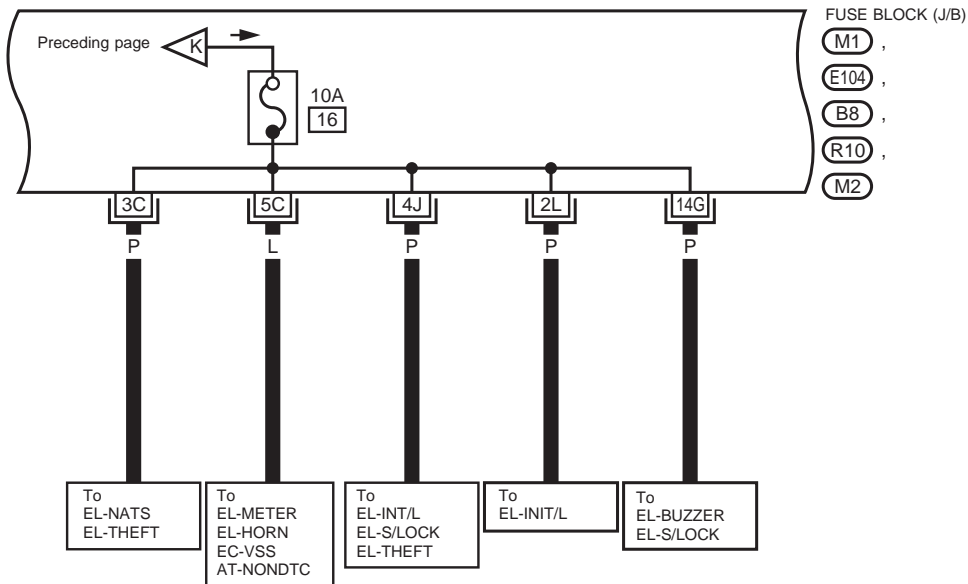
## Wiring Diagram — POWER — (Cont'd)

### EL-POWER-05



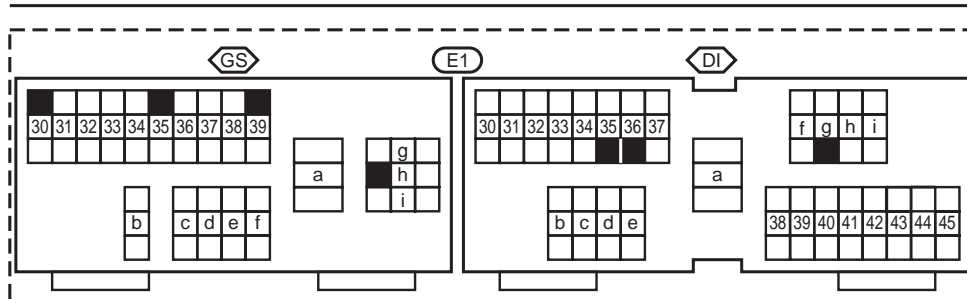
FUSE AND  
FUSIBLE LINK  
BOX

- GS : With gasoline engine  
DI : With diesel engine  
HD : With XENON headlamp  
XH : Except HD



FUSE BLOCK (J/B)

- M1 ,  
E104 ,  
B8 ,  
R10 ,  
M2



REFER TO THE FOLLOWING

M1 , E104 , B8 , R10 ,

M2 FUSE BLOCK - Junction Box (J/B)

1	2	3	4	5	6	7		9	10	11	12	
14	15	16	17	18	19	20	21	22	23	24	25	26

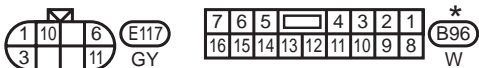
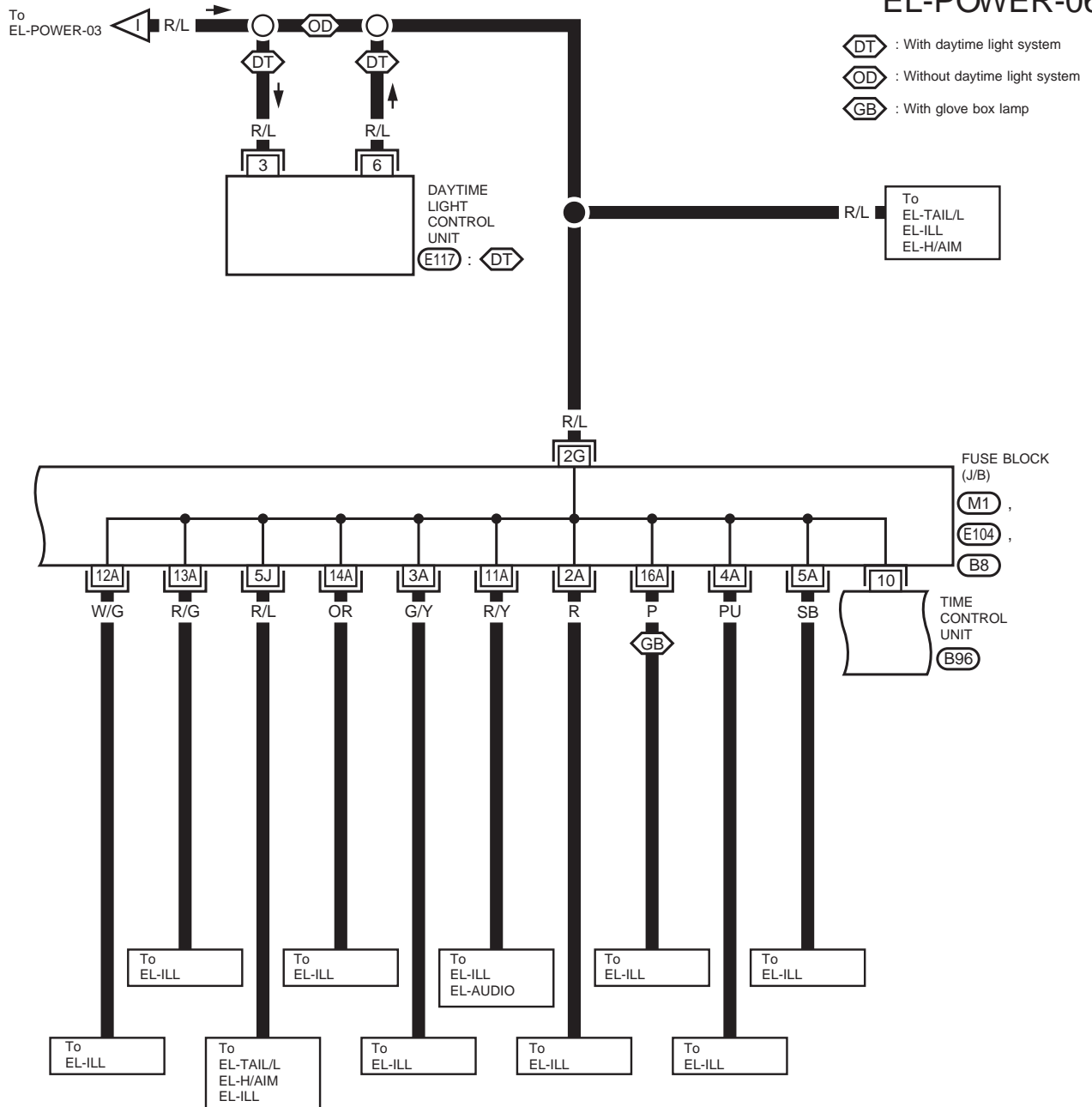
YEL245B



# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

### EL-POWER-06



REFER TO THE FOLLOWING

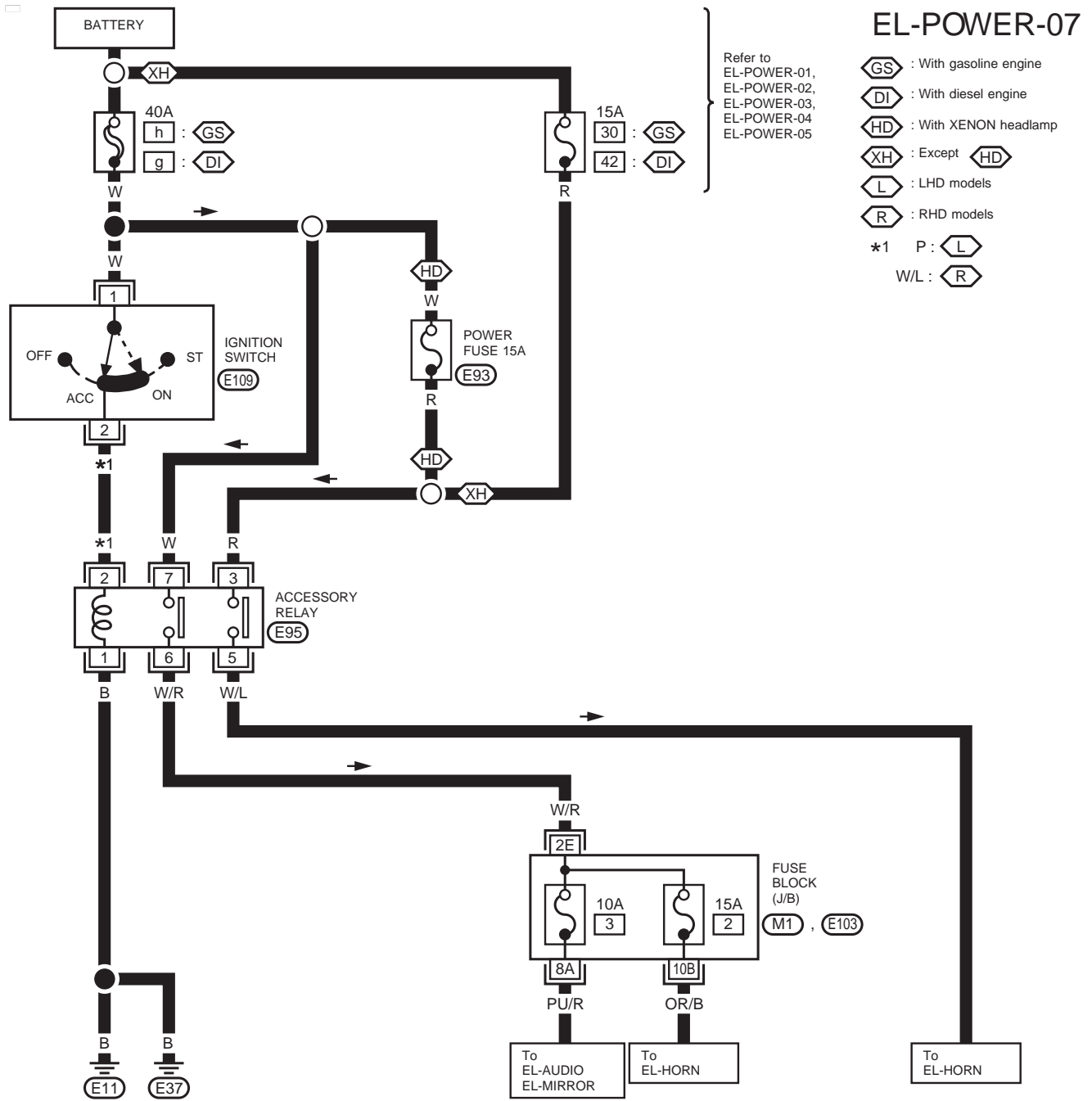
- (M1) FUSE BLOCK - Junction Box (J/B)
- (E104) FUSE BLOCK - Junction Box (J/B)
- (B8) FUSE BLOCK - Junction Box (J/B)

YEL246B

# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

### ACCESSORY POWER SUPPLY — IGNITION SWITCH IN “ACC” OR “ON”



#### EL-POWER-07

Refer to  
EL-POWER-01,  
EL-POWER-02,  
EL-POWER-03,  
EL-POWER-04  
EL-POWER-05

- GS : With gasoline engine
- DI : With diesel engine
- HD : With XENON headlamp
- XH : Except HD
- L : LHD models
- R : RHD models
- \*1 P : L
- W/L : R

3	5	1
4	2	6

(E109)  
W

1	2
5	7
3	6

(E95)  
BR

REFER TO THE FOLLOWING

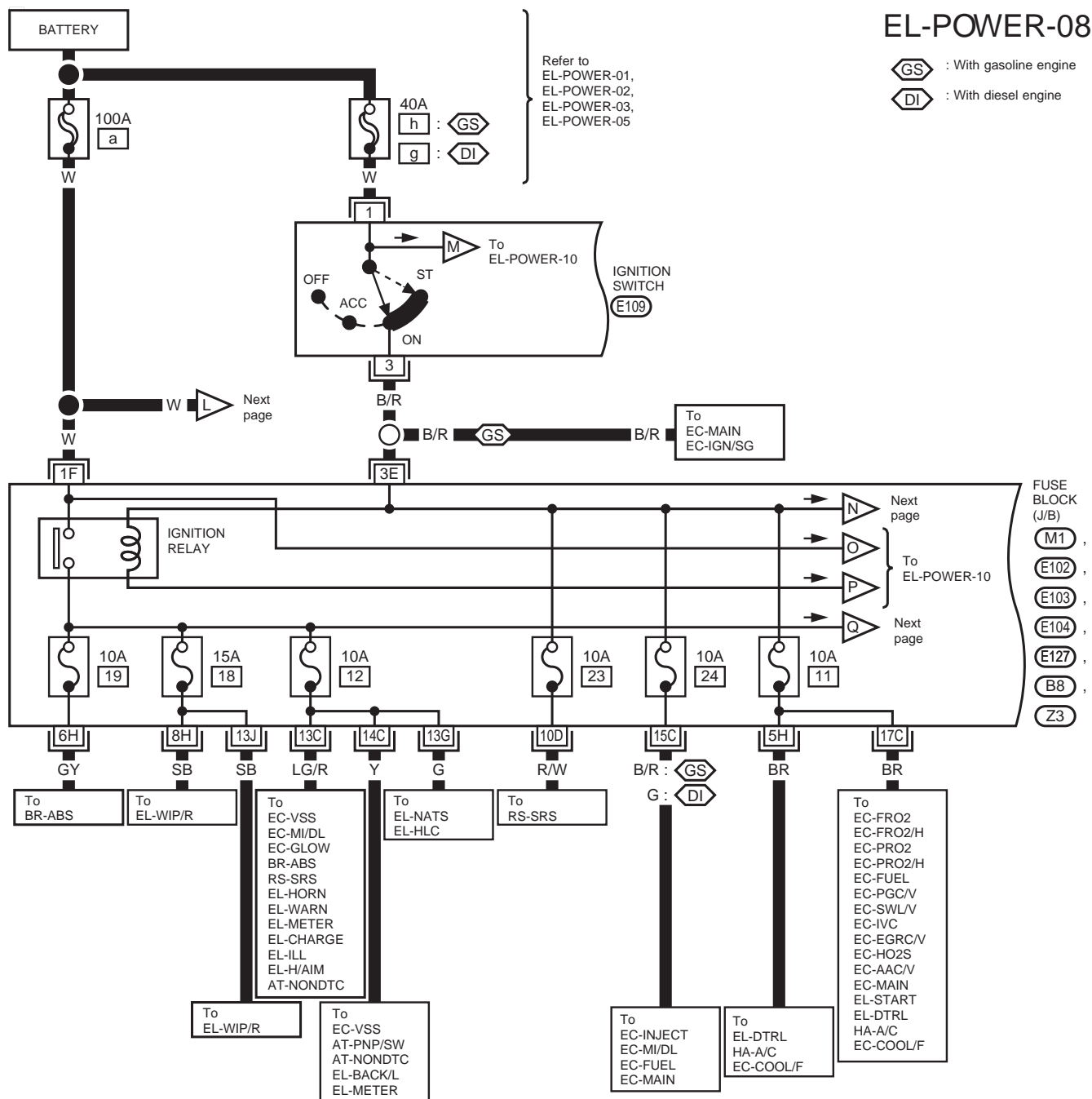
FUSE BLOCK - Junction Box (J/B)											
M1	E103										
1	2	3	4	5	6	7	9	10	11	12	
14	15	16	17	18	19	20	21	22	23	24	25
26											

YEL247B

# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

### IGNITION POWER SUPPLY — IGNITION SWITCH IN “ON” AND/OR “START”



3	5	1
4	2	6

E109  
W

REFER TO THE FOLLOWING

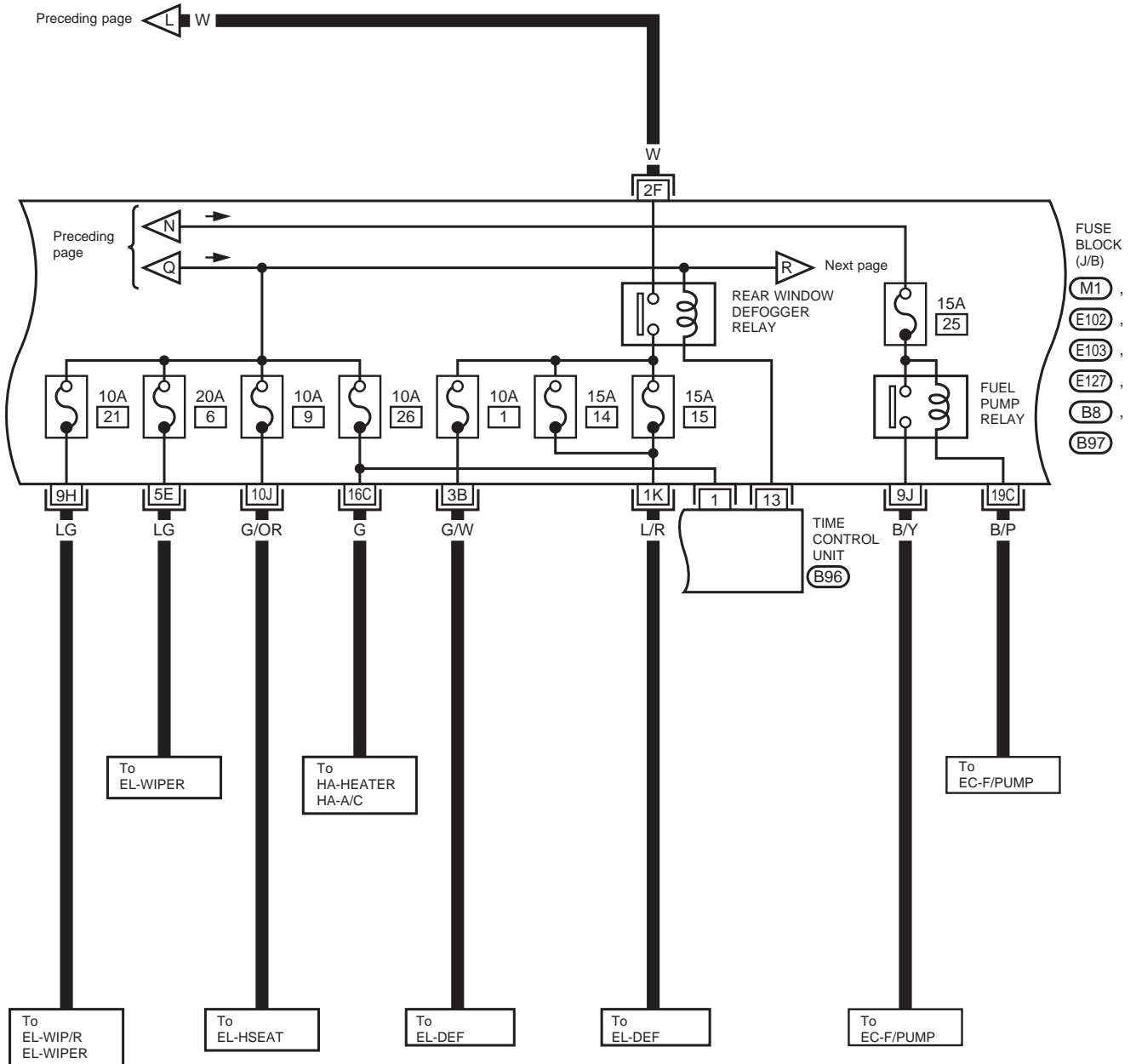
M1	E103	E102	E127
E104	B8	Z3	FUSE BLOCK - Junction Box (J/B)
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26		

YEL248B

# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-09



7	6	5	4	3	2	1	*
16	15	14	13	12	11	10	9

B96

W

\* : This connector is not shown in "HARNESS LAYOUT" of EL section.

REFER TO THE FOLLOWING

M1	E103	E127	FUSE BLOCK -
B8	B97	E102	Junction Box (J/B)

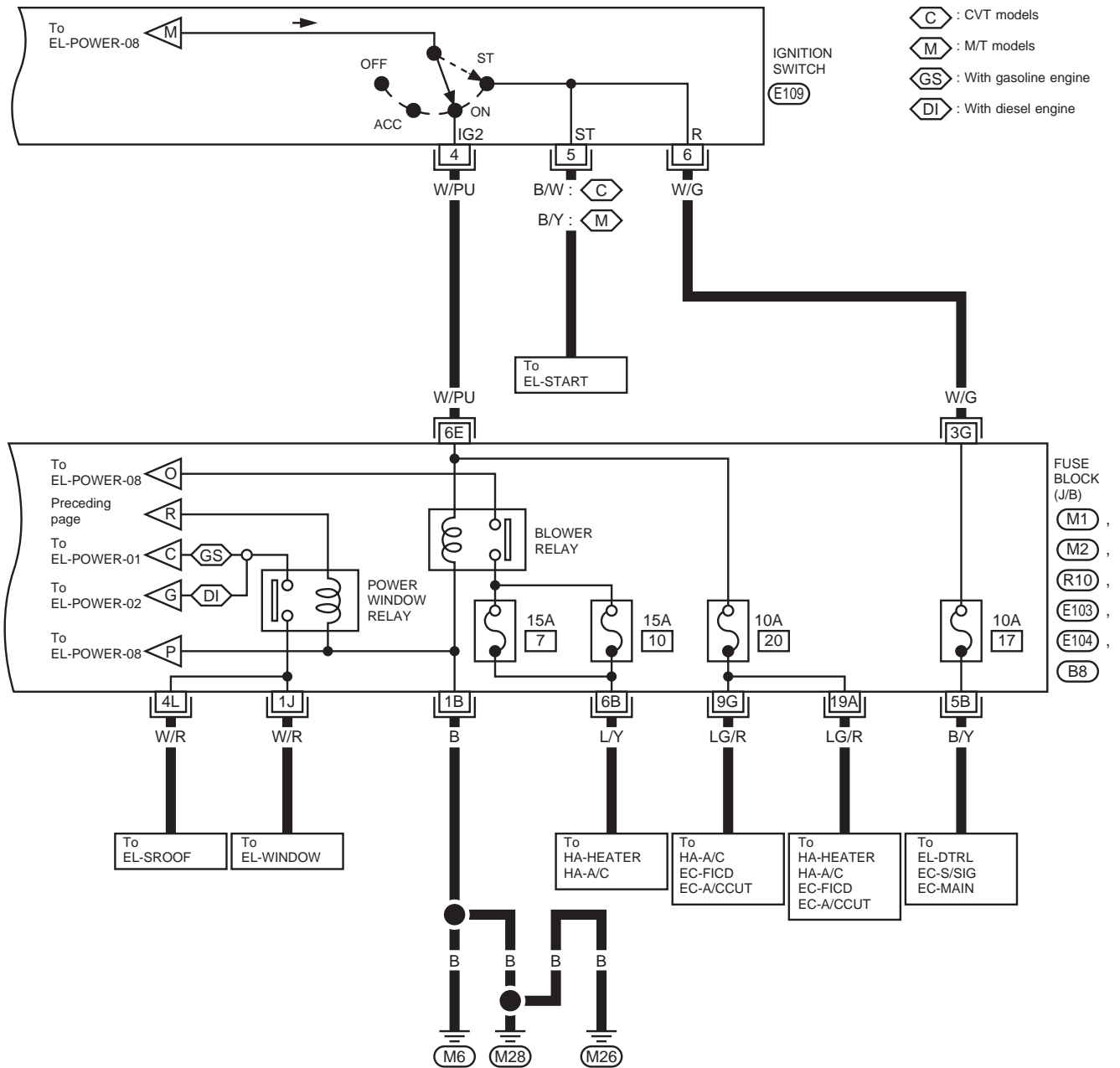
1	2	3	4	5	6	7	9	10	11	12
14	15	16	17	18	19	20	21	22	23	24
25	26									

YEL249B

# POWER SUPPLY ROUTING

## Wiring Diagram — POWER — (Cont'd)

EL-POWER-10



3	5	1
4	2	6

E109  
W

REFER TO THE FOLLOWING

M1

M2

E103

FUSE BLOCK -

E104

B8

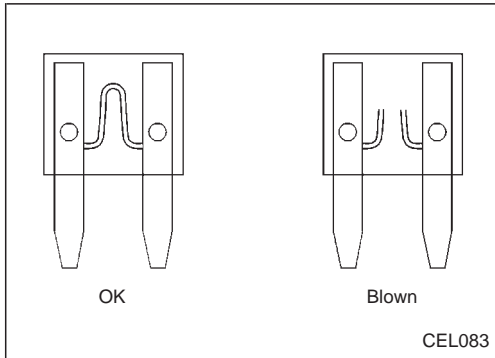
R10

Junction Box (J/B)

1	2	3	4	5	6	7	9	10	11	12		
14	15	16	17	18	19	20	21	22	23	24	25	26

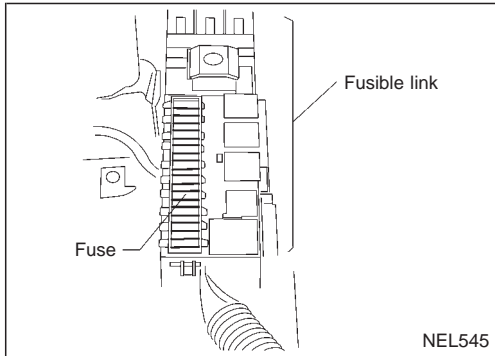
YEL250B

## POWER SUPPLY ROUTING



### Fuse

- If fuse is blown, be sure to eliminate cause of problem before installing new fuse.
- Use fuse of specified rating. Never use fuse of more than specified rating.
- Do not partially install fuse; always insert it into fuse holder properly.
- Remove fuse for "ELECTRICAL PARTS (BAT)" if vehicle is not used for a long period of time.

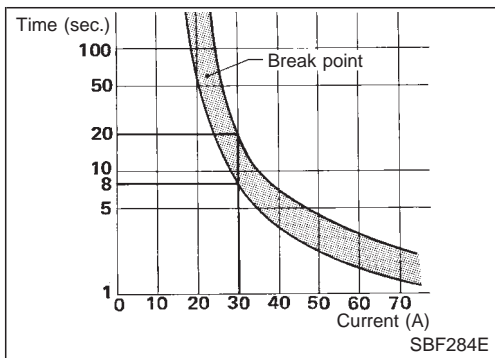


### Fusible Link

A melted fusible link can be detected either by visual inspection or by feeling with finger tip. If its condition is questionable, use circuit tester or test lamp.

#### CAUTION:

- If fusible link should melt, it is possible that critical circuit (power supply or large current carrying circuit) is shorted. In such a case, carefully check and eliminate cause of problem.
- Never wrap outside of fusible link with vinyl tape. Important: Never let fusible link touch any other wiring harness or vinyl or rubber parts.



### Circuit Breaker Inspection

For example, when current is 30A, the circuit is broken within 8 to 20 seconds.

## GROUND DISTRIBUTION

GROUND	CONNECT TO	CONN.	CELL CODE
M6/M26/M28	A/C AUTO AMP.	M115	HA-A/C
	A/C CONTROL PANEL	M44, M47	HA-A/C
	A/C HIGH RELAY	M119	HA-A/C
	A/C LOW RELAY	M120	HA-A/C
	A/C MH RELAY	M118	HA-A/C
	A/C ML RELAY	M121	HA-A/C
	ASHTRAY ILLUMINATION	M40	EL-ILL
	AUDIO	M42	EL-ILL, EL-AUDIO
	CIGARETTE LIGHTER SOCKET	M39	EL-HORN
	COMBINATION METER (ILLUMINATION) (Without illumination control switch)	E124	EL-ILL
	COMBINATION METER (ABS WARNING LAMP)	M38	BR-ABS
	COMBINATION METER (AIR BAG WARNING LAMP)	M38	RS-SRS
	COMBINATION METER (HIGH BEAM INDICATOR)	E124	EL-LAMP
	COMBINATION METER (Hyper CVT M6 models)	M38	AT-NONDTC
	COMBINATION METER (SPEEDOMETER)	M38	EC-VSS
	COMBINATION METER	M38	EL-METER, EL-WARN
	CONTROL DEVICE (Hyper CVT M6 models)	M79	AT-NONDTC, EL-ILL
	CONTROL DEVICE (Hyper CVT models)	M49	AT-NONDTC, EL-ILL
	DATA LINK CONNECTOR	M59	EC-MIL/DL
	DATA LINK CONNECTOR (TERMINAL NO. 13)	M59	RA-SRS
	DIAGNOSIS SENSOR UNIT	Z4	RS-SRS
	DONGLE CONTROL UNIT (RHD)	M85	EL-NATS
	DOOR MIRROR REMOTE CONTROL SWITCH	M5	EL-MIRROR
	FAN SWITCH	M46	HA-HEATER
	FAN SWITCH (Gasoline engine) (without A/C)	M46	EC-LOAD
	FUSE BLOCK (J/B) (FRONT FOG LAMP RELAY)	M1	EL-F/FOG
	FUSE BLOCK (J/B) (POWER WINDOW RELAY)	M1	EL-WINDOW
	GLOVE BOX LAMP (ILLUMINATION)	M24	EL-ILL
	HAZARD SWITCH	M46	EL-TURNEL-ILL
	HEATER (ILLUMINATION)	M45	EL-ILL
	ILLUMINATION CONTROL SWITCH	M3	EL-H/LAMP, EL-ILL
	INDICATOR CONTROL UNIT (Hyper CVT M6 models)	M72	AT-NONDTC
	REAR WINDOW DEFOGGER SWITCH	M44	EL-ILL, EL-DEF
	RECIRCULATION SWITCH	M47	HA-HEATER, EL-ILL
	FRONT BRAKE SWITCH (RHD) (CD20 engine)	M64	EC-BRK/SW
	SUNROOF SWITCH	R4	EL-SLOOF
	TIME CONTROL UNIT	B12	EL-BUZZER, EL-S/LOCK, EL-THEFT
	TIME CONTROL UNIT	B96	EL-INT/L
	VANITY MIRROR LAMP (LHD)	R9	EL-INT/L
	VANITY MIRROR LAMP	R2	EL-INT/L
	VEHICLE SPEED SENSOR	F25	EL-METER, EC-VSS
E10	ABS ACTUATOR AND ELECTRIC UNIT	E78	BR-ABS
	FRONT WHEEL SENSOR LH	E17	BR-ABS
	FRONT WHEEL SENSOR RH	E57	BR-ABS
	REAR WHEEL SENSOR LH	B33	BR-ABS
	REAR WHEEL SENSOR RH	B32	BR-ABS

## GROUND DISTRIBUTION

GROUND	CONNECT TO	CONN.	CELL CODE
E11/E27	ACCESSORY RELAY	E95	EL-POWER, EL-HORN
	BRAKE FLUID LEVEL SWITCH	E14	EL-WARN
	CLEARANCE LAMP LH	E85	EL-TAIL/L
	CLEARANCE LAMP RH	E87	EL-TAIL/L
	COMBINATION METER (FRONT FOG LAMP INDICATOR)	E124	EL-F/FOG
	COMBINATION METER (REAR FOG LAMP INDICATOR)	E124	EL-R/FOG
	COMBINATION METER (TURN)	E124	EL-TURN
	COMBINATION SWITCH (FRONT WIPER SWITCH)	E114	EL-WIPER, EL-R/WIP
	COMBINATION SWITCH (TRIP COMPUTER SWITCH)	E114	EL-METER
	COOLING FAN MOTOR-1 (Gasoline engine)	E19	HA-A/C, EC-COOL/F
	COOLING FAN MOTOR-2 (CD20 engine)	E18	HA-A/C, EC-COOL/F
	COOLING FAN MOTOR-2 (QG18, SR20 engine)	E28	HA-A/C, EC-COOL/F
	COOLING FAN MOTOR-2 (With A/C (GA16 engine)	E94	HA-A/C, EC-COOL/F
	COOLING FAN RELAY-2 (CD engine)	E54	HA-A/C
	DAYTIME LIGHT CONTROL UNIT	E117	EL-DTRL
	FRONT FOG LAMP LH	E6	EL-F/FOG
	FRONT FOG LAMP RH	E34	EL-F/FOG
	FRONT TURN SIGNAL LAMP LH	E8	EL-TURN, EL-THEFT
	FRONT TURN SIGNAL LAMP RH	E36	EL-TURN, EL-THEFT
	FRONT WIPER MOTOR	E62	EL-WIPER
	FRONT WIPER RELAY	E70	EL-WIPER
	HEAD LAMP RELAY RH	E75	EL-HLC
	HEAD LAMP WASHER MOTOR	E38	EL-HLC
	HEAD LAMP WASHER SWITCH	E128	EL-HLC, EL-ILL
	HEADLAMP AIMING MOTOR LH	E4	EL-H/AIM
	HEADLAMP AIMING MOTOR RH	E33	EL-H/AIM
	HEADLAMP LH	E5	EL-LAMP
	HEADLAMP RH	E32	EL-LAMP
	HOOD SWITCH	E12	EL-THEFT
	NATS IMMU	E121	EL-NATS
	POWER STEERING OIL PRESSURE SWITCH (Gasoline)	E60	EC-PST/SW
	FRONT BRAKE SWITCH (LHD) (CD20 engine)	E122	EC-BRK/SW
	REAR WIPER RELAY	E52	EL-WIP/R
	SEDIMENTER SENSOR	E13	EL-WARN
	SIDE TURN SIGNAL LAMP LH	E9	EL-TURN, EL-THEFT
	SIDE TURN SIGNAL LAMP RH	E59	EL-TURN, EL-THEFT
	TRIPLE-PRESSURE SWITCH (CD engine)	E20	HA-A/C, EC-COOL/F
	WASHER LEVEL SWITCH	E39	EL-WARN
E68	ALTERNATOR (GA engine)	E71	EL-CHARGE
E88	ABS ACTUATOR AND ELECTRIC UNIT	E78	BR-ABS
F9	ALTERNATOR (SR/QQG/CD engine)	F10	EL-CHARGE



## GROUND DISTRIBUTION

GROUND	CONNECT TO	CONN.	CELL CODE
F15/F18	ACCELERATOR WORK UNIT (CD20 engine)	M68	EC-APP/WS
	CAMSHAFT POSITION SENSOR (QG18 engine)	F95	EC-PHASE
	CRANKSHAFT POSITION SENSOR (QG18 engine)	F88	EC-POS
	DATA LINK CONNECTOR (Gasoline engine)	M59	EC-MIL/DL
	DISTRIBUTOR (CAMSHAFT POSITION SENSOR) (GA16, SR20 engine)	F33	EC-CMPS
	DISTRIBUTOR (GA16, SR20 engine)	F33	EC-IGN/SG
	ECM (CD20 engine)	F106	EC-MAIN
	ECM (Gasoline engine)	F101	EC-MAIN
	IACV-FICD SOLENOID VALVE (GA/CD engine)	F40	HA-A/C
	IACV-FICD SOLENOID VALVE (GA16 engine)	F40	EC-FICD
	IGNITION COIL NO. 1 (QG18 ENGINE)	F89	EC-IGN/SG
	IGNITION COIL NO. 2 (QG18 ENGINE)	F90	EC-IGN/SG
	IGNITION COIL NO. 3 (QG18 ENGINE)	F91	EC-IGN/SG
	IGNITION COIL NO. 4 (QG18 ENGINE)	F92	EC-IGN/SG
	NEUTRAL POSITION SWITCH (Gasoline engine)	F28	EC-PNP/SW
	PARK/NEUTRAL POSITION SWITCH (CVT models)	F72	EC-PNP/SW, EL-START
	REAR HEATED OXYGEN SENSOR (QG18, SR20 engine)	F76	EC-RRO2, EC-RR02/H
	SHIELD WIRE (CAMSHAFT POSITION SENSOR) (QG18 engine)	F95	EC-PHASE
	SHIELD WIRE (CRANKSHAFT POSITION SENSOR) (QG18 engine)	F88	EC-POS
	SHIELD WIRE (CRANKSHAFT POSITION SENSOR) (SR20 engine)	F83	EC-CKPS
	SHIELD WIRE (DISTRIBUTOR) (GA16, SR20 engine)	F33	EC-CMPS
	SHIELD WIRE (FRONT HEATED OXYGEN SENSOR) (QG18, SR20 engine)	F34	EC-RRO2, EC-RRO2/H, EC-FUEL
	SHIELD WIRE (HEATED OXYGEN SENSOR) (GA16 engine)	F34	EC-HO2S
	SHIELD WIRE (MASS AIR FLOW SENSOR) (Gasoline engine)	F38	EC-MAFS
	SHIELD WIRE (REAR HEATED OXYGEN SENSOR) (QG18, SR20 engine)	F76	EC-RRO2, EC-RRO2/H
	SHIELD WIRE (THROTTLE POSITION SENSOR) (Gasoline engine)	F16	EC-TPS
	TCM (TRANSMISSION CONTROL MODULE)	M78	AT-MAIN, AT-TPS

## GROUND DISTRIBUTION

GROUND	CONNECT TO	CONN.	CELL CODE
B18/B27	AUTO LEVEL CONTROL UNIT	B123	EL-H/AIM
	BACK-UP LAMP (Sedan) (LHD)	T13	EL-BACK
	BACK-UP LAMP (Sedan) (RHD)	T8	EL-BACK
	CD AUTO CHANGER	B47	EL-AUDIO
	CENTRAL UNLOCK/TRUNK OR BACK DOOR RELEASE	B121	EL-S/LOCK
	DOOR LOCK ACTUATOR ASSEMBLY (DRIVER'S SIDE)	D7	EL-THEFT
	DOOR LOCK ACTUATOR ASSEMBLY (DRIVER'S SIDE) (UNLOCK SENSOR)	D7	EL-S/LOCK
	DOOR LOCK ACTUATOR ASSEMBLY (PASSENGER SIDE)	D16	EL-THEFT
	DOOR LOCK ACTUATOR ASSEMBLY (PASSENGER SIDE) (UNLOCK SENSOR)	D16	EL-S/LOCK
	DOOR LOCK ACTUATOR ASSEMBLY REAR LH (UNLOCK SENSOR)	D21	EL-THEFT
	DOOR LOCK ACTUATOR ASSEMBLY REAR RH (UNLOCK SENSOR)	D25	EL-THEFT
	DOOR MIRROR HEATER (DRIVER'S SIDE)	D4	EL-DEF
	DOOR MIRROR HEATER (PASSENGER SIDE)	D13	EL-DEF
	EXTERNAL TRUNK RELEASE SWITCH (Sedan)	T20	EL-S/LOCK
	FRONT DOOR SWITCH (DRIVER'S SIDE)	B20	RS-SRS, EL-INT/L, EL-WARN, EL-BUZZER, EL-S/LOCK
	FUEL PUMP (GA16, QG18, SR20 engine)	B30	EC-F/PUMP
	FUEL TANK GAUGE UNIT	B31	EL-METER, EL-WARN
	FUEL TANK GAUGE UNIT (FUEL TANK TEMPERATURE SENSOR) (QG18, SR20 engine)	B31	EC-FTTS
	HEADLAMP AIMING SWITCH	B106	EL-H/AIM, EL-ILL
	HEATED SEAT LH	B21	EL-HSEAT
	HEATED SEAT RH	B61	EL-HSEAT
	HEATED SEAT SWITCH LH	B104	EL-HSEAT
	HEATED SEAT SWITCH	B105	EL-HSEAT
	KEY CYLINDER SWITCH (DRIVER'S SIDE)	D9	EL-S/LOCK
	KEY CYLINDER SWITCH (PASSENGER SIDE)	C17	EL-S/LOCK
	POWER SEAT	B22	EL-SEAT
	POWER SOCKET	B86	EL-HORN
	POWER WINDOW MAIN SWITCH	D5	EL-WINDOW
	REAR FOG LAMP (LHD) (Sedan)	T8	EL-R/FOG
	REAR FOG LAMP (RHD) (Sedan)	T13	EL-R/FOG
	REAR WIPER MOTOR (Sedan)	B52	EL-WIP/R
	TRUNK ROOM LAMP SWITCH (Sedan)	T10	EL-INT/L, EL-WARN, EL-THEFT
	ULTRA SONIC CANCEL SWITCH	B102	EL-THEFT
B48	HIGH-MOUNTED STOP LAMP (Wagon)	B85	EL-STOP
	REAR COMBINATION LAMP LH (STOP LAMP) (Wagon)	B46	EL-STOP
	REAR COMBINATION LAMP RH (STOP LAMP) (Wagon)	B49	EL-STOP

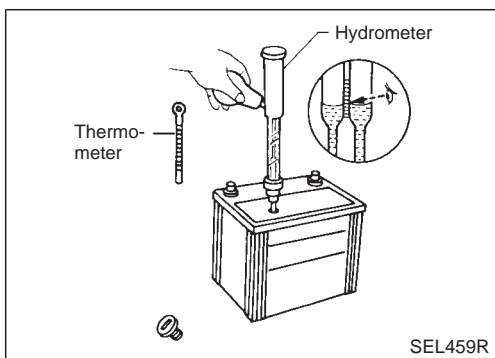
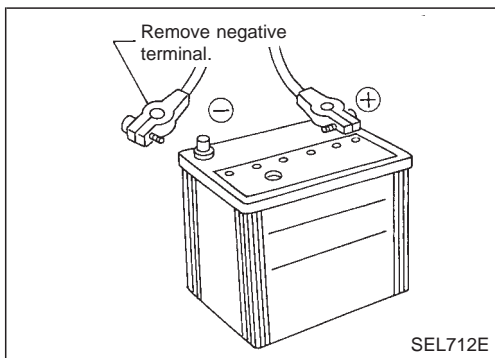
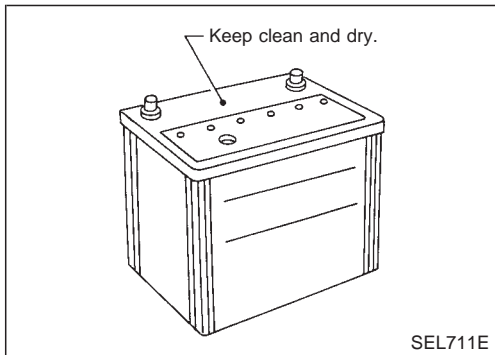
## GROUND DISTRIBUTION

GROUND	CONNECT TO	CONN.	CELL CODE
B48/D110	BACK-UP LAMP (Hatchback) (LHD)	D108	EL-BACK
	BACK-UP LAMP (Hatchback) (RHD)	D118	EL-BACK
	EXTERNAL BACK DOOR RELEASE SWITCH (Hatchback)	D117	EL-S/LOCK
	HIGH-MOUNTED STOP LAMP (Hatchback)	D114	EL-STOP
	LICENSE PLATE LAMP LH (Hatchback)	B127	EL-TAIL/L
	LICENSE PLATE LAMP LH (Wagon)	D106	EL-TAIL/L
	LICENSE PLATE LAMP RH (Hatchback)	B128	EL-TAIL/L
	LICENSE PLATE LAMP RH (Wagon)	D116	EL-TAIL/L
	LUGGAGE ROOM LAMP SWITCH (Hatchback) (Wagon)	D105	EL-INT/L, EL-WARN, EL-THEFT
	REAR COMBINATION LAMP LH (BACK-UP LAMP) (Wagon)	D104	EL-BACK
	REAR COMBINATION LAMP LH (REAR FOG LAMP LH)	D104	EL-R/FOG
	REAR COMBINATION LAMP LH (STOP LAMP) (Hatchback)	B46	EL-STOP
	REAR COMBINATION LAMP LH (TAIL LAMP)	B46	EL-TAIL/L
	REAR COMBINATION LAMP LH (TURN SIGNAL) (Hatchback) (Wagon)	B46	EL-TURN
	REAR COMBINATION LAMP RH (BACK-UP LAMP) (Wagon)	D108	EL-BACK
	REAR COMBINATION LAMP RH (REAR FOG LAMP RH)	D108	EL-R/FOG
	REAR COMBINATION LAMP RH (STOP LAMP) (Hatchback)	B49	EL-STOP
	REAR COMBINATION LAMP RH (TAIL LAMP)	B49	EL-TAIL/L
	REAR COMBINATION LAMP RH (TURN SIGNAL) (Hatchback) (Wagon)	B49	EL-TURN
	REAR FOG LAMP (LHD) (Hatchback)	D104	EL-R/FOG
	REAR FOG LAMP (RHD) (Hatchback)	D119	EL-R/FOG
	REAR WINDOW DEFOGGER (Hatchback)	B41	EL-DEF
	REAR WINDOW DEFOGGER SWITCH (Wagon)	D113	EL-DEF
	REAR WIPER MOTOR (Hatchback) (Wagon)	D107	EL-WIP/R
B65	SHIELD WIRE (SATELLITE SENSOR LH)	B70	RS-SRS
B72	SHIELD WIRE (SATELLITE SENSOR RH)	B71	RS-SRS
B119	REAR WINDOW DEFOGGER (Sedan)	B120	EL-DEF
T3/T4	LICENSE PLATE LAMP LH (Sedan)	T9	EL-TAIL/L
	LICENSE PLATE LAMP RH (Sedan)	T19	EL-TAIL/L
	REAR COMBINATION LAMP LH (STOP LAMP) (Sedan)	T2	EL-STOP
	REAR COMBINATION LAMP LH (TAIL LAMP) (Sedan)	T2	EL-TAIL/L
	REAR COMBINATION LAMP LH (TURN SIGNAL) (Sedan)	T2	EL-TURN
	REAR COMBINATION LAMP RH (STOP LAMP) (Sedan)	T5	EL-STOP
	REAR COMBINATION LAMP RH (TAIL LAMP) (Sedan)	T5	EL-TAIL/L
	REAR COMBINATION LAMP RH (TURN SIGNAL) (Sedan)	T5	EL-TURN

## BATTERY

### CAUTION:

- If it becomes necessary to start the engine with a booster battery and jumper cables, use a 12-volt booster battery.
- After connecting battery cables, ensure that they are tightly clamped to battery terminals for good contact.
- Never add distilled water through the hole used to check specific gravity.



### How to Handle Battery

#### METHODS OF PREVENTING OVER-DISCHARGE

The following precautions must be taken to prevent over-discharging a battery.

- The battery surface (particularly its top) should always be kept clean and dry.
- The terminal connections should be clean and tight.
- At every routine maintenance, check the electrolyte level.
- When the vehicle is not going to be used over a long period of time, disconnect the negative battery terminal. (If the vehicle has an extended storage switch, turn it off.)
- Check the charge condition of the battery. Periodically check the specific gravity of the electrolyte. Keep a close check on charge condition to prevent overdischarge.

#### CHECKING ELECTROLYTE LEVEL

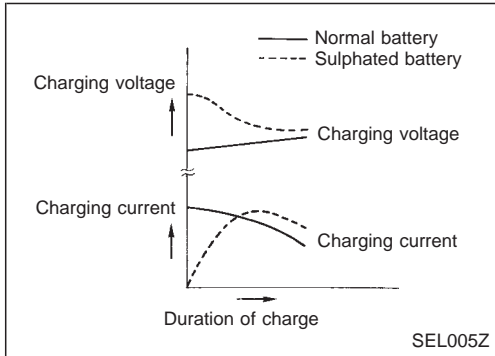
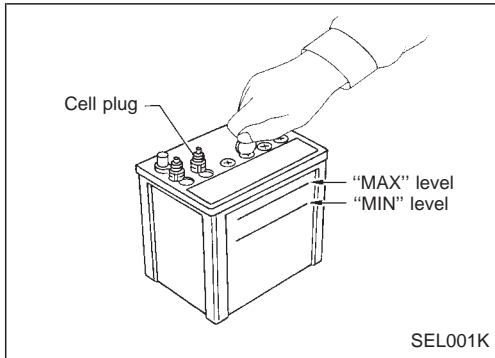
### WARNING:

Do not allow battery fluid to come in contact with skin, eyes, fabrics, or painted surfaces. After touching a battery, do not touch or rub your eyes until you have thoroughly washed your hands. If the acid contacts the eyes, skin or clothing, immediately flush with water for 15 minutes and seek medical attention.

## BATTERY

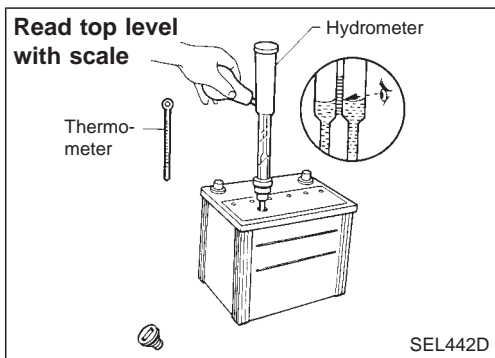
### How to Handle Battery (Cont'd)

- Remove the cell plug using a suitable tool.
- Add distilled water up to the MAX level.



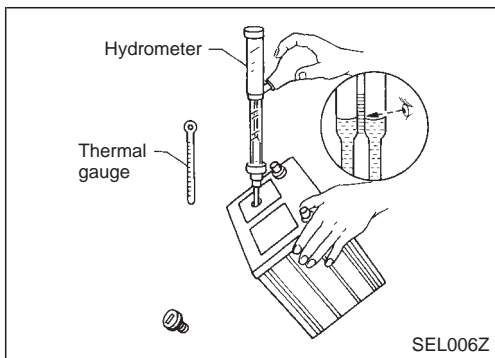
### SULPHATION

A battery will be completely discharged if it is left unattended for a long time and the specific gravity becomes less than 1.100. This may result in sulphation on the cell plates. To find if a discharged battery has been "sulphated", pay attention to its voltage and current when charging it. As shown in the figure at left, if the battery has been "sulphated", less current and higher voltage may be observed in the initial stage of charging.



### SPECIFIC GRAVITY CHECK

1. Read hydrometer and thermometer indications at eye level.



- When electrolyte level is low, tilt battery case for easy measurement.

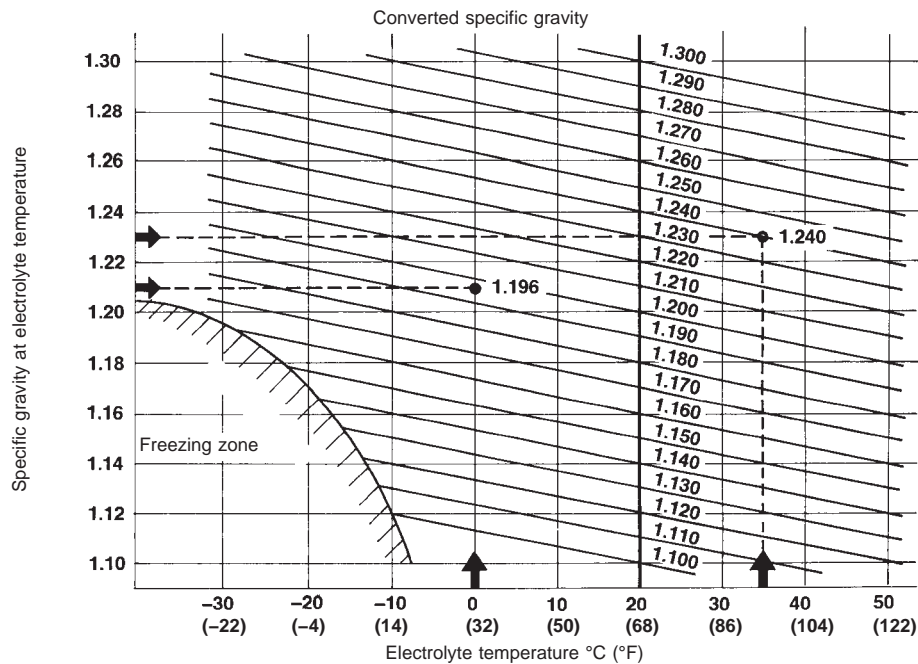
## BATTERY

### How to Handle Battery (Cont'd)

#### 2. Convert into specific gravity at 20°C (68°F).

Example:

- When electrolyte temperature is 35°C (95°F) and specific gravity of electrolyte is 1.230, converted specific gravity at 20°C (68°F) is 1.240.
- When electrolyte temperature is 0°C (32°F) and specific gravity of electrolyte is 1.210, converted specific gravity at 20°C (68°F) is 1.196.

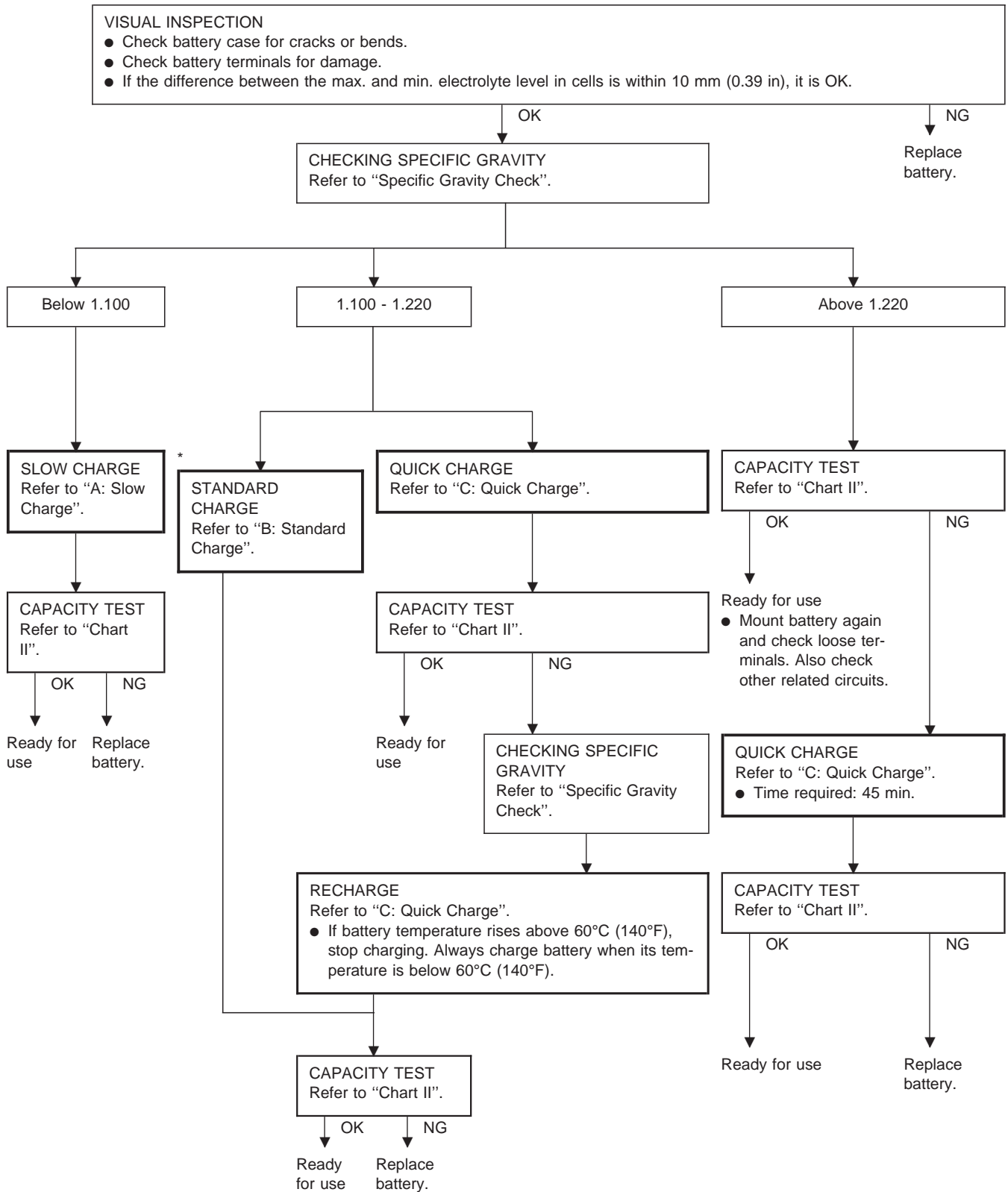


SEL007Z

# BATTERY

## Battery Test and Charging Chart

Chart I

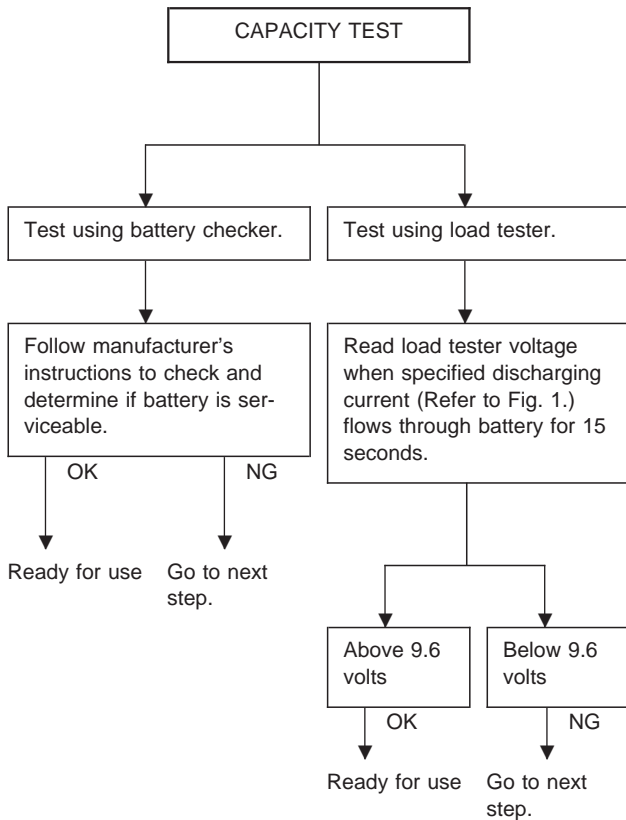


\* "STANDARD CHARGE" is recommended if the vehicle is in storage after charging.

# BATTERY

## Battery Test and Charging Chart (Cont'd)

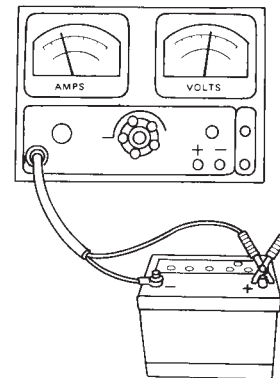
Chart II



- Check battery type and determine the specified current using the following table.

Fig. 1 DISCHARGING CURRENT  
(Load Tester)

Type (YUASA type code)	Current (A)
025	240
027	285
096	375



SEL008Z



# BATTERY

## Battery Test and Charging Chart (Cont'd)

### A: SLOW CHARGE

Determine initial charging current from specific gravity referring to Fig. 2.

- Charge battery.
- Check charging voltage 30 minutes after starting the battery charge.

12 to 15 volts

OK

Continue to charge for 12 hours.

CHECKING SPECIFIC GRAVITY  
Refer to "Specific Gravity Check".

Conduct additional charge as per Fig. 3, if necessary.

Go to "CAPACITY TEST".

Below 12 volts or above 15 volts

NG

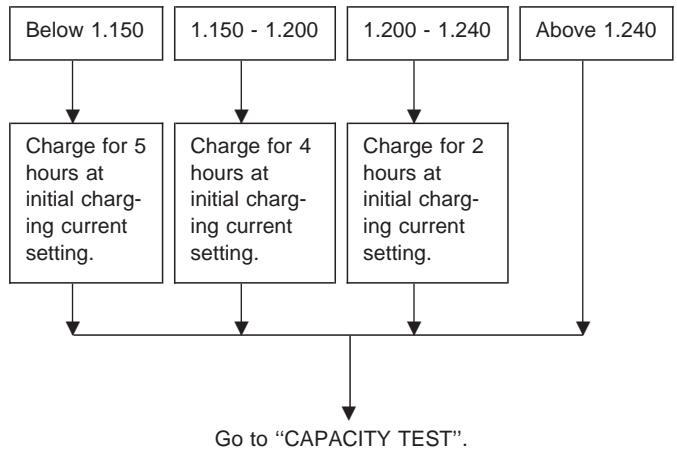
Replace battery.

Fig. 2 INITIAL CHARGING CURRENT SETTING (Slow charge)

CONVERTED SPECIFIC GRAVITY	BATTERY TYPE (YUASA type code)		
	025	027	096
Below 1.100	7.0 (A)	7.0 (A)	8.5 (A)

- Check battery type and determine the specified current using the table shown above.
- After starting charging, adjustment of charging current is not necessary.

Fig. 3 ADDITIONAL CHARGE (Slow charge)



### CAUTION:

- Set charging current to value specified in Fig. 2. If charger is not capable of producing specified current value, set its charging current as close to that value as possible.
- Keep battery away from open flame while it is being charged.
- When connecting charger, connect leads first, then turn on charger. Do not turn on charger first, as this may cause a spark.
- If battery temperature rises above 60°C (140°F), stop charging. Always charge battery when its temperature is below 60°C (140°F).
- Remove cell caps during charging.

# BATTERY

## Battery Test and Charging Chart (Cont'd)

### B: STANDARD CHARGE

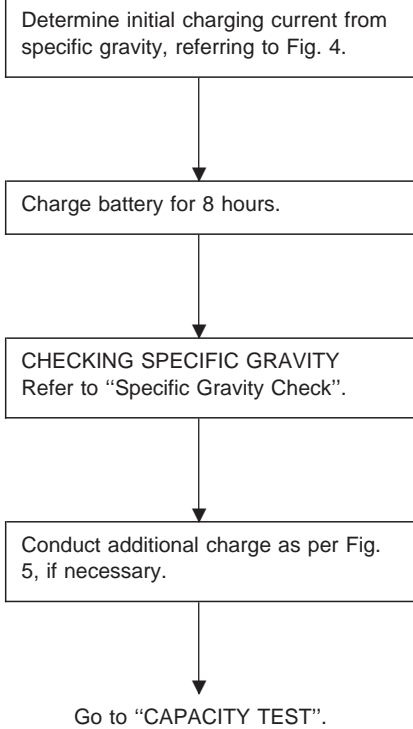
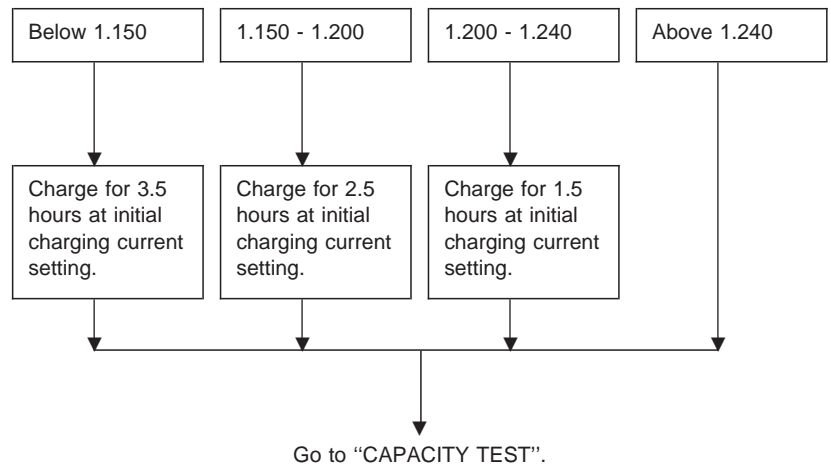


Fig. 4 INITIAL CHARGING CURRENT SETTING  
(Standard charge)

CONVERTED SPECIFIC GRAVITY	BATTERY TYPE (YUASA type code)		
	025	027	096
1.100 - 1.130	6.0 (A)	6.0 (A)	7.5 (A)
1.130 - 1.160	5.0 (A)	5.0 (A)	6.0 (A)
1.160 - 1.190	4.0 (A)	4.0 (A)	5.0 (A)
1.190 - 1.220	3.0 (A)	3.0 (A)	4.0 (A)

- Check battery type and determine the specified current using the table shown above.
- After starting charging, adjustment of charging current is not necessary.

Fig. 5 ADDITIONAL CHARGE (Standard charge)



### CAUTION:

- Do not use standard charge method on a battery whose specific gravity is less than 1.100.
- Set charging current to value specified in Fig. 4. If charger is not capable of producing specified current value, set its charging current as close to that value as possible.
- Keep battery away from open flame while it is being charged.
- When connecting charger, connect leads first, then turn on charger. Do not turn on charger first, as this may cause a spark.
- If battery temperature rises above 60°C (140°F), stop charging. Always charge battery when its temperature is below 60°C (140°F).
- Remove cell caps during charging.

# BATTERY

## Battery Test and Charging Chart (Cont'd)

C: QUICK CHARGE

Determine initial charging current setting and charging time from specific gravity, referring to Fig. 6.

Charge battery.

Go to "CAPACITY TEST".

Fig. 6 INITIAL CHARGING CURRENT SETTING AND CHARGING TIME (Quick charge)

BATTERY TYPE (YUASA type code)		025, 027	096
CURRENT [A]		20 (A)	25 (A)
CONVERTED SPECIFIC GRAVITY	1.100 - 1.130	2.5 hours	
	1.130 - 1.160	2.0 hours	
	1.160 - 1.190	1.5 hours	
	1.190 - 1.220	1.0 hours	
	Above 1.220	0.75 hours (45 min.)	

- Check battery type and determine the specified current using the table shown above.
- After starting charging, adjustment of charging current is not necessary.

### CAUTION:

- Do not use quick charge method on a battery whose specific gravity is less than 1.100.
- Set initial charging current to value specified in Fig. 6. If charger is not capable of producing specified current value, set its charging current as close to that value as possible.
- Keep battery away from open flame while it is being charged.
- When connecting charger, connect leads first, then turn on charger. Do not turn on charger first, as this may cause a spark.
- Be careful of a rise in battery temperature because a large current flow is required during quick-charge operation.  
If battery temperature rises above 60°C (140°F), stop charging. Always charge battery when its temperature is below 60°C (140°F).
- Do not exceed the charging time specified in Fig. 6, because charging battery over the charging time can cause deterioration of the battery.

## Service Data and Specifications (SDS)

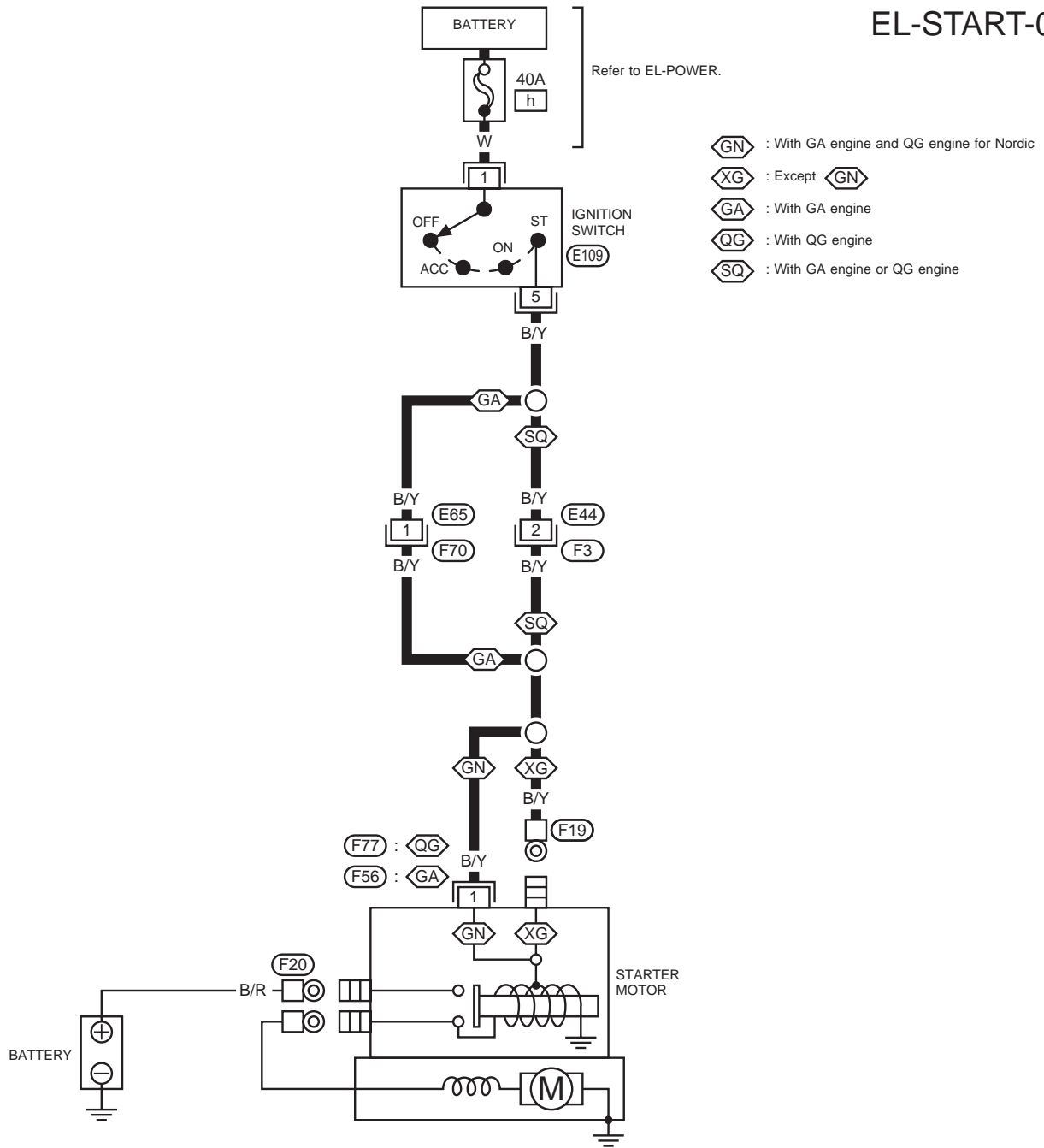
Applied model	GA/QG/SR engines (standard)	GA/QG/SR engines (cold area) CD engine (standard)	CD engine (cold area)
Type (YUASA type code)	025	027	096
Capacity V-AH	12 - 61	12 - 61	12 - 75
CCA	480	570	750

# STARTING SYSTEM

## Wiring Diagram — START —

### GASOLINE ENGINE MODELS WITH M/T

EL-START-01



YEL251B

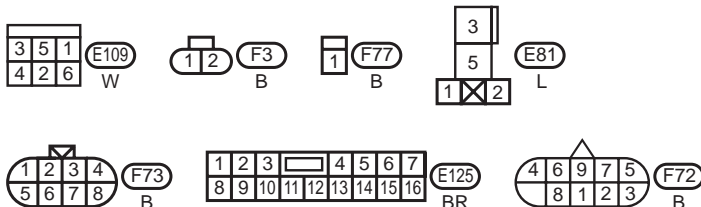
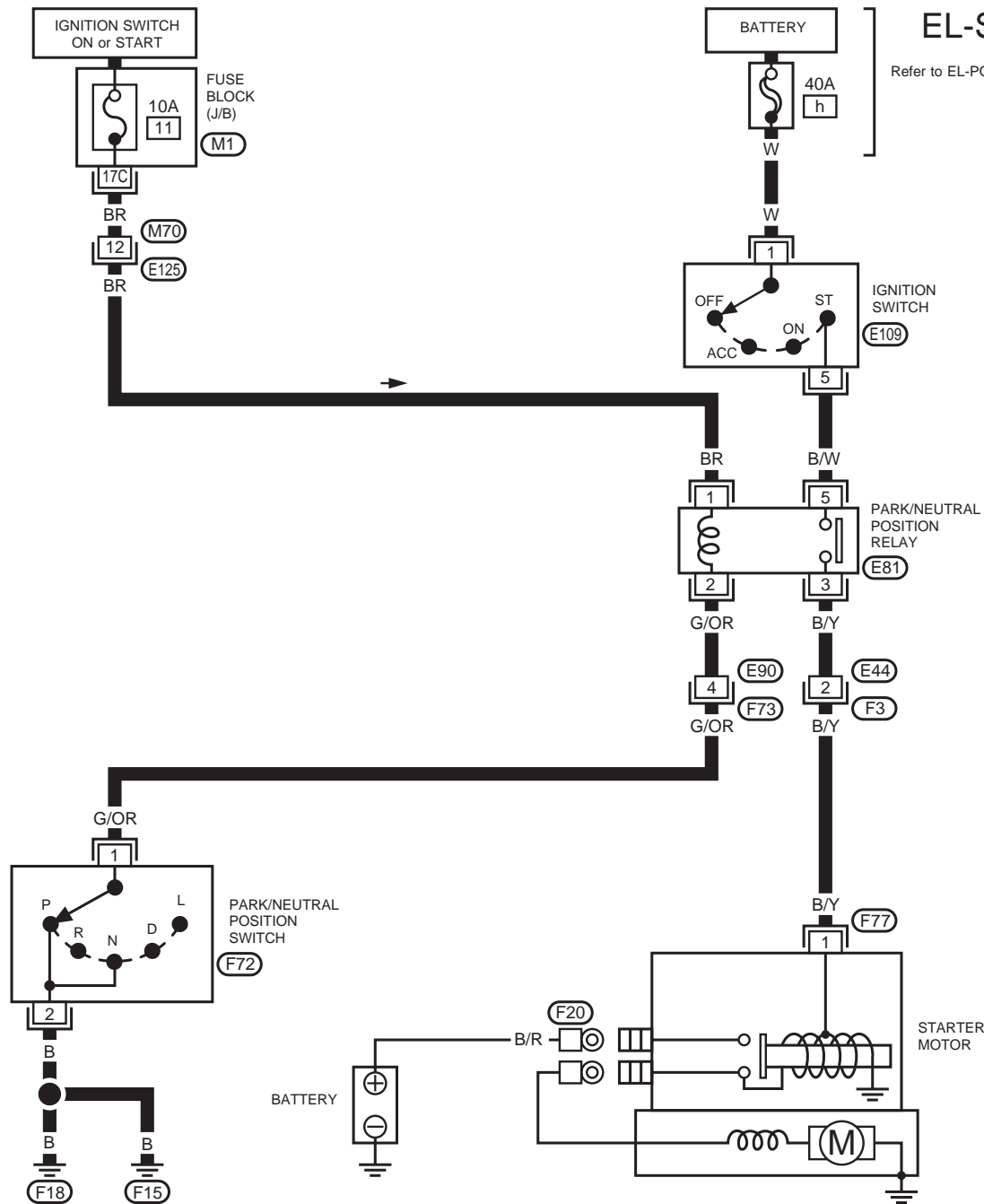
# STARTING SYSTEM

## Wiring Diagram — START — (Cont'd)

### GASOLINE ENGINE MODELS WITH CVT

EL-START-02

Refer to EL-POWER.



REFER TO THE FOLLOWING

(M1) FUSE BLOCK - Junction Box (J/B)

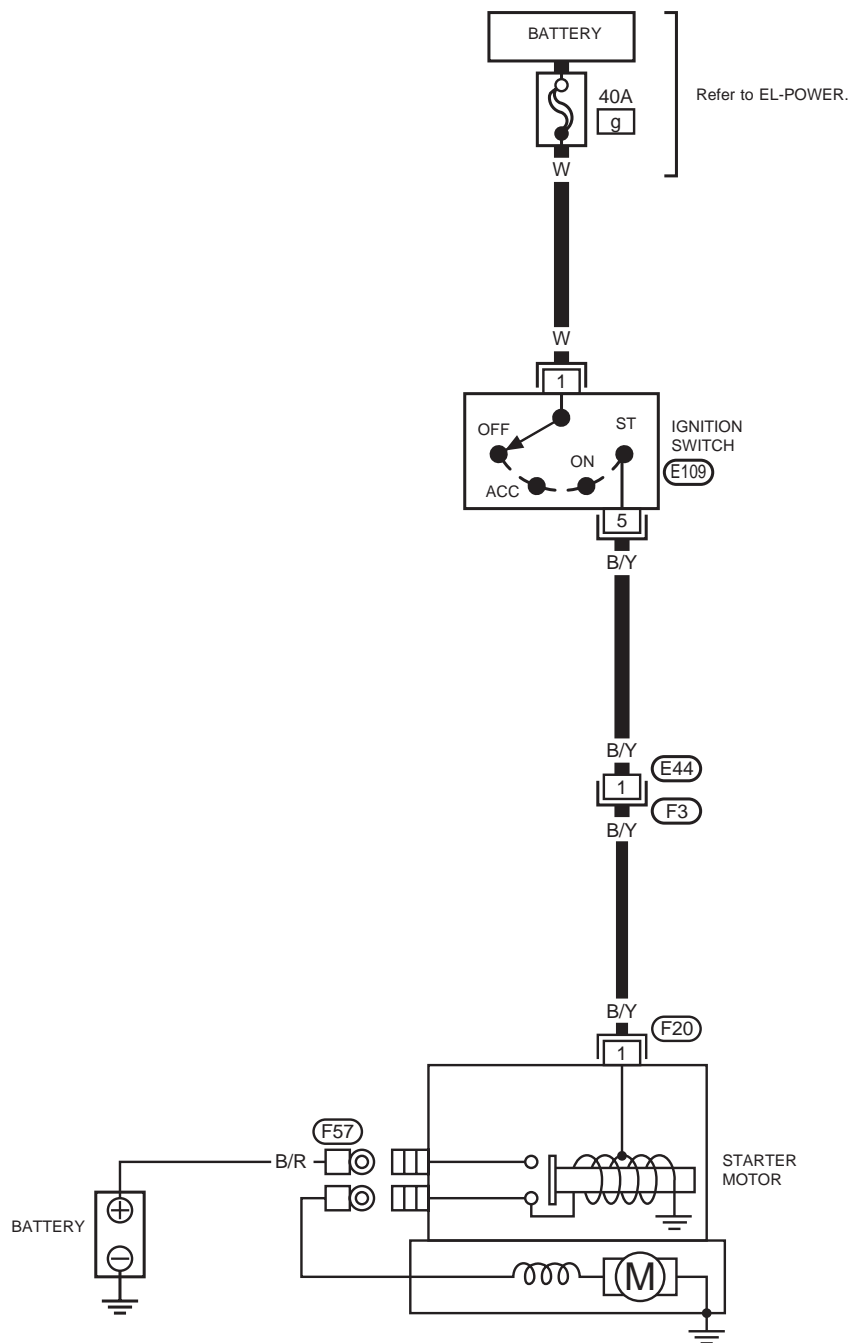
YEL252B

# STARTING SYSTEM

## Wiring Diagram — START — (Cont'd)

DIESEL ENGINE MODELS

EL-START-03

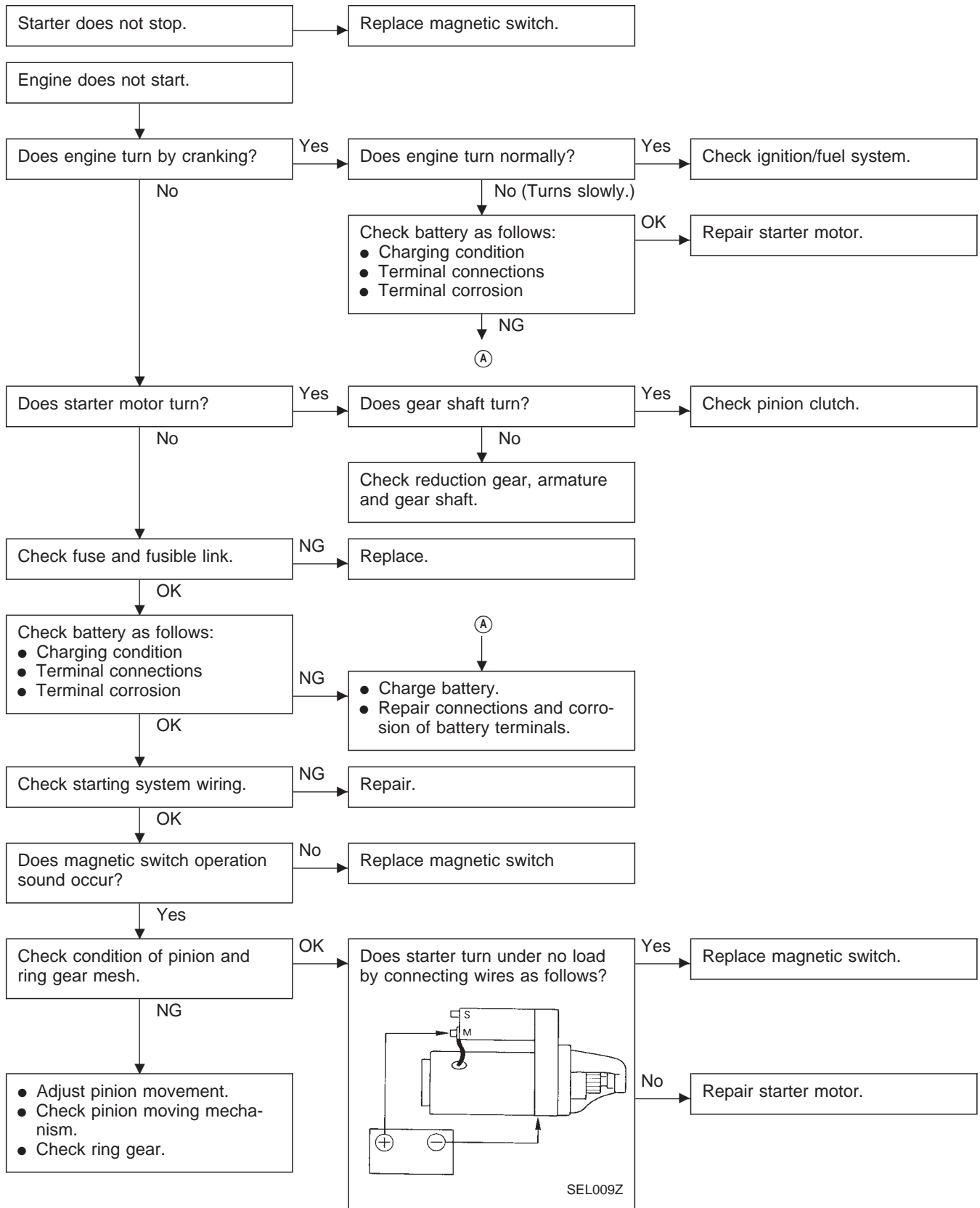


YEL253B

# STARTING SYSTEM

## Trouble Diagnoses

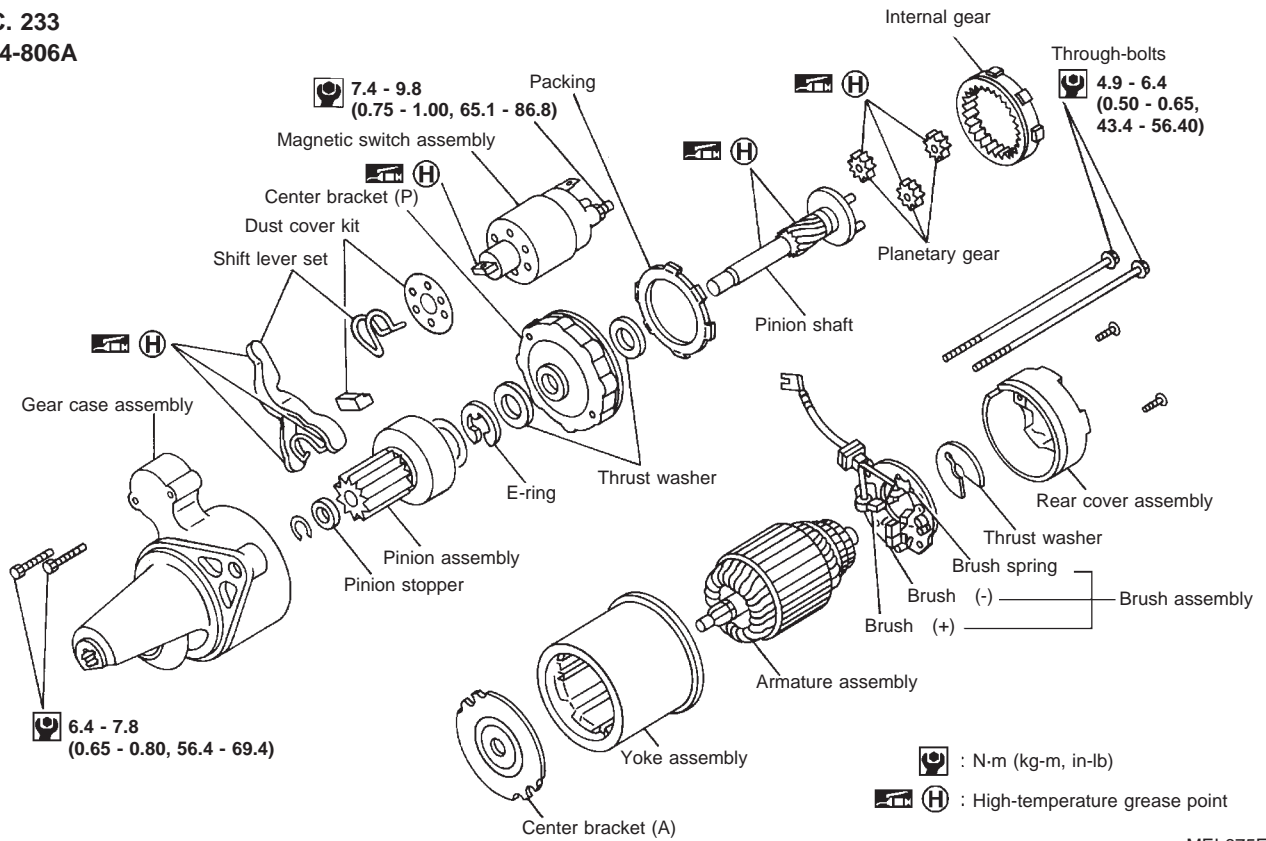
If any abnormality is found, immediately disconnect battery negative terminal.



# STARTING SYSTEM

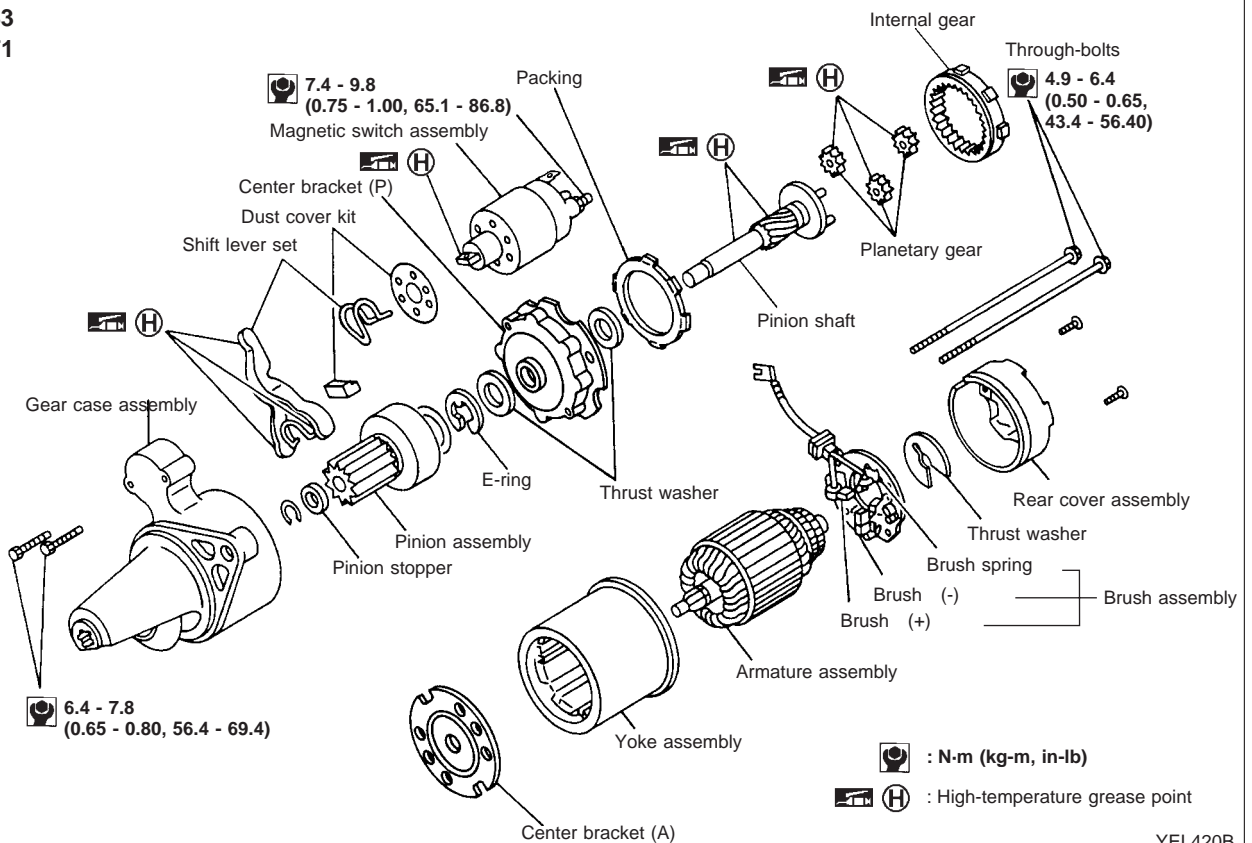
## Construction

SEC. 233  
S114-806A



MEL675EB

SEC. 233  
S114-871



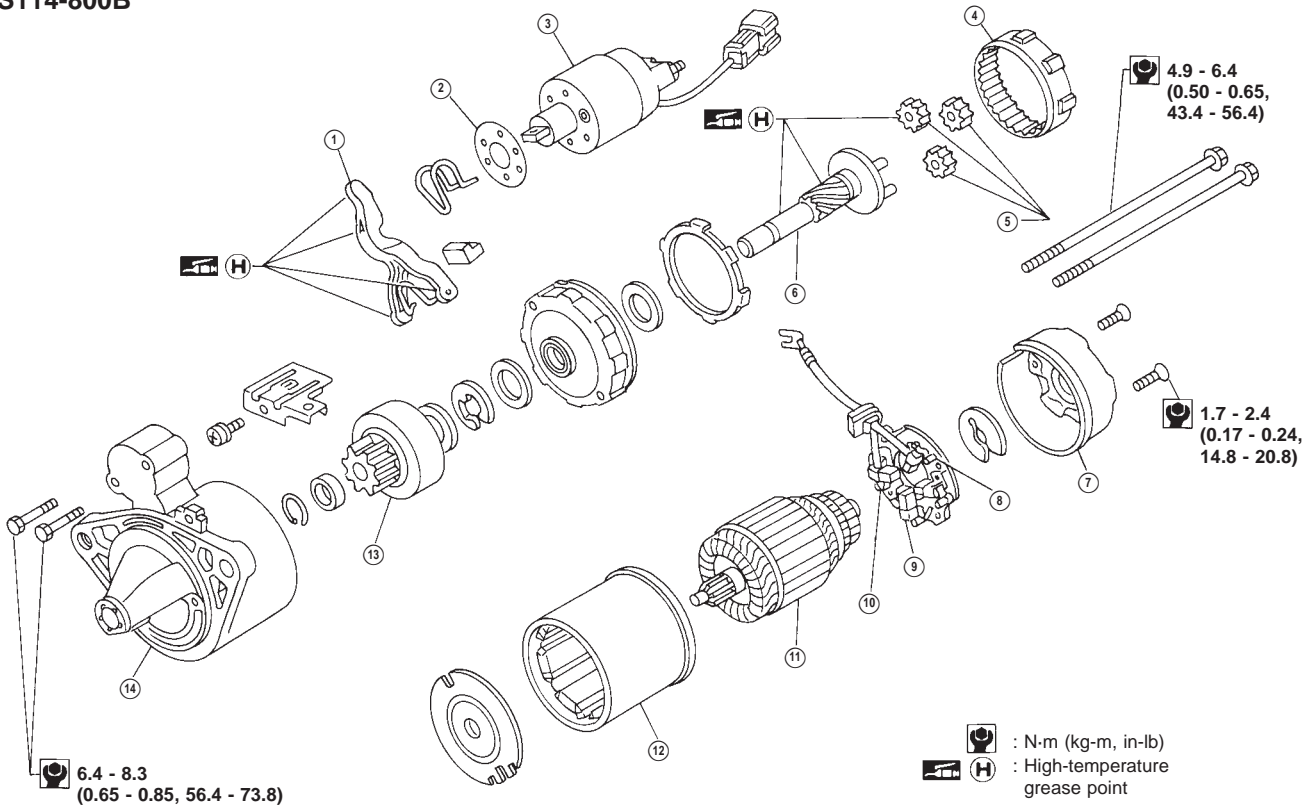
YEL420B



# STARTING SYSTEM

## Construction (Cont'd)

SEC. 233  
S114-800B



YEL421B

- ① Shift lever
- ② Adjusting plate
- ③ Magnetic switch assembly
- ④ Internal gear
- ⑤ Planetary gear

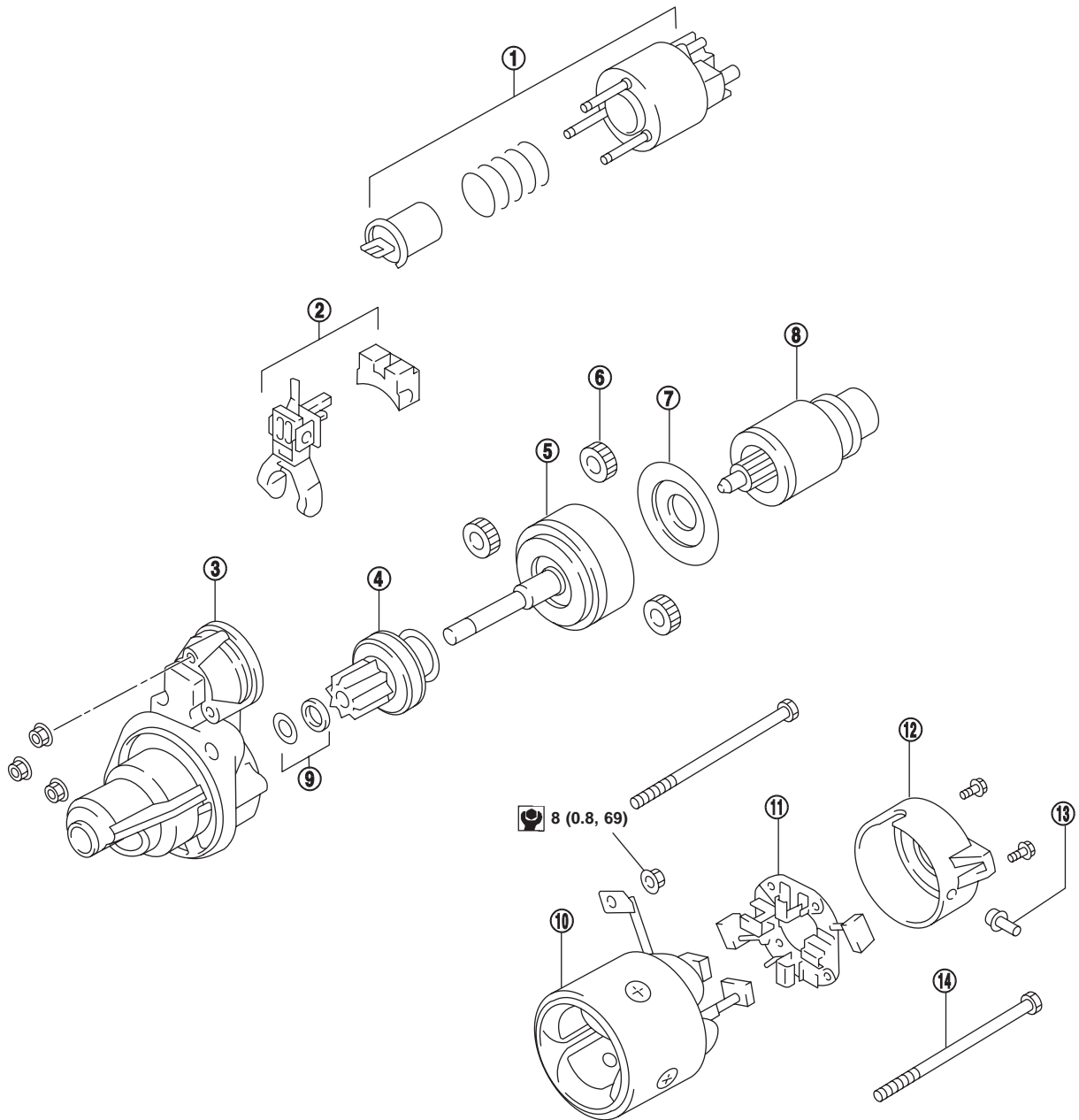
- ⑥ Pinion shaft
- ⑦ Rear cover
- ⑧ Brush spring
- ⑨ Brush (-)
- ⑩ Brush (+)

- ⑪ Armature
- ⑫ Yoke
- ⑬ Pinion assembly
- ⑭ Gear case

# STARTING SYSTEM

## Construction (Cont'd)

SEC. 233  
M70R



: N·m (kg·m, in·lb)

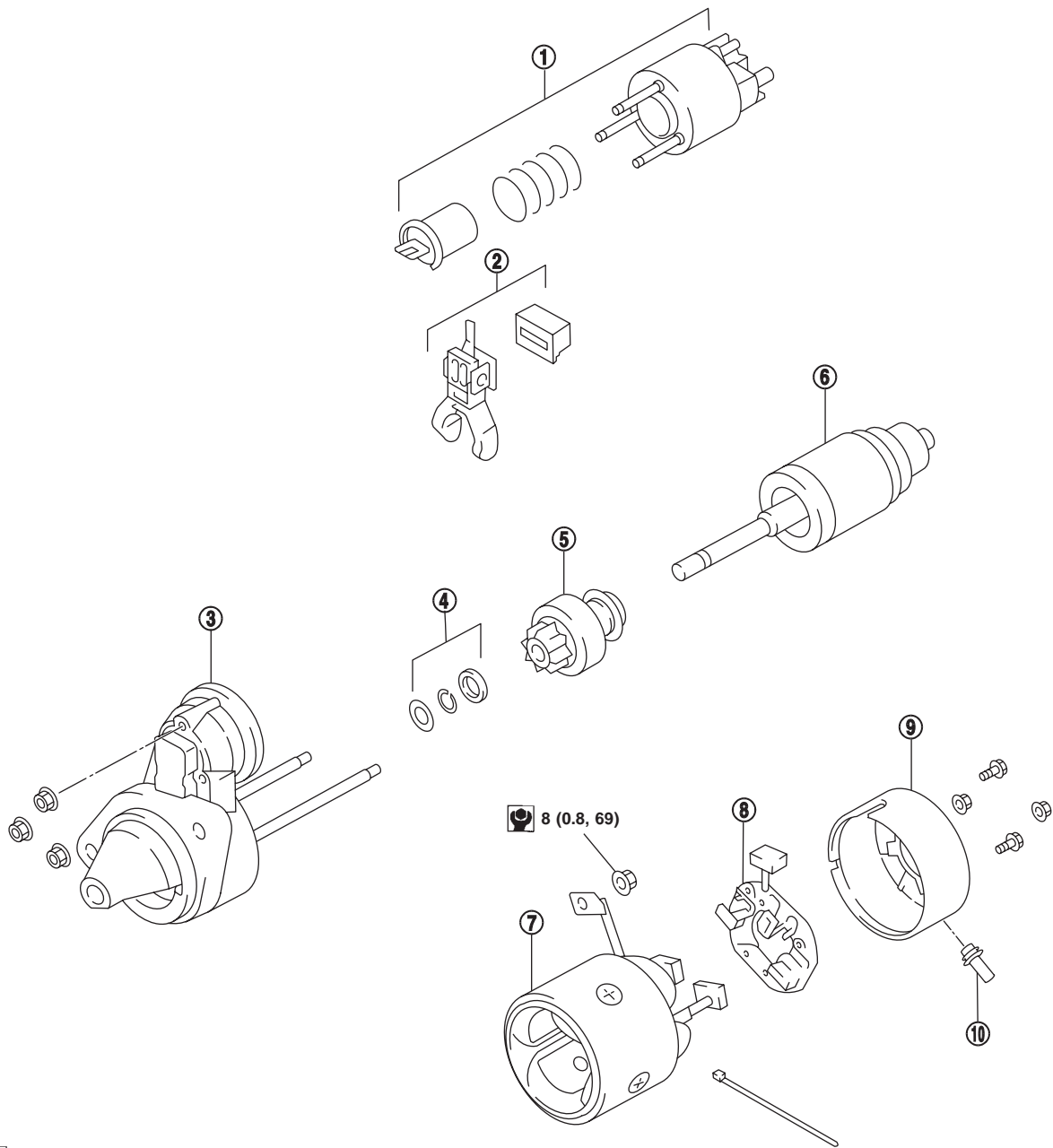
YEL422B

- |                            |                           |                 |
|----------------------------|---------------------------|-----------------|
| ① Magnetic switch assembly | ⑥ Planetary gear assembly | ⑪ Brush holder  |
| ② Shift lever assembly     | ⑦ Centre bracket          | ⑫ Rear cover    |
| ③ Gear case                | ⑧ Armature                | ⑬ Drain hose    |
| ④ Pinion assembly          | ⑨ Pinion stopper          | ⑭ Through bolts |
| ⑤ Pinion shaft assembly    | ⑩ Yoke assembly           |                 |

# STARTING SYSTEM

## Construction (Cont'd)

SEC. 233  
E80E



 : N·m (kg-m, in-lb)

YEL423B

- ① Magnetic switch assembly
- ② Shift lever assembly
- ③ Gear case
- ④ Pinion stopper

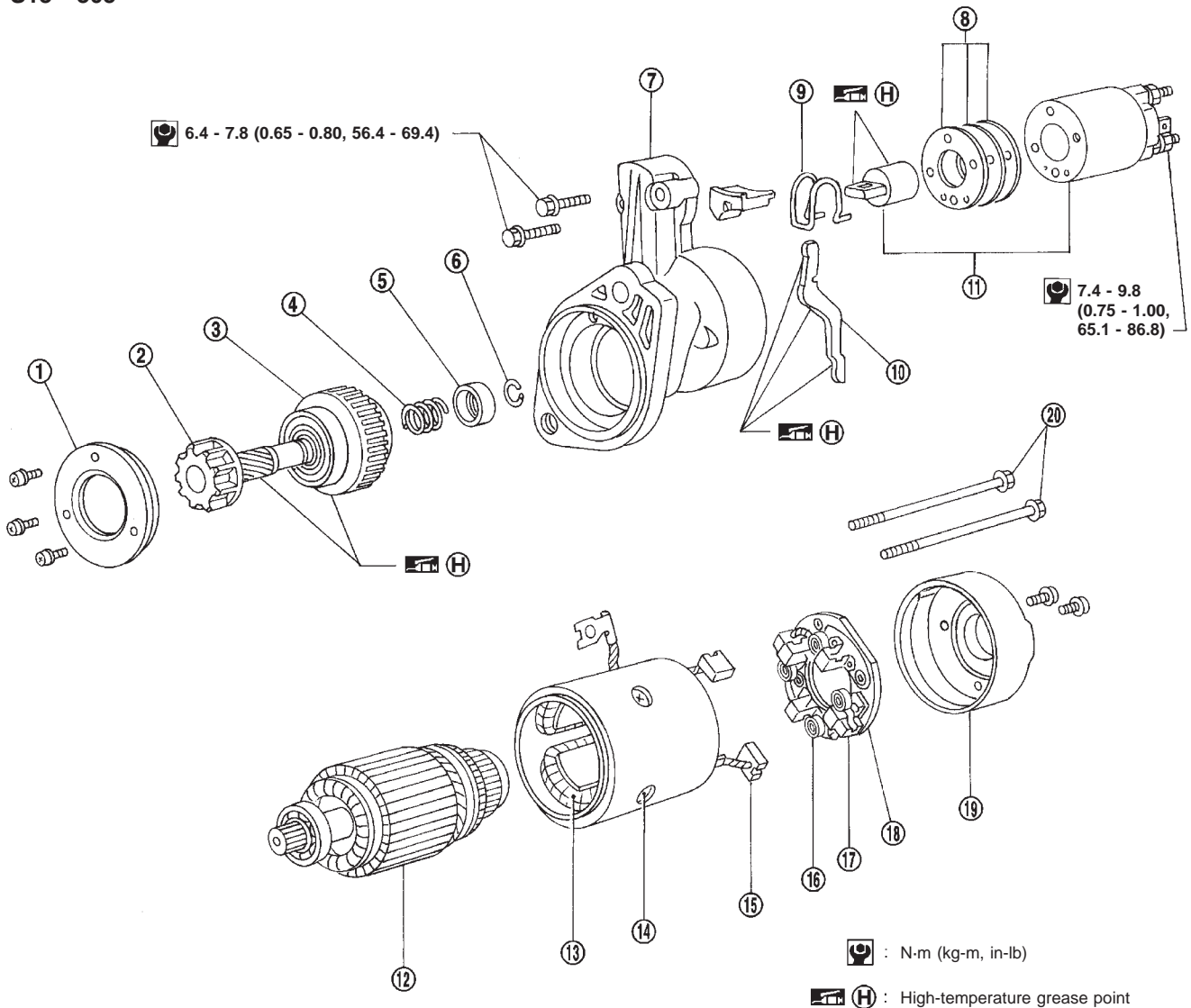
- ⑤ Pinion assembly
- ⑥ Armature assembly
- ⑦ Yoke assembly

- ⑧ Brush holder
- ⑨ Rear cover
- ⑩ Drain hose

# STARTING SYSTEM

## Construction (Cont'd)

SEC. 233  
S13 - 305



NEL299

- |                    |                            |                |
|--------------------|----------------------------|----------------|
| ① Bearing retainer | ⑧ Adjusting plates         | ⑮ Brush (+)    |
| ② Pinion shaft     | ⑨ Torsion spring           | ⑯ Brush spring |
| ③ Clutch assembly  | ⑩ Shift lever              | ⑰ Brush (-)    |
| ④ Return spring    | ⑪ Magnetic switch assembly | ⑱ Brush holder |
| ⑤ Pinion stopper   | ⑫ Armature assembly        | ⑲ Rear cover   |
| ⑥ Stopper clip     | ⑬ Field coil               | ⑳ Through-bolt |
| ⑦ Gear case        | ⑭ Yoke                     |                |

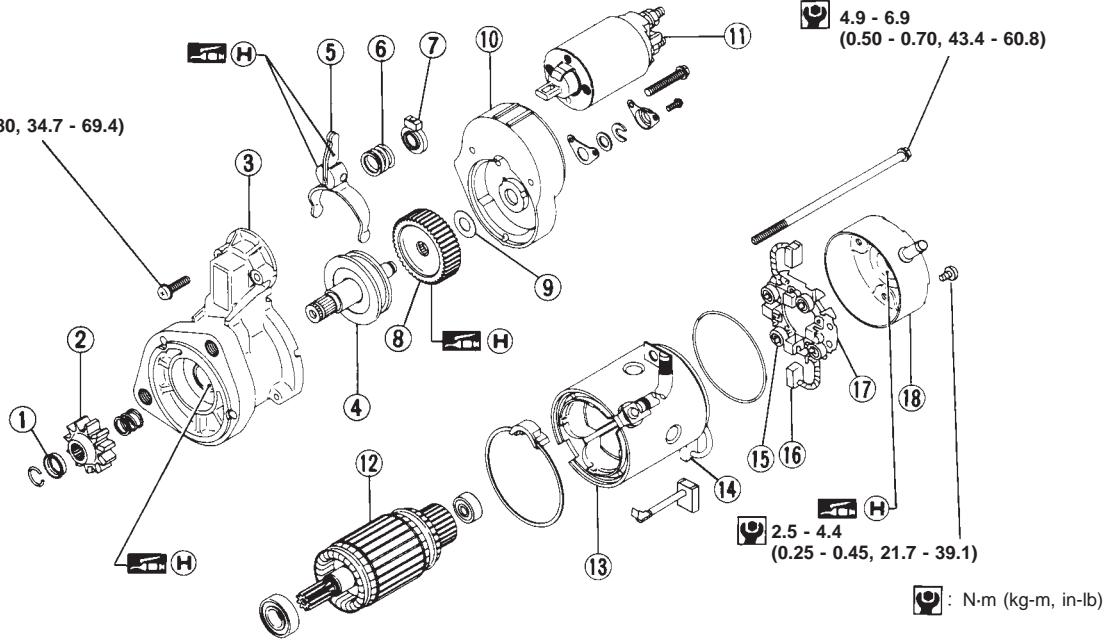
# STARTING SYSTEM

## Construction (Cont'd)

### SEC. 233 M2M62071

3.9 - 7.8  
(0.40 - 0.80, 34.7 - 69.4)

4.9 - 6.9  
(0.50 - 0.70, 43.4 - 60.8)



MEL780DB

- ① Pinion stopper
- ② Pinion assembly
- ③ Gear case
- ④ Pinion shaft assembly
- ⑤ Shift lever
- ⑥ Spring

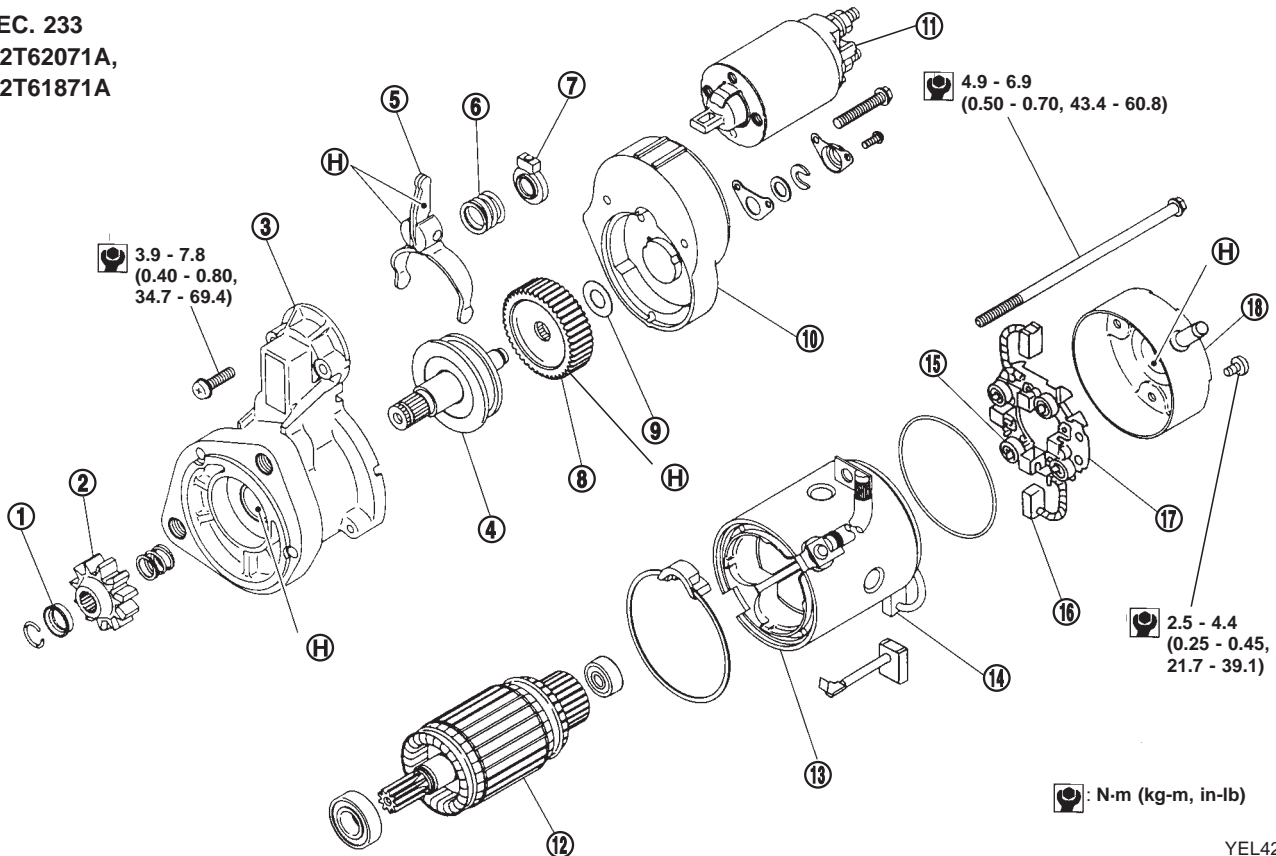
- ⑦ Holder
- ⑧ Reduction gear
- ⑨ Washer
- ⑩ Center bracket
- ⑪ Magnetic switch assembly
- ⑫ Armature

- ⑬ Yoke
- ⑭ Brush (+)
- ⑮ Brush spring
- ⑯ Brush (-)
- ⑰ Brush holder
- ⑱ Rear cover

### SEC. 233 M2T62071A, M2T61871A

3.9 - 7.8  
(0.40 - 0.80,  
34.7 - 69.4)

4.9 - 6.9  
(0.50 - 0.70, 43.4 - 60.8)

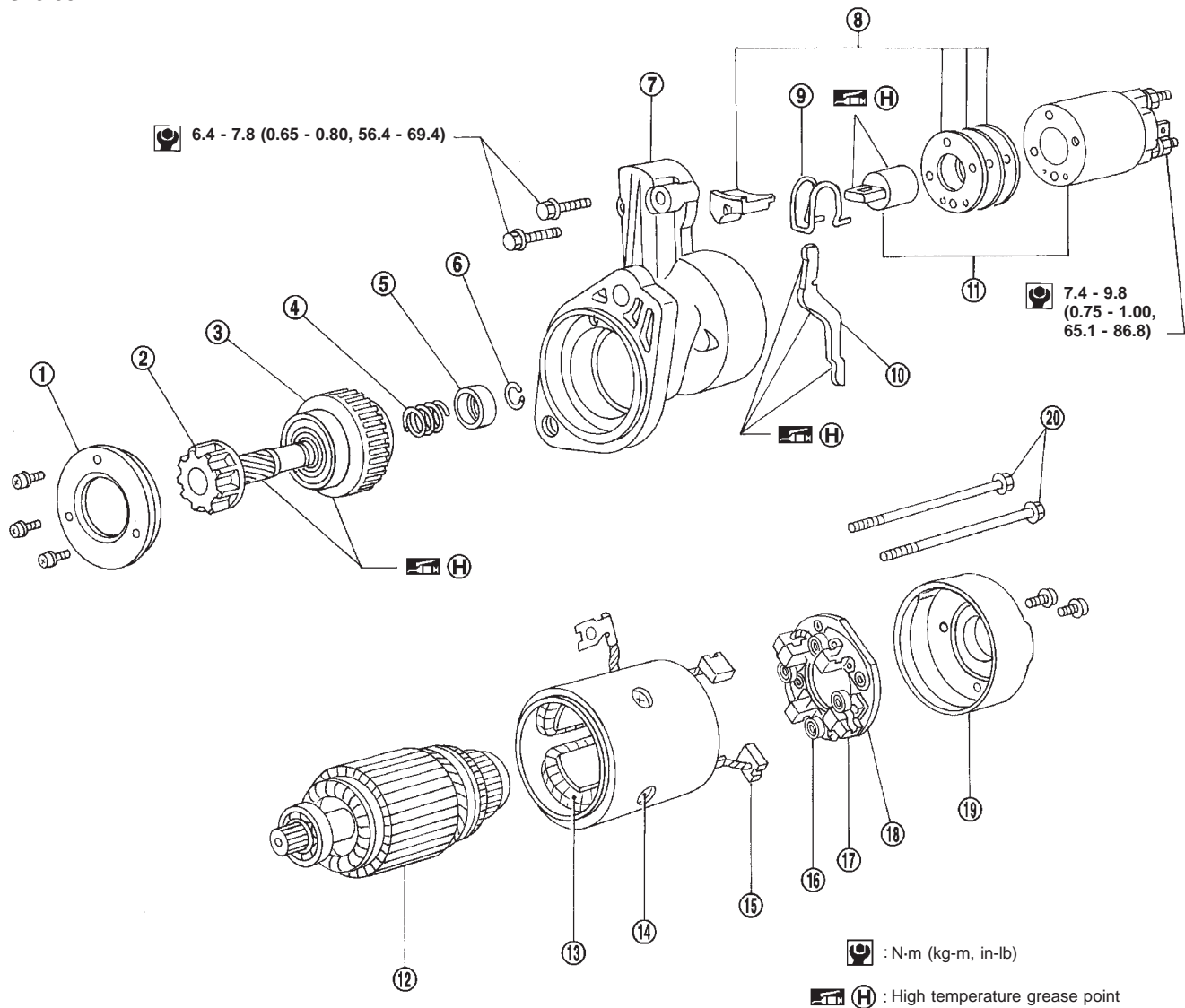


YEL425B

# STARTING SYSTEM

## Construction (Cont'd)

SEC. 233  
S13-531



MEL233FB

- ① Bearing retainer
- ② Pinion shaft
- ③ Clutch assembly
- ④ Return spring
- ⑤ Pinion stopper
- ⑥ Stopper clip
- ⑦ Gear case

- ⑧ Dust cover
- ⑨ Torsion spring
- ⑩ Shift lever
- ⑪ Magnetic switch assembly
- ⑫ Armature assembly
- ⑬ Field coil
- ⑭ Yoke

- ⑮ Brush (+)
- ⑯ Brush spring
- ⑰ Brush (-)
- ⑱ Brush holder
- ⑲ Rear cover
- ⑳ Through-bolt

## Removal

1. Remove

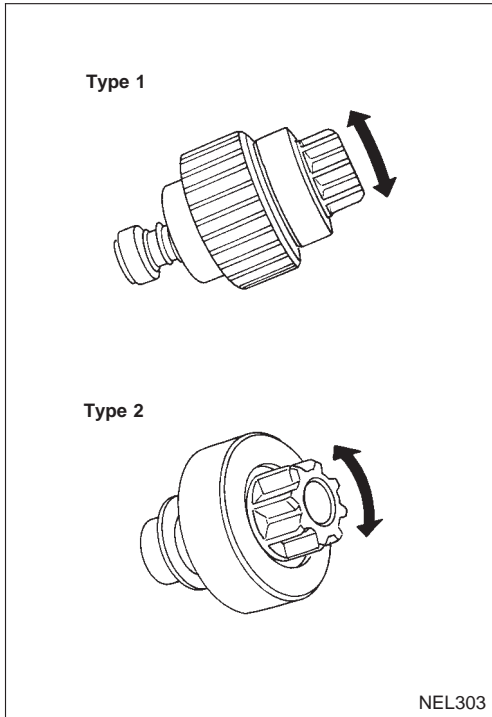
- ## Installation

- Installation is reverse order of removal.

## MAGNETIC SWITCH CHECK

## STARTING SYSTEM

### Inspection (Cont'd) PINION/CLUTCH CHECK



1. Inspect pinion teeth.
  - Replace pinion if teeth are worn or damaged. (Also check condition of ring gear teeth.)
2. Inspect reduction gear teeth.
  - Replace reduction gear if teeth are worn or damaged. (Also check condition of armature shaft gear teeth.)
3. Check to see if pinion locks in one direction and rotates smoothly in the opposite direction.
  - If it locks or rotates in both directions, or unusual resistance is evident. ... Replace.

### BRUSH CHECK

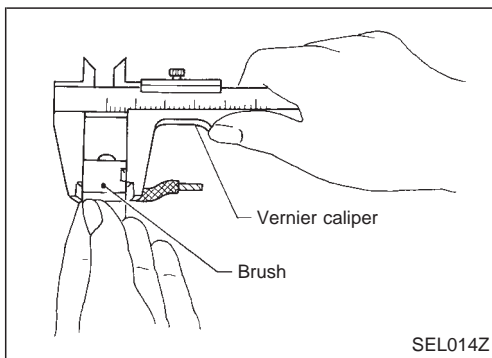
#### Brush cap and lever

Check wear of brush.

**Wear limit length:**

**Refer to SDS (EL-52).**

- Excessive wear ... Replace.



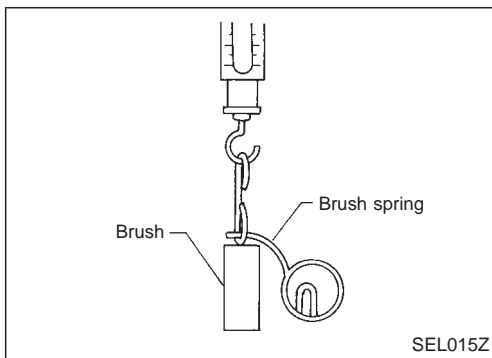
#### Brush Spring Pressure

Check brush spring pressure with brush spring detached from brush.

**Spring pressure (with new brush):**

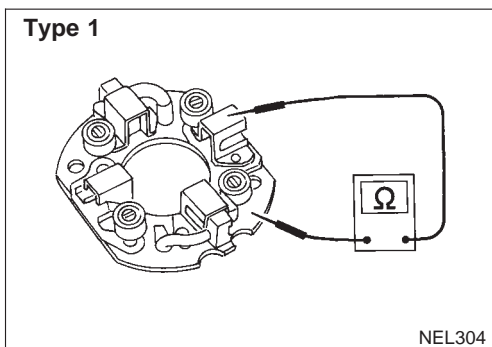
**Refer to SDS (EL-52).**

- Not within the specified values ... Replace.



### Brush Holder

1. Perform insulation test between brush holder (positive side) and its base (negative side).
  - Continuity exists. ... Replace.
2. Check brush to see if it moves smoothly.
  - If brush holder is damaged or deformed, replace it; clear sliding surface if dirty.





## STARTING SYSTEM

### Inspection (Cont'd)

#### YOKE CHECK

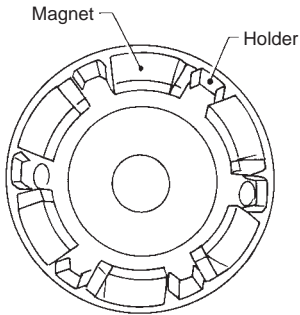
Magnet is secured to yoke by bonding agent. Check magnet to see that it is secured to yoke and for any cracks. Replace malfunctioning parts as an assembly.

Holder may move slightly as it is only inserted and not bonded.

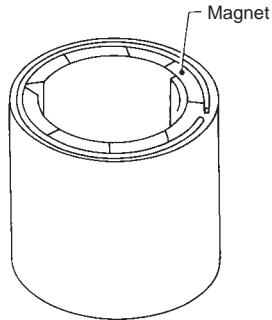
#### **CAUTION:**

**Do not clamp yoke in a vice or strike it with a hammer.**

Type 1



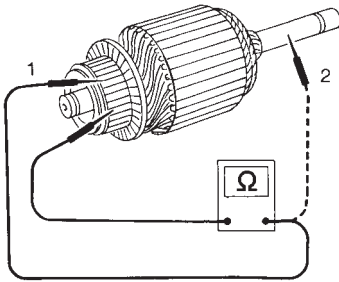
Type 2



SEL018Z

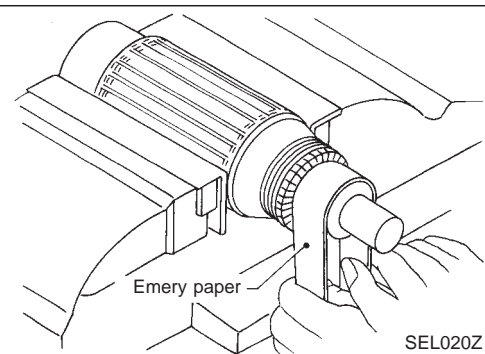
#### ARMATURE CHECK

1. Continuity test (between two segments side by side).
  - No continuity ... Replace.
2. Insulation test (between each commutator bar and shaft).
  - Continuity exists. ... Replace.



SEL019Z

3. Check commutator surface.
  - Rough ... Sand lightly with No. 500 - 600 emery paper.

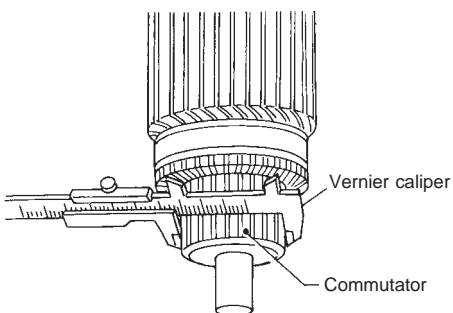


SEL020Z

4. Check diameter of commutator.

**Commutator minimum diameter:**  
**Refer to SDS (EL-52).**

  - Less than specified value ... Replace.



SEL021Z

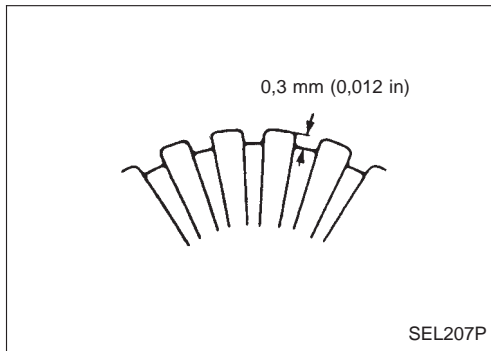
## STARTING SYSTEM

### Inspection (Cont'd)

**M70R, E80E**

5. Check depth of insulating mica from commutator surface.

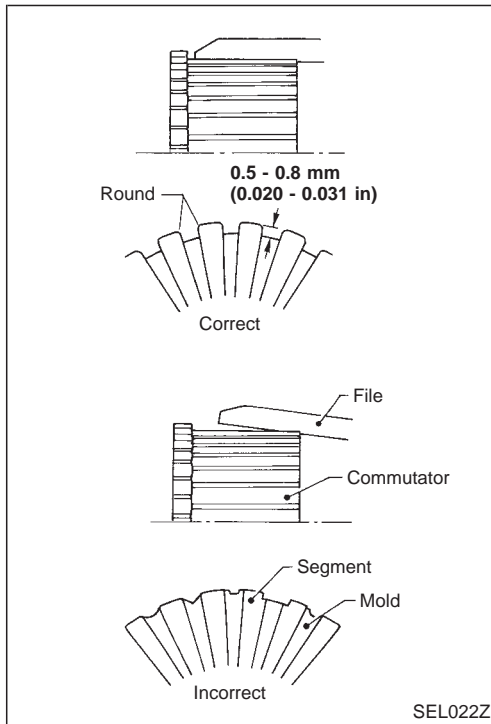
- Less than 0.3 mm (0.012 in) ... Replace.



**S13-305, S13-531, S114-800B, S114-806A, S114-871, M2M62071**

6. Check depth of insulating mold from commutator surface.

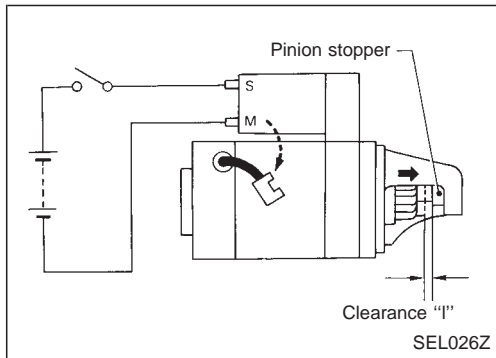
- Less than 0.2 mm (0.008 in) ... Undercut to 0.5 to 0.8 mm (0.020 to 0.031 in)



# STARTING SYSTEM

## Assembly

Apply high-temperature grease to lubricate the bearing, gears and frictional surface when assembling the starter. Carefully observe the following instructions.



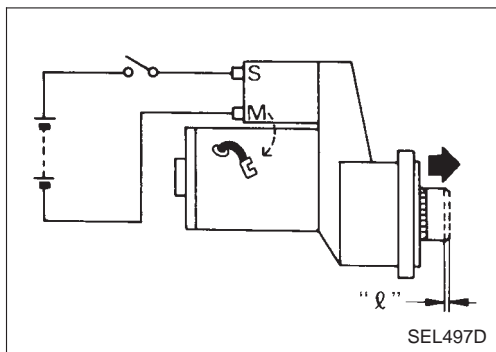
## PINION PROTRUSION LENGTH ADJUSTMENT

### Clearance "l"

With pinion driven out by magnetic switch, push pinion back to remove slack and measure clearance "l" between the front edge of the pinion and the pinion stopper.

**Clearance "l":**

**Refer to SDS (EL-52).**

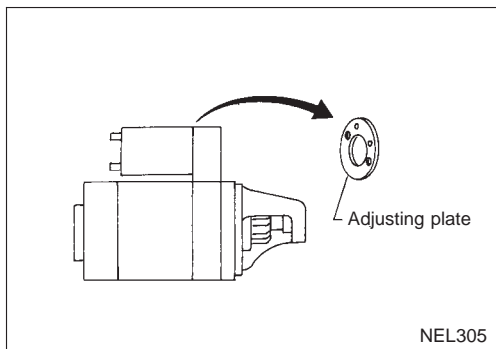


### Movement "l"

Compare movement "l" in height of pinion when it is pushed out with magnetic switch energized and when it is pulled out by hand until it touches stopper.

**Movement "l":**

**Refer to SDS (EL-52)**



- Not in the specified value ... Adjust by selecting the correct adjusting plate.

# STARTING SYSTEM

## Service Data and Specifications (SDS) STARTER

Type		M70R	E80E	M2T62071A	M2T61871A
		MAGNETI MARELLI		MITSUBISHI	
		Reduction gear type	Non-Reduction	Reduction gear type	
Applied model		SR20	GA16	CD20T	CD20T cold area
System voltage	V	12			
No load					
Terminal voltage	V	11.5		11.0	
Current	A	115	75	Less than 105	Less than 110
Revolution	rev/min	More than 4500	More than 10000	More than 4,030	More than 4,180
Min. commutator dia.	mm (in)	28.8 (1.134)		31.4 (1.236)	
Min. brush of length	mm (in)	5.0 (0.197)		11.5 (0.453)	10.8 (0.425)
Brush spring tension	N (kg, lb)	14.3 - 25.2 (1.46 - 2.57, 3.22 - 5.69)	14.8 - 24.0 (1.51 - 2.45, 3.33 - 5.40)	13.7 - 25.5 (1.4 - 2.6, 3.1 - 5.7)	19.6 - 27.5 (2.0 - 2.8, 4.4 - 6.2)
Movement "ℓ" in height of pinion assembly	mm (in)	—		—	0.5 - 2.5 (0.020 - 0.098)
Clearance "l" between pinion front edge & pinion stopper	mm (in)	0 - 3.0 (0 - 0.118)		—	

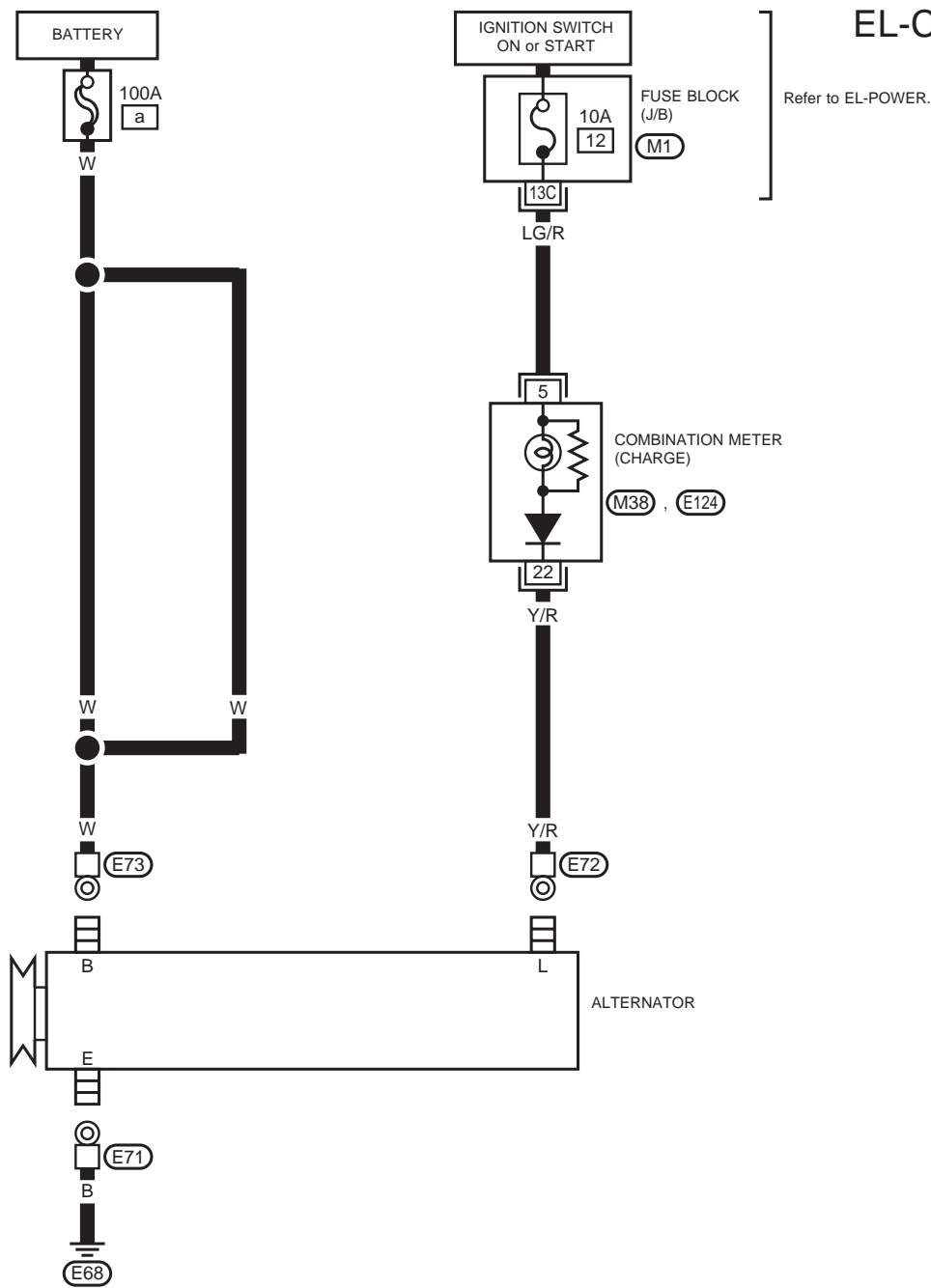
Type		S114-806A	S114-871	S13-305	S13-531	S114-800B
		HITACHI				
		Reduction gear type				
Applied model		SR20	SR20 with CVT models	CD20T	CD20T cold area	GA16 (cold area), QG18
System voltage	V	12				
No load						
Terminal voltage	V	11.0				
Current	A	Less than 90		Less than 140		Less than 90
Revolution	rev/min	More than 2,700	More than 2,300	More than 3900		More than 2750
Min. commutator dia.	mm (in)	28.0 (1.102)		35.5 (1.398)		28.0 (1.102)
Min. brush length	mm (in)	10.5 (0.413)		11.0 (0.433)		10.5 (0.413)
Brush spring tension	N (kg, lb)	16.2 (1.65, 3.64)	12.7 - 17.7 (1.29 - 1.80, 2.84, 3.97)	28.4 - 34.3 (2.90 - 3.50, 6.39 - 7.72)		12.7 - 17.7 (1.29 - 1.80, 2.84 - 3.97)
Clearance between bearing & armature shaft	mm (in)	Less than 0.2 (0.008)				
Clearance “I” between pinion front edge & pinion stopper	mm (in)	0.3 - 2.5 (0.012 - 0.098)		0.3 - 2.0 (0.012 - 0.079)	0.3 - 0.8 (0.012 - 0.031)	0.3 - 2.5 (0.012 - 0.098)

CHARGING SYSTEM

Wiring Diagram — CHARGE —

GA ENGINE MODELS

EL-CHARGE-01



13	14	15	16	17	18	19	20	M38	33	34	35	36	37	38	39	40	E124
1	2	3	4	5	6	7	8	GY	21	22	23	24	25	26	27	28	W

REFER TO THE FOLLOWING  
(M1) FUSE BLOCK - Junction Box (J/B)

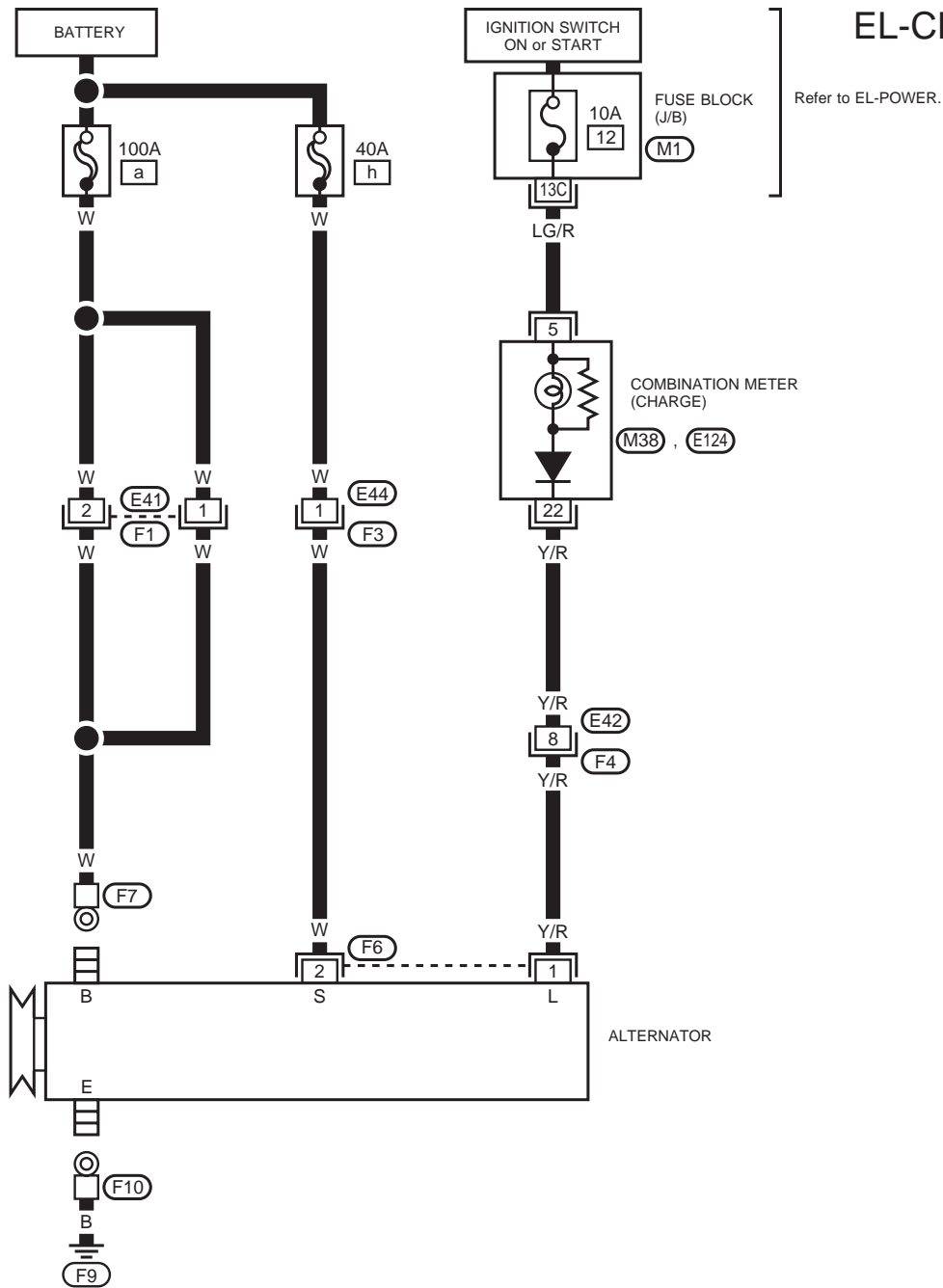
YEL254B

# CHARGING SYSTEM

## Wiring Diagram — CHARGE — (Cont'd)

### SR ENGINE AND QG ENGINE MODELS

EL-CHARGE-02



REFER TO THE FOLLOWING

M1 FUSE BLOCK - Junction Box (J/B)

YEL255B

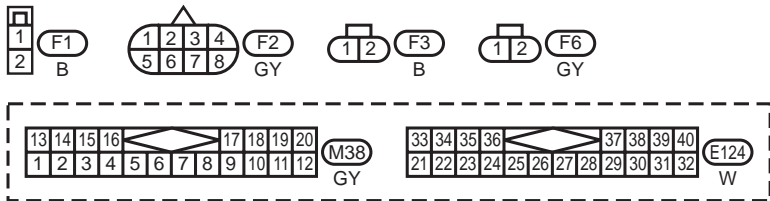
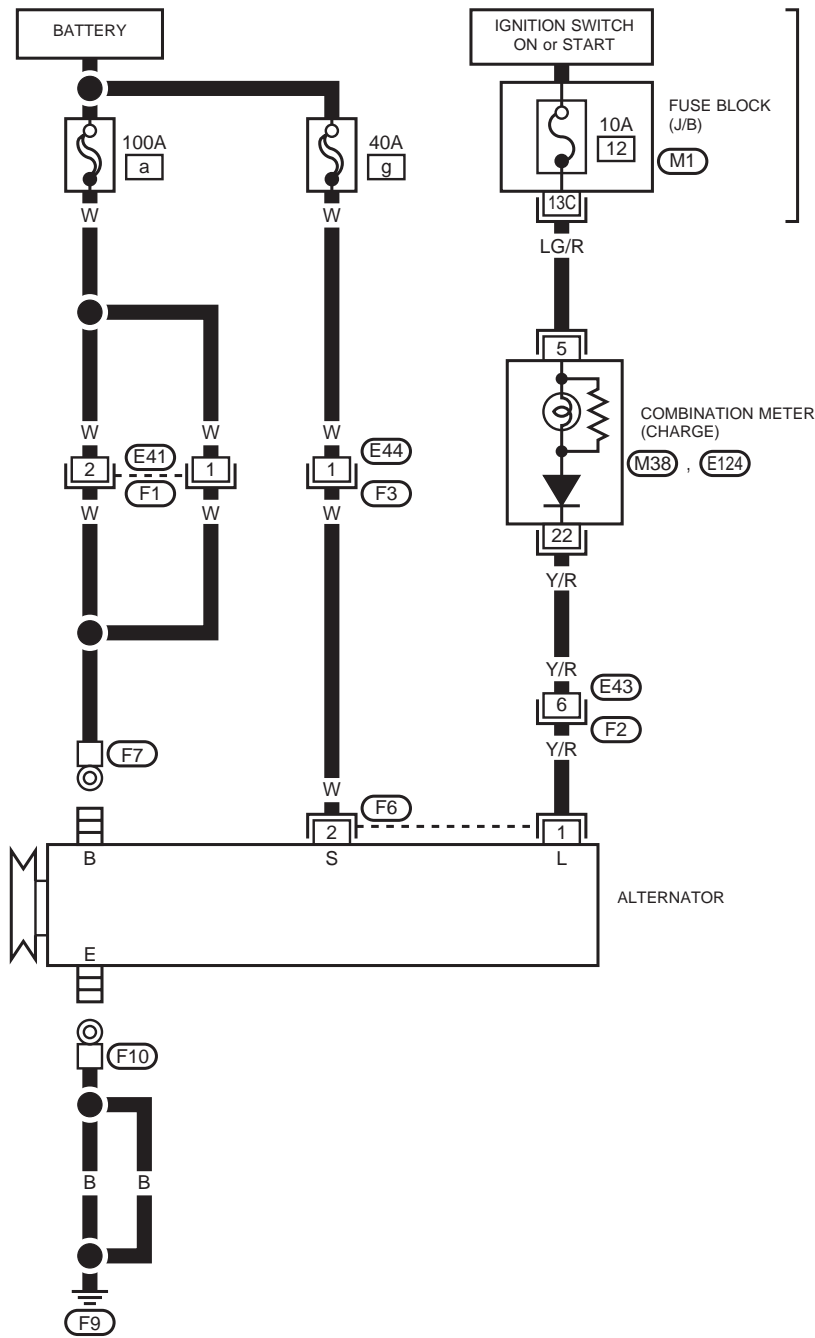
CHARGING SYSTEM

Wiring Diagram — CHARGE — (Cont'd)

DIESEL ENGINE MODELS

EL-CHARGE-03

Refer to EL-POWER.



REFER TO THE FOLLOWING  
(M1) FUSE BLOCK - Junction Box (J/B)

YEL256B

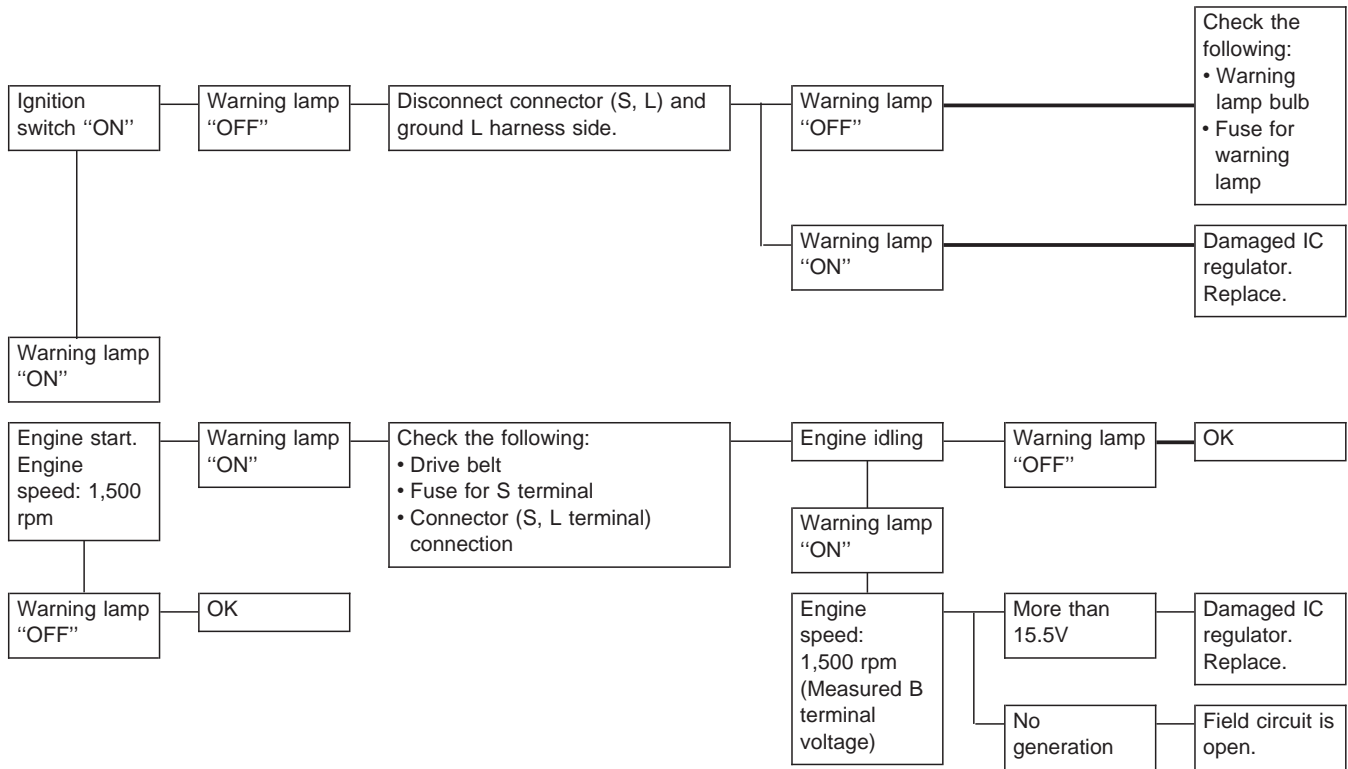
# CHARGING SYSTEM

## Trouble Diagnoses

Before conducting an alternator test, make sure that the battery is fully charged. A 30-volt voltmeter and suitable test probes are necessary for the test. The alternator can be checked easily by referring to the Inspection Table.

- Before starting, inspect the fusible link.
- Use fully charged battery.

### WITH IC REGULATOR



Warning lamp: "CHARGE" warning lamp in combination meter

#### Note:

- If the inspection result is OK even though the charging system is malfunctioning, check the B terminal connection. (Check the tightening torque.)
- When field circuit is open, check condition of rotor coil, rotor slip ring and brush. If necessary, replace faulty parts with new ones.

### MALFUNCTION INDICATOR

The IC regulator warning function activates to illuminate "CHARGE" warning lamp, if any of the following symptoms occur while alternator is operating:

- Excessive voltage is produced.
- No voltage is produced.

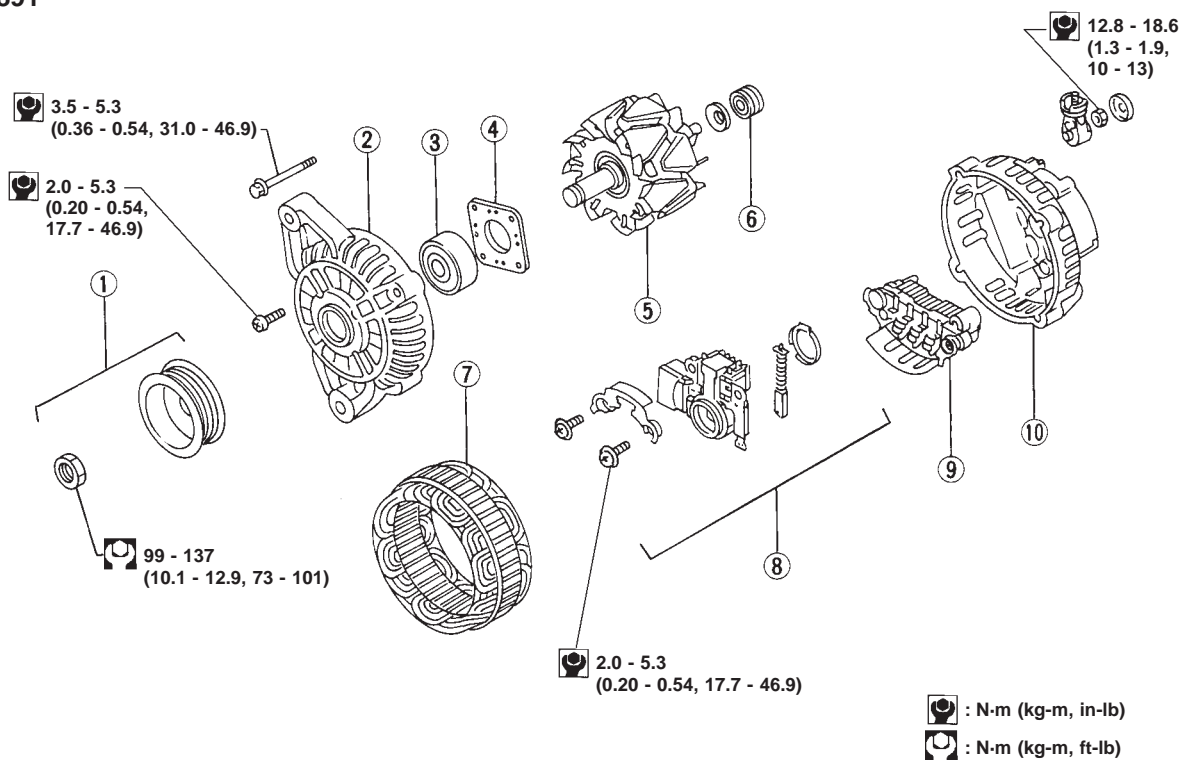




## CHARGING SYSTEM

### Construction (Cont'd)

SEC. 231  
A2TB3691  
A2TB3891



YEL427B

- ① Pulley assembly
- ② Front cover
- ③ Front bearing
- ④ Bearing retainer

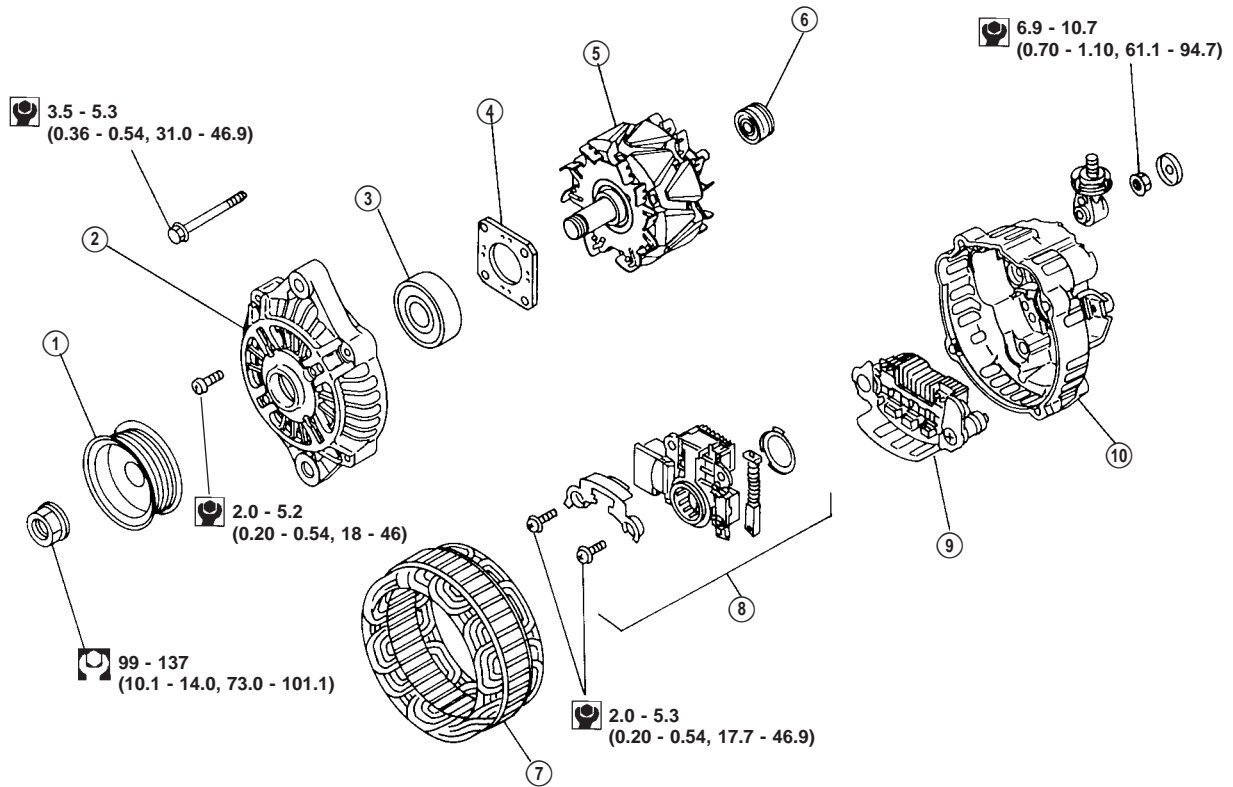
- ⑤ Rotor
- ⑥ Rear bearing
- ⑦ Stator

- ⑧ IC voltage regulator assembly
- ⑨ Diode assembly
- ⑩ Rear cover

## CHARGING SYSTEM

### Construction (Cont'd)

SEC. 231  
A2TB3191



: N-m (kg-m, ft-lb)  
 : N-m (kg-m, in-lb)

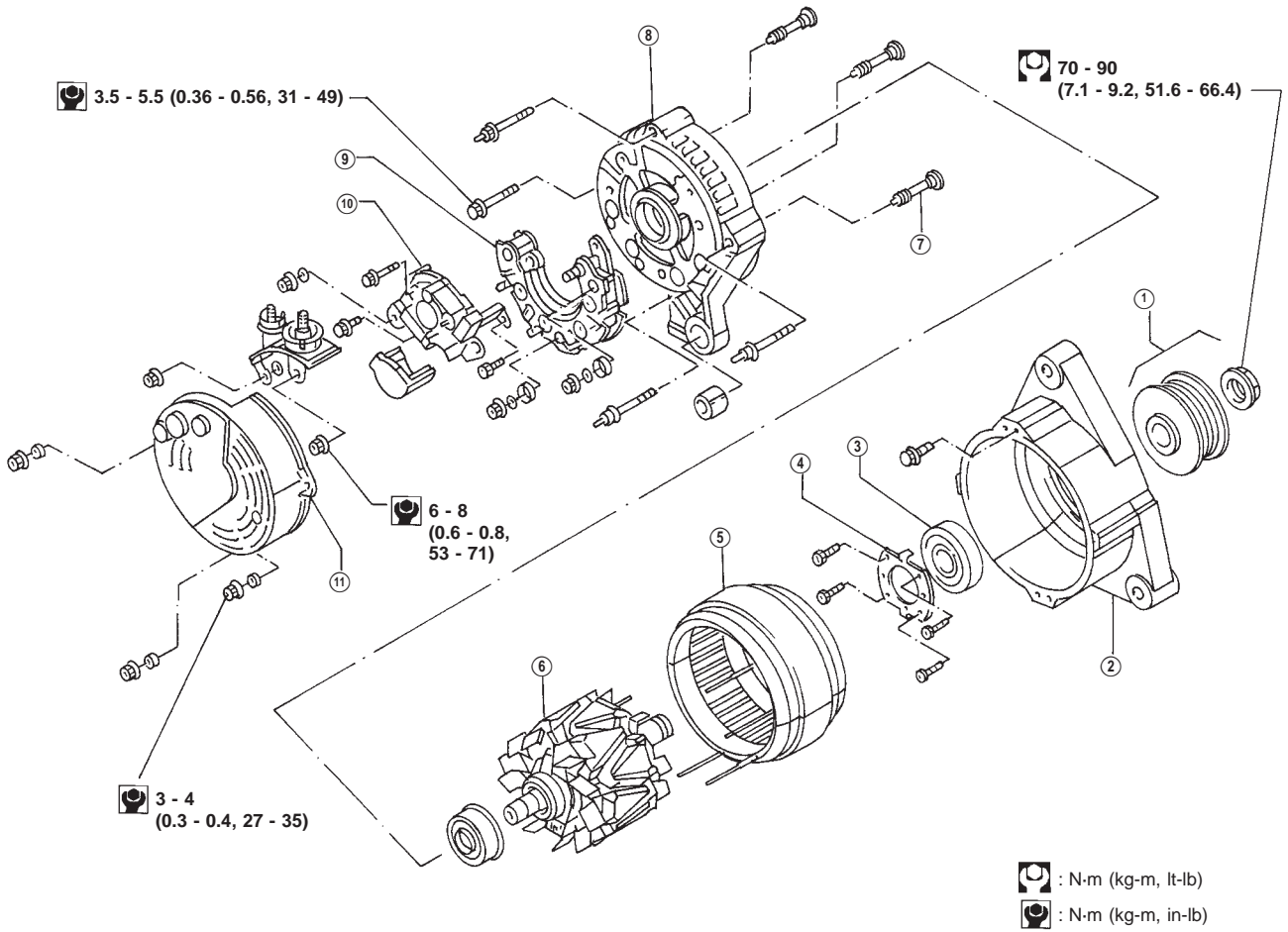
YEL428B

- |                    |                |                                 |
|--------------------|----------------|---------------------------------|
| ① Pulley           | ⑤ Rotor        | ⑧ IC voltage regulator assembly |
| ② Front cover      | ⑥ Rear bearing | ⑨ Diode assembly                |
| ③ Front bearing    | ⑦ Stator       | ⑩ Rear cover                    |
| ④ Bearing retainer |                |                                 |

# CHARGING SYSTEM

## Construction (Cont'd)

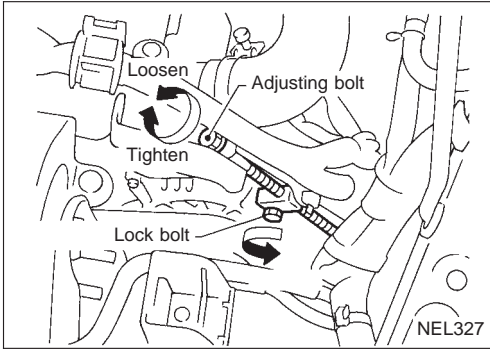
SEC. 231  
A115I-80A



YEL429B

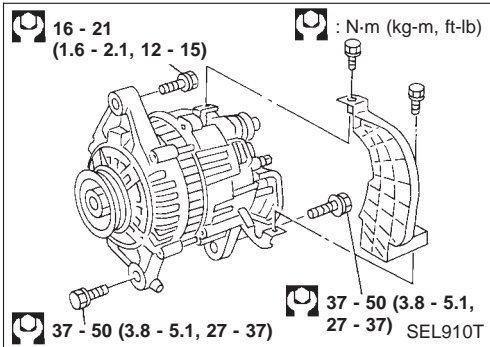
- |                    |                |                  |
|--------------------|----------------|------------------|
| ① Pulley assembly  | ⑤ Stator       | ⑨ Diode assembly |
| ② Front cover      | ⑥ Rotor        | ⑩ Brush holder   |
| ③ Front bearing    | ⑦ Special bolt | ⑪ Dust cover     |
| ④ Bearing retainer | ⑧ Rear cover   |                  |

## CHARGING SYSTEM



### Removal and Installation

1. Loosen lock bolt.
2. Remove RH undertray.
3. Loosen alternator mounting bolt and remove drive belt.
4. Remove lock bolt and adjust.
5. Remove harness connectors.
6. Remove alternator mounting bolt.
7. Support engine with jack, and remove front engine mounting bolt.
8. Remove alternator.



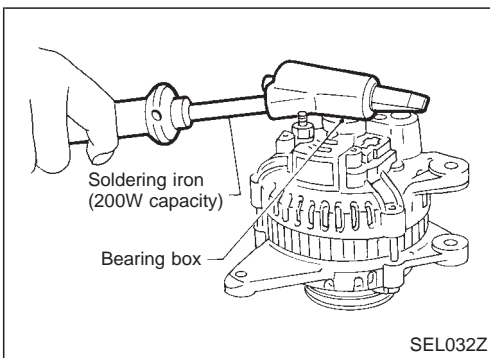
### Disassembly

#### REAR COVER

##### CAUTION:

Rear cover may be hard to remove because a ring is used to lock outer race of rear bearing. To facilitate removal of rear cover, heat bearing box section with a 200W soldering iron.

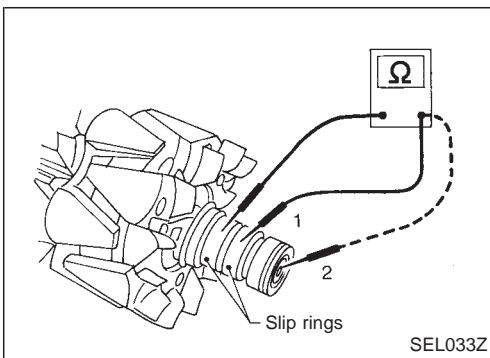
Do not use a heat gun, as it can damage diode assembly.



#### REAR BEARING

##### CAUTION:

- Do not reuse rear bearing after removal. Replace with a new one.
- Do not lubricate rear bearing outer race.



### Inspection

#### ROTOR CHECK

1. Resistance test  
**Resistance: Refer to SDS (EL-64).**
  - Not within the specified values ... Replace rotor.
2. Insulator test
  - Continuity exists ... Replace rotor.
3. Check slip ring for wear.  
**Slip ring minimum outer diameter: Refer to SDS (EL-64).**
  - Not within the specified values ... Replace rotor.

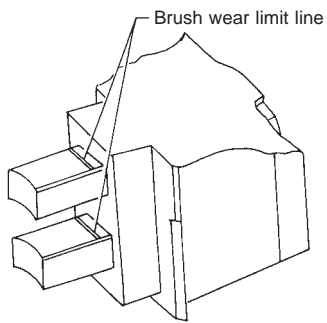
## CHARGING SYSTEM

### Inspection (Cont'd)

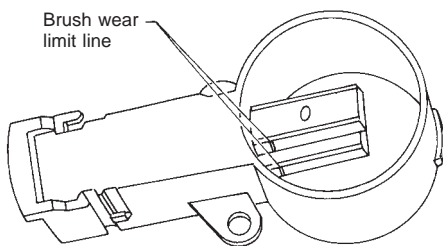
#### BRUSH CHECK

1. Check smooth movement of brush.
  - Not smooth ... Check brush holder and clean.
2. Check brush for wear.
  - Replace brush if it is worn down to the limit line.

Type 1



Type 2

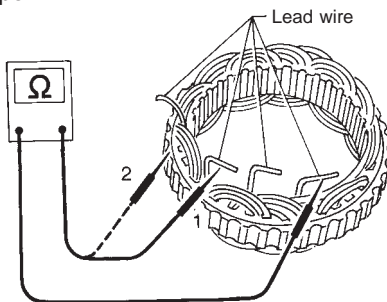


SEL034Z

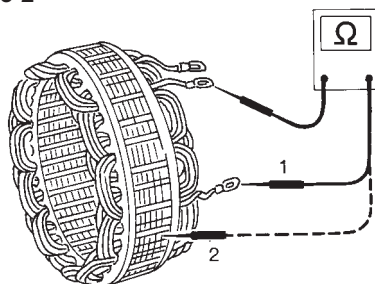
#### STATOR CHECK

1. Continuity test
  - No continuity ... Replace stator.
2. Ground test
  - Continuity exists ... Replace stator.

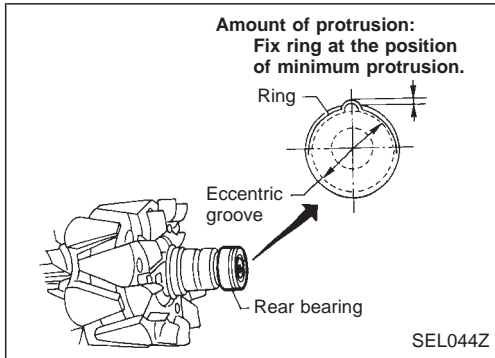
Type 1



Type 2



SEL037Z



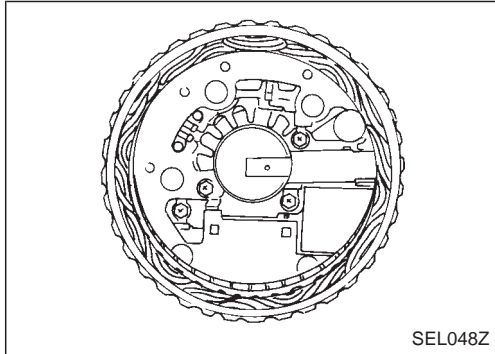
### Assembly

#### RING FITTING IN REAR BEARING

- Fix ring into groove in rear bearing so that it is as close to the adjacent area as possible.

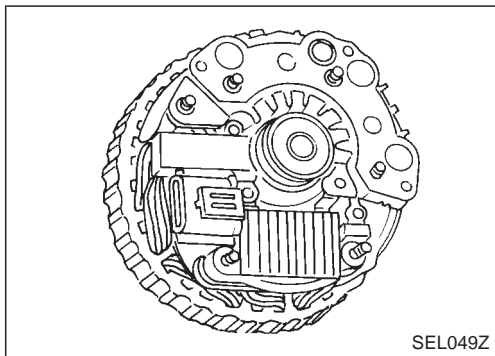
#### **CAUTION:**

**Do not reuse rear bearing after removal.**



#### REAR COVER INSTALLATION

- (1) Fit brush assembly, diode assembly, regulator assembly and stator.
  - (2) Push brushes up with fingers and install them to rotor.
- Take care not to damage slip ring sliding surface.**



## CHARGING SYSTEM

### Service Data and Specifications (SDS)

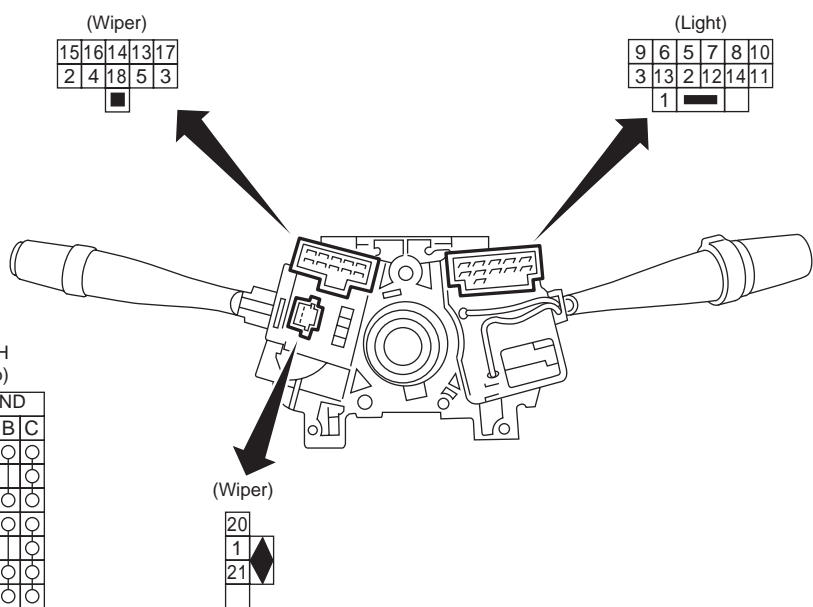
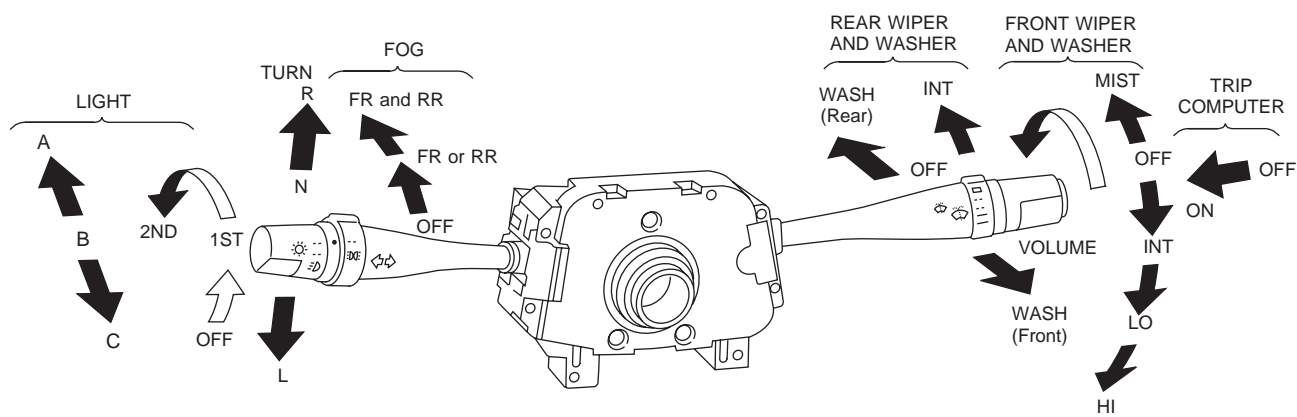
#### ALTERNATOR

Type	A115I-80A	A2TB3691	A2TB3891	A2TB3191	LR190-734E
	MAGNETI MARELLI	MITSUBISHI			HITACHI
Applied model	GA16	SR20, MT	SR20, CVT	QG18	CD20T
Nominal rating V-A	12-80		12-90	12-80	12-90
Ground polarity	Negative				
Minimum revs under no-load (When 13.5V is applied) rev/min	Less than 1,300				Less than 1,000
Hot output current (when 13.5V is applied) A/rev/min	More than 81/600	More than 23/1,300 More than 64/2,500 More than 82/5,000	More than 22/1,300 More than 64/2,500 More than 85/5,000	More than 20/1,300 More than 62/2,500 More than 81/5,000	More than 32/1,300 More than 54/2,500 More than 87/5,000
Regulated output voltage V	14.1 - 14.7				
Brush minimum length mm (in)	5.0 (0.197)				6.0 (0.236)
Brush spring pressure N (g, oz)	1.1 - 2.7 (112.2 - 275.4, 3.96 - 9.71)	4.8 - 6.0 (490 - 610, 17.28 - 21.51)			1.0 - 3.43 (102 - 350, 3.60 - 12.34)
Slip ring minimum diameter mm (in)	25.4 (1.0)	22.1 (0.870)			26.0 (1.024)
Rotor coil resistance at 20°C (68°F)	—	2.2 - 2.6	1.8 - 2.1	2.2 - 2.6	2.60



COMBINATION SWITCH

Combination Switch/Check



LIGHTING SWITCH  
(With rear fog lamp)

	OFF			1ST			2ND		
	A	B	C	A	B	C	A	B	C
5									
6									
7									
8									
9									
10									
11									
12									

FOG LAMP SWITCH

	OFF	REAR
13		

LIGHTING SWITCH  
(With front and rear fog lamp)

	OFF			1ST			2ND		
	A	B	C	A	B	C	A	B	C
5									
6									
7									
8									
9									
10									
11									
12									

FOG LAMP SWITCH

	OFF	FR	FR AND RR
14			
13			

TURN  
SIGNAL  
SWITCH

	L	N	R
1			
2			
3			

WIPER AND WASHER SWITCH

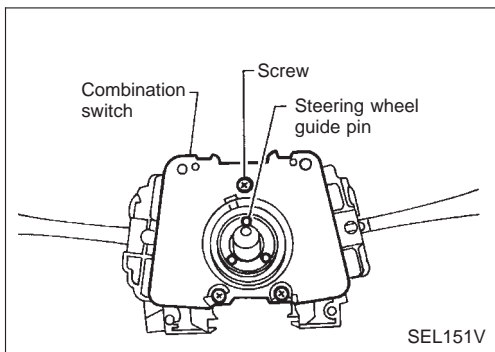
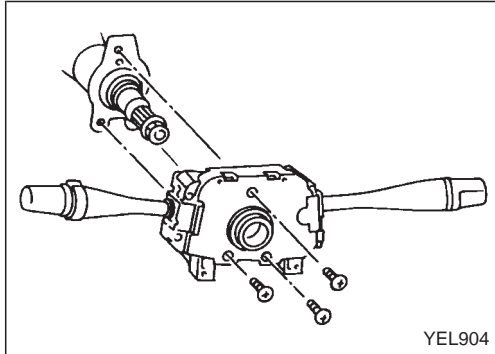
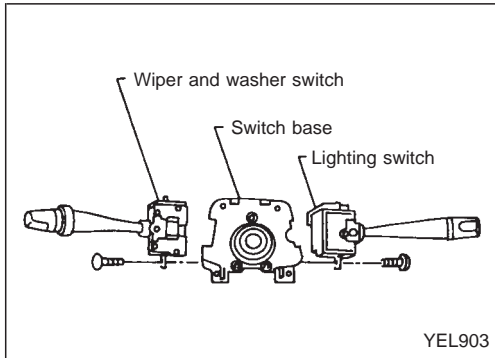
	FRONT					WASH			REAR			TRIP	
	MIST	OFF	INT	LO	HI	FR/WASH	OFF	RR/WASH	OFF	INT	ON	INT	ON
13													
14													
16													
17													
18													
2													
3													
4													
5													
21													
20													
1													

WIPER  
AMP.

INTERMITTENT  
WIPER VOLUME

YEL413B

## COMBINATION SWITCH



### Replacement

For removal and installation of spiral cable, refer to RS section ["Installation — Air Bag Module and Spiral Cable", "SUPPLEMENTAL RESTRAINT SYSTEM (SRS)"].

- Each switch can be replaced without removing combination switch base.
- To remove combination switch base, remove base attaching screw.
- Before installing the steering wheel, align the steering wheel guide pins with the screws which secure the combination switch as shown in the left figure.

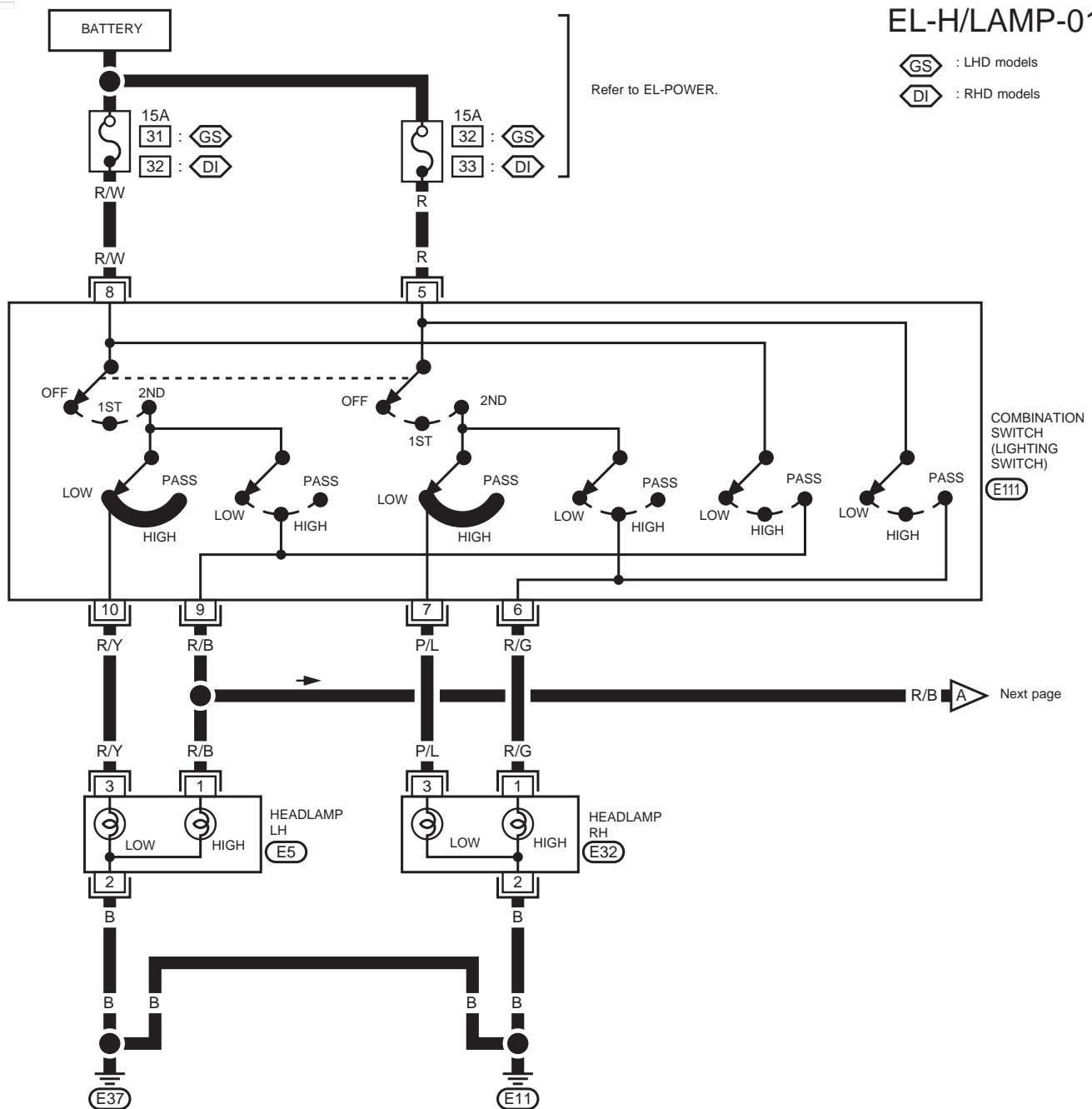
# HEADLAMP (without Daytime Light System) — Conventional Type —

## Wiring Diagram — H/LAMP —

EL-H/LAMP-01

GS : LHD models  
DI : RHD models

Refer to EL-POWER.

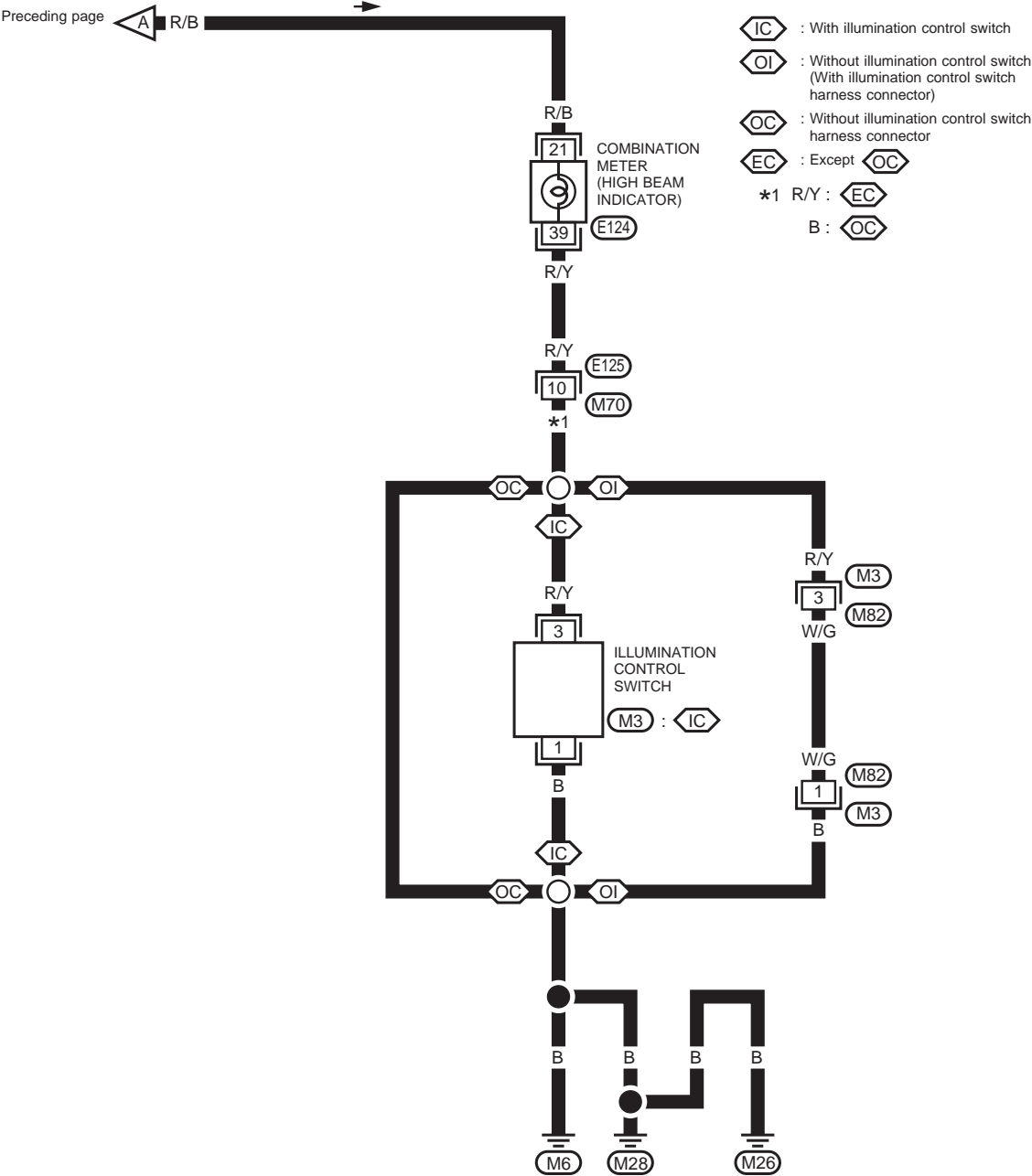


1	2	3	E5	E32	1	13	2	12	14	11	E111
GY	GY				9	6	5	7	8	10	W

YEL257B

HEADLAMP (without Daytime Light System) — Conventional Type —  
Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-02



33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28

E124  
W

1	2	3	4	5	6	7
8	9	10	11	12	13	14

E125  
BR

1	2
3	4

M3  
W

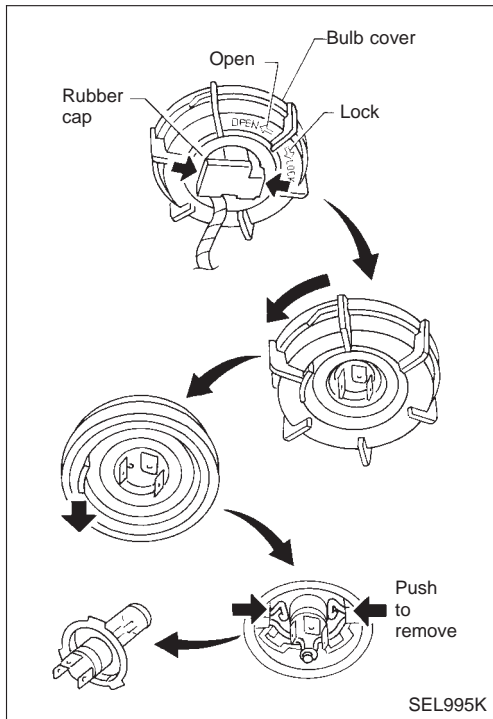
YEL258B

## HEADLAMP (without Daytime Light System) — Conventional Type —

### Trouble Diagnoses

Symptom	Possible cause	Repair order
LH headlamps do not operate.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Grounds (E11) and (E37)</li> <li>3. 15A fuse</li> <li>4. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check grounds (E11) and (E37)</li> <li>3. Check 15A fuse [No. 31 (gasoline engine), 32 (diesel engine) located in fuse and fusible link box]. Verify battery positive voltage is present at terminal ⑧ of lighting switch.</li> <li>4. Check lighting switch.</li> </ol>
RH headlamps do not operate.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Grounds (E11) and (E37)</li> <li>3. 15A fuse</li> <li>4. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check grounds (E11) and (E37)</li> <li>3. Check 15A fuse [No. 32 (gasoline engine), 33 (diesel engine) located in fuse and fusible link box]. Verify battery positive voltage is present at terminal ⑤ of lighting switch.</li> <li>4. Check lighting switch.</li> </ol>
LH high beams do not operate, but LH low beam operates.	<ol style="list-style-type: none"> <li>1. Bulbs</li> <li>2. Open in LH high beams circuit</li> <li>3. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulbs.</li> <li>2. Check R/B wire between lighting switch and LH headlamps for an open circuit.</li> <li>3. Check lighting switch.</li> </ol>
LH low beam does not operate, but LH high beam operates.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Open in LH low beam circuit</li> <li>3. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check R/Y wire between lighting switch and LH headlamp for an open circuit.</li> <li>3. Check lighting switch.</li> </ol>
RH high beams do not operate, but RH low beam operates.	<ol style="list-style-type: none"> <li>1. Bulbs</li> <li>2. Open in RH high beams circuit</li> <li>3. Lighting switch.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulbs.</li> <li>2. Check R/G wire between lighting switch and RH headlamps for an open circuit.</li> <li>3. Check lighting switch.</li> </ol>
RH low beam does not operate, but RH high beam operates.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Open in RH low beam circuit</li> <li>3. Lighting switch</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb.</li> <li>2. Check P/L wire between lighting switch and RH headlamp for an open circuit.</li> <li>3. Check lighting switch.</li> </ol>
High beam indicator does not work.	<ol style="list-style-type: none"> <li>1. Bulb</li> <li>2. Grounds (M6), (M26) and (M28)</li> <li>3. Open in high beam circuit</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb in combination meter.</li> <li>2. Check grounds (M6), (M26) and (M28).</li> <li>3. Check R/B wire between lighting switch and combination meter for an open circuit.</li> </ol>

## HEADLAMP (without Daytime Light System) — Conventional Type —



### Bulb Replacement

The headlamp is a semi-sealed beam type which uses a replaceable halogen bulb. The bulb can be replaced from the engine compartment side without removing the headlamp body.

- **Grasp only the plastic base when handling the bulb. Never touch the glass envelope.**

1. Disconnect the battery cable.
2. Turn the bulb retaining ring counterclockwise until it is free from the headlamp reflector, and then remove it.
3. Disconnect the harness connector from the back side of the bulb.
4. Remove the headlamp bulb carefully. Do not shake or rotate the bulb when removing it.
5. Install in the reverse order of removal.

#### **CAUTION:**

**Do not leave headlamp reflector without bulb for a long period of time. Dust, moisture, smoke, etc. entering headlamp body may affect the performance of the headlamp. Remove headlamp bulb from the headlamp reflector just before a replacement bulb is installed.**

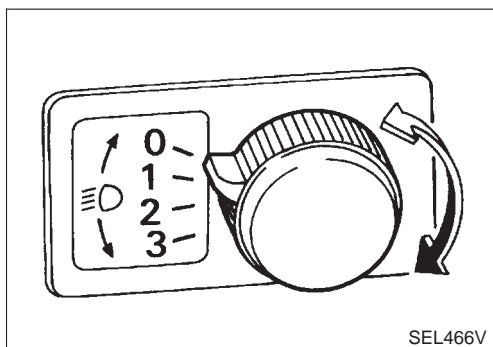
### Aiming Adjustment

When performing headlamp aiming adjustment, use an aiming machine, aiming wall screen or headlamp tester. Aimers should be in good repair, calibrated and operated in accordance with respective operation manuals.

If any aimer is not available, aiming adjustment can be done as follows:

**For details, refer to the regulations in your own country.**

- a. **Keep all tires inflated to correct pressures.**
- b. **Place vehicle and tester on one and same flat surface.**
- c. **See that there is no-load in vehicle (coolant, engine oil filled up to correct level and full fuel tank) other than the driver (or equivalent weight placed in driver's position).**



#### **CAUTION:**

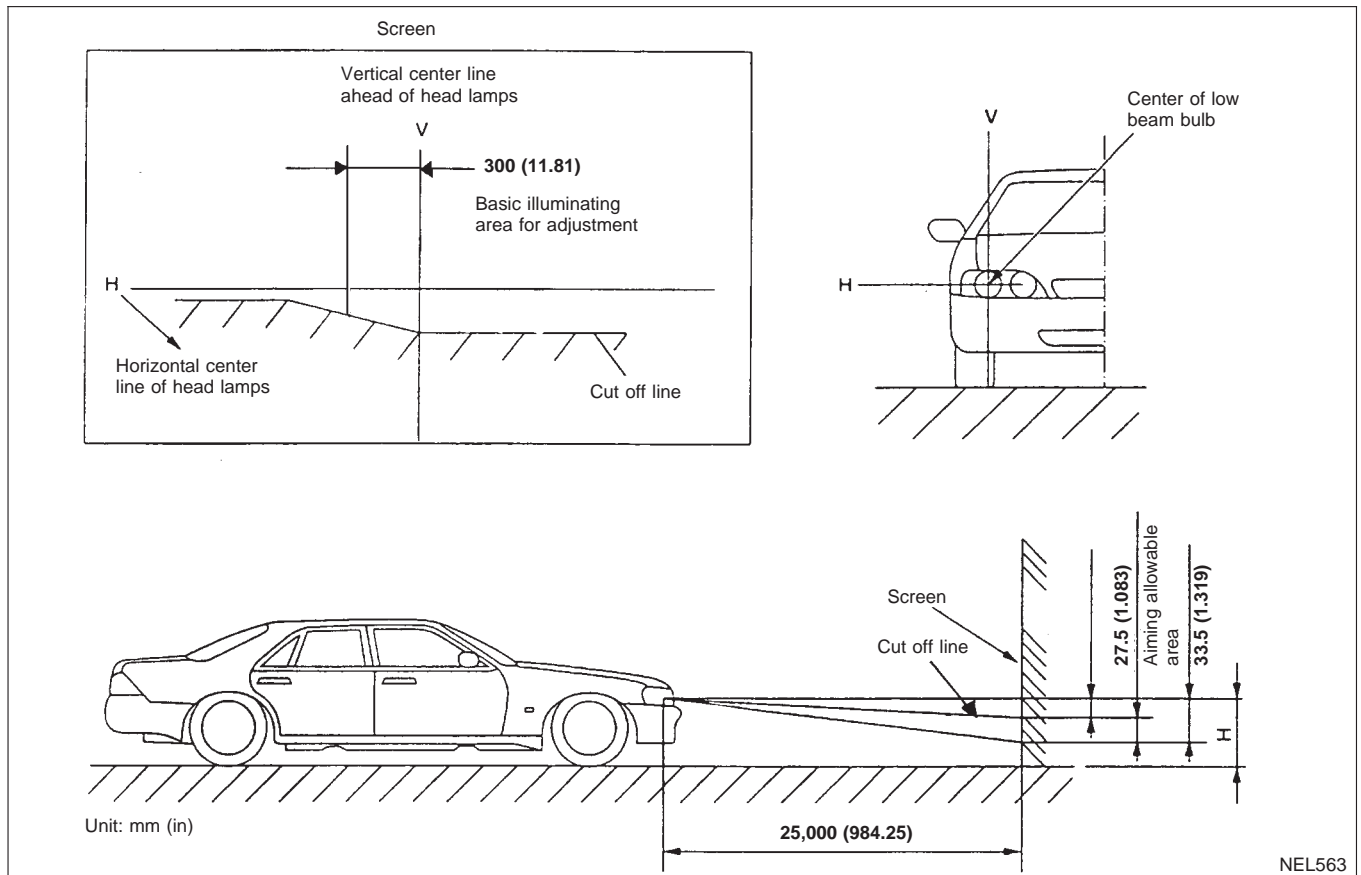
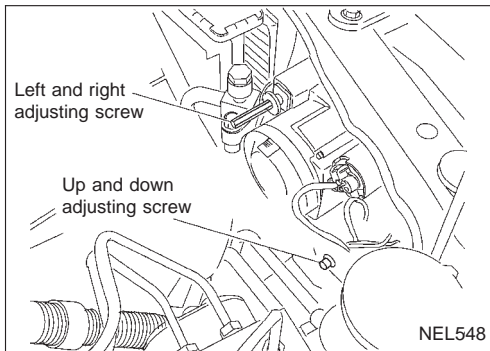
**Be sure aiming switch is set to "0" when performing aiming adjustment on vehicles equipped with headlamp aiming control.**

## HEADLAMP (without Daytime Light System) — Conventional Type —

### Aiming Adjustment (Cont'd)

#### LOW BEAM

1. Turn headlamp low beam on.
2. Use adjusting screws to perform aiming adjustment.
  - **First tighten the adjusting screw all the way and then make adjustment by loosening the screw.**



- Adjust headlamps so that main axis of light is parallel to center line of body and is aligned with point P shown in illustration.
- Figure to the left shows headlamp aiming pattern for driving on left side of road; for driving on right side of road, aiming pattern is reversed.

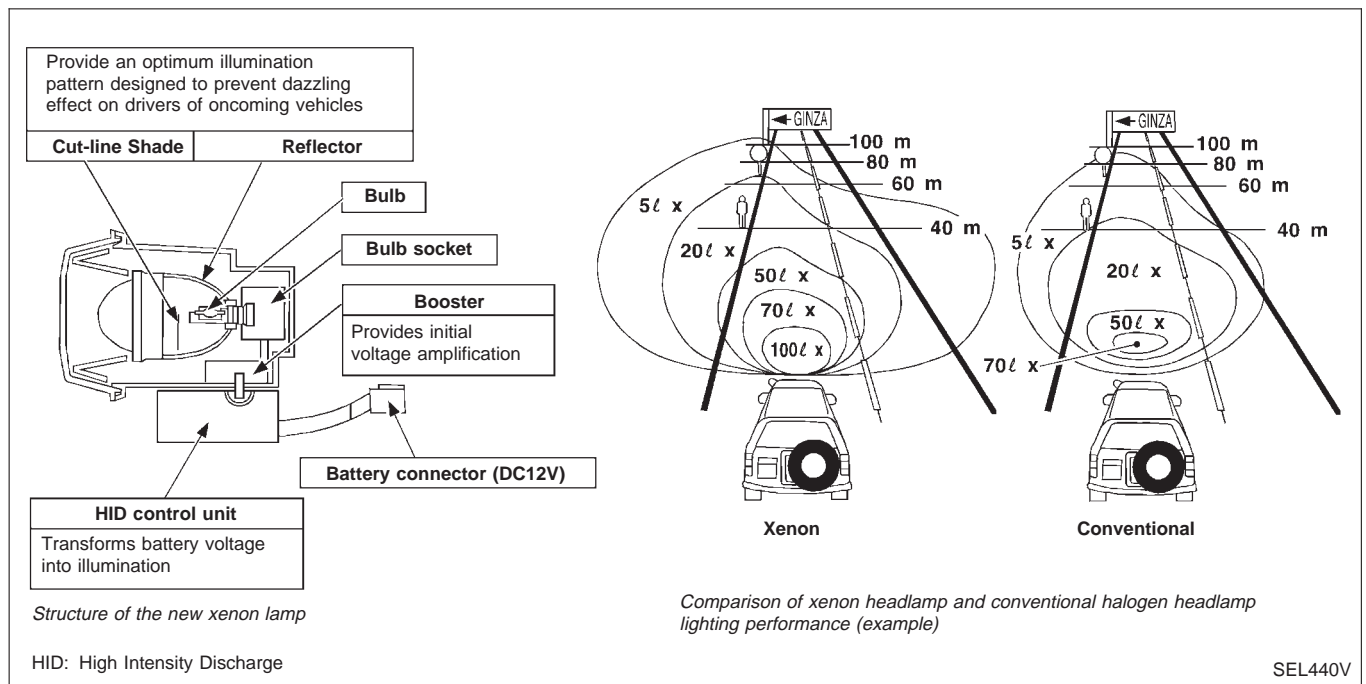
## HEADLAMP (without Daytime Light System) — Xenon Type —

### System Description

Xenon type headlamp is adopted to the low beam headlamps. Xenon bulbs do not use a filament. Instead, they produce light when a high voltage current is passed between two tungsten electrodes through a mixture of xenon (an inert gas) and certain other metal halides. In addition to added lighting power, electronic control of the power supply gives the headlamps stable quality and tone color.

Following are some of the many advantage of the xenon type headlamp.

- The light produced by the headlamps is white color approximating sunlight that is easy on the eyes.
- Light output is nearly double that of halogen headlamps, affording increased area of illumination.
- The light features a high relative spectral distribution at wavelengths to the human eye is most sensitive, which means that even in the rain, more light is reflected back from the road surface toward the vehicle, for added visibility.
- Power consumption is approximately 25 percent less than halogen headlamps, reducing battery load.





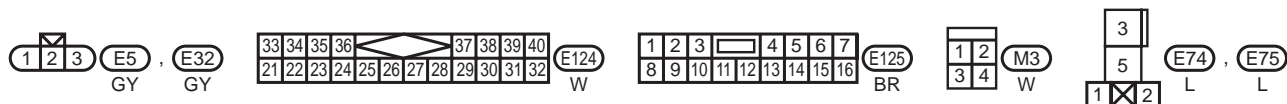
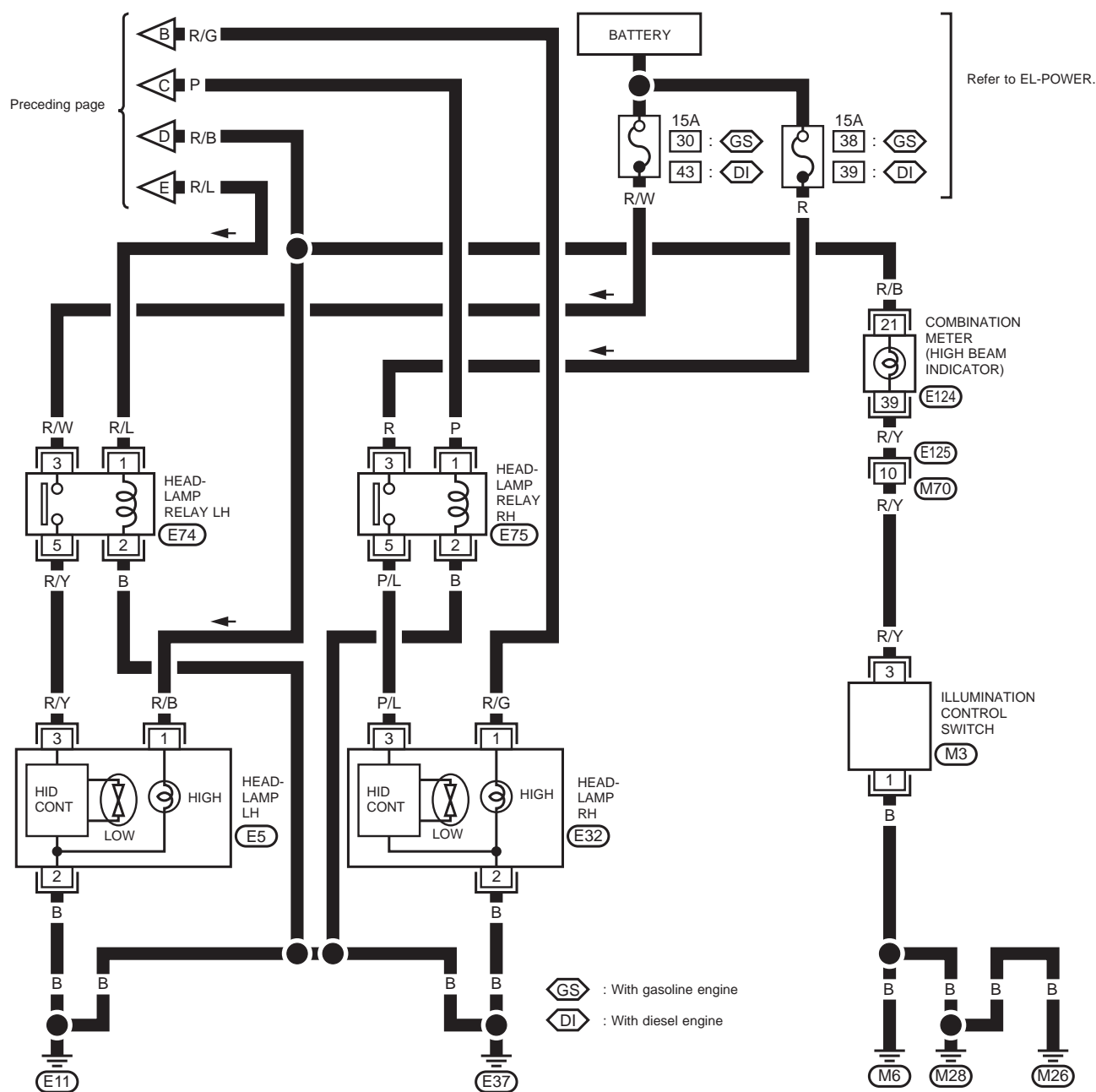


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# HEADLAMP (without Daytime Light System) — Xenon Type —

## Wiring Diagram — H/LAMP — (Cont'd)

EL-H/LAMP-04



YEL260B

## HEADLAMP (without Daytime Light System) — Xenon Type —

### WARNING:

- The xenon headlamp has a high-tension current generating area. Be extremely careful when removing and installing. Be certain to disconnect the battery negative cable prior to removing or installing.
- When the xenon headlamp is lit, do not touch the harness (covered with red or amber insulation), bulb itself or the bulb socket with your bare hands.
- Never service a xenon headlamp with wet hands.
- When checking body side harness with a circuit tester, be certain to disconnect the harness connector from the xenon headlamp.
- When the xenon headlamp is lit, the xenon bulb must be installed in the headlamp housing. (Never turn on xenon headlamp, if the bulb is out of the headlamp housing.)

### CAUTION:

Make sure to install the bulb securely; if the xenon bulb is improperly installed in its socket, high-tension current leaks occur. This may lead to a melted bulb and/or bulb socket.

## Trouble Diagnoses

Symptom	Possible cause	Repair order
LH or RH xenon headlamp (low beam) blinks, lacks brightness or does not illuminate.	1. 15A fuse  2. Relay 3. Power supply circuit to headlamp low beam  4. Xenon bulb  5. HID control unit and booster	1. Check 20A fuse [No. 30 (gasoline engine), 43 (diesel engine) : LH, No. 38 (gasoline engine), 39 (diesel engine), : RH, located in fuse and fusible link box]. 2. Check Headlamp relay. 3. Verify battery positive voltage is present at terminal ③ of headlamp harness with lighting switch in "2nd" and "Low" positions. (Before inspecting headlamp terminal, disconnect headlamp connector with lighting switch in "OFF" position.) 4. Replace the xenon bulb with the other side bulb or new one. (If headlamps illuminate correctly, replace the bulb.) 5. Replace the HID control unit and booster as a headlamp assembly.
LH or RH [both headlamp high and xenon (low) beam] do not illuminate.	1. 15A fuse  2. Ground circuit	1. Check 15A fuse [No. 30 (Gasoline engine), No. 43 (diesel engine), : LH, No. 38 (gasoline engine), No. 39 (diesel engine) located in fuse and fusible link box]. 2. Check continuity between headlamp harness terminal ② and body ground. (Before inspecting headlamp terminal, disconnect headlamp connector with lighting switch in "OFF" position.)
LH or RH headlamp high beam does not illuminate.	1. Bulb 2. Power supply circuit to headlamp high beam	1. Check bulb. 2. Verify battery positive voltage is present at terminal ① of headlamp harness with lighting switch in "2nd" and "HIGH" position. (Before inspecting headlamp terminal, disconnect headlamp connector with lighting switch in "OFF" position.)

HID: High Intensity Discharge

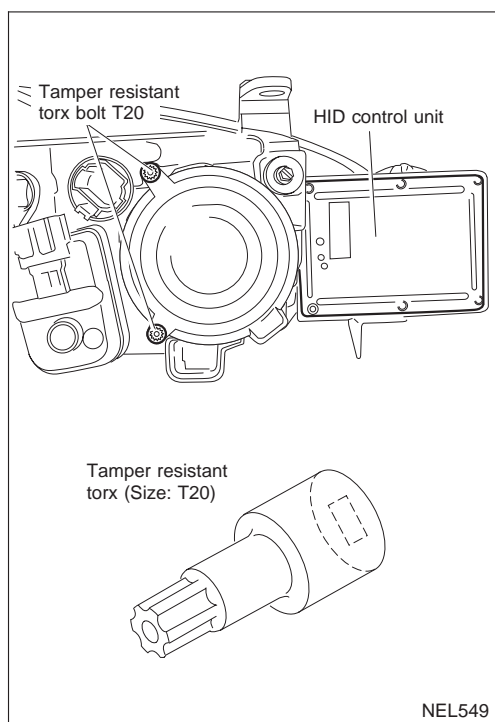
### Bulb Replacement

#### CAUTION:

- After replacing a new xenon bulb, be sure to make aiming adjustments.
  - Hold only the plastic base when handling the bulb. Never touch the glass envelope.
  - Do not leave headlamp reflector without bulb for a long period of time. Dust, moisture, smoke, etc. entering headlamp body may affect the performance of the headlamp. Remove headlamp bulb from the headlamp reflector just before a replacement bulb is installed.
1. Disconnect negative battery cable.
  2. Remove side combination lamp and radiator grille.
  3. Disconnect headlamp connector.
  4. Remove headlamp assembly.

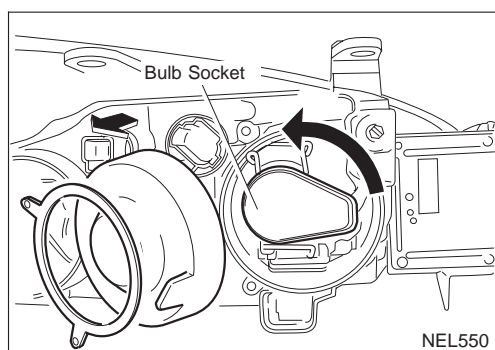
#### WARNING:

Never service a xenon headlamp with wet hands.



### XENON BULB (LOW BEAM)

1. Remove tamper proof torx bolts (size: T20), then remove headlamp seal cover.



2. Turn bulb socket counterclockwise with keep pushing, then remove it.

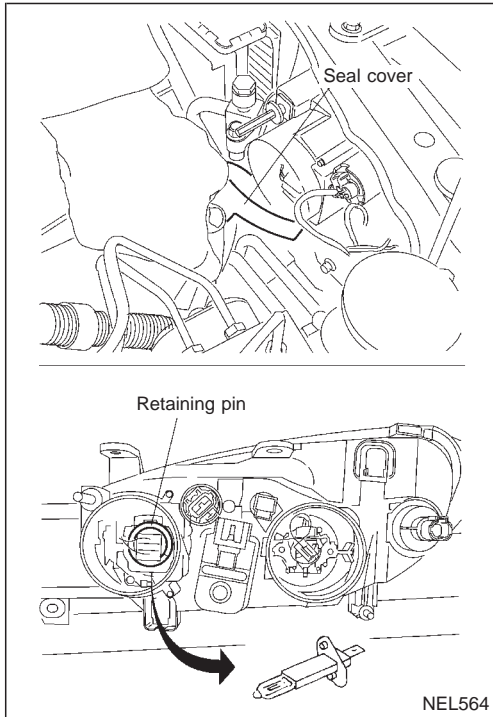
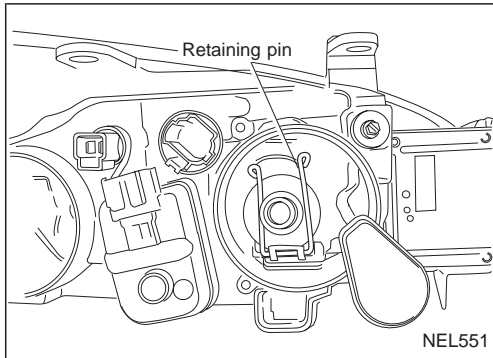
## HEADLAMP (without Daytime Light System) — Xenon Type —

### Bulb Replacement (Cont'd)

3. Release retaining pin.
4. Remove the xenon bulb.
5. Install in the reverse order of removal.

#### CAUTION:

- When disposing of the xenon bulb, do not break it; always dispose of it as is.
- Make sure to install the bulb securely; if the xenon bulb is improperly installed in its socket, high-tension current leaks occur. This may lead to a melted bulb and/or bulb socket.



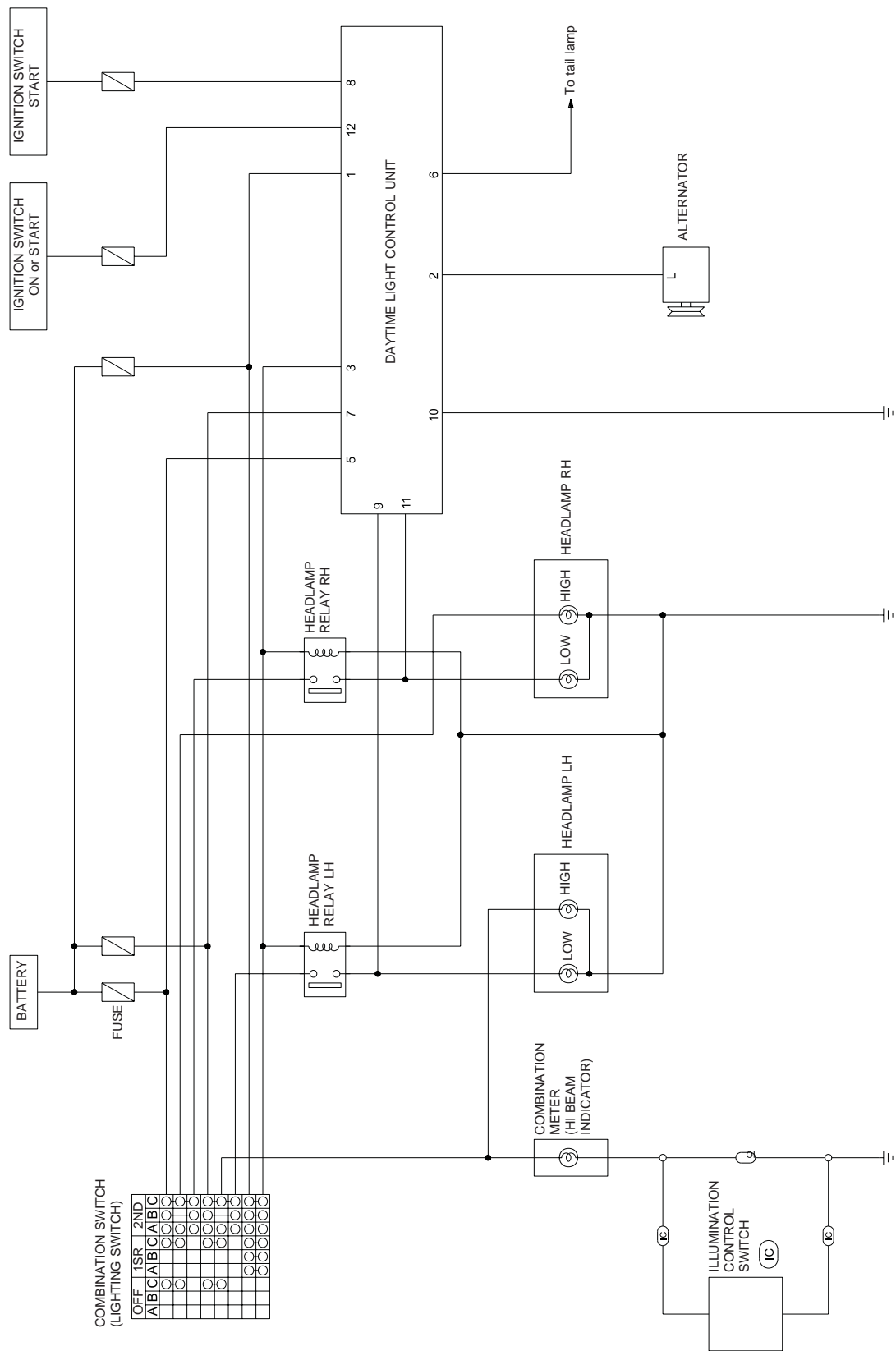
### HIGH BEAM

1. Pull off headlamp seal cover.
2. Disconnect bulb connector.
3. Release retaining pin.
4. Remove the bulb.
5. Install in the reverse order of removal.

HEADLAMP — Daytime Light System —

Schematic

CONVENTIONAL TYPE

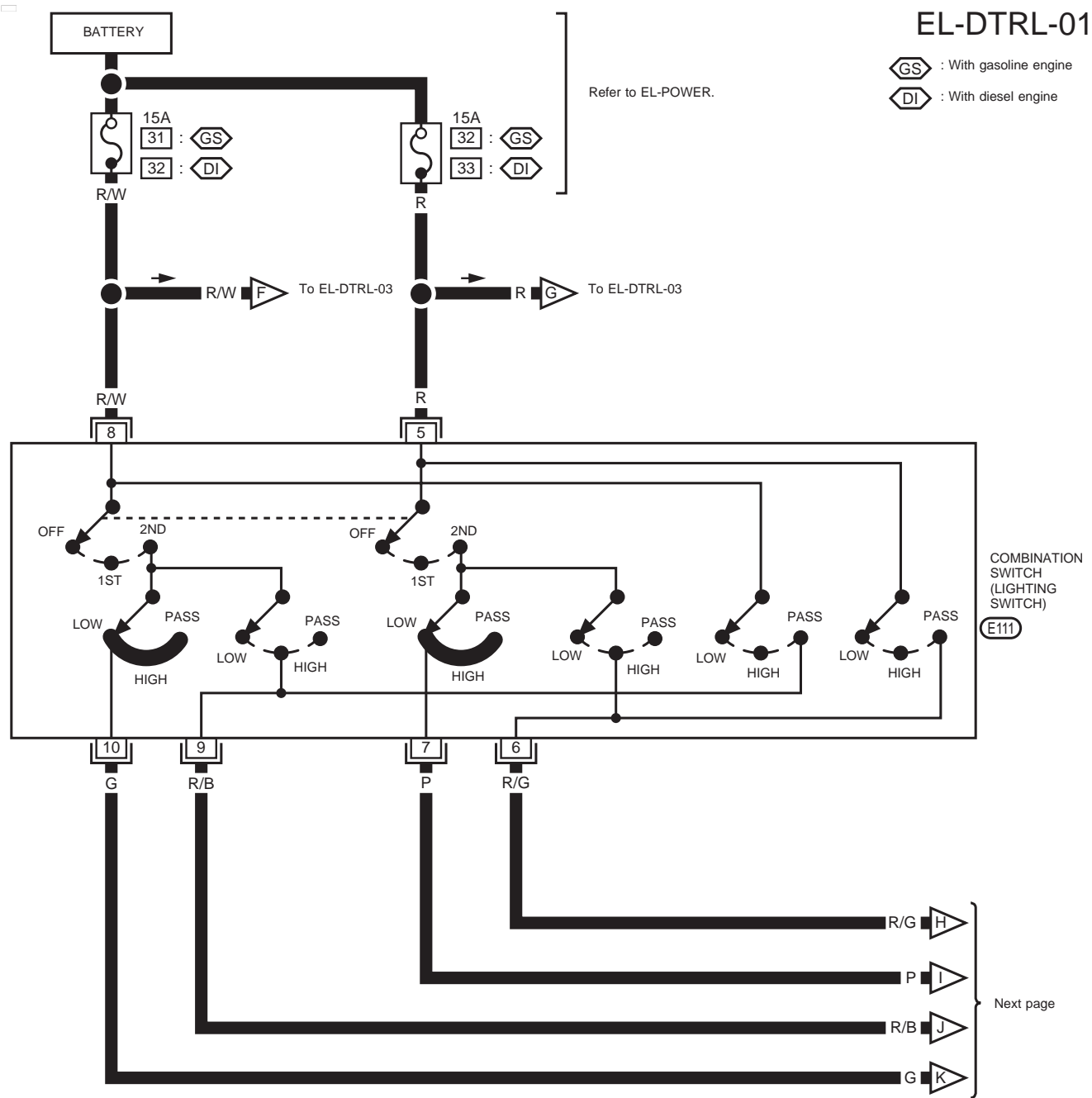


IC : With illumination control switch  
OI : Without illumination control switch

## HEADLAMP — Daytime Light System —

## Wiring Diagram — DTRL —

## CONVENTIONAL TYPE



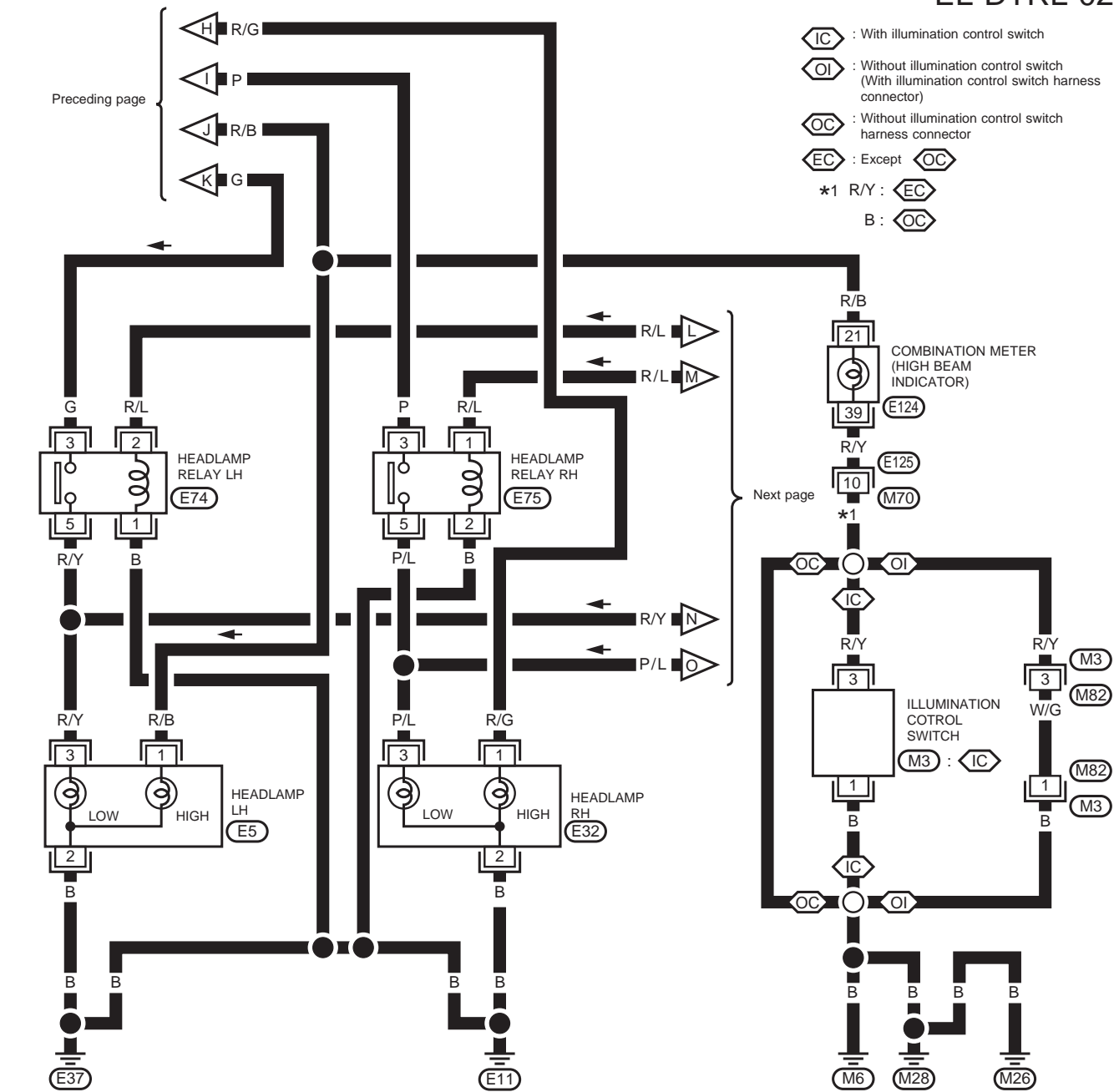
	1					
3	13	2	12	14	11	E111 W
9	6	5	7	8	10	

# HEADLAMP — Daytime Light System —

## Wiring Diagram — DTRL — (Cont'd)

### CONVENTIONAL TYPE

EL-DTRL-02



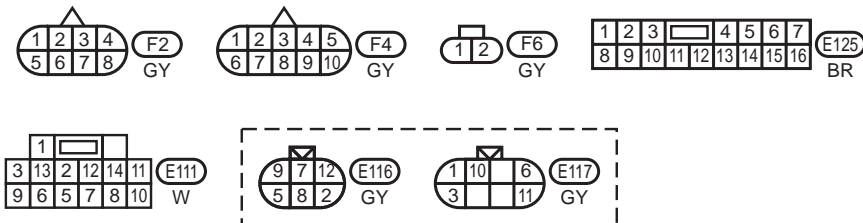
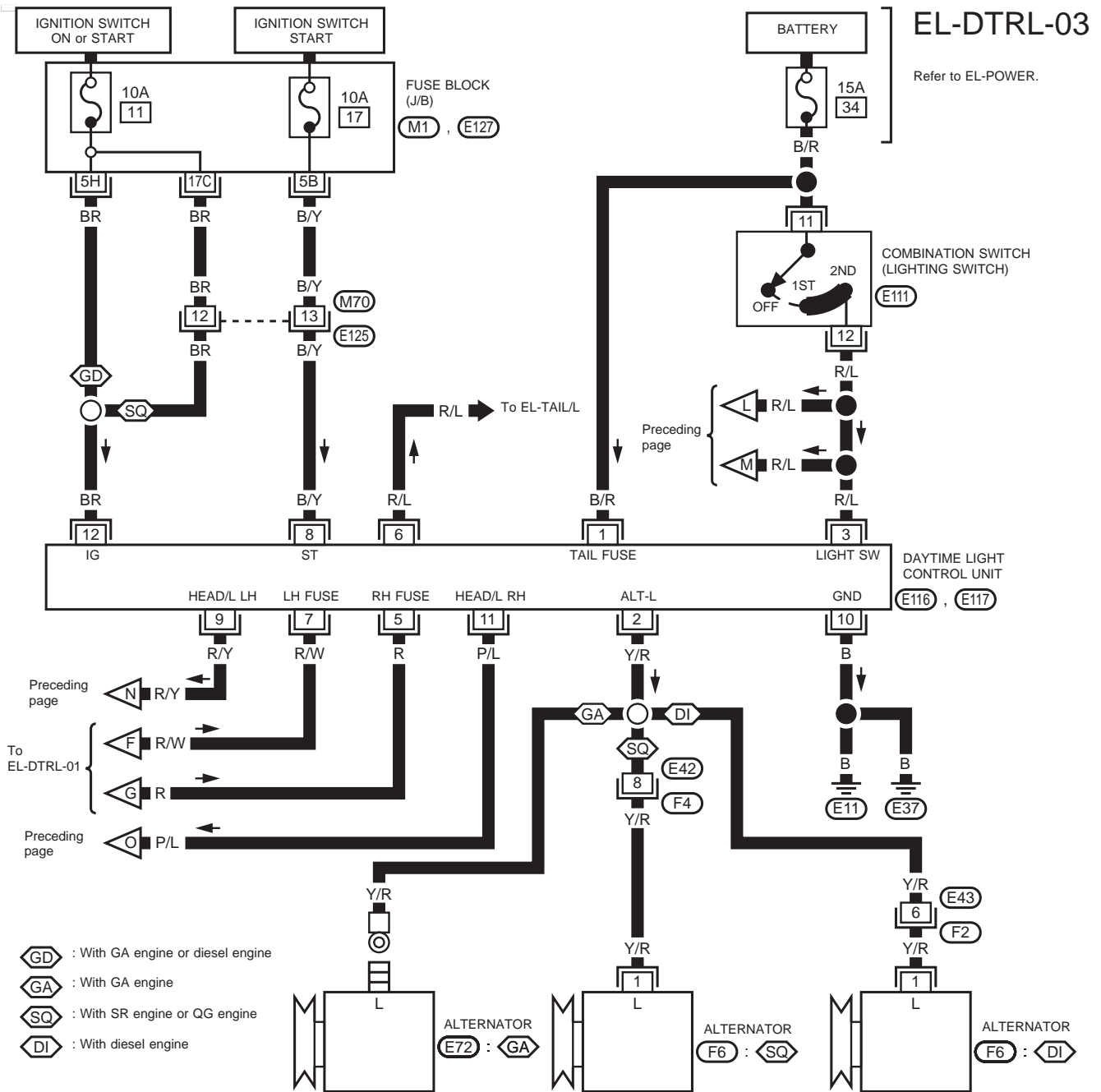
YEL263B



# HEADLAMP — Daytime Light System —

## Wiring Diagram — DTRL — (Cont'd)

### CONVENTIONAL TYPE



REFER TO THE FOLLOWING

(M1) FUSE BLOCK - Junction Box (J/B)

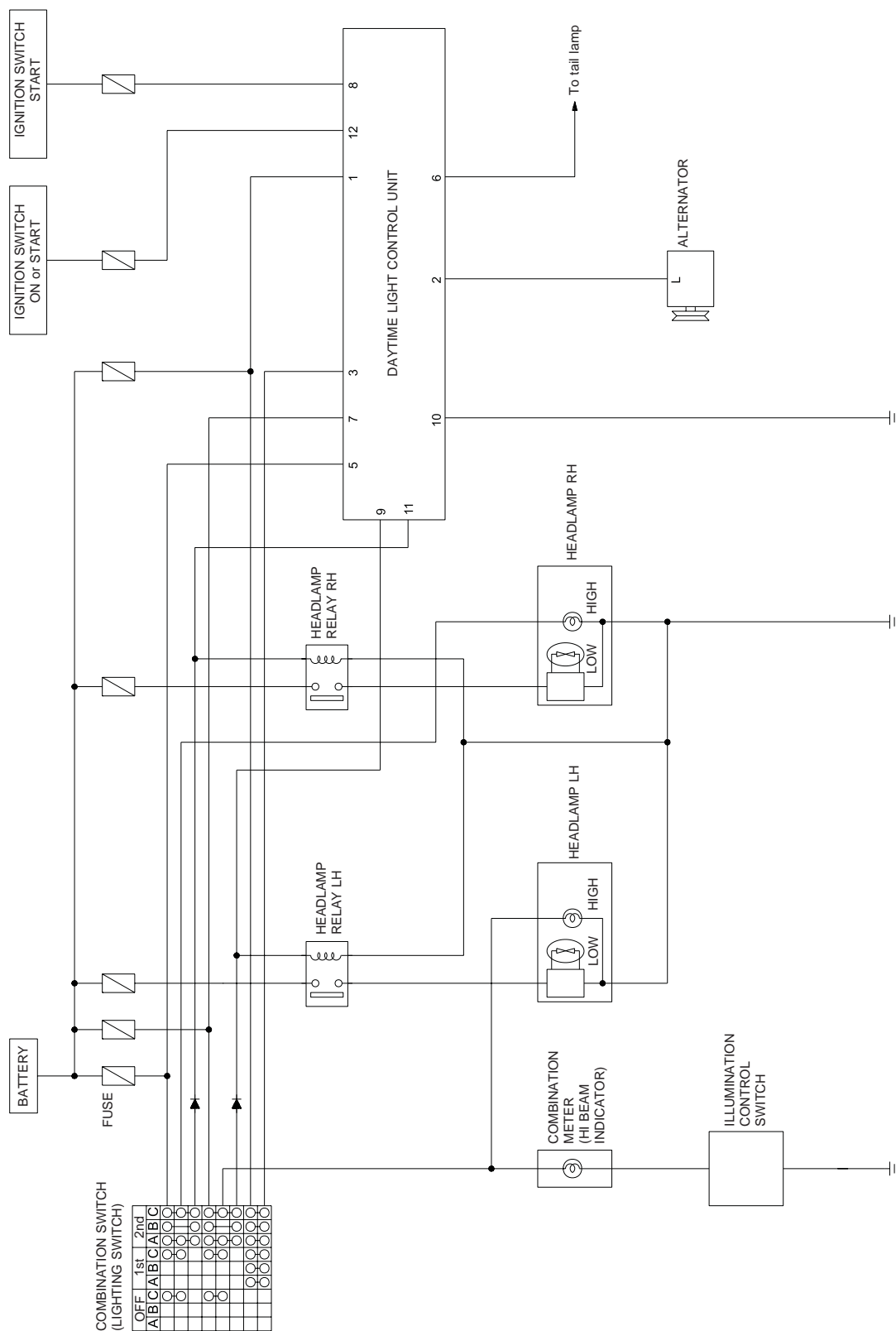
(E127) FUSE BLOCK - Junction Box (J/B)

YEL264B

# HEADLAMP — Daytime Light System With Xenon Type —

## Schematic

### XENON TYPE



YEL265B

# HEADLAMP — Daytime Light System With Xenon Type —

## Wiring Diagram — DTRL —

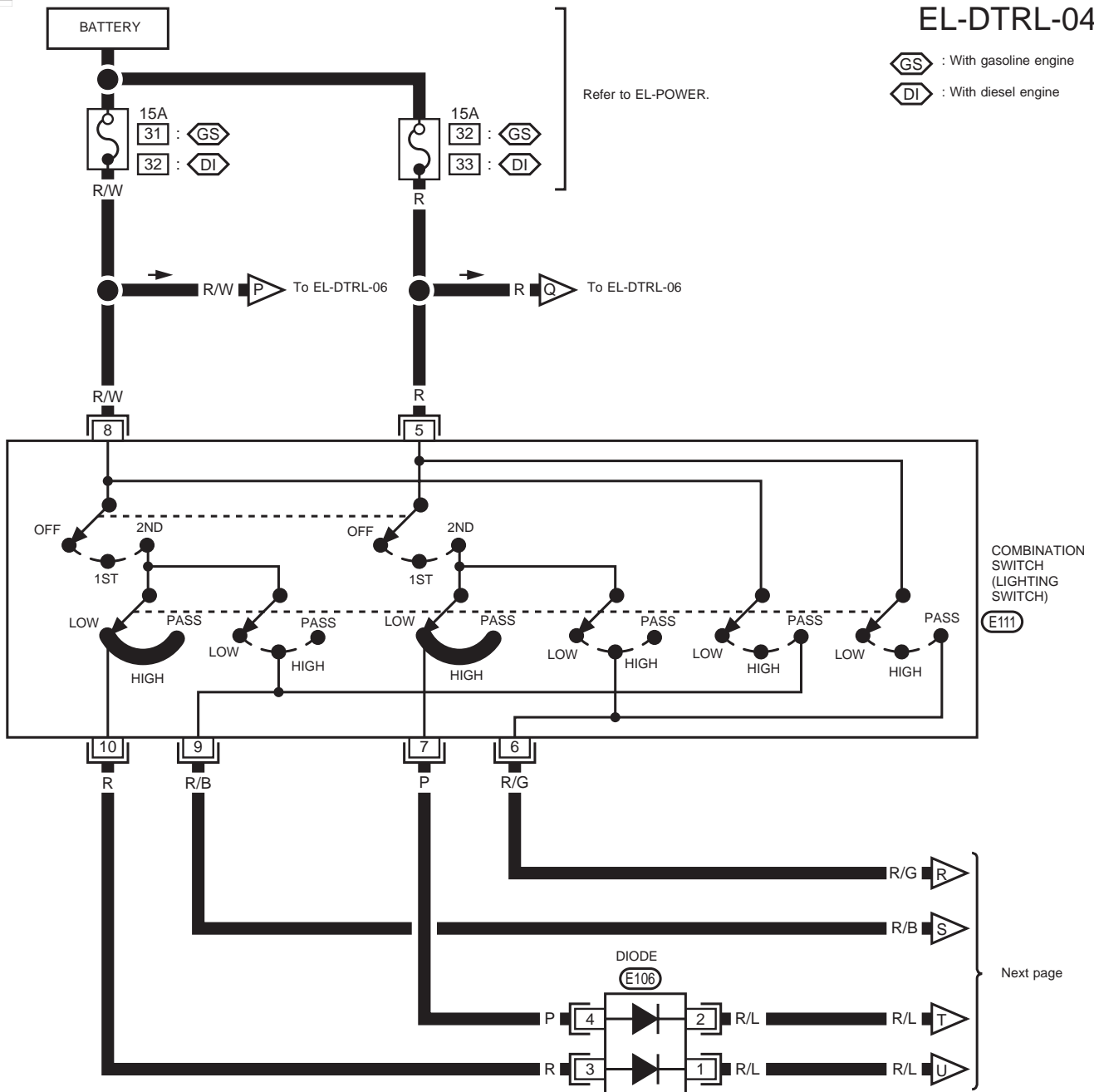
### XENON TYPE

EL-DTRL-04

GS : With gasoline engine

DI : With diesel engine

Refer to EL-POWER.



1	2	3	4	5	6	7	8	9	10	11	12	13	14
3	13	2	12	14	11								
9	6	5	7	8	10								

1	2	3	4
1	2	3	4
1	2	3	4

Next page

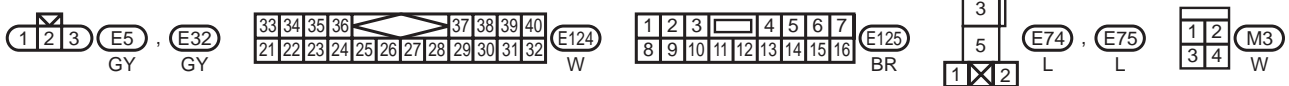
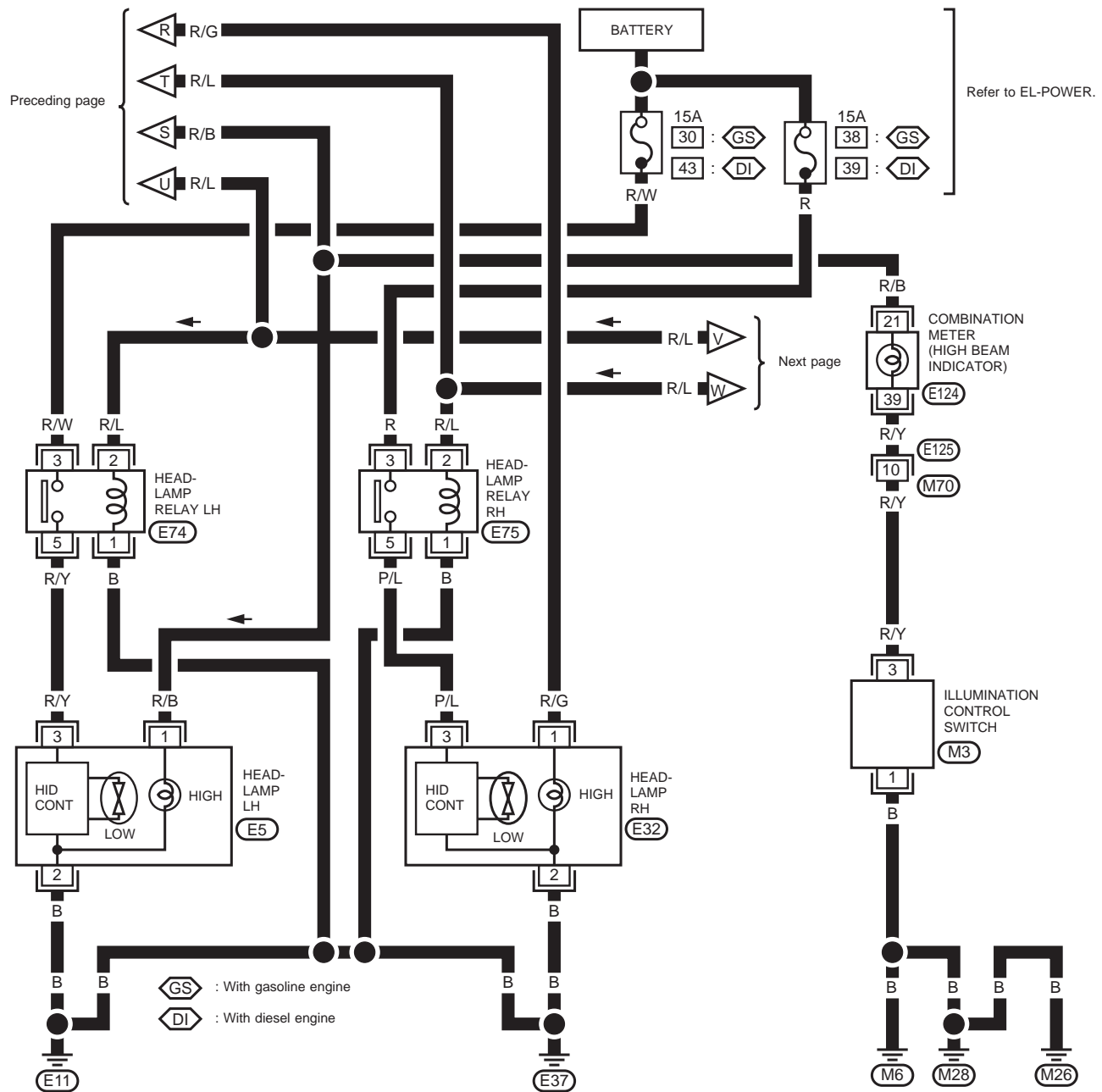
YEL266B

# HEADLAMP — Daytime Light System With Xenon Type —

## Wiring Diagram — DTRL — (Cont'd)

### XENON TYPE

EL-DTRL-05

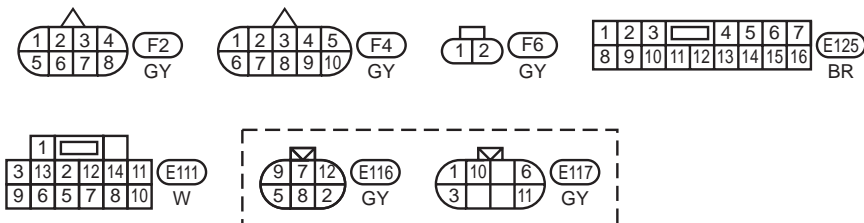
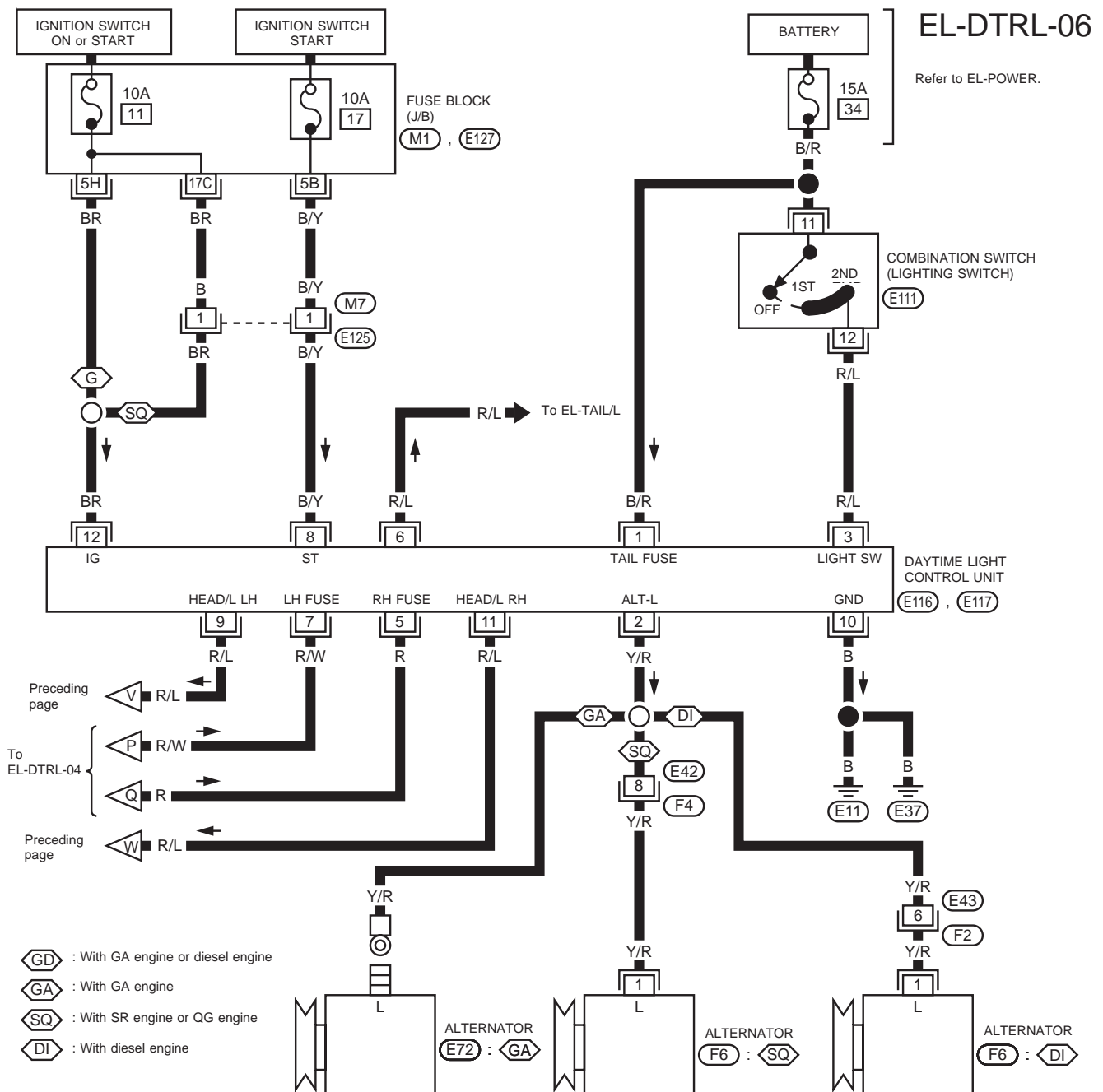


YEL267B

# HEADLAMP — Daytime Light System With Xenon Type —

## Wiring Diagram — DTRL — (Cont'd)

### XENON TYPE



REFER TO THE FOLLOWING

(M1) FUSE BLOCK - Junction Box (J/B)

(E127) FUSE BLOCK - Junction Box (J/B)

YEL268B

## HEADLAMP — Daytime Light System —

### Trouble Diagnoses

**DAYTIME LIGHT CONTROL UNIT INSPECTION TABLE**

Terminal No.	Connections	INPUT (I)/ OUTPUT (O)	Operated condition		Voltage (V) (Approximate values)
1	Power source for illumination & tail lamp	—	—		12
2	Alternator “L” terminal	I	Engine	Running	12
				Stopped	0
3	Lighting switch	I	1ST•2ND position		12
			OFF		0
5	Power source for headlamp RH	—	—		12
6	Illumination & tail lamp	O	ON (daytime light operating*)		12
			OFF		0
7	Power source for headlamp LH	—	—		12
8	Start signal	I	Ignition switch	START	12
				ON, ACC or OFF	0
9	Headlamp LH (conventional type), Headlamp relay LH (xenon type)	O	ON (daytime light operating*)		12
			OFF		0
10	Ground	—	—		—
11	Headlamp RH (conventional type), Headlamp relay RH (xenon type)	O	ON (daytime light operating*)		12
			OFF		0
12	Power source	—	Ignition switch	ON or START	12
				ACC or OFF	0

\*: Daytime light operating: Lighting switch in “OFF” position with engine running.

#### **Bulb Replacement/Conventional Type**

For bulb replacement refer to EL-70.

#### **Bulb specifications/Conventional Type**

For bulb specifications, refer to EL-128.

#### **Aiming Adjustment/Conventional Type**

For aiming adjustment, refer to EL-70.

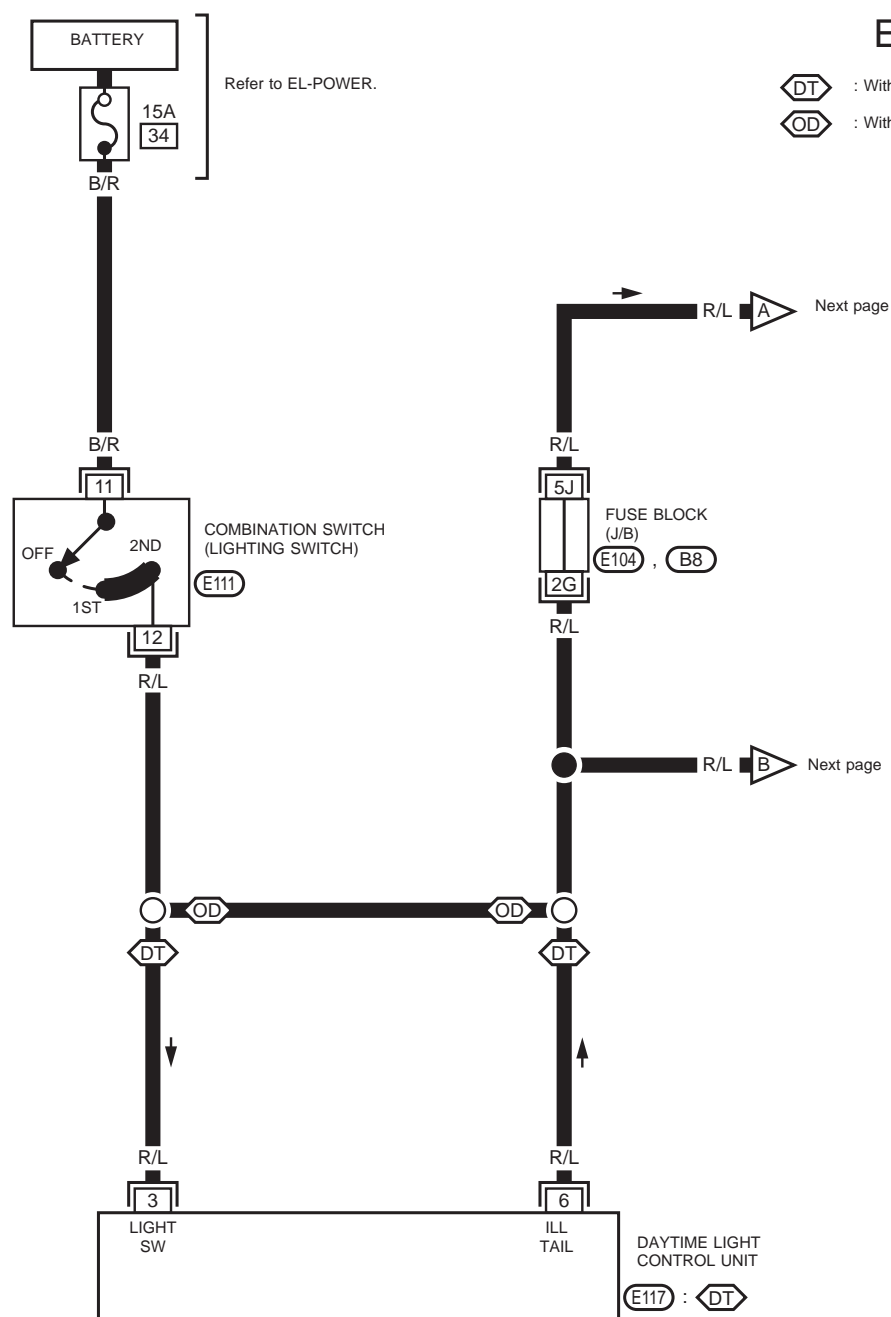
#### **Bulb replacement/Xenon Type**

For bulb replacement, refer to EL-76.

#### **Aiming Adjustment/Xenon Type**

For aiming adjustment, refer to EL-89.

## EL-H/AIM-01



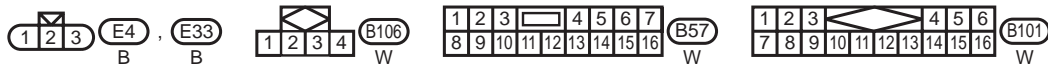
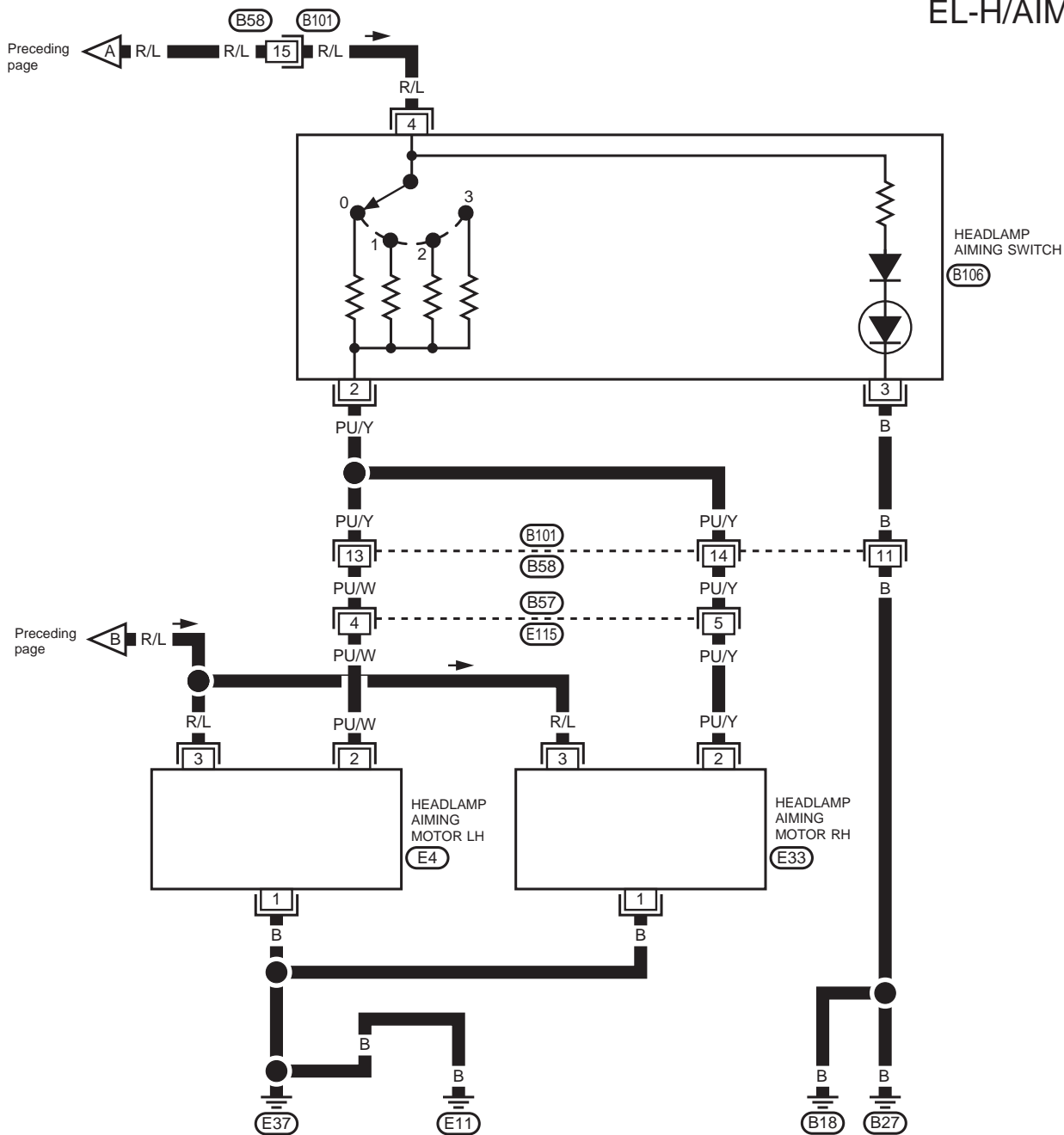
REFER TO THE FOLLOWING

**(E104)** FUSE BLOCK - Junction Box (J/B)

(B8) FUSE BLOCK - Junction Box (J/B)

# HEADLAMP — Headlamp Aiming Control (Manual) — Wiring Diagram — AIM — (Cont'd)

EL-H/AIM-02



YEL271B



### System Description

The auto level control unit is designed to adjust the beam angle of the headlamp in response to the loading conditions of the vehicle. It is not designed to compensate for the dynamic handling of the vehicle. The vehicle's front and rear height is measured by sensors attached to the front stabilizer bar and the rear suspension lateral link arm. The sensors provide a signal to the auto level control unit, which calculates the correct headlamp aiming position and sends a signal to the aiming motors.

### Initialisation

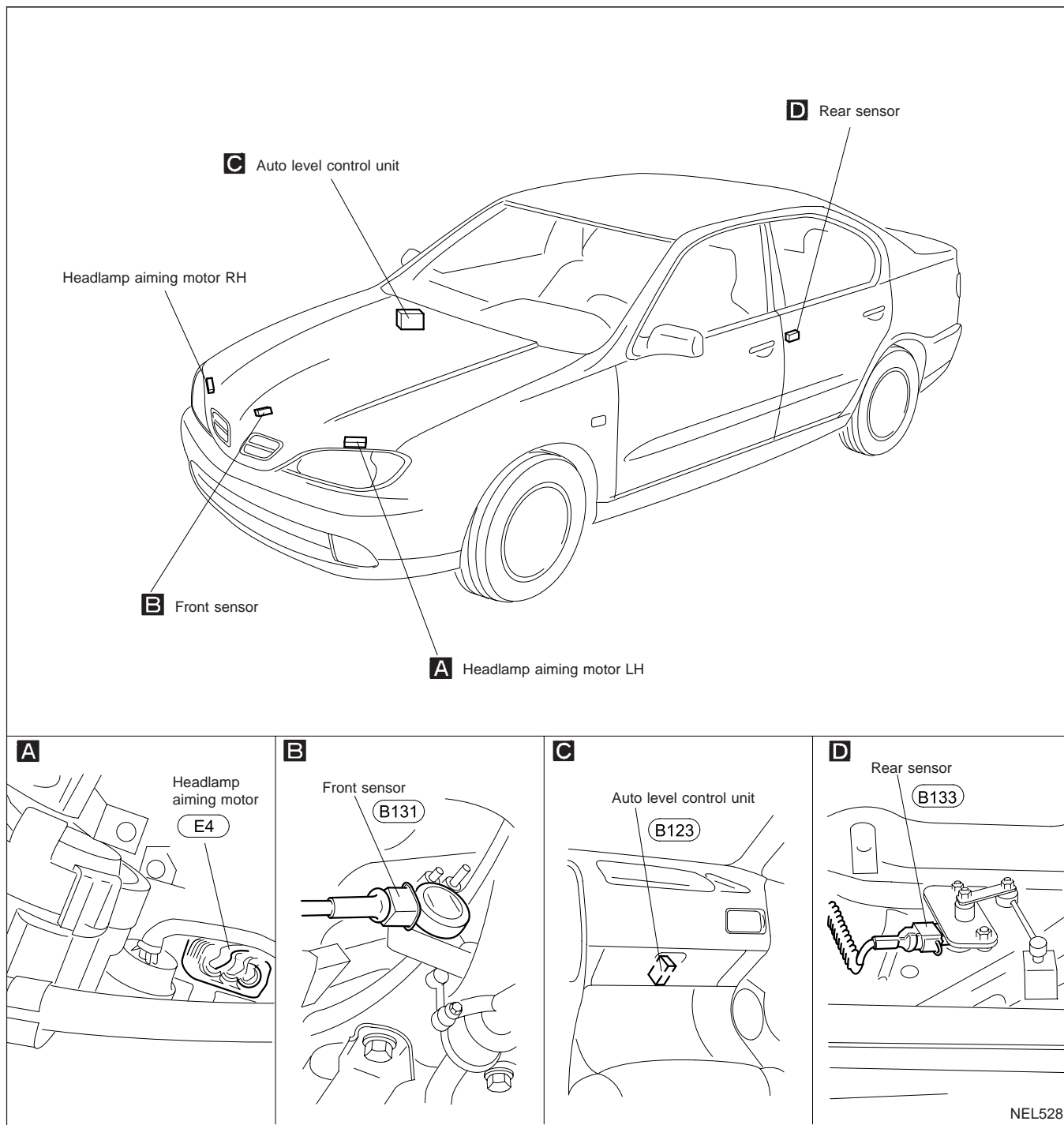
After the replacement or adjustment of any suspension sensor, the system must be self calibrated. This is achieved as follows.

The vehicle must be empty, since any load will result in an invalid calibration. From outside of the vehicle turn ignition on and then within 7 seconds the light switch must be turned from off to side lights on position, 5 times, finishing with the lamps in the on position.

The headlamps will then move to the highest, then the lowest then the normal position to indicate that the calibration is successful, as can be seen by the moving beam pattern.

After successful calibration the headlamps must then be aimed in the conventional manner. Refer to EL-70.

## Component Parts and Harness Connector Location



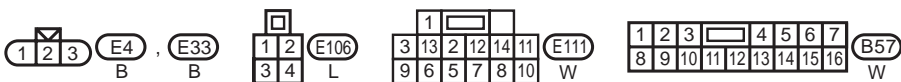
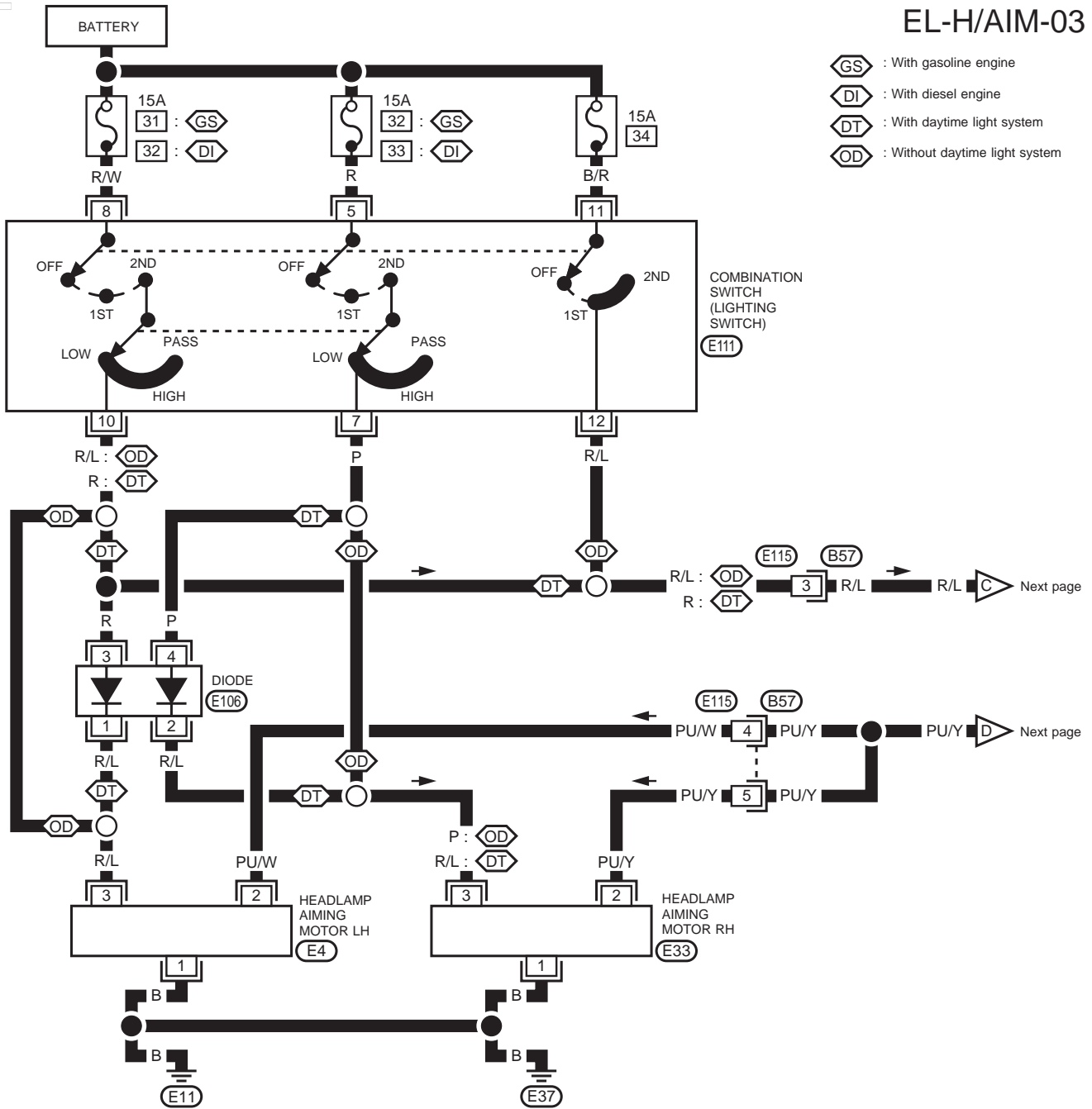
# HEADLAMP — Headlamp Aiming Control (Auto) —

## Wiring Diagram — AIM —

AUTO

EL-H/AIM-03

- GS : With gasoline engine
- DI : With diesel engine
- DT : With daytime light system
- OD : Without daytime light system



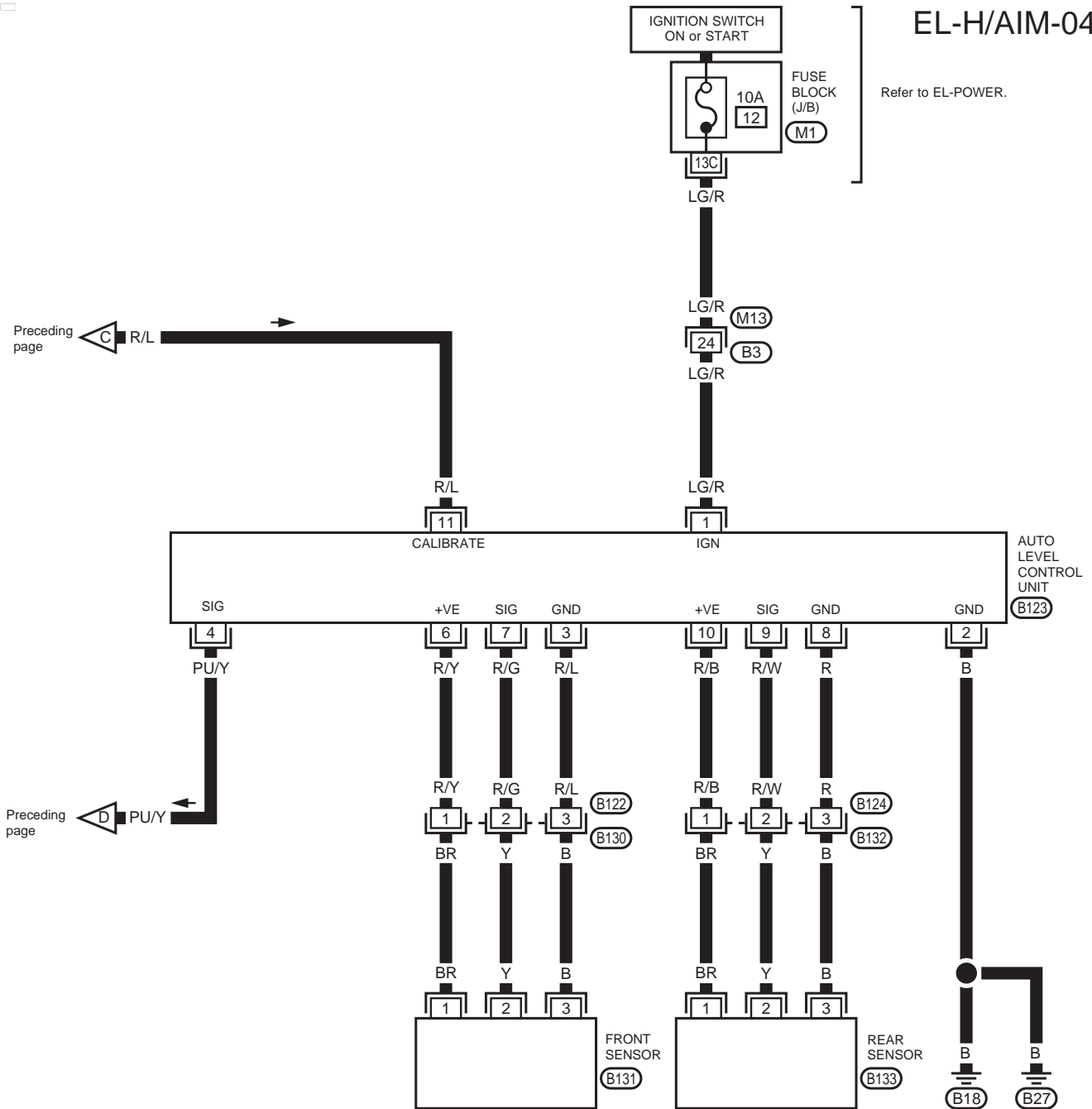
YEL273B

# HEADLAMP — Headlamp Aiming Control (Auto) —

## Wiring Diagram — AIM — (Cont'd)

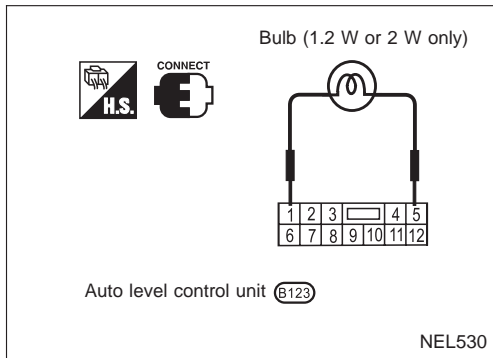
EL-H/AIM-04

Refer to EL-POWER.



REFER TO THE FOLLOWING  
M1 FUSE BLOCK - Junction Box (J/B)

YEL274B



### Trouble Diagnosis

#### PERFORMING SELF-DIAGNOSIS

Check headlamp aiming control (auto) system using a bulb as follows:

1. Connect a bulb 1.2W or 2W between auto level control unit connector terminal ① and ⑤.


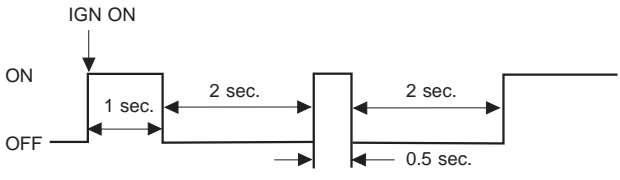
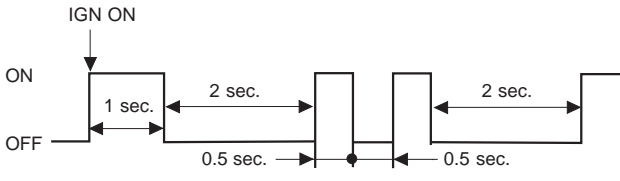
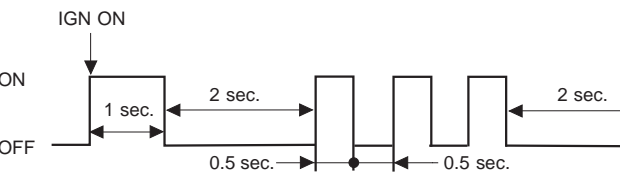
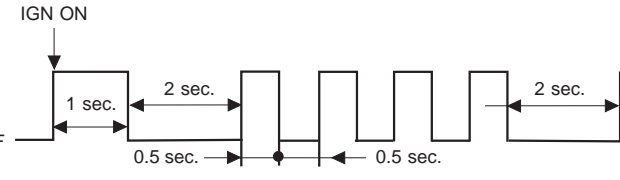
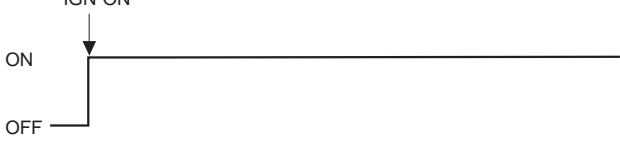
#### NOTE:

**Do not use another bulb. This will damage the auto level control unit. Use a 1.2 W or 2W bulb only.**

2. After turning the ignition switch from "OFF" to "ON", the bulb operates.
3. Compare the bulb operation to the chart below.

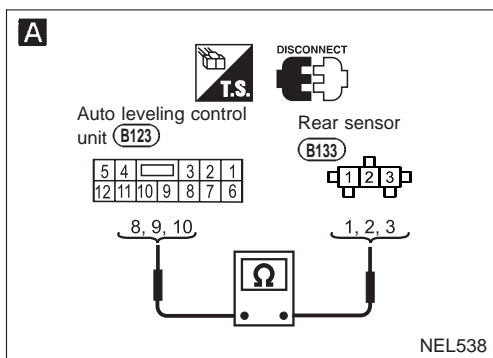
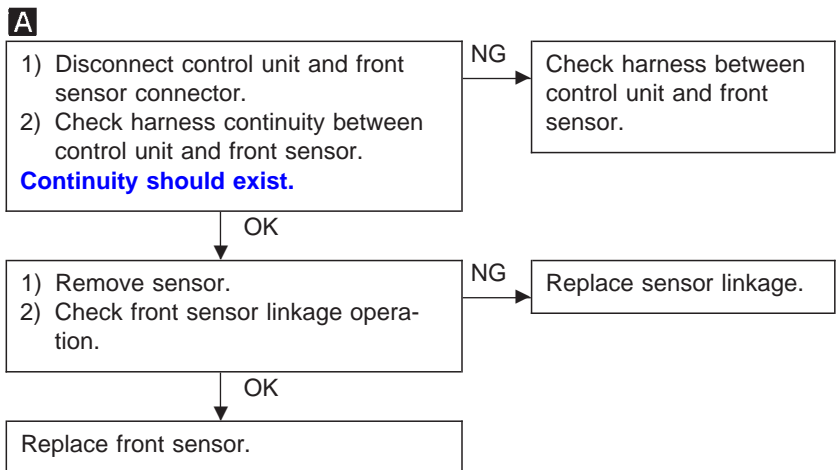
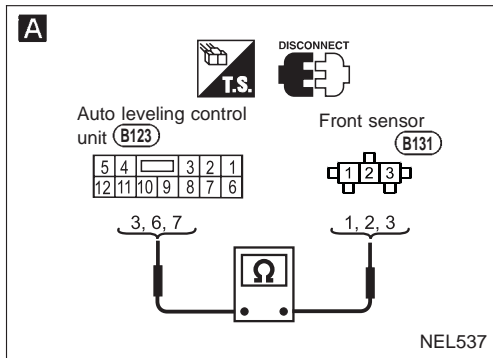
# HEADLAMP — Headlamp Aiming Control (Auto) —

## Trouble Diagnosis (Cont'd)

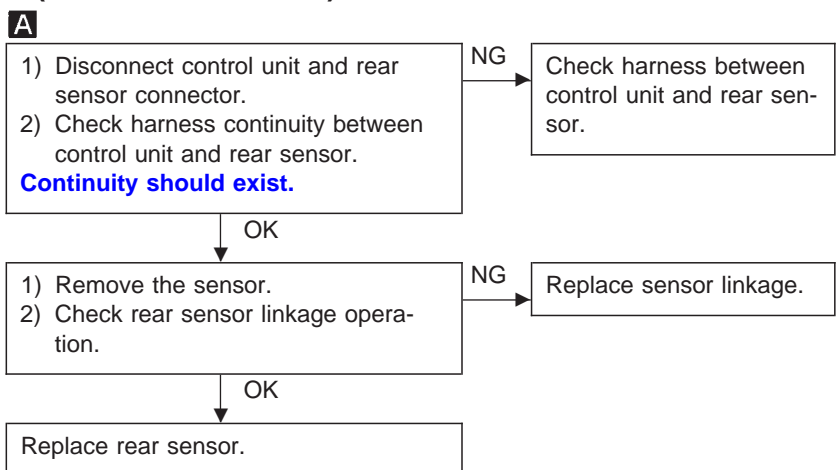
Lighting condition of the bulb	System condition	Reference item
 <p>IGN ON</p> <p>ON</p> <p>OFF</p> <p>1 sec.</p>	No malfunction is detected. No further action is necessary.	—
 <p>IGN ON</p> <p>ON</p> <p>OFF</p> <p>1 sec.</p> <p>2 sec.</p> <p>0.5 sec.</p> <p>2 sec.</p>	Front sensor or front sensor circuit is malfunctioning. (When rear sensor OK)	Go to DIAGNOSTIC PROCEDURE 1 (EL-95).
 <p>IGN ON</p> <p>ON</p> <p>OFF</p> <p>1 sec.</p> <p>2 sec.</p> <p>0.5 sec.</p> <p>0.5 sec.</p> <p>2 sec.</p>	Rear sensor or rear sensor circuit is malfunctioning. (Whatever the state of front sensor)	Go to DIAGNOSTIC PROCEDURE 2 (EL-95).
 <p>IGN ON</p> <p>ON</p> <p>OFF</p> <p>1 sec.</p> <p>2 sec.</p> <p>0.5 sec.</p> <p>0.5 sec.</p> <p>2 sec.</p>	Sensor supply is malfunctioning.	Go to DIAGNOSTIC PROCEDURE 1 and 2 (EL-95).
 <p>IGN ON</p> <p>ON</p> <p>OFF</p> <p>1 sec.</p> <p>2 sec.</p> <p>0.5 sec.</p> <p>0.5 sec.</p> <p>2 sec.</p>	Aiming motor or aiming motor circuit is malfunctioning.	Go to DIAGNOSTIC PROCEDURE 3 (EL-96).
 <p>IGN ON</p> <p>ON</p> <p>OFF</p>	Auto level control unit is malfunctioning.	Replace auto level control unit.

# HEADLAMP — Headlamp Aiming Control (Auto) —

## Trouble Diagnosis (Cont'd) DIAGNOSTIC PROCEDURE 1 (Front sensor check)

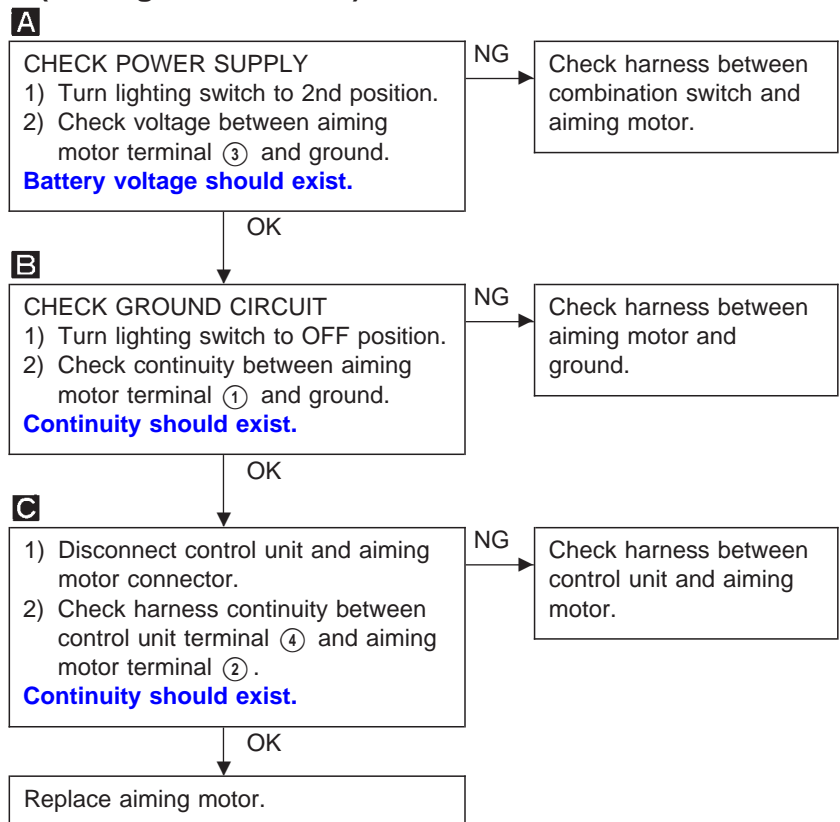
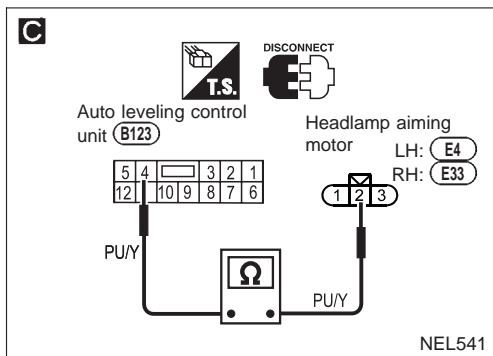
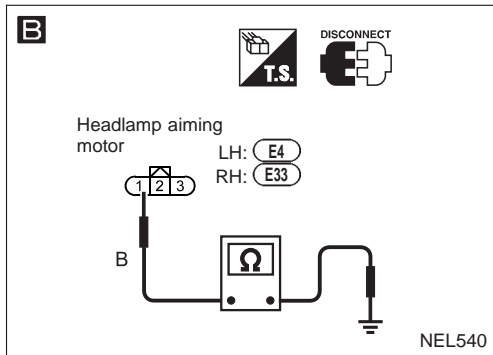
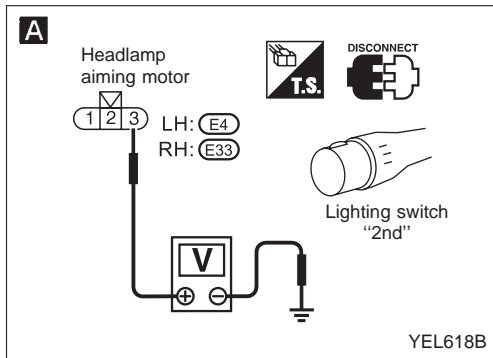


## DIAGNOSTIC PROCEDURE 2 (Rear sensor check)



# HEADLAMP — Headlamp Aiming Control (Auto) —

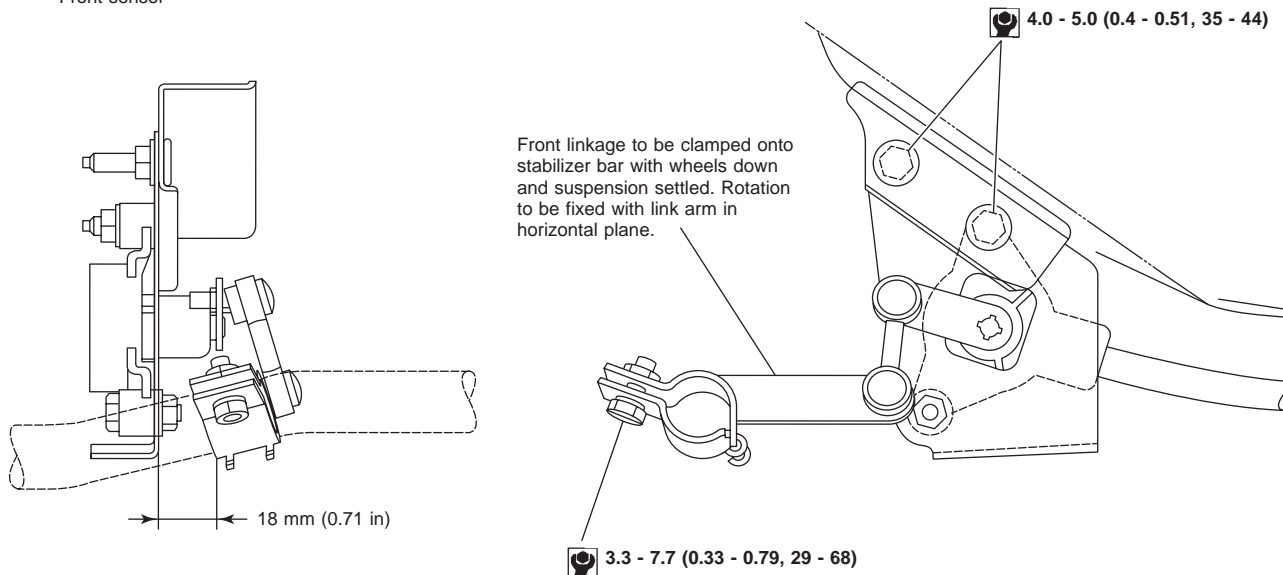
## Trouble Diagnosis (Cont'd) DIAGNOSTIC PROCEDURE 3 (Aiming motor check)



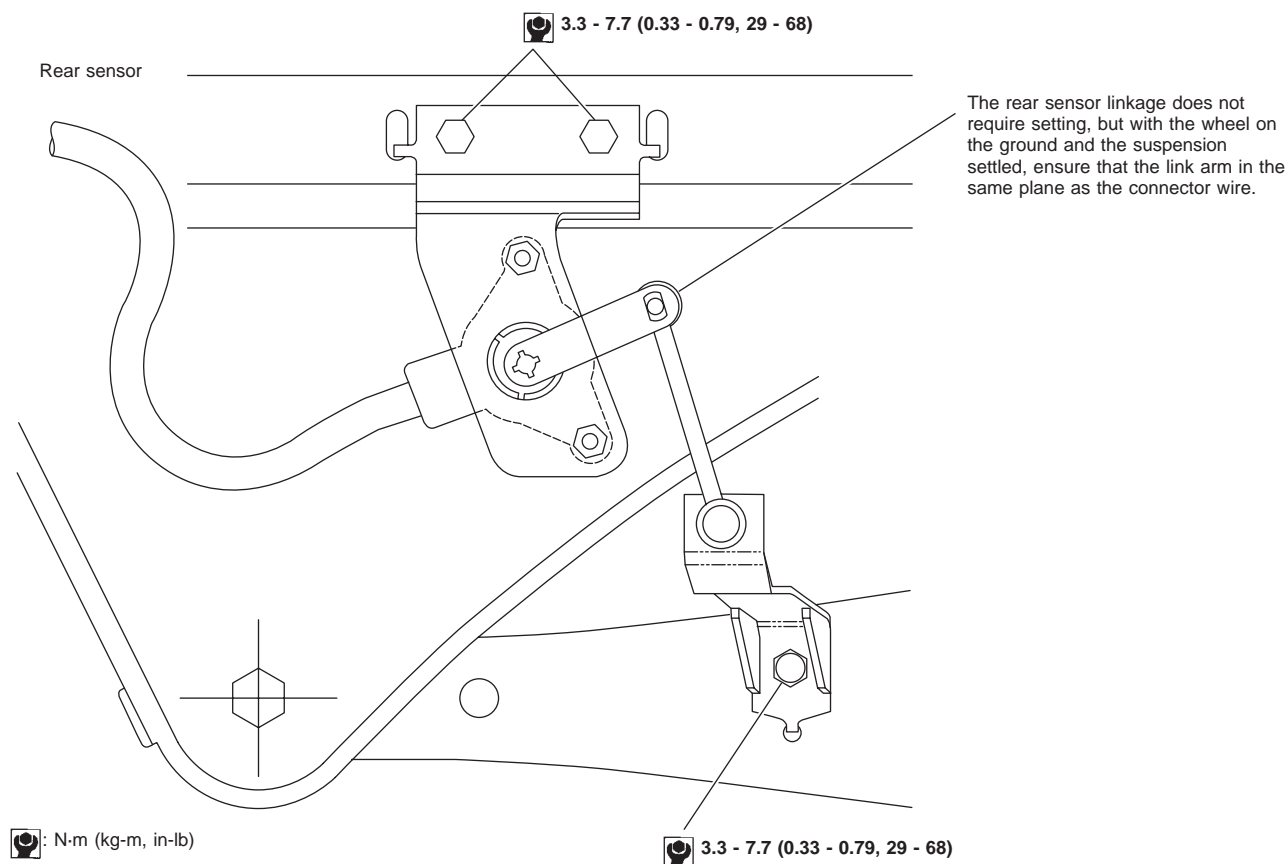


## Removal and Installation

Front sensor



Rear sensor



YEL621B

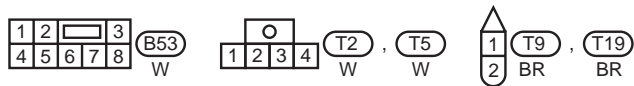
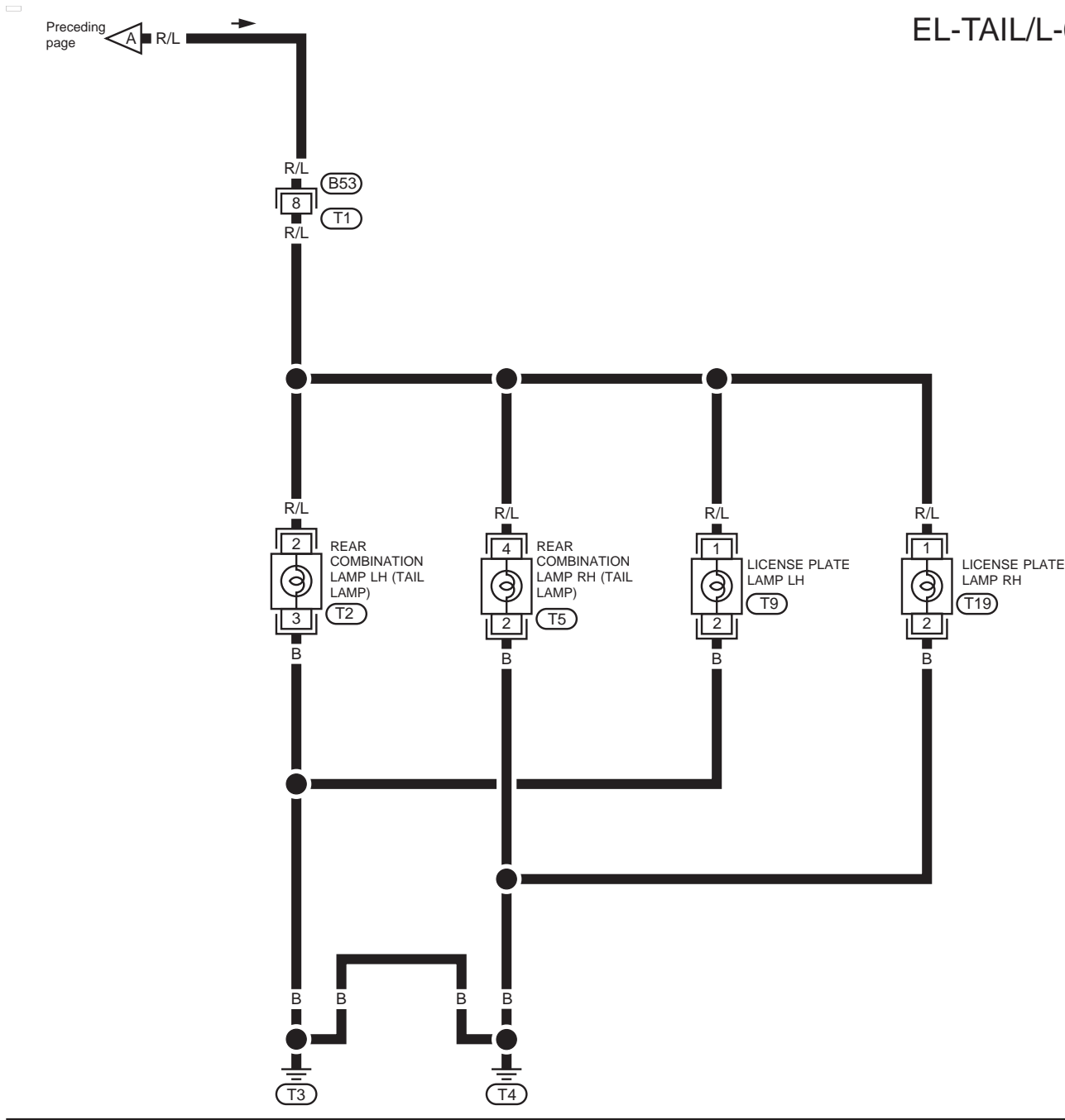


PARKING, LICENSE AND TAIL LAMPS

Wiring Diagram — TAIL/L — (Cont'd)

4-DOOR MODELS

EL-TAIL/L-02



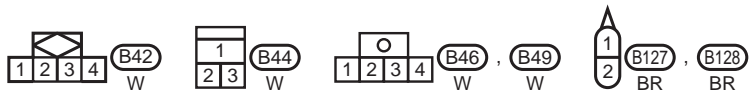
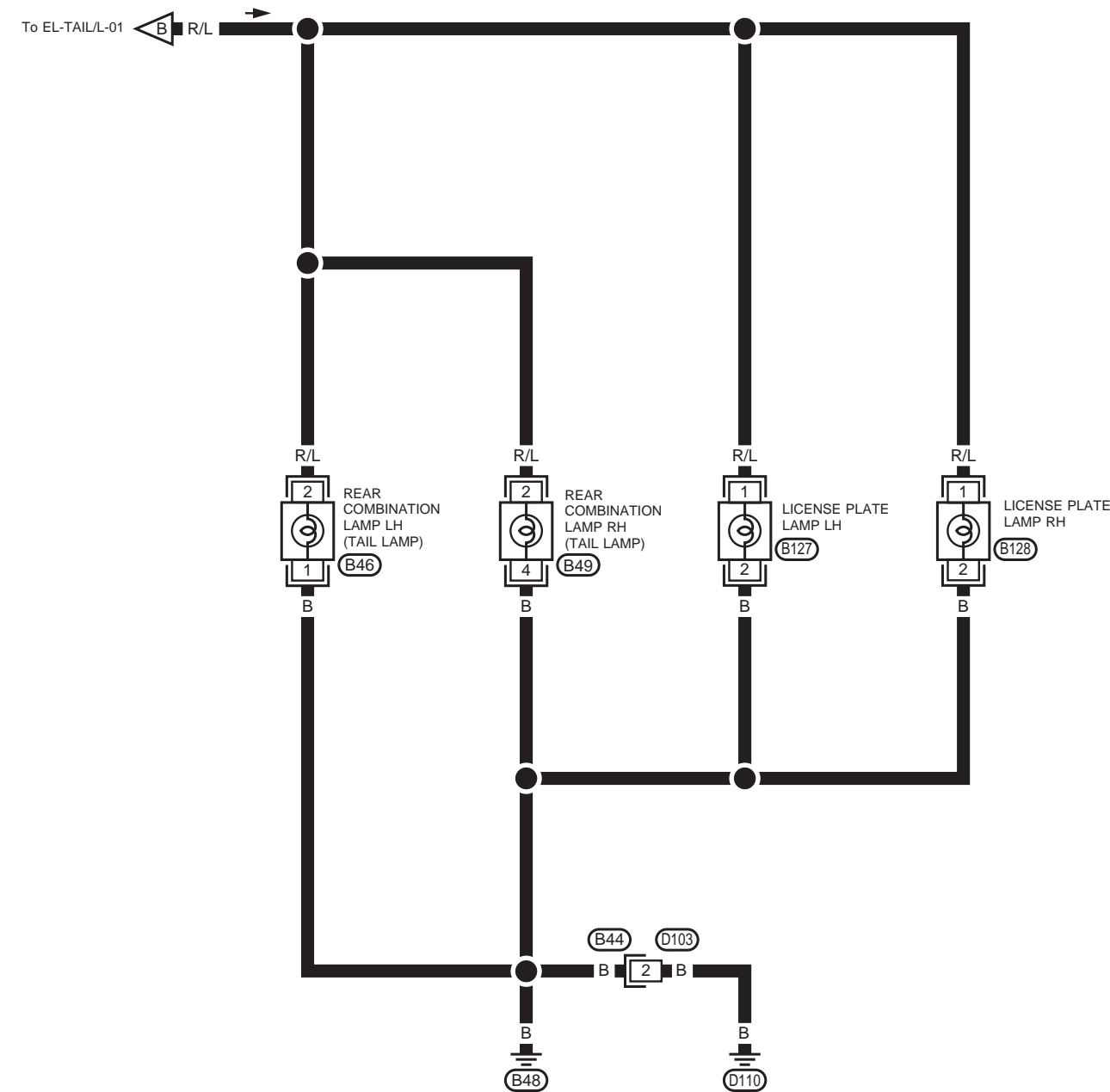
YEL276B

PARKING, LICENSE AND TAIL LAMPS

Wiring Diagram — TAIL/L — (Cont'd)

5-DOOR HATCH-BACK MODELS

EL-TAIL/L-03

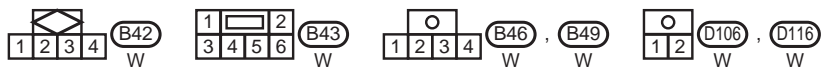
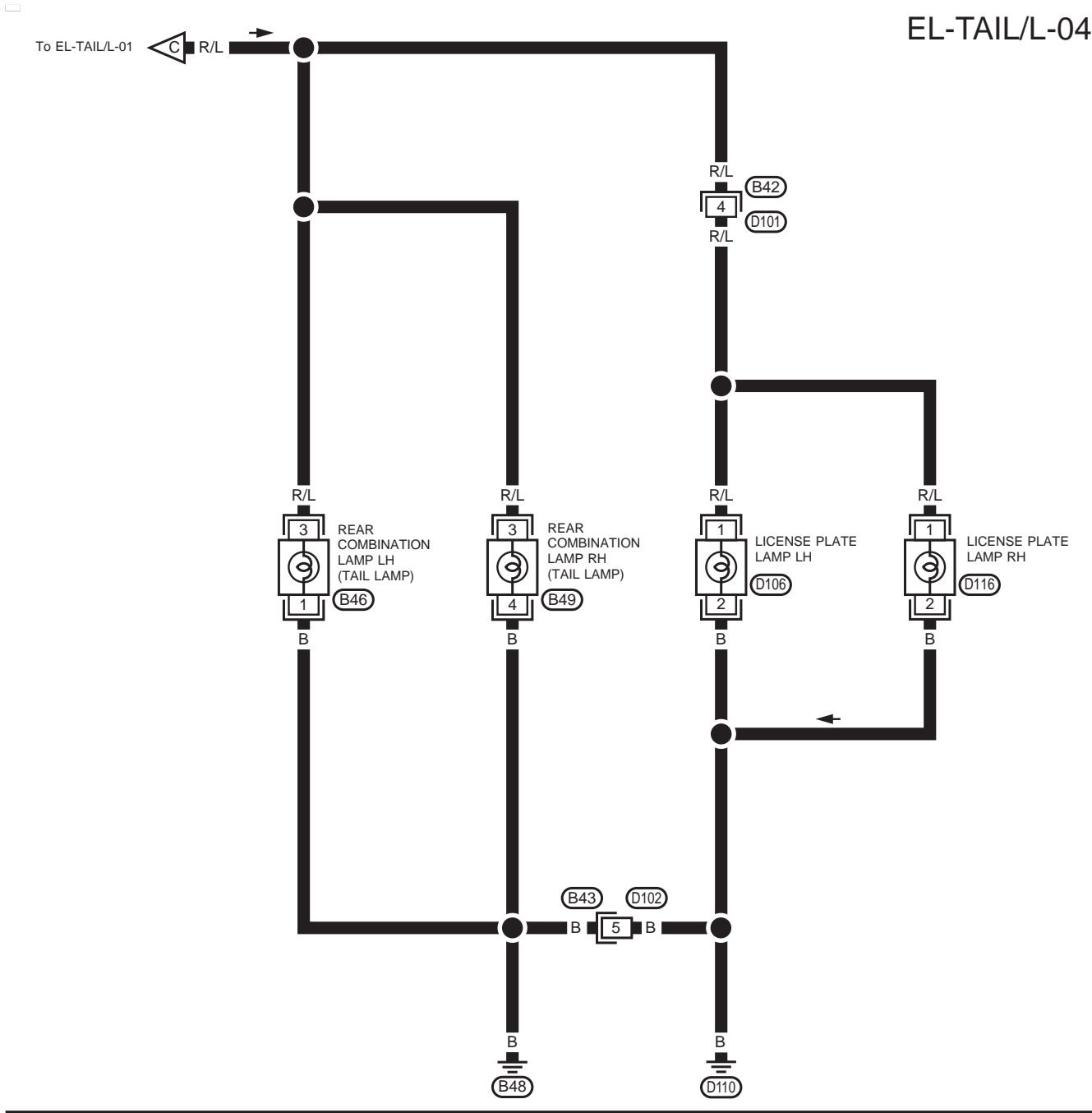


YEL277B

PARKING, LICENSE AND TAIL LAMPS

Wiring Diagram — TAIL/L — (Cont'd)

WAGON MODELS

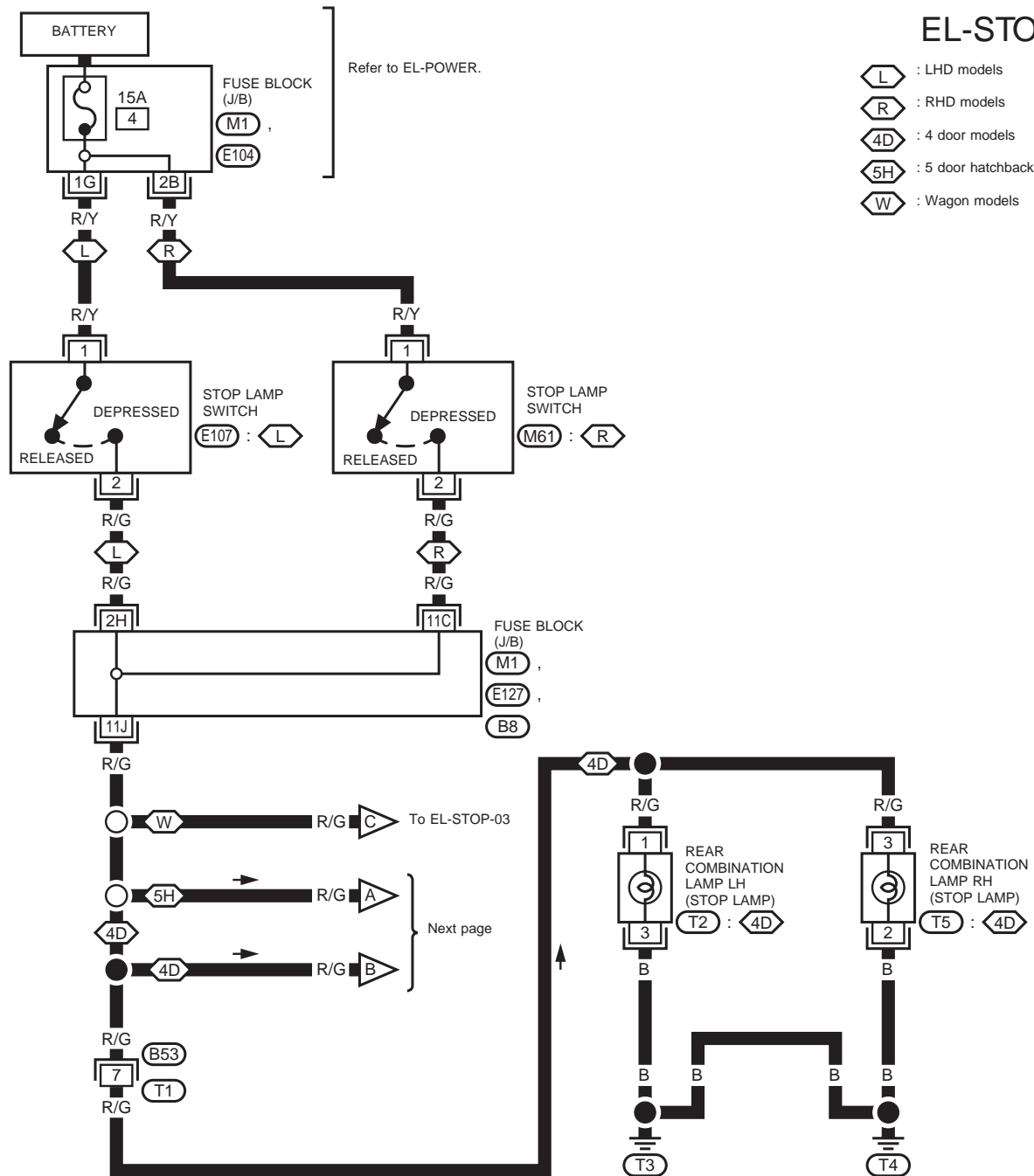


# STOP LAMP

## Wiring Diagram — STOP/L —

EL-STOP-01

- L : LHD models
- R : RHD models
- 4D : 4 door models
- 5H : 5 door hatchback models
- W : Wagon models



REFER TO THE FOLLOWING

- M1 FUSE BLOCK - Junction Box (J/B)
- E127 FUSE BLOCK - Junction Box (J/B)
- B8 FUSE BLOCK - Junction Box (J/B)
- E104 FUSE BLOCK - Junction Box (J/B)

YEL279B

# STOP LAMP

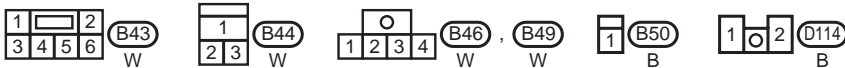
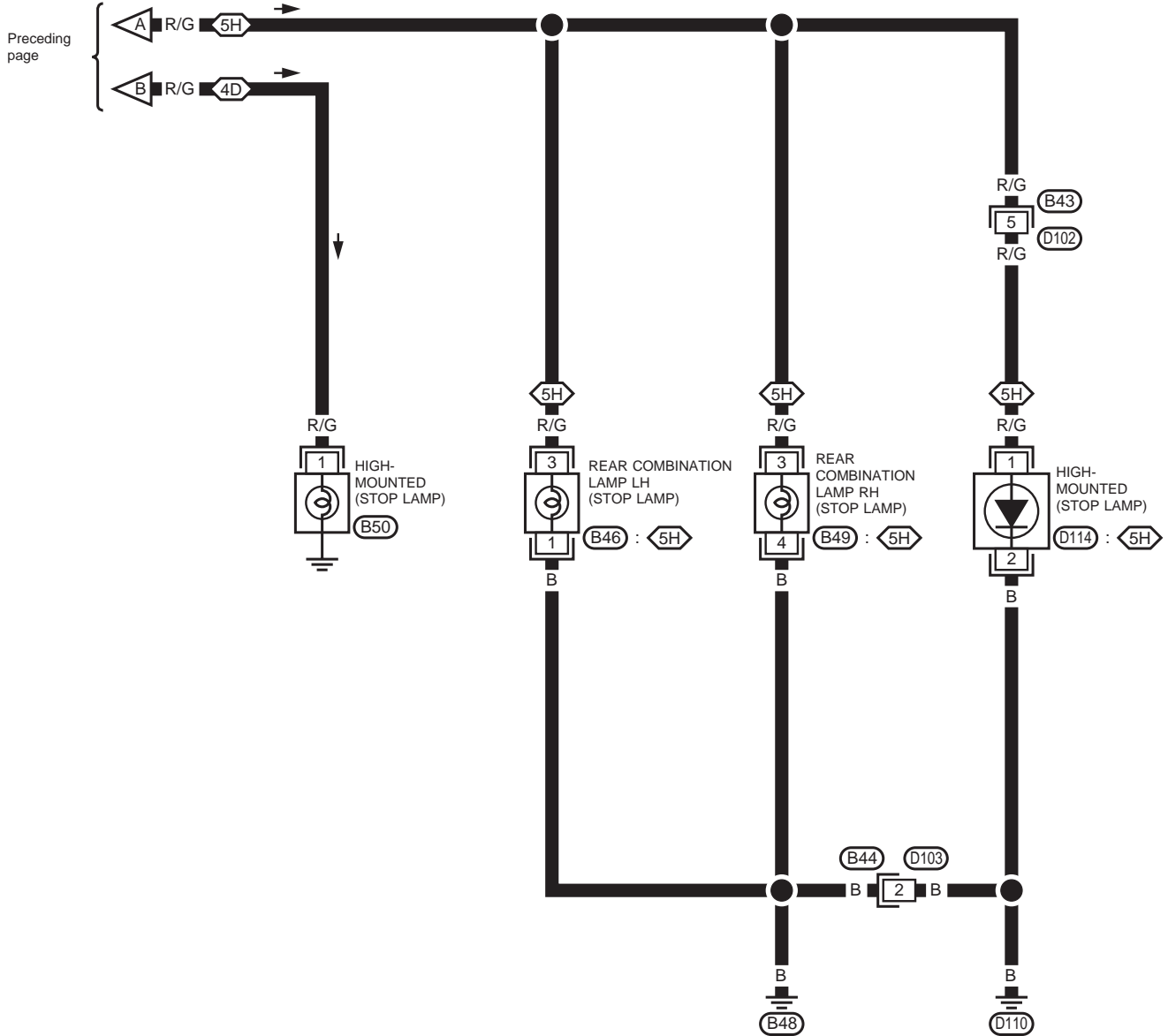
## Wiring Diagram — STOP/L — (Cont'd)

### 4-DOOR MODELS AND 5-DOOR HATCH-BACK MODELS

EL-STOP-02

4D : 4 door models

5H : 5 door hatch-back models

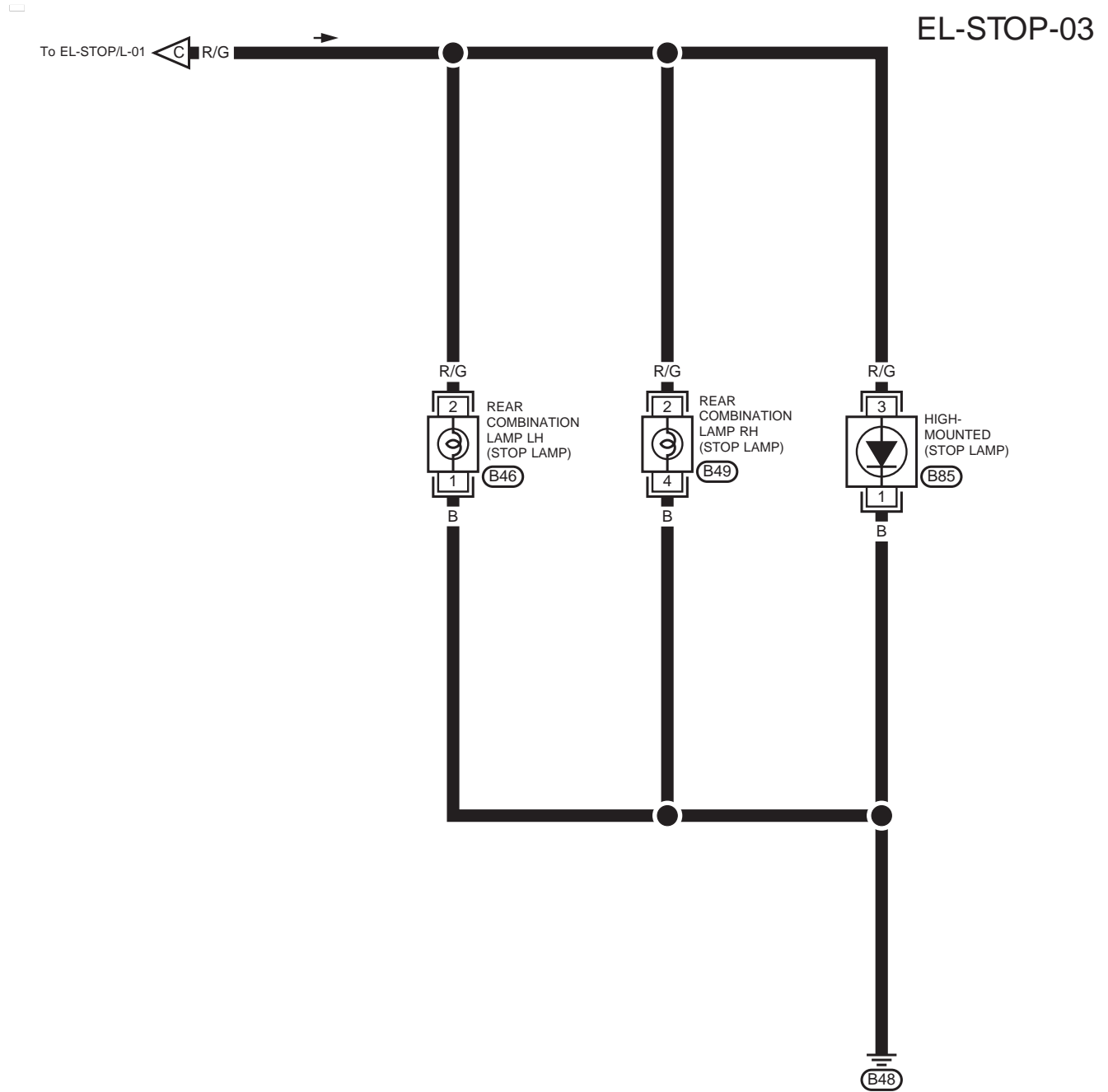


YEL280B

# STOP LAMP

## Wiring Diagram — STOP/L — (Cont'd)

### WAGON MODELS



YEL281B

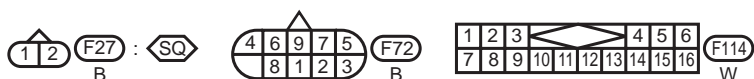
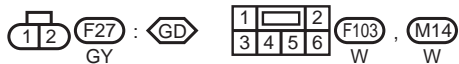
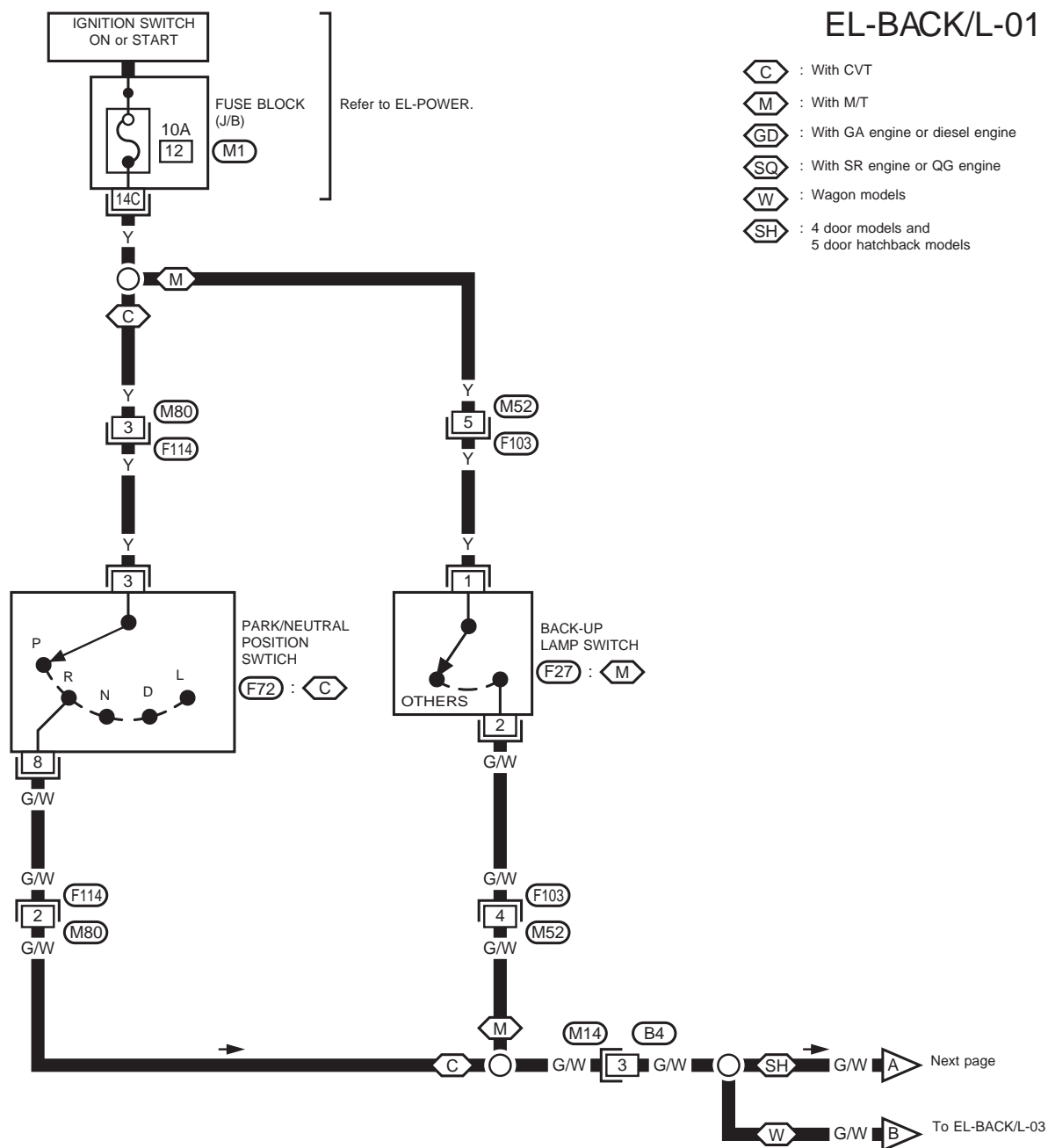


# BACK-UP LAMP

## Wiring Diagram — BACK/L —

### EL-BACK/L-01

- C : With CVT
- M : With M/T
- GD : With GA engine or diesel engine
- SQ : With SR engine or QG engine
- W : Wagon models
- SH : 4 door models and  
5 door hatchback models



REFER TO THE FOLLOWING  
M1 FUSE BLOCK - Junction Box (J/B)

YEL282B

# BACK-UP LAMP

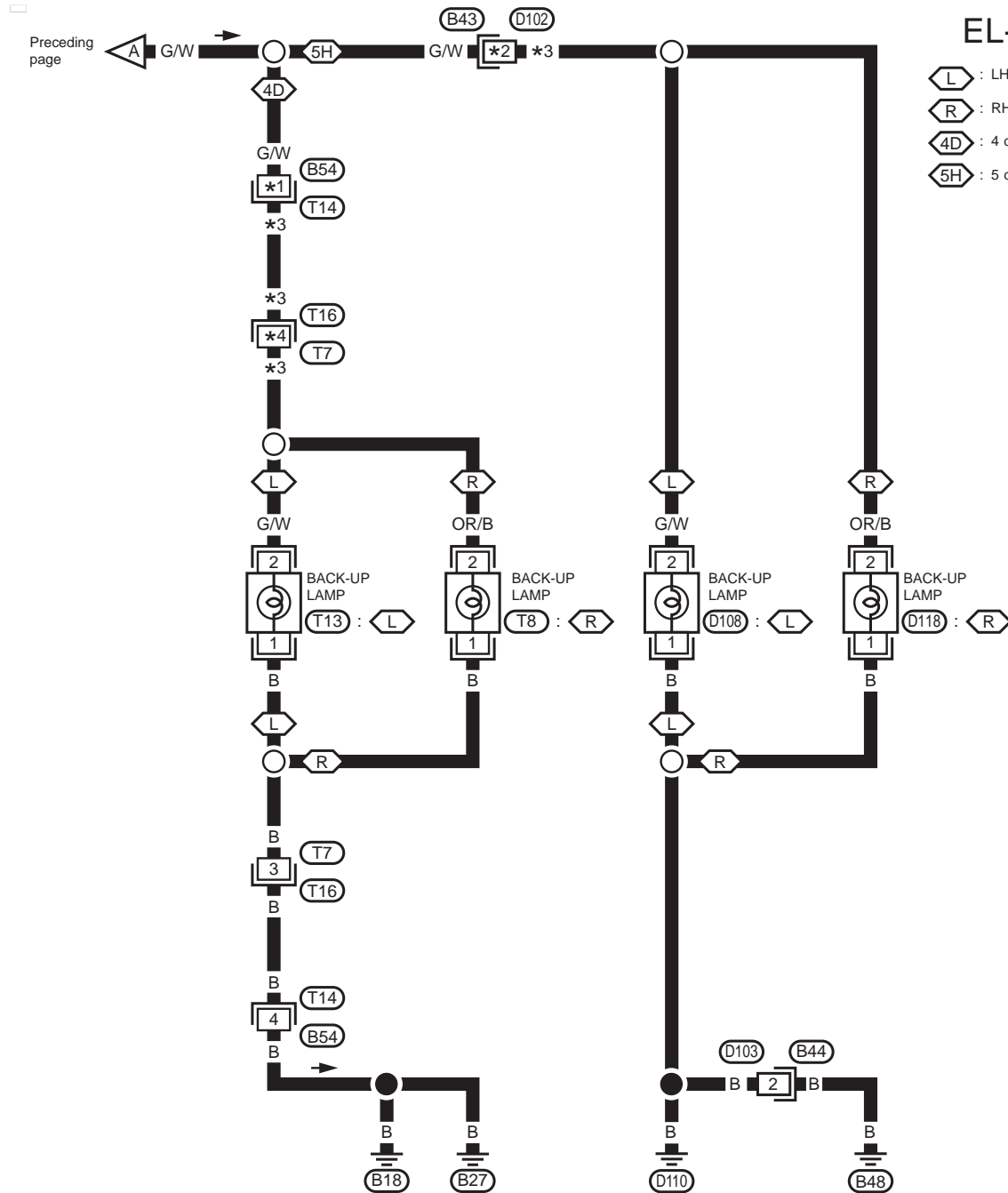
## Wiring Diagram — BACK/L — (Cont'd)

### 4-DOOR MODELS AND 5-DOOR HATCH-BACK MODELS

#### EL-BACK/L-02

- L : LHD models
- R : RHD models
- 4D : 4 doors models
- 5H : 5 door hatchback models

- \*1 6 : L
- 8 : R
- \*2 4 : L
- 3 : R
- \*3 G/W : L
- OR/B : R
- \*4 5 : L
- 7 : R



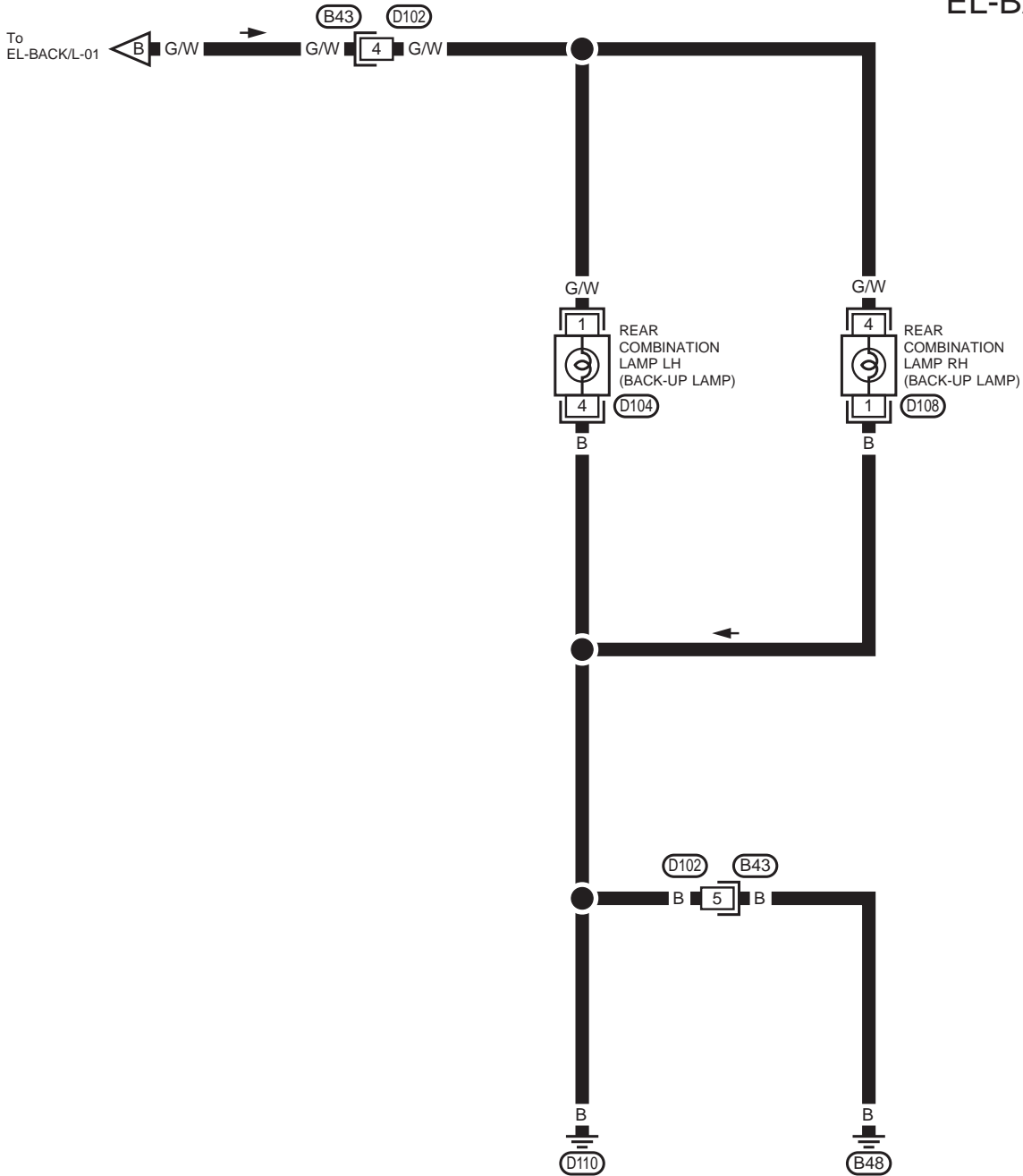
YEL283B

# BACK-UP LAMP

## Wiring Diagram — BACK/L — (Cont'd)

### WAGON MODELS

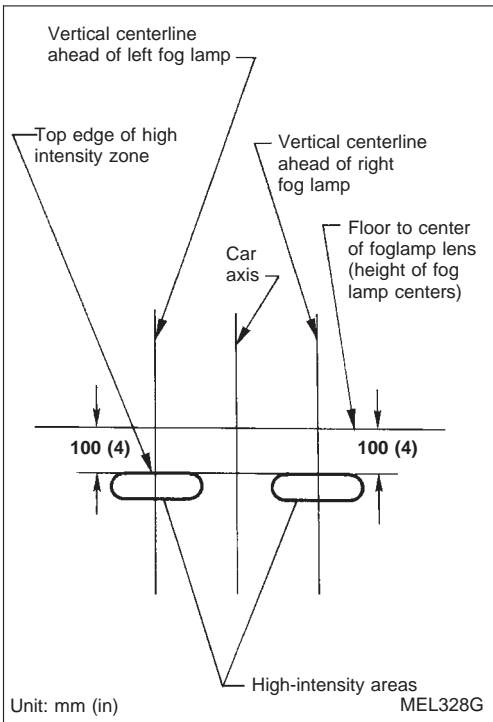
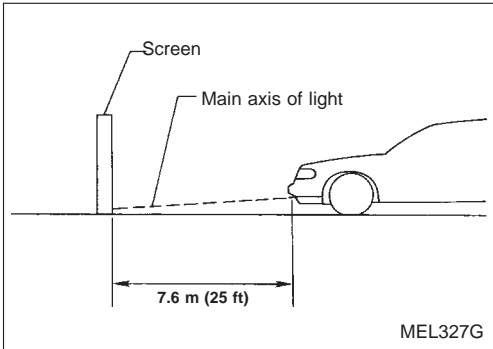
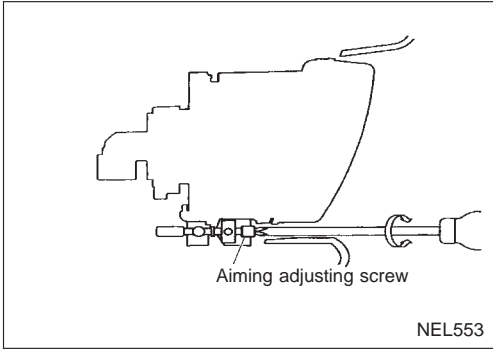
EL-BACK/L-03



YEL284B



# FRONT FOG LAMP



## Aiming Adjustment

Before performing aiming adjustment, make sure of the following.

- Keep all tires inflated to correct pressure.
- Place vehicle on level ground.
- Check that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver's seat.

- Set the distance between the screen and the center of the fog lamp lens as shown at left.
- Turn front fog lamps ON.

- Adjust front fog lamps so that the top edge of the high intensity zone is 100 mm (4 in) below the height of the fog lamp centers as shown at left.
  - When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.

## Bulb Specifications

Item	Wattage (W)
Front fog lamp	55



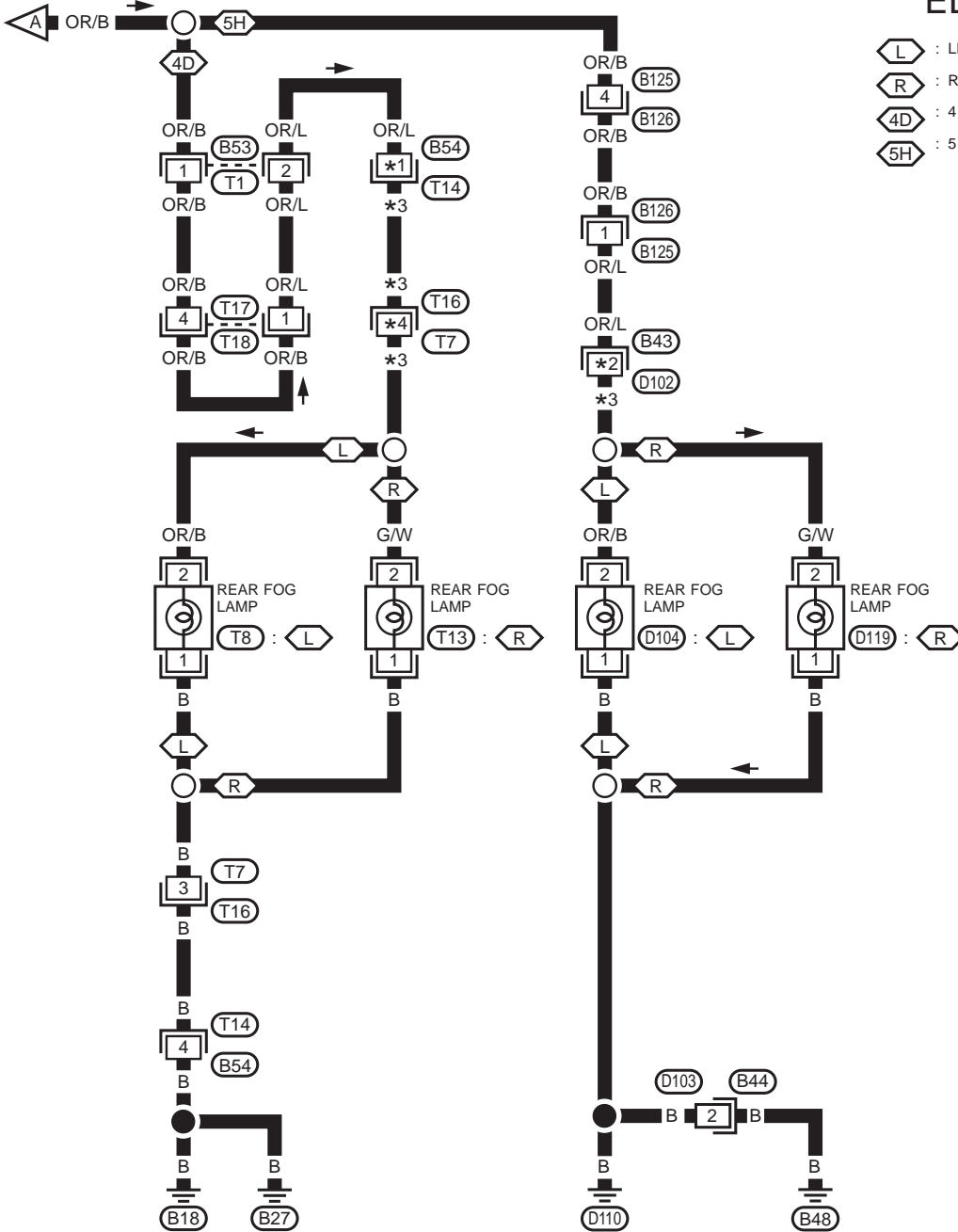
# REAR FOG LAMP

## Wiring Diagram — R/FOG — (Cont'd)

### 4-DOOR MODELS AND 5-DOOR HATCH-BACK MODELS

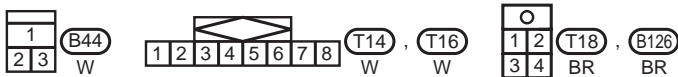
EL-R/FOG-02

Preceding  
page



- (L) : LHD models
- (R) : RHD models
- (4D) : 4 door models
- (5H) : 5 doors hatchback models

- \*1 8 : (L)
- 6 : (R)
- \*2 3 : (L)
- 4 : (R)
- \*3 OR/B : (L)
- G/W : (R)
- \*4 7 : (L)
- 5 : (R)



YEL287B

# REAR FOG LAMP

## Wiring Diagram — R/FOG — (Cont'd)

### WAGON MODELS

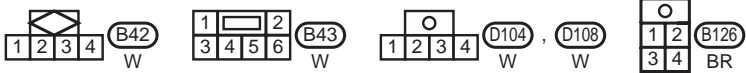
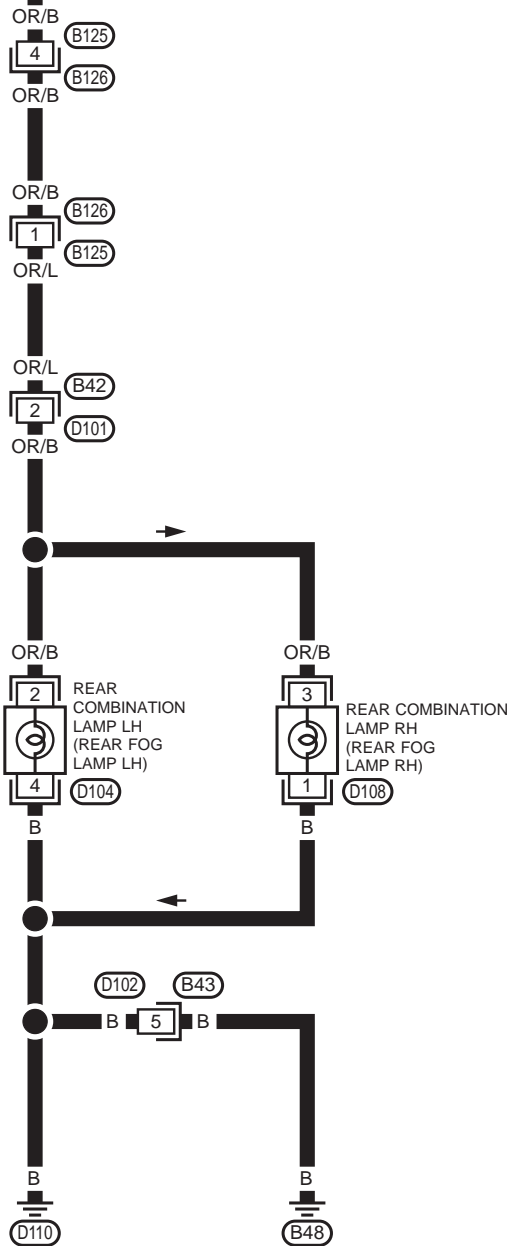
□

To EL-R/FOG-01



OR/B

EL-R/FOG-03

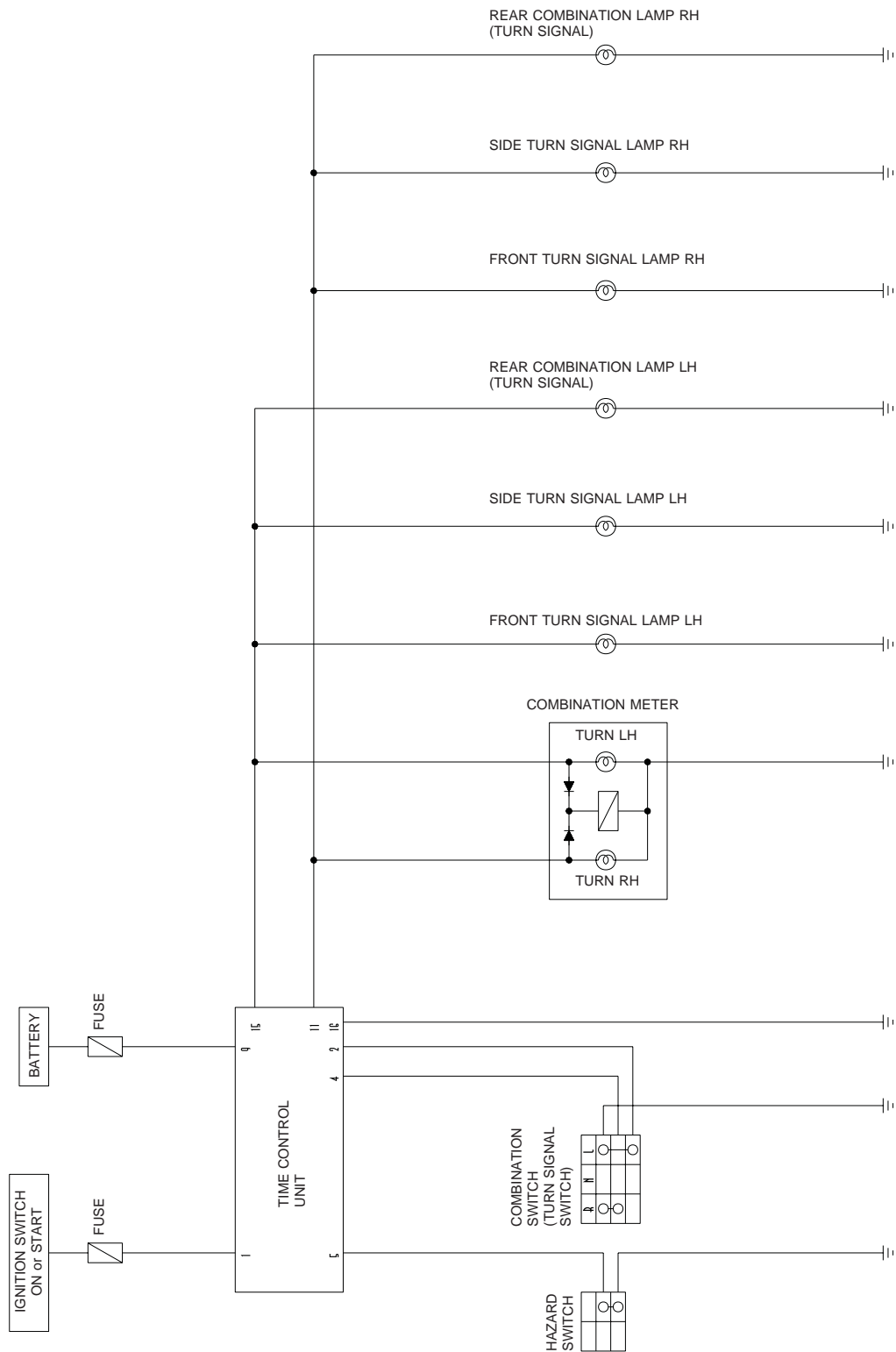


YEL288B



# TURN SIGNAL AND HAZARD WARNING LAMPS

## Schematic

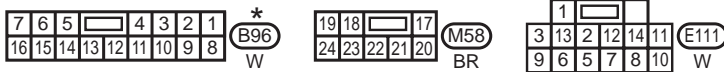
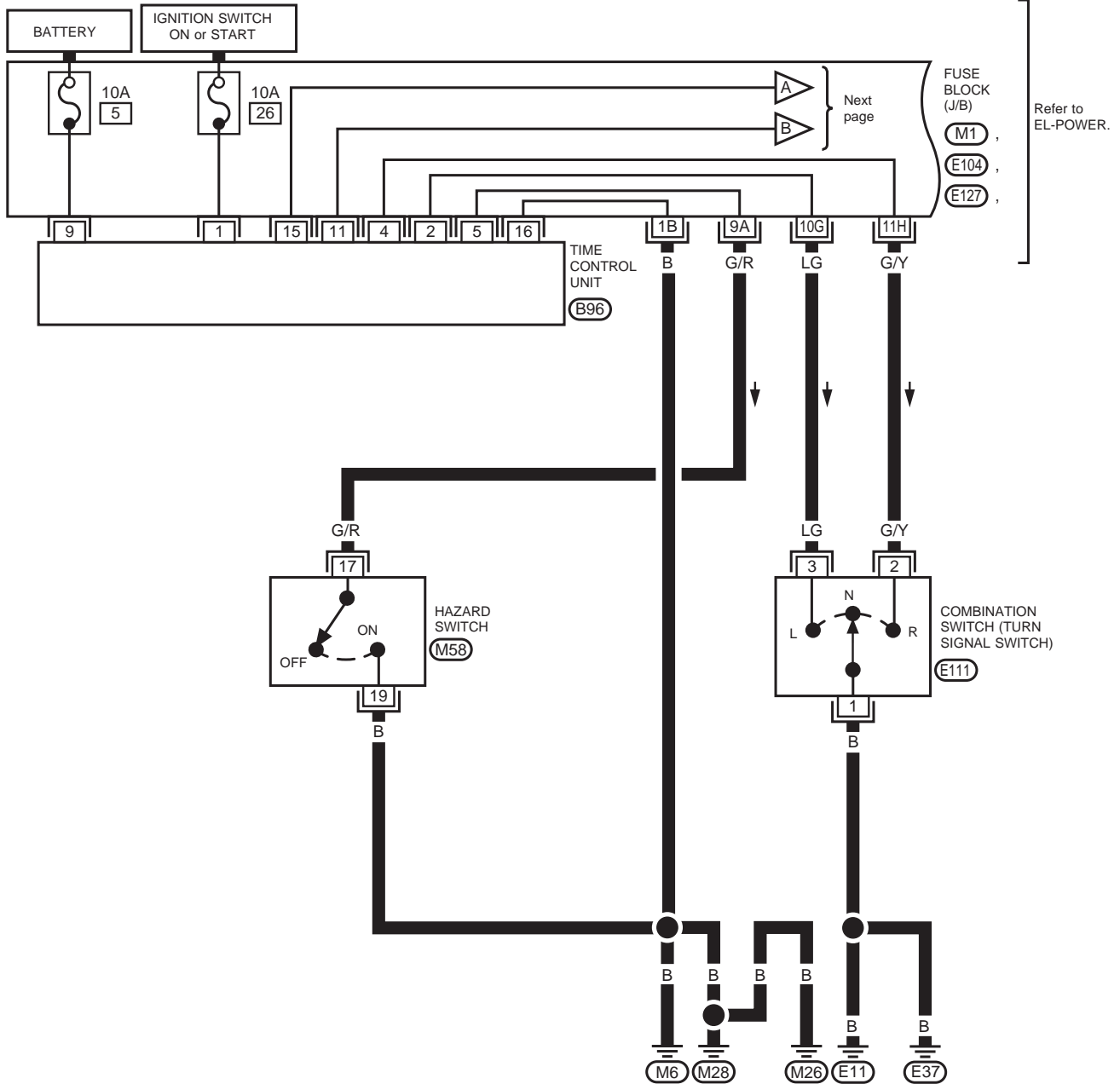


YEL289B

# TURN SIGNAL AND HAZARD WARNING LAMPS

## Wiring Diagram — TURN —

EL-TURN-01



\* : This connector is not shown in "HARNESS LAYOUT" of EL section.

REFER TO THE FOLLOWING

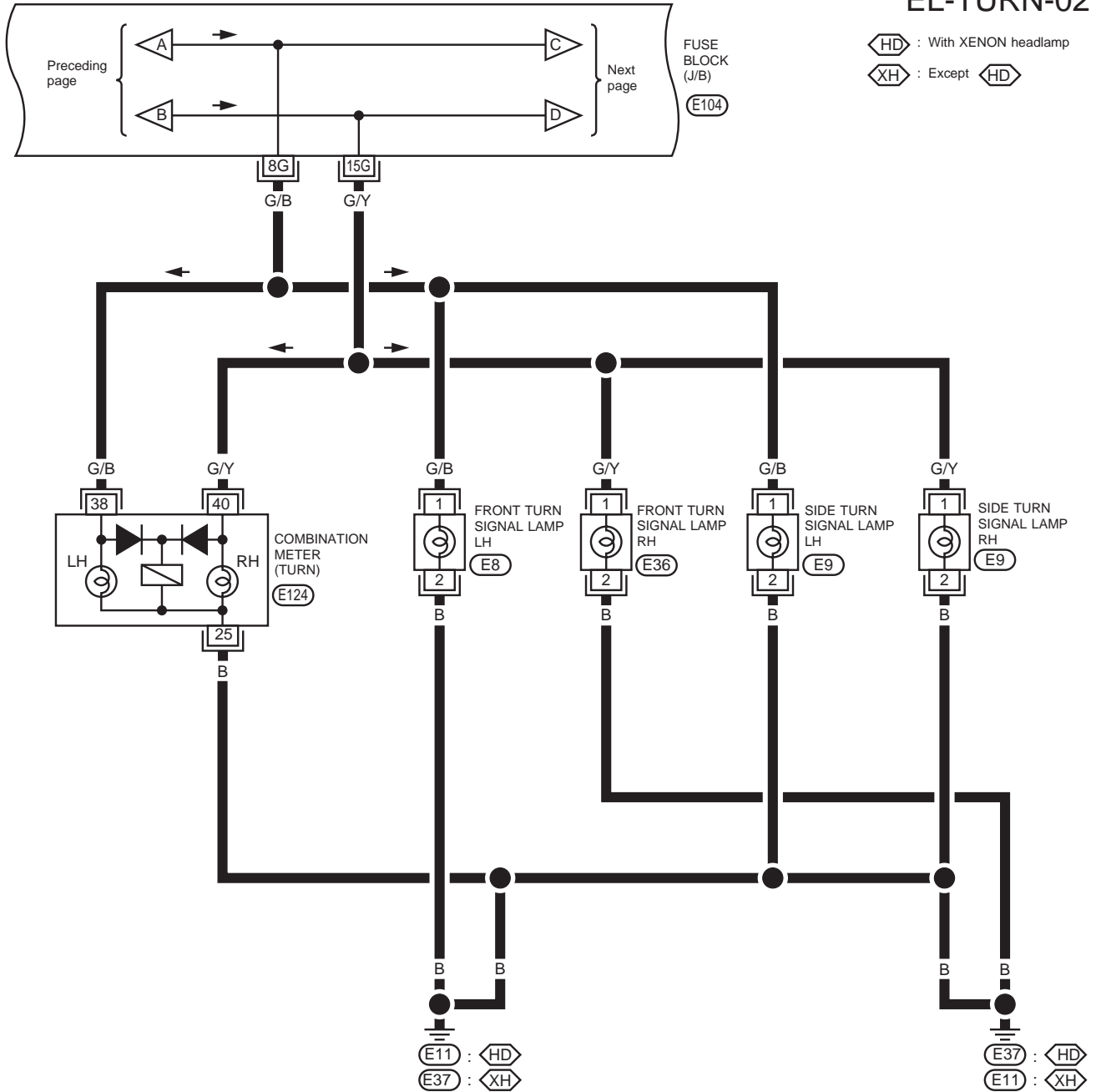
- (M1) FUSE BLOCK - Junction Box (J/B)
- (E104) FUSE BLOCK - Junction Box (J/B)
- (E127) FUSE BLOCK - Junction Box (J/B)

YEL290B

# TURN SIGNAL AND HAZARD WARNING LAMPS

## Wiring Diagram — TURN — (Cont'd)

EL-TURN-02



REFER TO THE FOLLOWING

(E104) FUSE BLOCK - Junction Box (J/B)

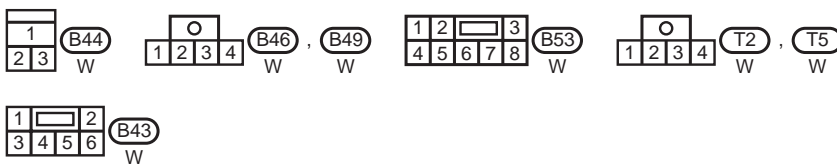
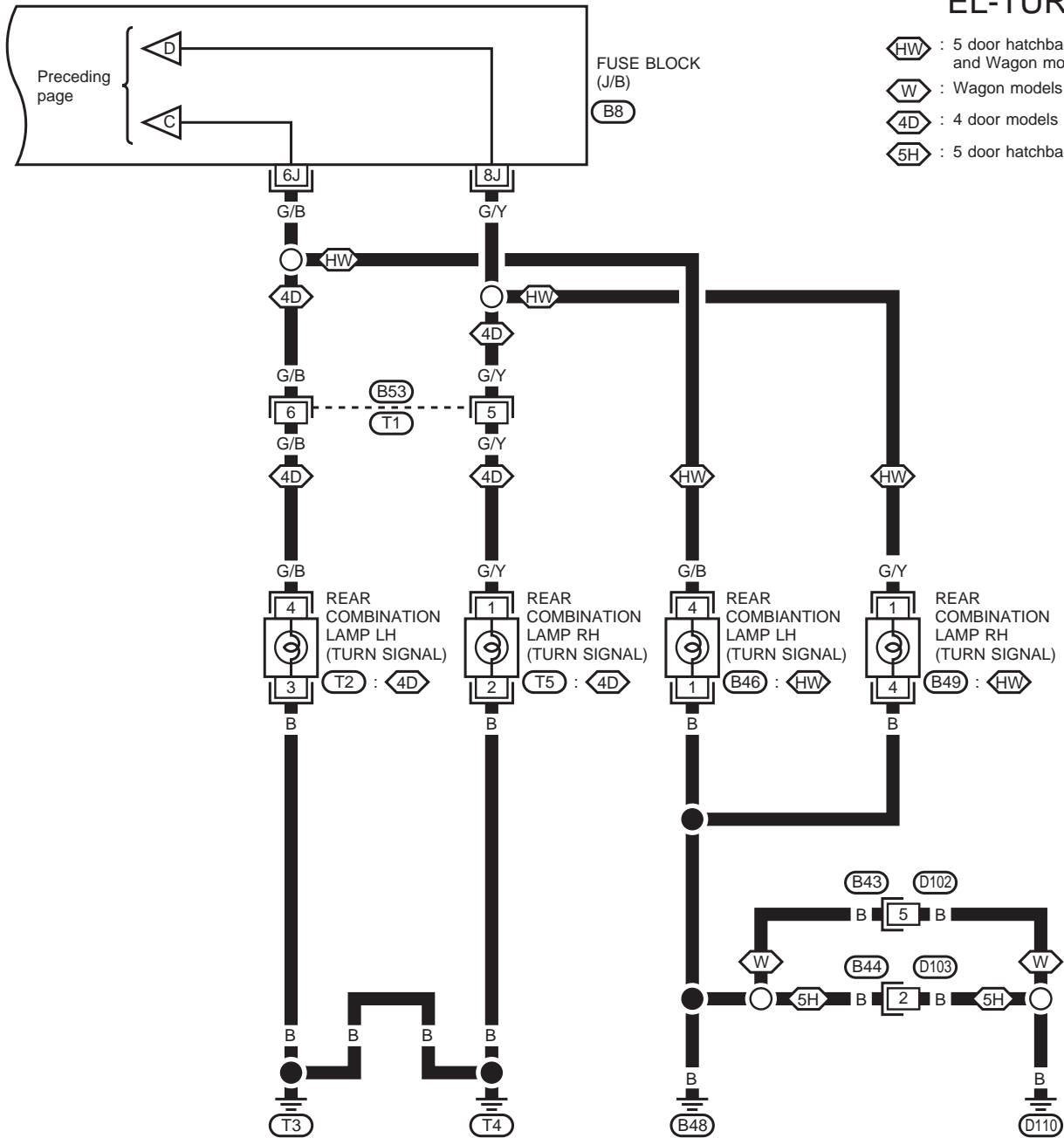
YEL291B

# TURN SIGNAL AND HAZARD WARNING LAMPS

## Wiring Diagram — TURN — (Cont'd)

EL-TURN-03

- : 5 door hatchback models and Wagon models
- : Wagon models
- : 4 door models
- : 5 door hatchback models



REFER TO THE FOLLOWING

FUSE BLOCK - Junction Box (J/B)

YEL292B

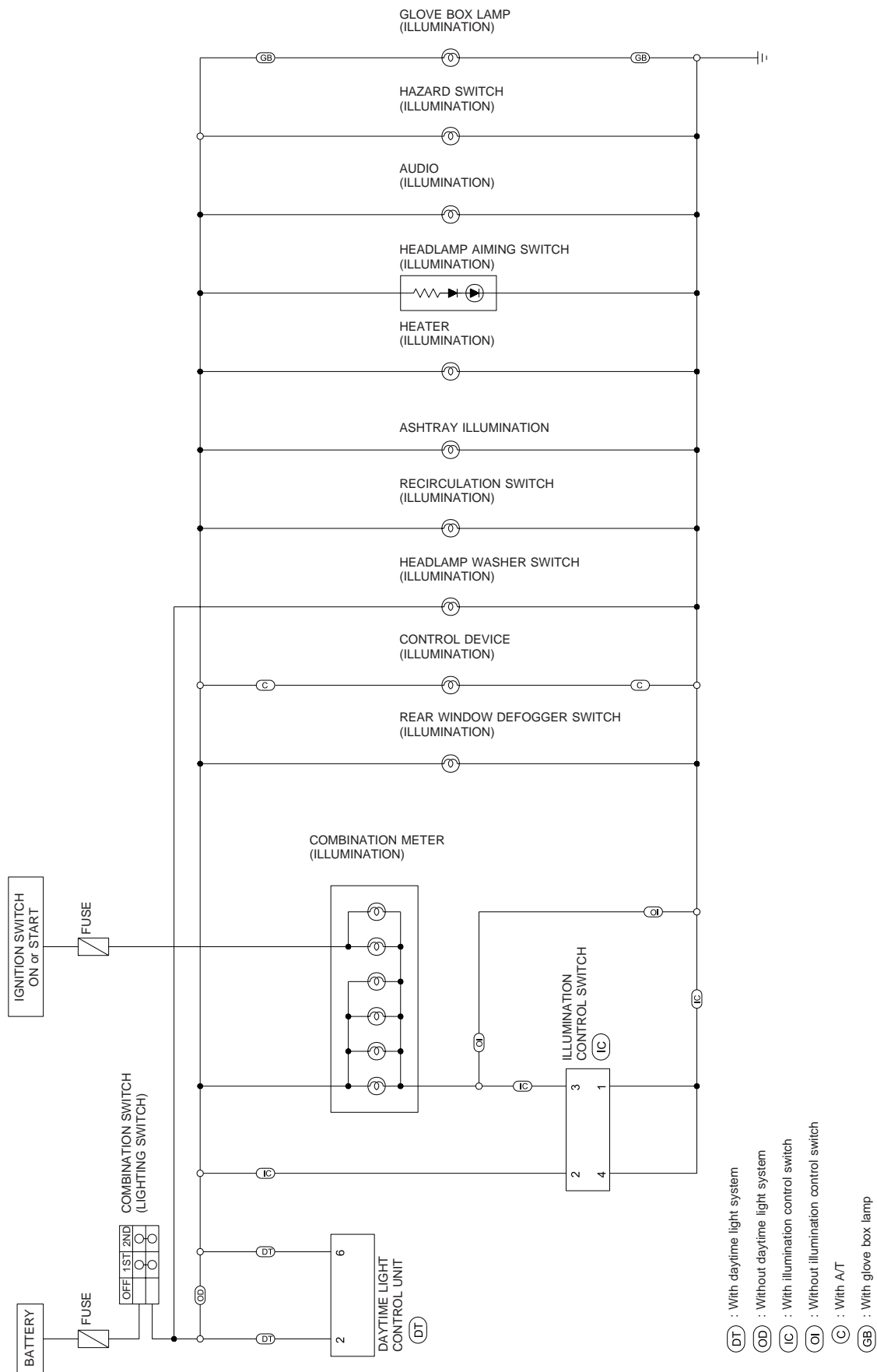
## TURN SIGNAL AND HAZARD WARNING LAMPS

### Trouble Diagnoses

Symptom	Possible cause	Repair order
Turn signal and hazard warning lamps do not operate.	1. Hazard switch 2. Turn signal switch 3. Harness connector (E104)	1. Check hazard switch. 2. Check turn signal switch. 3. Check harness connector (E104).
Turn signal lamps do not operate but hazard warning lamps operate.	1. Turn signal switch 2. Open in turn signal switch circuit	1. Check turn signal switch. 2. Check L/G and G/Y wires between time control unit and turn signal switch for open circuit. 3. Check B wire between turn signal switch and ground for open circuit.
Hazard warning lamps do not operate but turn signal lamps operate.	1. Hazard switch 2. Open in hazard switch circuit	1. Check hazard switch. 2. Check G/R wire between time control unit and hazard switch for open circuit. Check B wire between hazard switch unit and ground for open circuit.
Front turn signal lamp LH or RH does not operate.	1. Bulb 2. Grounds (E11) and (E37)	1. Check bulb. 2. Check grounds (E11) and (E37).
Rear turn signal lamp LH or RH does not operate.	1. Bulb 2. Grounds (T3) and (T4) or (B48) and (D110)	1. Check bulb. 2. Check grounds (T3) and (T4) or (B48) and (D110).
LH and RH turn indicators do not operate.	1. Ground	1. Check grounds (E11) and (E37).
LH or RH turn indicator does not operate.	1. Bulb	1. Check bulb in combination meter.

# ILLUMINATION

## Schematic



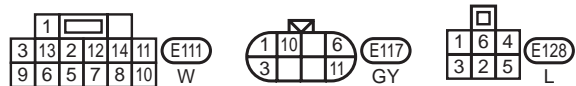
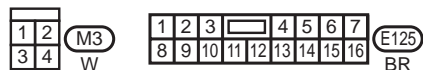
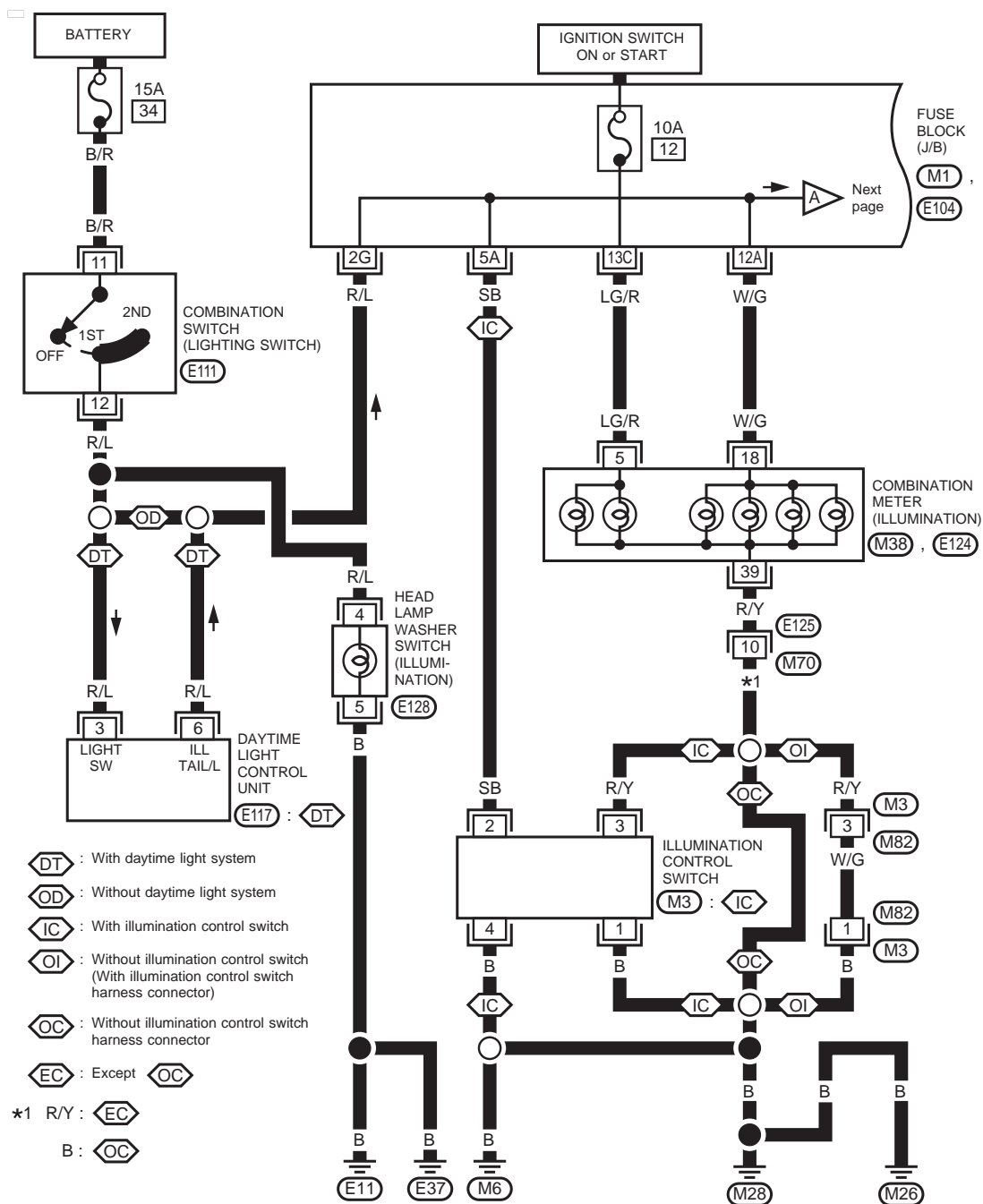
YEL293B

## Wiring Diagram — ILL —

## Wiring Diagram — ILL —

EL-ILL-01

Refer to EL-POWER.



REFER TO THE FOLLOWING

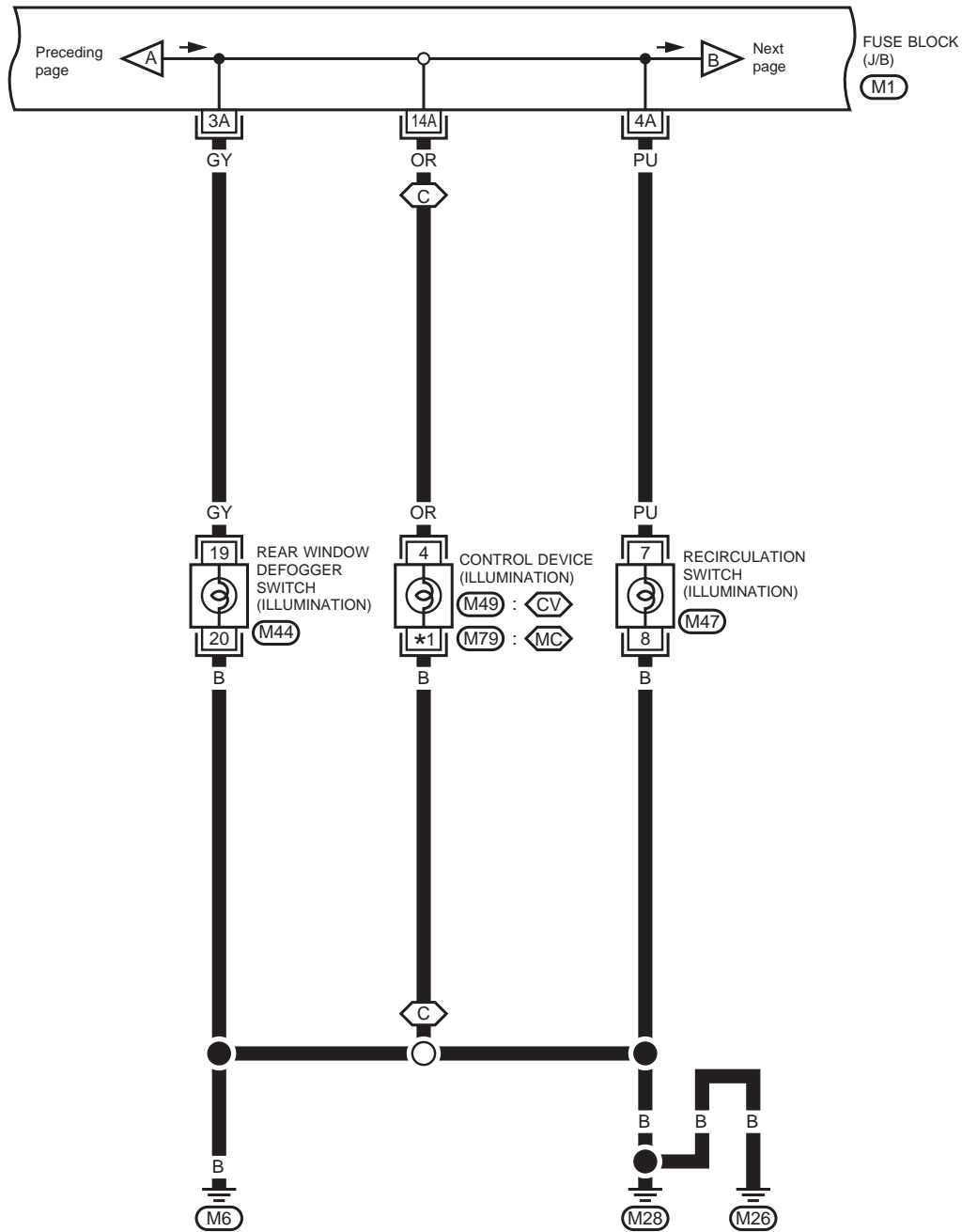
**(M1) FUSE BLOCK - Junction Box (J/B)**

**(E104) FUSE BLOCK - Junction Box (J/B)**

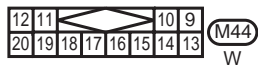
# ILLUMINATION

## Wiring Diagram — ILL — (Cont'd)

EL-ILL-02



- (C) : CVT models  
 (CV) : H-CVT models  
 (MC) : H-CVT (M6) models  
 \*1 3 : (CV)  
 12 : (MC)



REFER TO THE FOLLOWING

(M1) FUSE BLOCK - Junction Box (J/B)

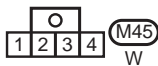
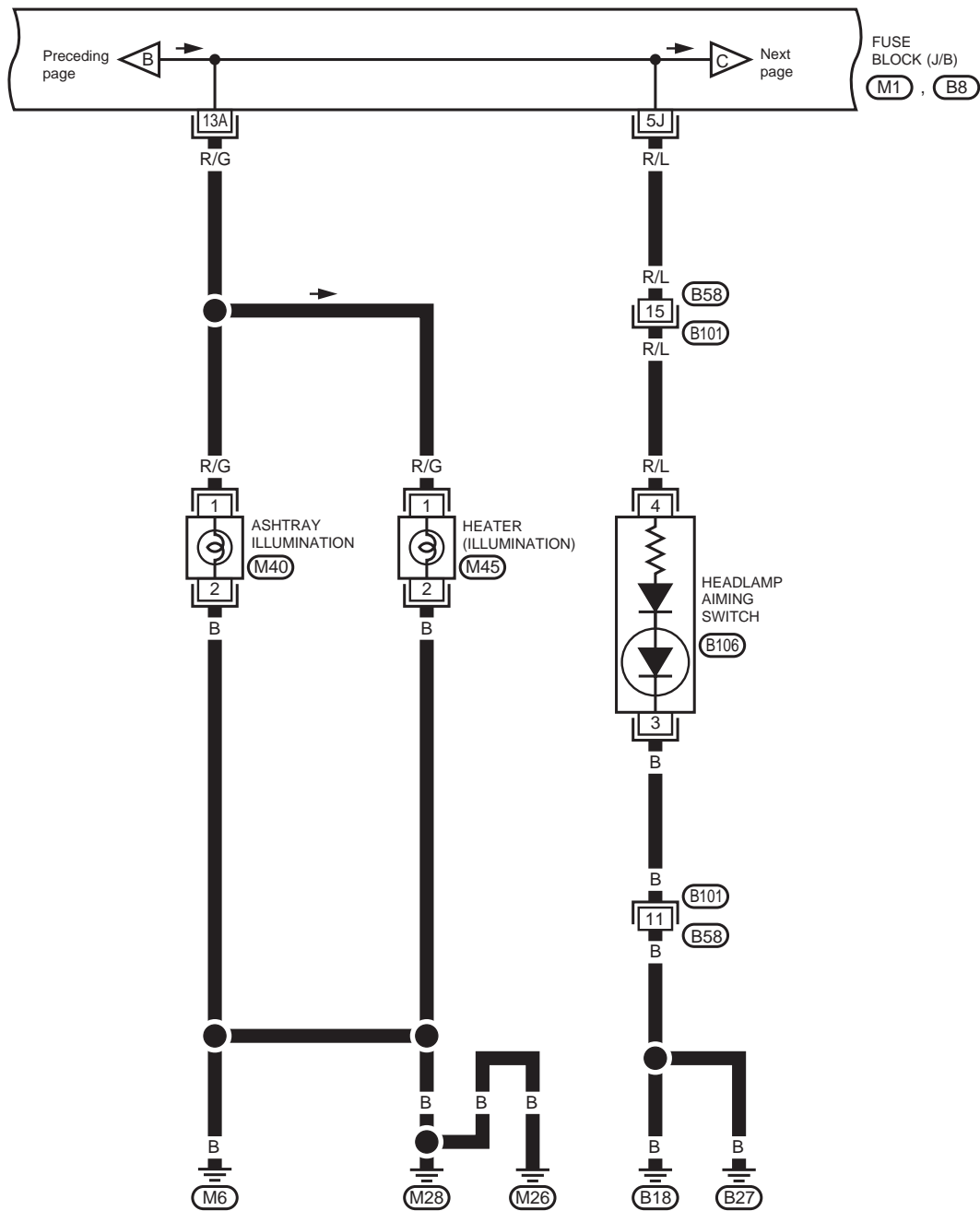
YEL295B



# ILLUMINATION

## Wiring Diagram — ILL — (Cont'd)

EL-ILL-03



REFER TO THE FOLLOWING

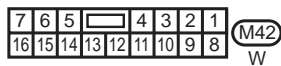
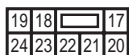
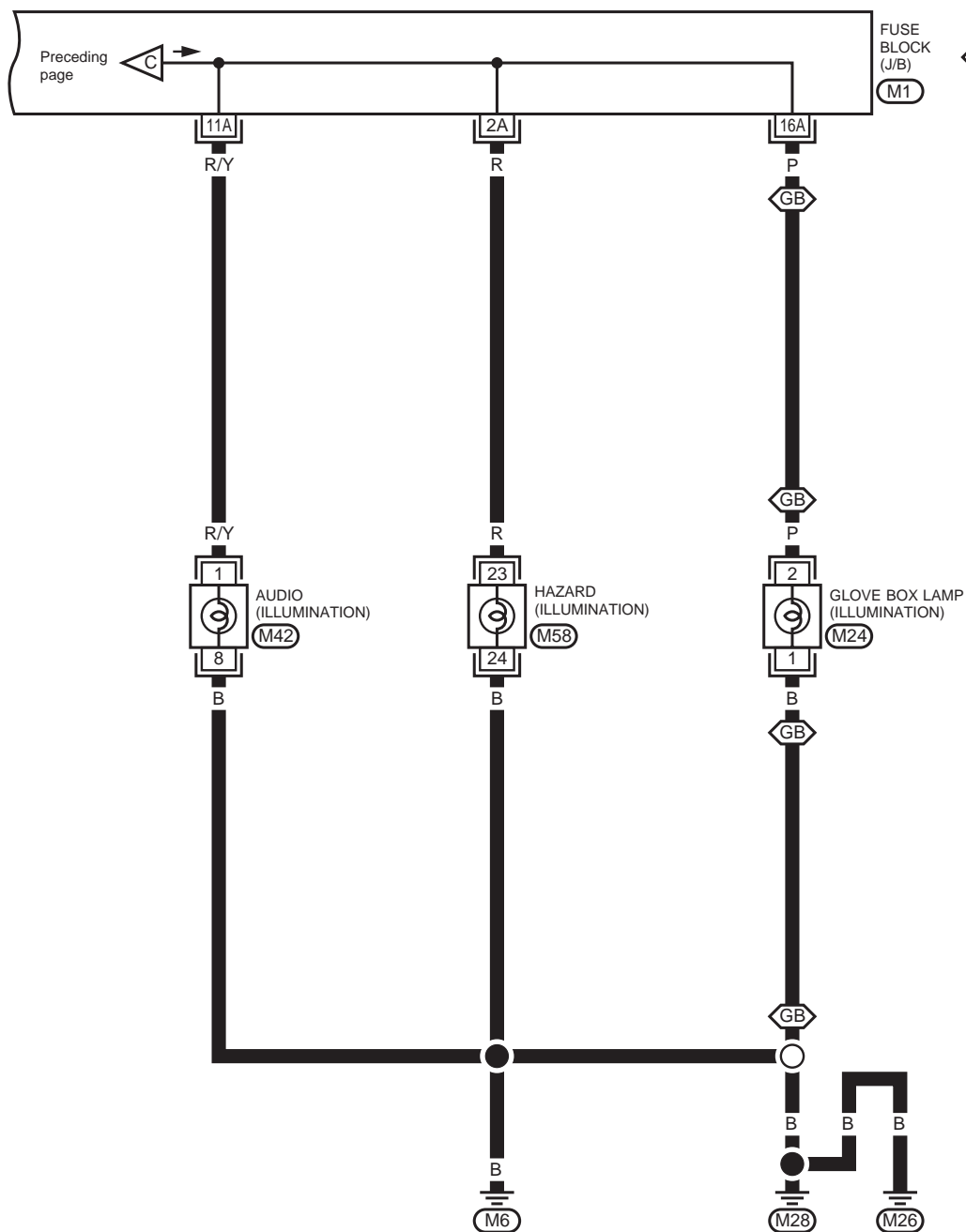
(M1) FUSE BLOCK - Junction Box (J/B)

(B8) FUSE BLOCK - Junction Box (J/B)

YEL296B

## Wiring Diagram — ILL — (Cont'd)

 : With glove box lamp



REFER TO THE FOLLOWING

(M1) FUSE BLOCK - Junction Box (J/B)

YEL297B

### **System Description**

#### **INTERIOR LAMP TIMER OPERATION**

The time control unit keeps the interior lamp illuminated for about 30 seconds when:

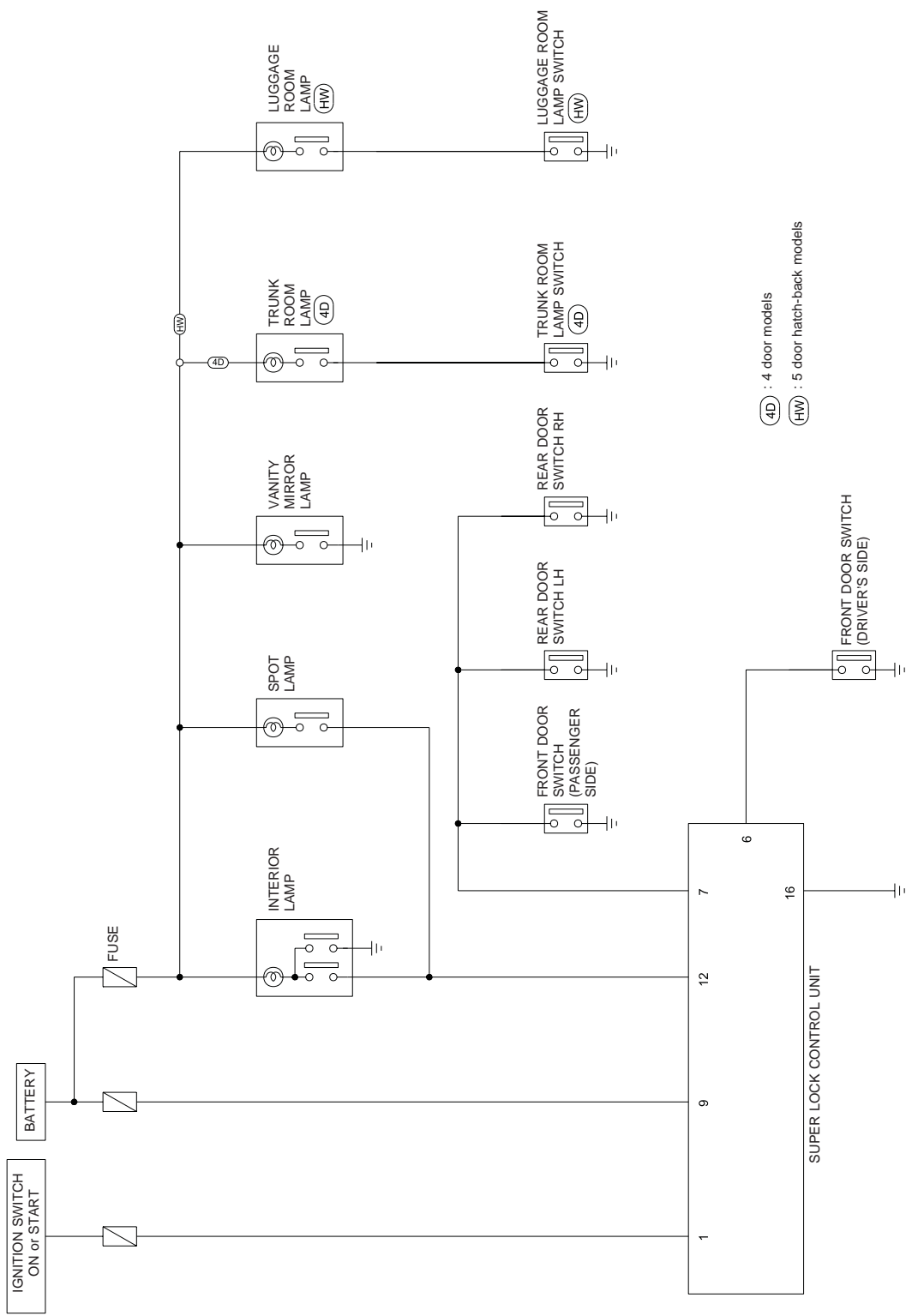
- the ignition key is turned from “ON” to “Acc” to “LOCK”
- the driver's door is unlocked
- a door is opened and then closed while the ignition switch is in the “OFF” position. (Interior lamp switch in the “DOOR” position).

The timer is canceled when:

- driver's door is locked, or
- ignition switch is turned “ON”.

INTERIOR, SPOT, VANITY MIRROR AND LUGGAGE ROOM LAMPS

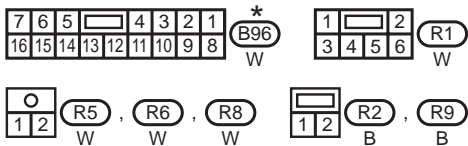
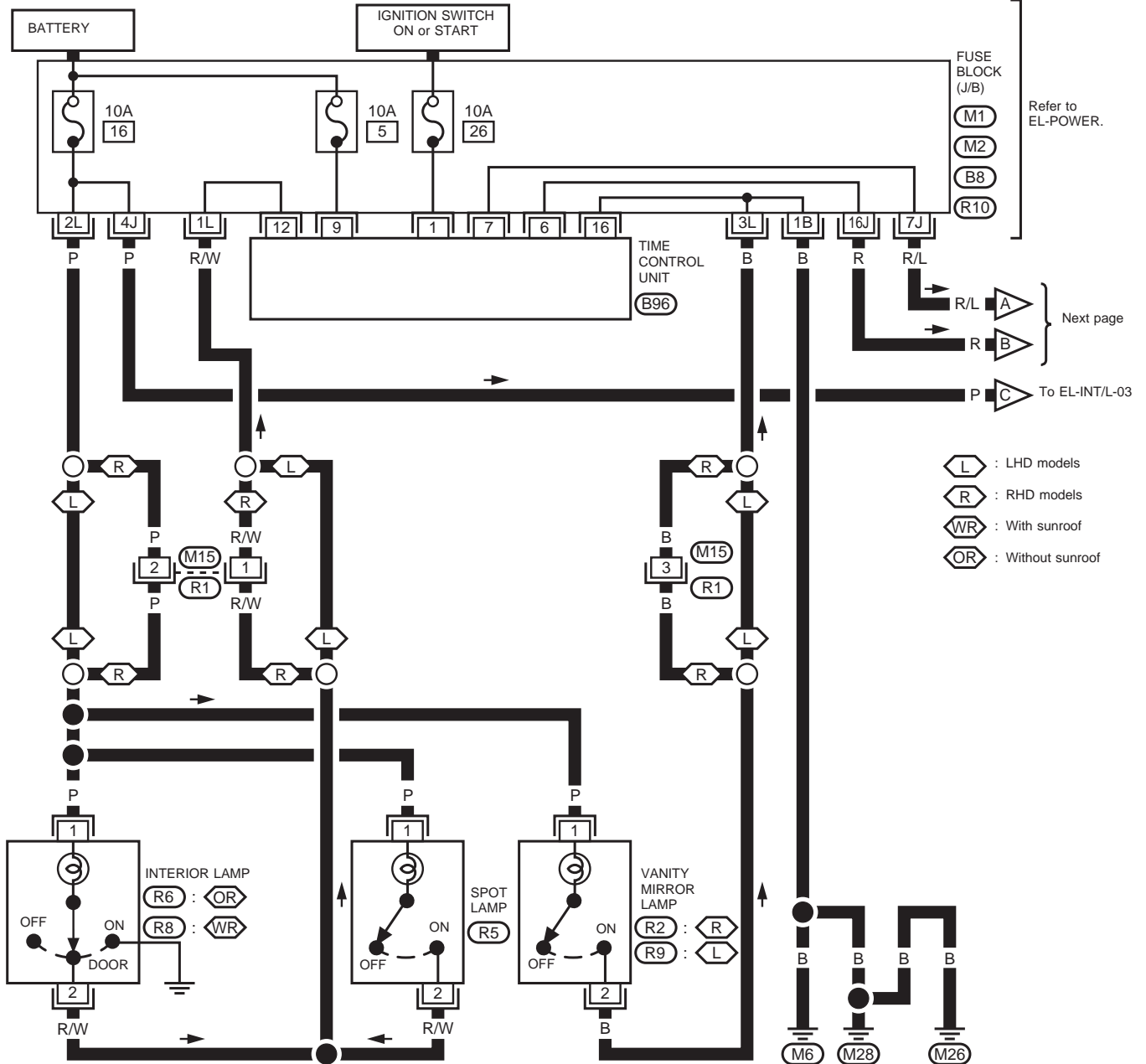
Schematic



# INTERIOR, SPOT, VANITY MIRROR AND LUGGAGE ROOM LAMPS

## Wiring Diagram — INT/L —

EL-INT/L-01



REFER TO THE FOLLOWING

- M1 FUSE BLOCK - Junction Box (J/B)
- M2 FUSE BLOCK - Junction Box (J/B)
- B8 FUSE BLOCK - Junction Box (J/B)
- R10 FUSE BLOCK - Junction Box (J/B)

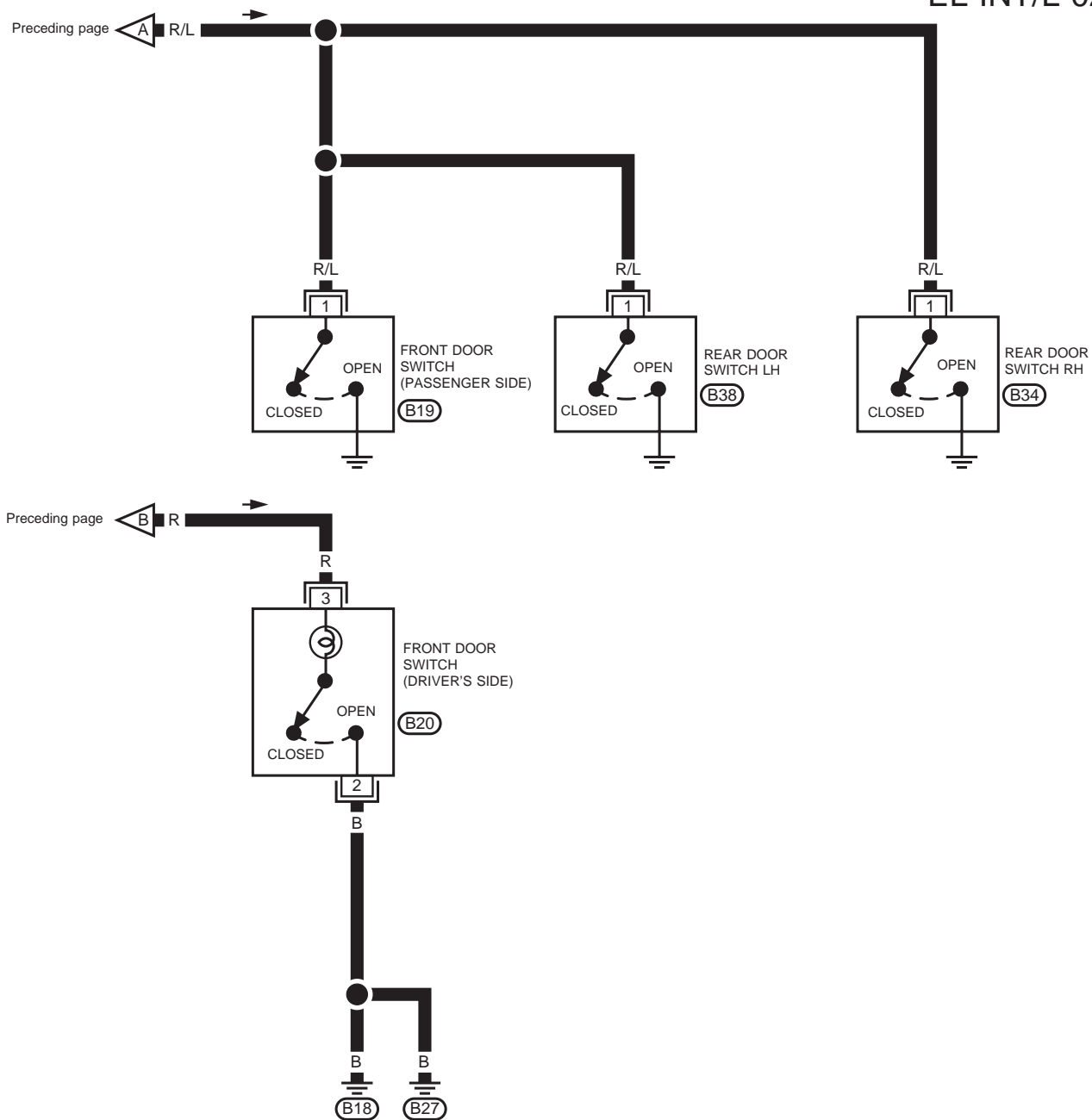
★ : This connector is not shown in "HARNESS LAYOUT" of EL section.

YEL299B

# INTERIOR, SPOT, VANITY MIRROR AND LUGGAGE ROOM LAMPS

## Wiring Diagram — INT/L — (Cont'd)

EL-INT/L-02



1 B19 , B34 , B38  
BR BR BR

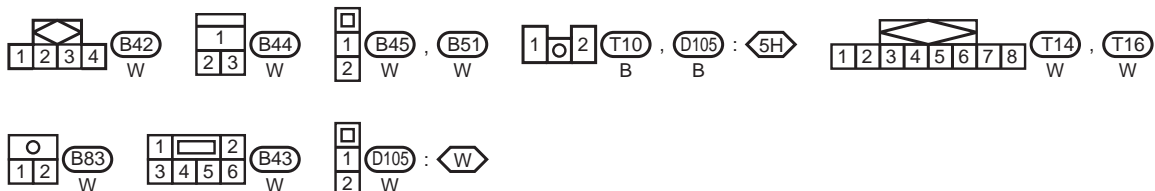
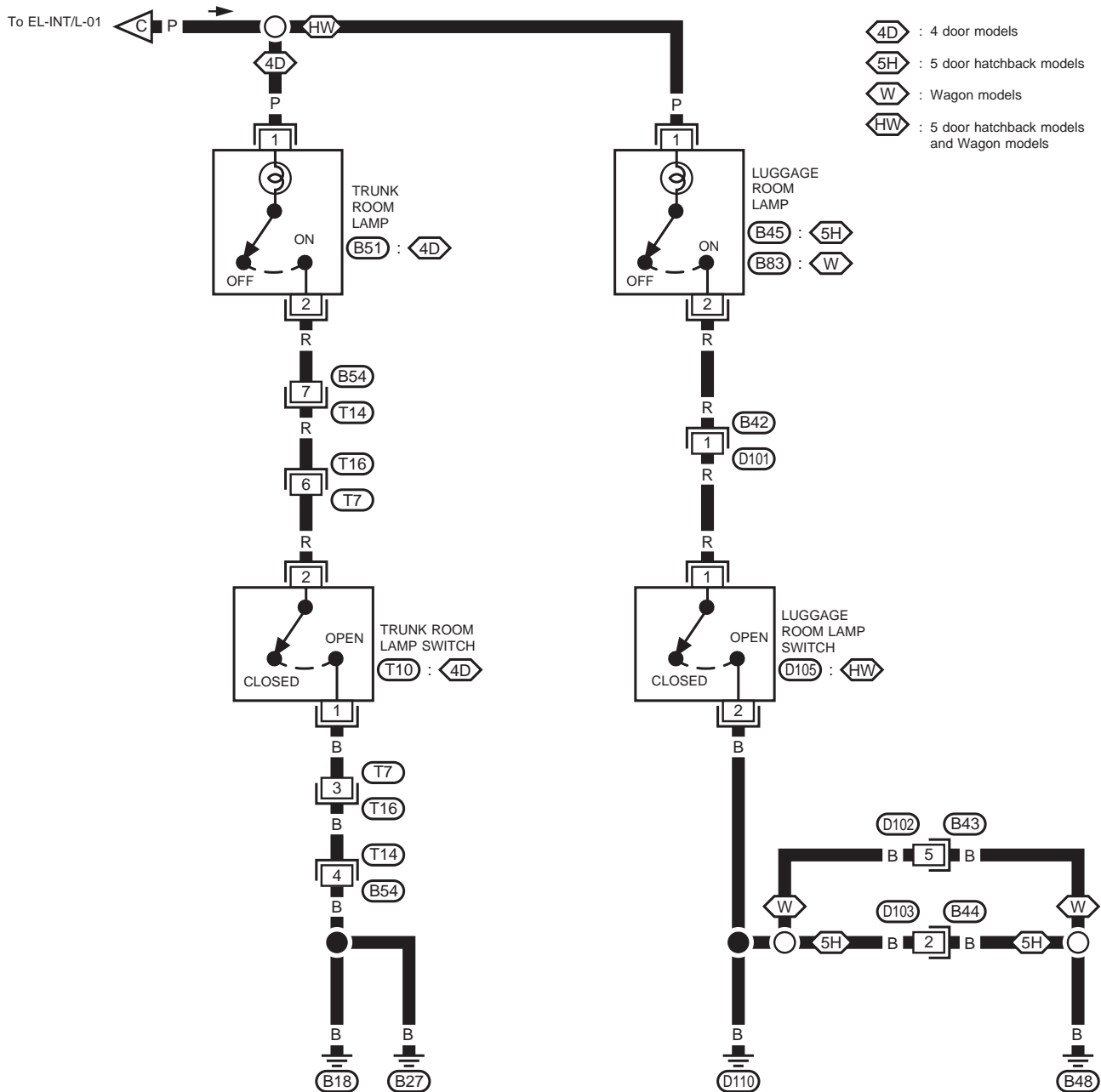
2 1 B20  
3 B

YEL300B

# INTERIOR, SPOT, VANITY MIRROR AND LUGGAGE ROOM LAMPS

## Wiring Diagram — INT/L — (Cont'd)

EL-INT/L-03



YEL301B

## BULB SPECIFICATIONS

### Headlamp

	Wattage (12 volt)
High/low (without xenon headlamp)	55/55
High/low (with xenon headlamp)	55/Discharge D2S type

### Exterior Lamp

		Wattage (12 volt)
Front combination lamp	Parking	5
	Turn signal	21
Front fog lamp		55 (H1)
Rear combination lamp	Turn signal	21
	Stop/Tail	21/5
	Back-up	21
Side turn signal lamp		5
License plate lamp		5
High-mounted stop lamp		21

### Interior Lamp

	Wattage (12 volt)
Interior lamp	10
Map lamp	3
Step lamp	3.4
Trunk room lamp	3.4
Luggage room lamp	5



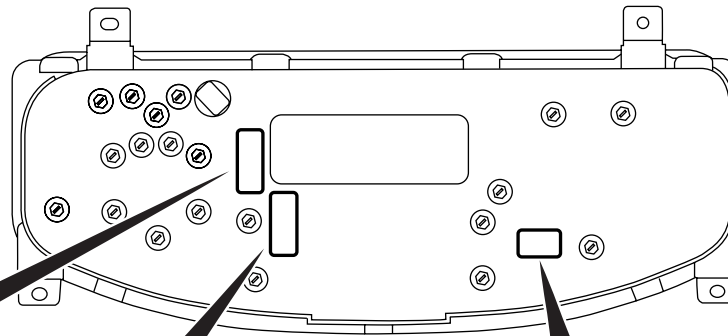
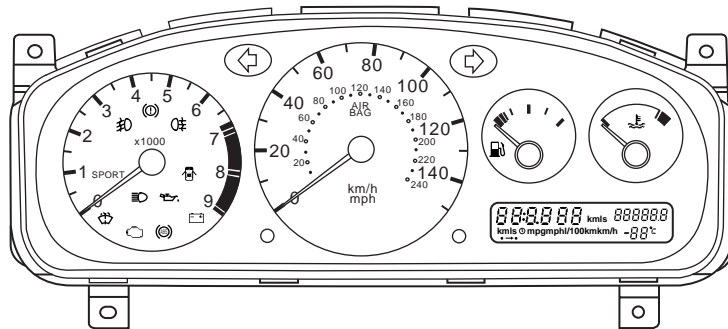
### System Description

#### UNIFIED CONTROL METER

- Speedometer, odo/trip meter, tachometer, fuel gauge and water temperature gauge are controlled totally by control unit combined with speedometer.
- Digital meter is adopted for odo/trip meter.\*  
\*The record of the odometer is kept even if the battery cable is disconnected. The record of the trip meter is erased when the battery cable is disconnected.
- Odo/trip meter segment can be checked in diagnosis mode.
- Meter/gauge can be checked in diagnosis mode.

# METER AND GAUGES

## Combination Meter

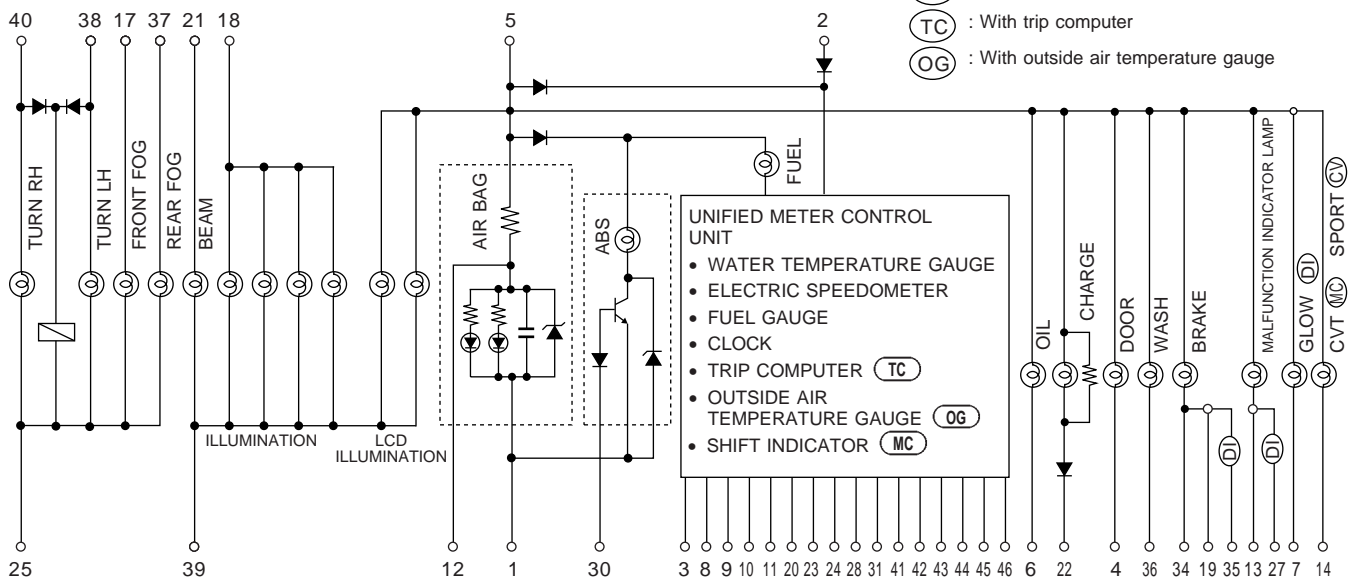


13	1
14	2
15	3
16	4
5	5
6	6
7	7
8	8
17	9
18	10
19	11
20	12

33	21
34	22
35	23
36	24
25	25
26	26
27	27
28	28
37	29
38	30
39	31
40	32

52	51	50	49
48	47	46	45
44	43	42	41

- (DI) : With diesel engine
- (CV) : H•CVT models
- (MC) : H•CVT (M6) models
- (TC) : With trip computer
- (OG) : With outside air temperature gauge

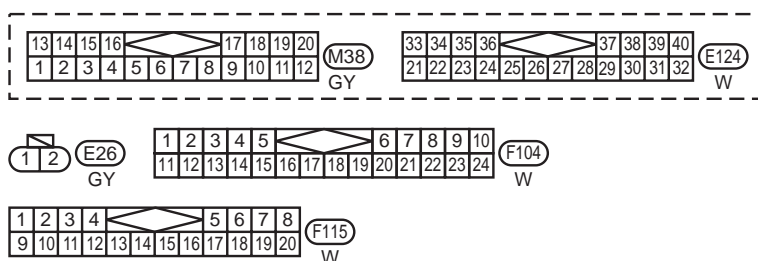
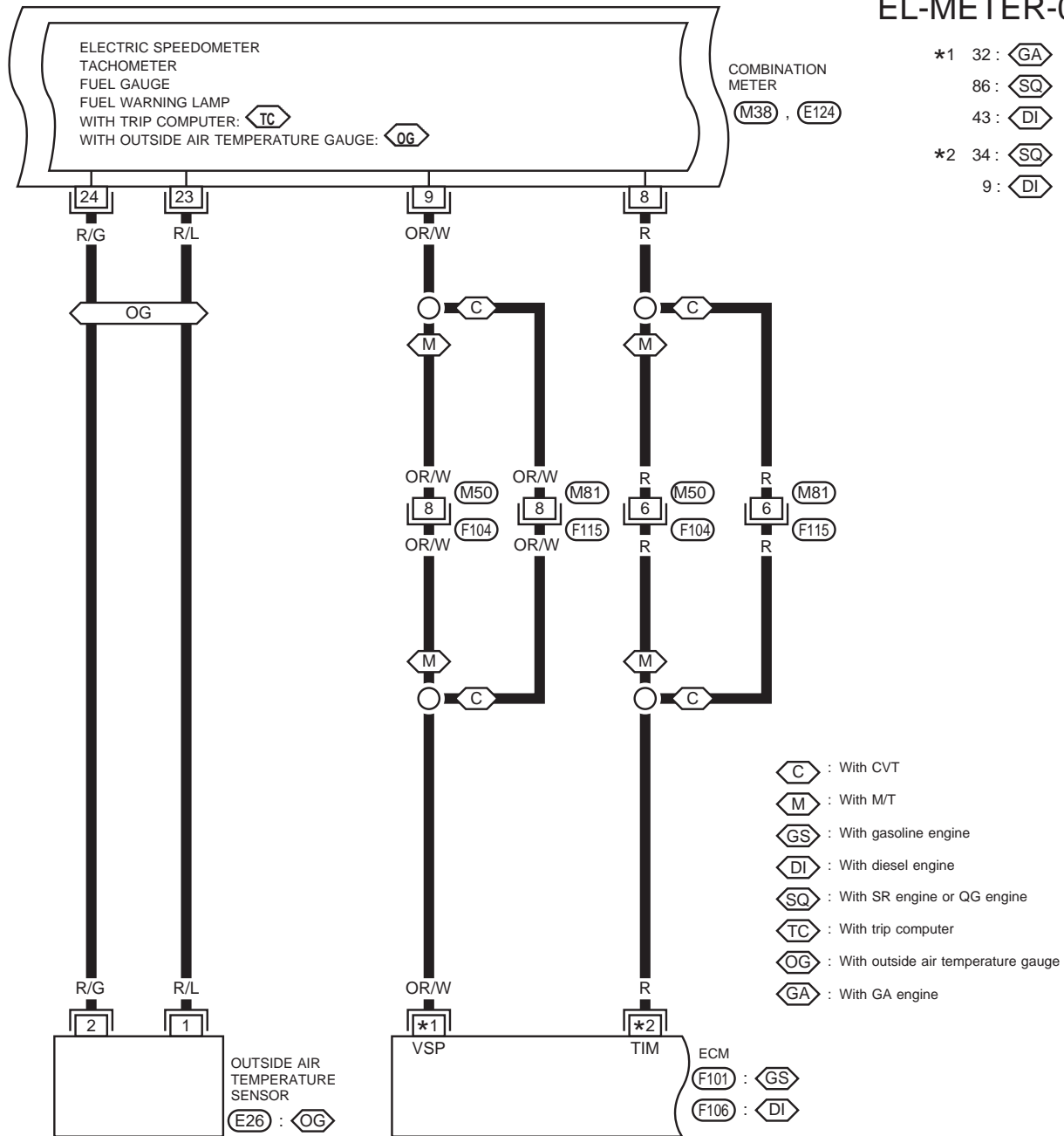




**EL-131**

## Wiring Diagram — METER — (Cont'd)

## EL-METER-02



REFER TO THE FOLLOWING

(F101) ELECTRICAL UNITS

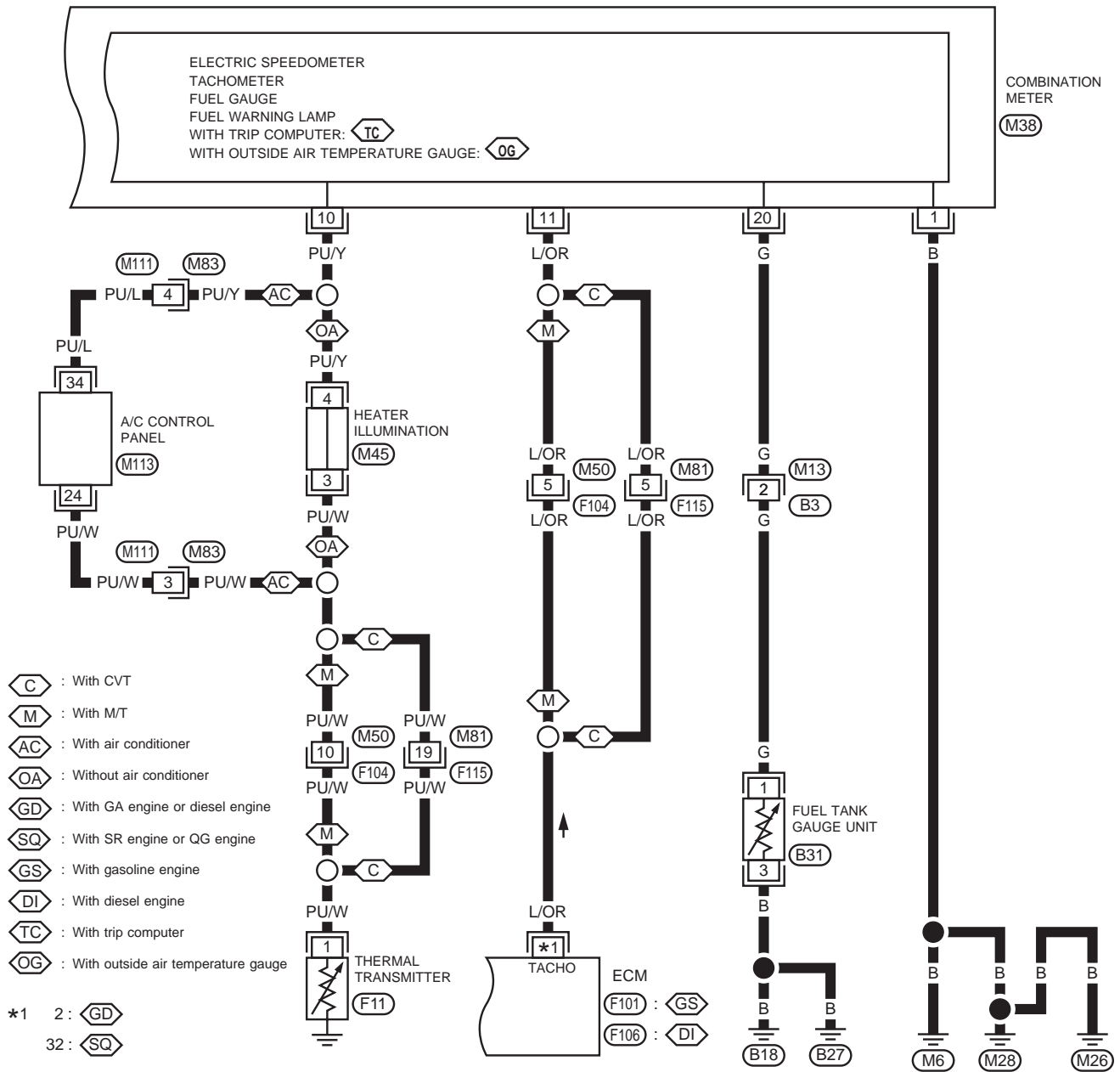
(F106) ELECTRICAL UNITS

YEL303B

# METER AND GAUGES

## Wiring Diagram — METER — (Cont'd)

EL-METER-03



REFER TO THE FOLLOWING

(F101) ELECTRICAL UNITS

(F106) ELECTRICAL UNITS

YEL304B

### Combination Meter Self-Diagnosis

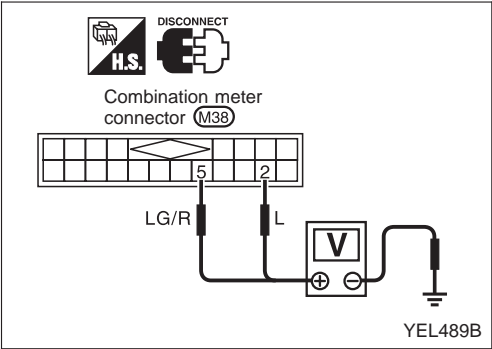
#### PERFORMING SELF-DIAGNOSIS

1. Turn the ignition switch to the "LOCK" position.
2. Press both reset buttons on the combination meter and keep them depressed.
3. Turn the ignition switch to the "ON" position, while keeping the reset buttons pressed.
4. Release both reset buttons then self-diagnosis will start.  
The sequence (a to g) is activated by press the either reset buttons.

	Item	Display lowline	Display highline	Bulb	Gauges
(a)	Combination meter instruction code	ODO e.g.: L, C, d, o+0..9	ODO e.g.: L, C, d, o+0..9	OFF	On Zero
(b)	Software version	ODO: Uer TRIP: XY	ODO: Uer TRIP: XY	OFF	On zero
(c)	EEPROM version	ODO: EEP TRIP: XY	ODO: EEP TRIP: XY	OFF	On zero
(d)	Gauge test	OFF	OFF	OFF	Gauge sweep 2 times through indication range, but at least 1 time in case of mode change.
(e)	Errors 1	ODO: ERROR MAP 0/1 XXXXXX ERROR6..ERR1 TRIP: E1	ODO: ERROR MAP 0/1 XXXXXX ERROR6..ERR1 TRIP: E1	OFF	On zero
(f)	Errors 2	ODO: ERROR MAP 0/1 XXXXXX ERROR12..ERR7 TRIP: E2	ODO: ERROR MAP 0/1 XXXXXX ERROR12..ERR7 TRIP: E2	OFF	On zero
(g)	Bulb/segment test	All segments ON	All segments ON	ON	On zero

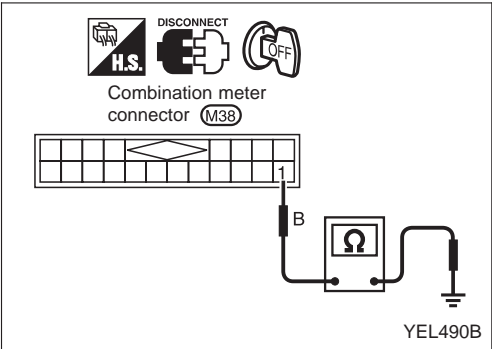
	Code	Malfunction
Bit 0	ERROR 1	Fuel level sensor short circuit to ground
Bit 1	ERROR 2	Fuel level sensor open circuit
Bit 2	ERROR 3	Not used
Bit 3	ERROR 4	EEPROM verify error
Bit 4	ERROR 5	Speed input signal out of range
Bit 5	ERROR 6	Engine revolution input signal out of range
Bit 6	ERROR 7	Thermal transmitter short circuit to ground
Bit 7	ERROR 8	Thermal transmitter open circuit
Bit 8	ERROR 9	Outside air temperature sensor short circuit to ground
Bit 9	ERROR 10	Outside air temperature sensor open circuit
Bit 10	ERROR 11	Shift indicator circuit error
Bit 11	ERROR 12	Over voltage detected

Trouble Diagnoses  
POWER SUPPLY AND GROUND CIRCUIT CHECK  
Power supply circuit check



Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
②	Ground	Battery voltage	Battery voltage	Battery voltage
⑤	Ground	0V	0V	Battery voltage

- If NG, check the following,
- 10A fuse [No. 16, located in fuse block (J/B)]
  - 10A fuse [No. 12, located in fuse block (J/B)]
  - Harness for open or short between fuse and combination meter

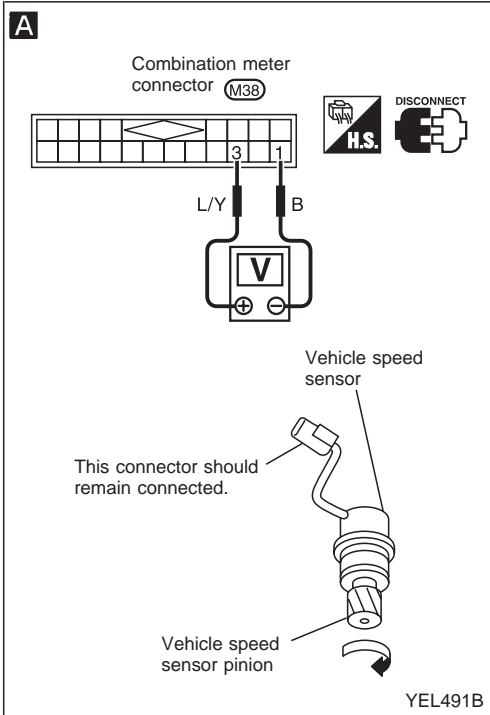


Ground circuit check

Terminals	Continuity
① - Ground	Yes

# METER AND GAUGES

## Trouble Diagnoses (Cont'd) INSPECTION/VEHICLE SPEED SENSOR



**A**

CHECK VEHICLE SPEED SENSOR OUTPUT.

- 1) Remove vehicle speed sensor from transmission.
- 2) Check voltage between combination meter terminals ③ and ① while quickly turning speed sensor pinion.

NG

Vehicle speed sensor is OK.

OK

**B**

CHECK POWER SOURCE.

- Re-install vehicle speed sensor.
  - Turn ignition switch to "ON" position.
- Check voltage between vehicle speed sensor connector terminal ③ and ground.  
**Battery voltage should exist.**

NG

Check harness for open or short between speedometer and vehicle speed sensor.

OK

**C**

CHECK GROUND CIRCUIT OF VEHICLE SPEED SENSOR

- Turn ignition switch to the "LOCK" position.
- Disconnect vehicle speed sensor connector. Check continuity between vehicle speed sensor harness connector terminal ① and body ground.  
**Continuity should exist.**

NG

Repair harness or connector

OK

**D**

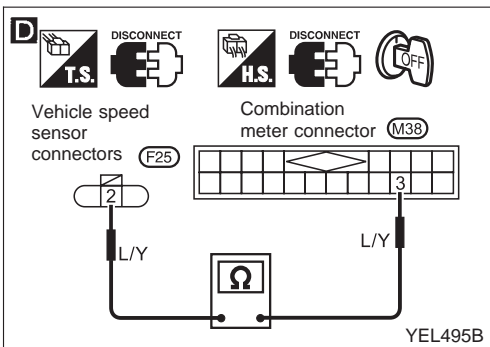
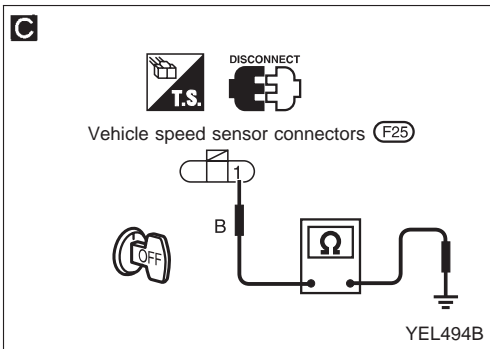
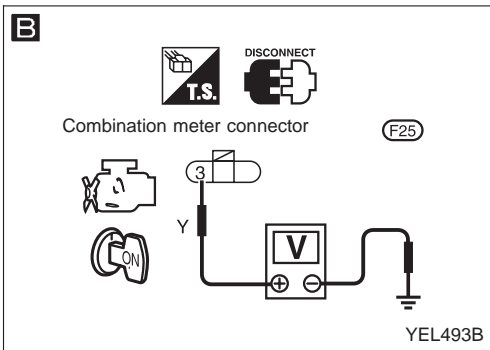
Check continuity between speedometer harness connector terminal ③ and vehicle speed sensor connector terminal ②.  
**Continuity should exist.**

NG

Repair harness and connector.

OK

Replace vehicle speed sensor.

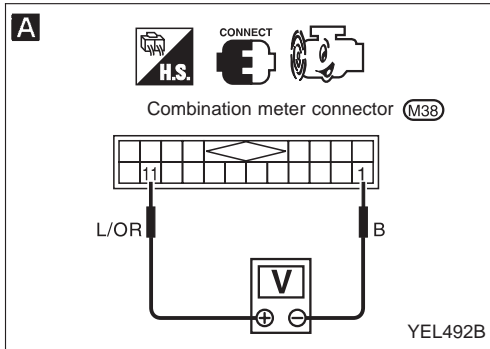




## METER AND GAUGES

### Trouble Diagnoses (Cont'd)

#### INSPECTION/ENGINE REVOLUTION SIGNAL



**A**

CHECK ECM OUTPUT.

1. Start engine.
2. Check voltage between combination meter terminals ① and ⑪ at idle and 2,000 rpm.

Higher rpm = Higher voltage

Lower rpm = Lower voltage

Voltage should change with rpm.

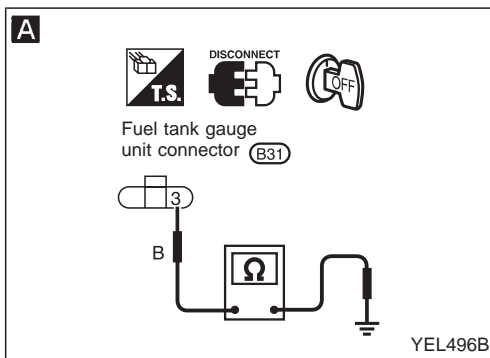
OK

Engine revolution signal is OK.

NG

Check the following

- Combination meter terminal ① ground circuit
- Harness for open or short between ECM and combination meter



#### INSPECTION/FUEL TANK GAUGE

**A**

CHECK GROUND CIRCUIT FOR FUEL TANK GAUGE UNIT.

Check harness continuity between fuel tank gauge unit terminal ③ and ground.

Continuity should exist.

NG

Repair harness or connector.

OK

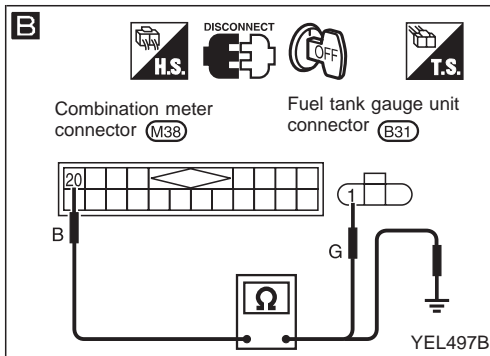
CHECK GAUGE UNITS.

Refer to "FUEL TANK GAUGE UNIT CHECK" (EL-139).

NG

Repair or replace. Refer to FE section in Service Manual.

OK



**B**

CHECK HARNESS FOR OPEN OR SHORT

1. Disconnect combination connector and fuel tank gauge unit connector.
2. Check continuity between combination meter terminal ②⑩ and fuel tank gauge unit terminal ①.

Continuity should exist.

3. Check continuity between combination meter ②⑩ and ground.

Continuity should exist.

NG

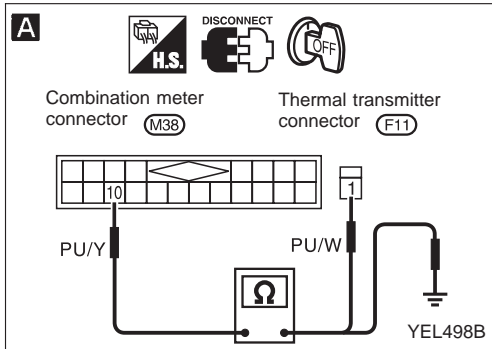
Repair harness or connector.

OK

Fuel tank gauge is OK.

## METER AND GAUGES

### Trouble Diagnoses (Cont'd) INSPECTION/THERMAL TRANSMITTER



CHECK THERMAL TRANSMITTER.  
Refer to "THERMAL TRANSMITTER  
CHECK" (EL-139).

NG

Repair or replace.

OK

**A**

#### CHECK HARNESS FOR OPEN OR SHORT

NG

Repair harness or connector.

1. Disconnect combination connector and thermal transmitter connector.
2. Check continuity between combination meter terminal ⑩ and thermal transmitter terminal ①.

**Continuity should exist.**

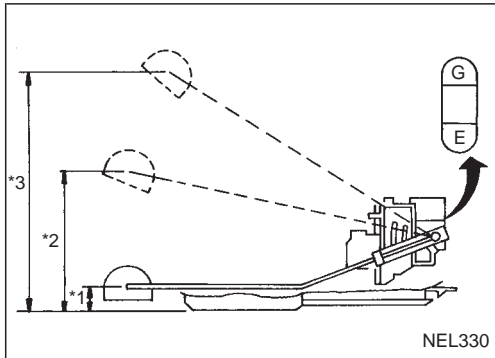
3. Check continuity between combination meter terminal ⑩ and ground.

**Continuity should exist.**

OK

Thermal transmitter is OK.

## METER AND GAUGES



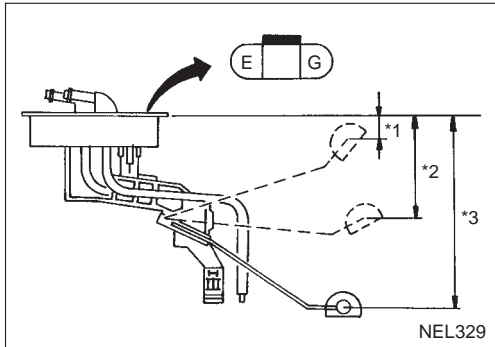
### Fuel Tank Gauge Unit Check

- For removal, refer to FE section ("FUEL SYSTEM"). Check the resistance between terminals (G) and (E).

### GA & SR Engine Models

Ohmmeter		Float position mm (in)			Resistance value (Ω)
(+)	(-)				
G	E	*3	Full	151 (5.945)	7.5 - 9.5
		2	1/2	88 (3.465)	88.5 - 93.5
		*1	Empty	15 (0.591)	180.0 - 186.8

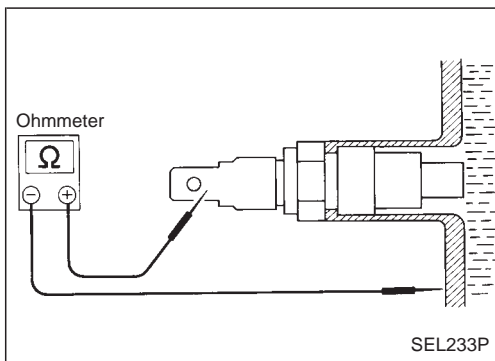
\*1 and \*3: When float rod is in contact with stopper.



### CD20T Engine Models

Ohmmeter		Float position mm (in)			Resistance value (Ω)
(+)	(-)				
G	E	*3	Full	18 (0.709)	7.5 - 9.5
		2	1/2	84 (3.307)	88.5 - 93.5
		*1	Empty	158 (6.220)	180.0 - 186.8

\*1 and \*3: When float rod is in contact with stopper.



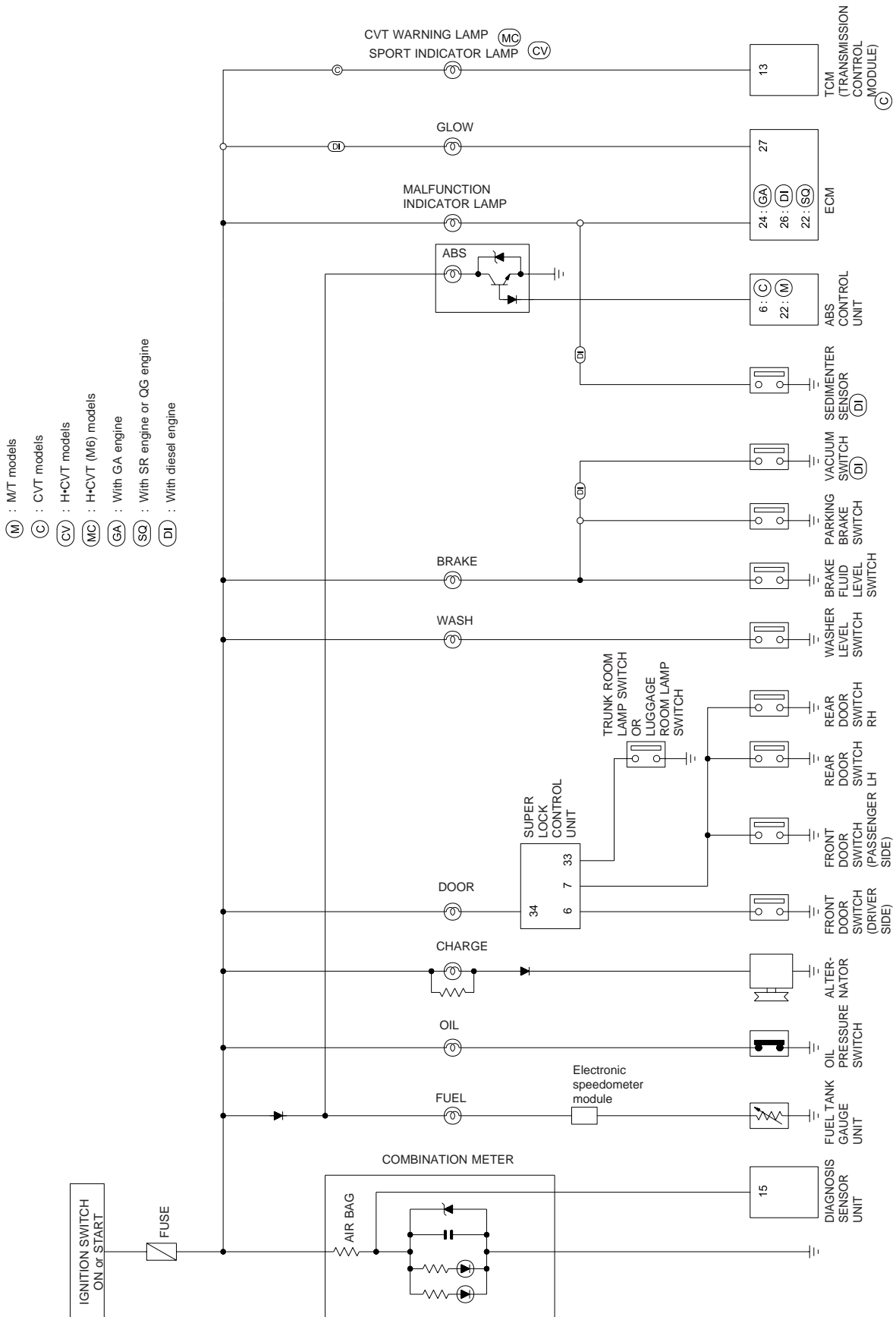
### Thermal Transmitter Check

Check the resistance between the terminals of thermal transmitter and body ground.

Water temperature °C (°F)	Resistance (Ω)
65 (149)	Approx. 951 - 1109
91 (196)	Approx. 433 - 510

# WARNING LAMPS

## Warning Lamps/Schematic

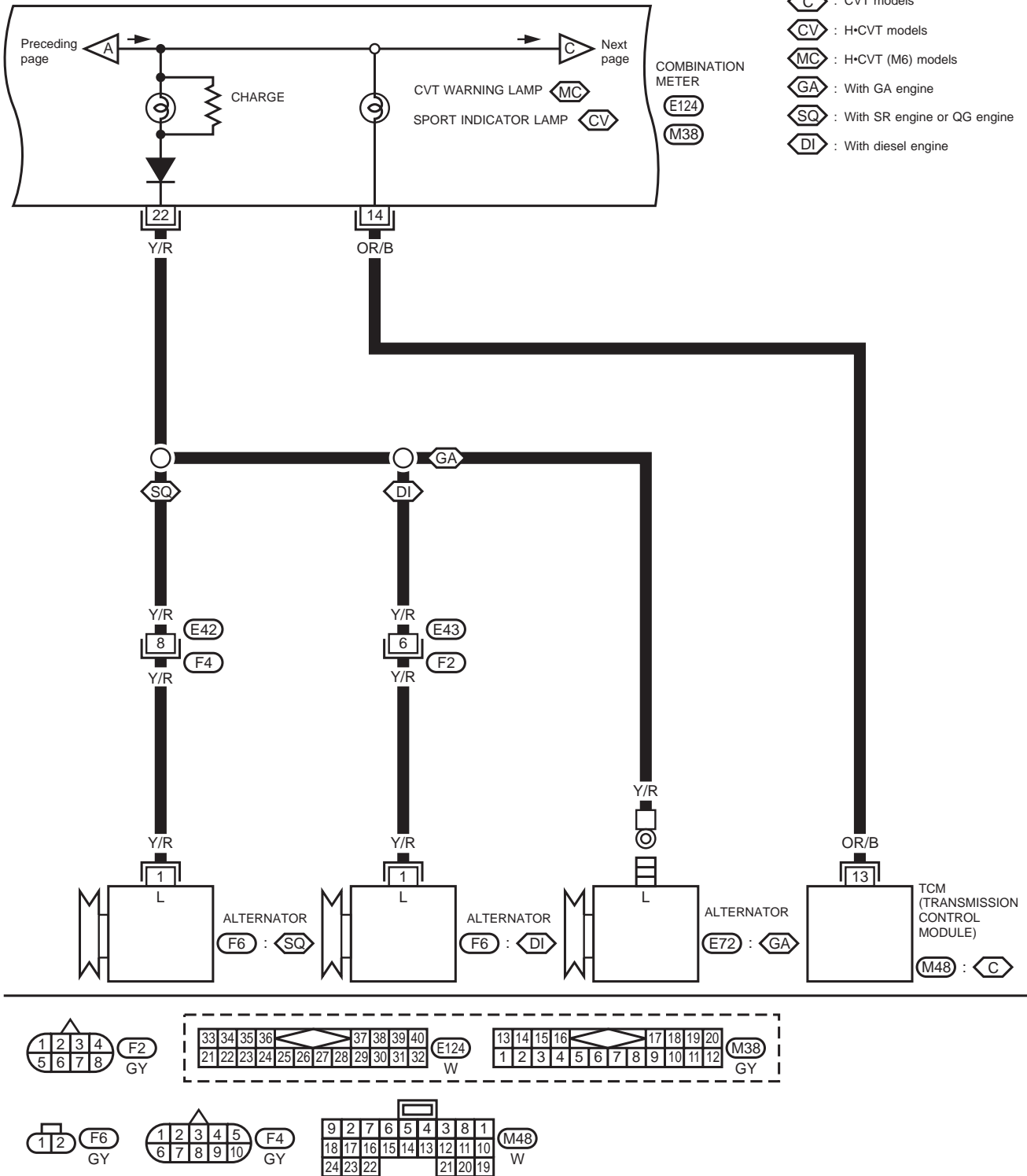




# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-02

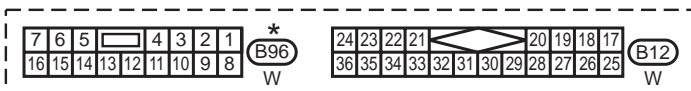
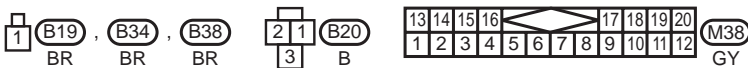
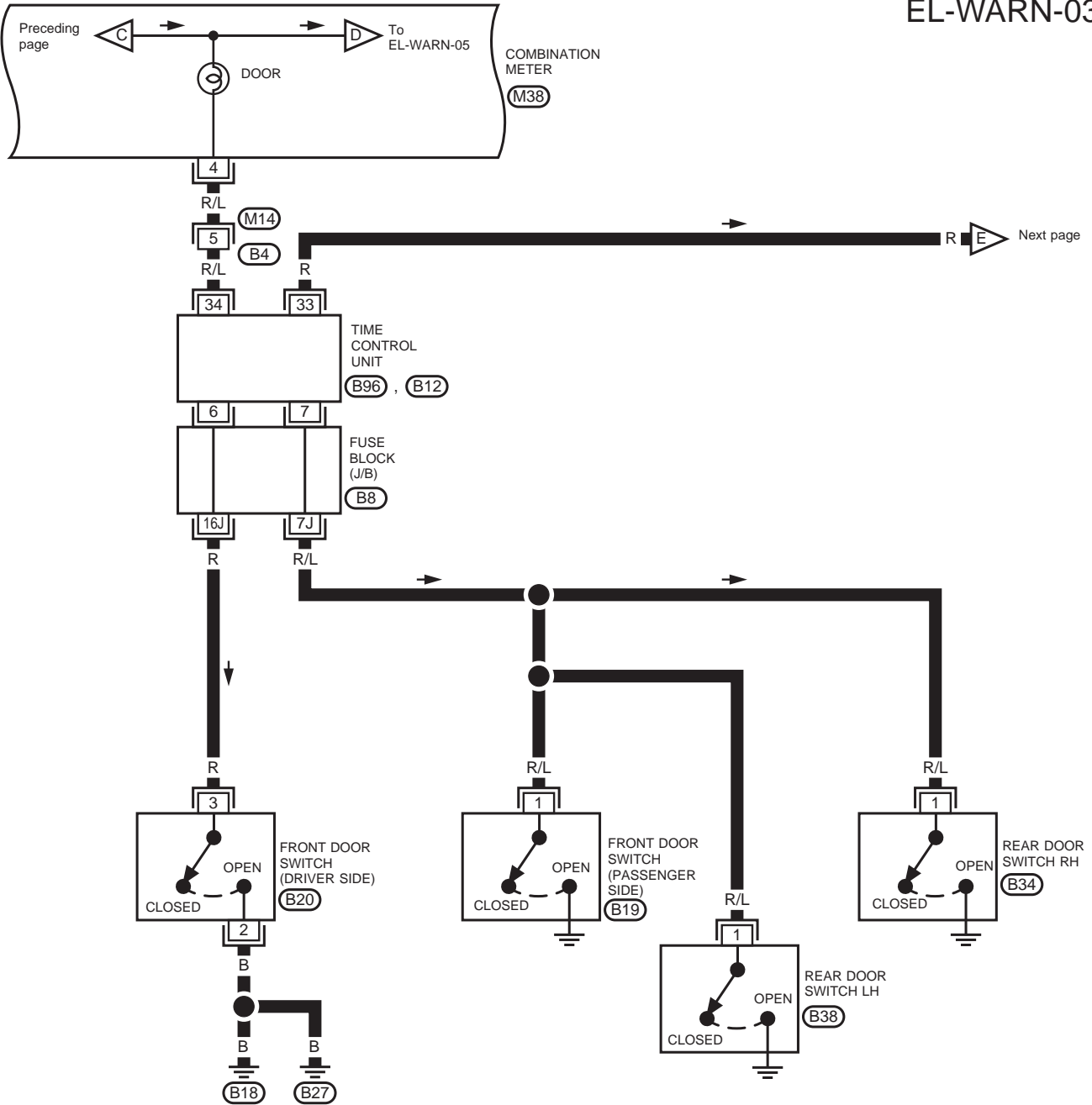


YEL307B

# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-03



REFER TO THE FOLLOWING  
(B8) FUSE BLOCK - Junction Box (J/B)

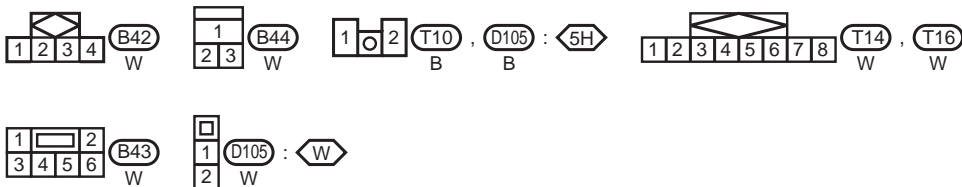
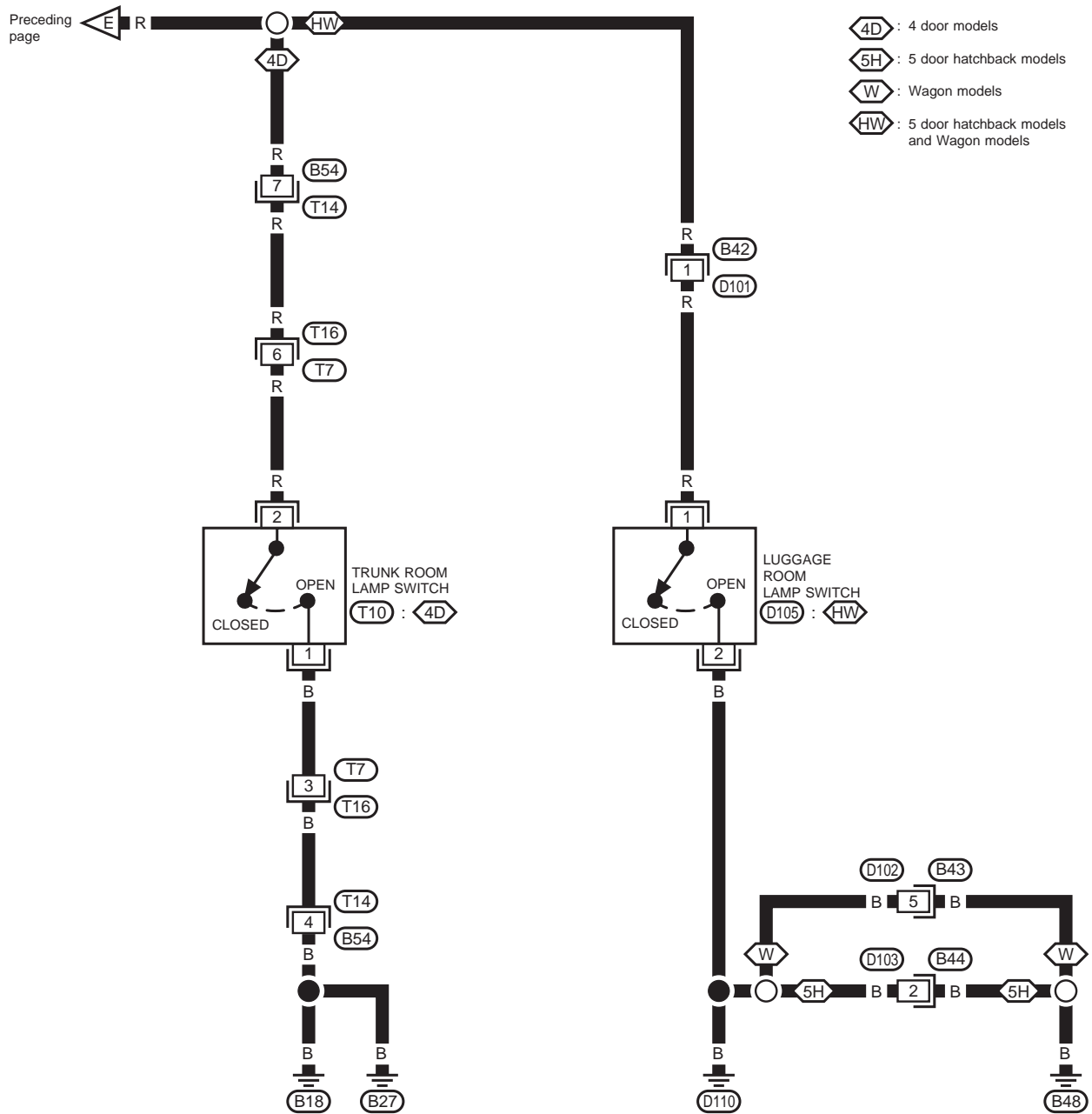
\* : This connector is not shown in "HARNESS LAYOUT" of el section.

YEL308B

# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-04




YEL309B

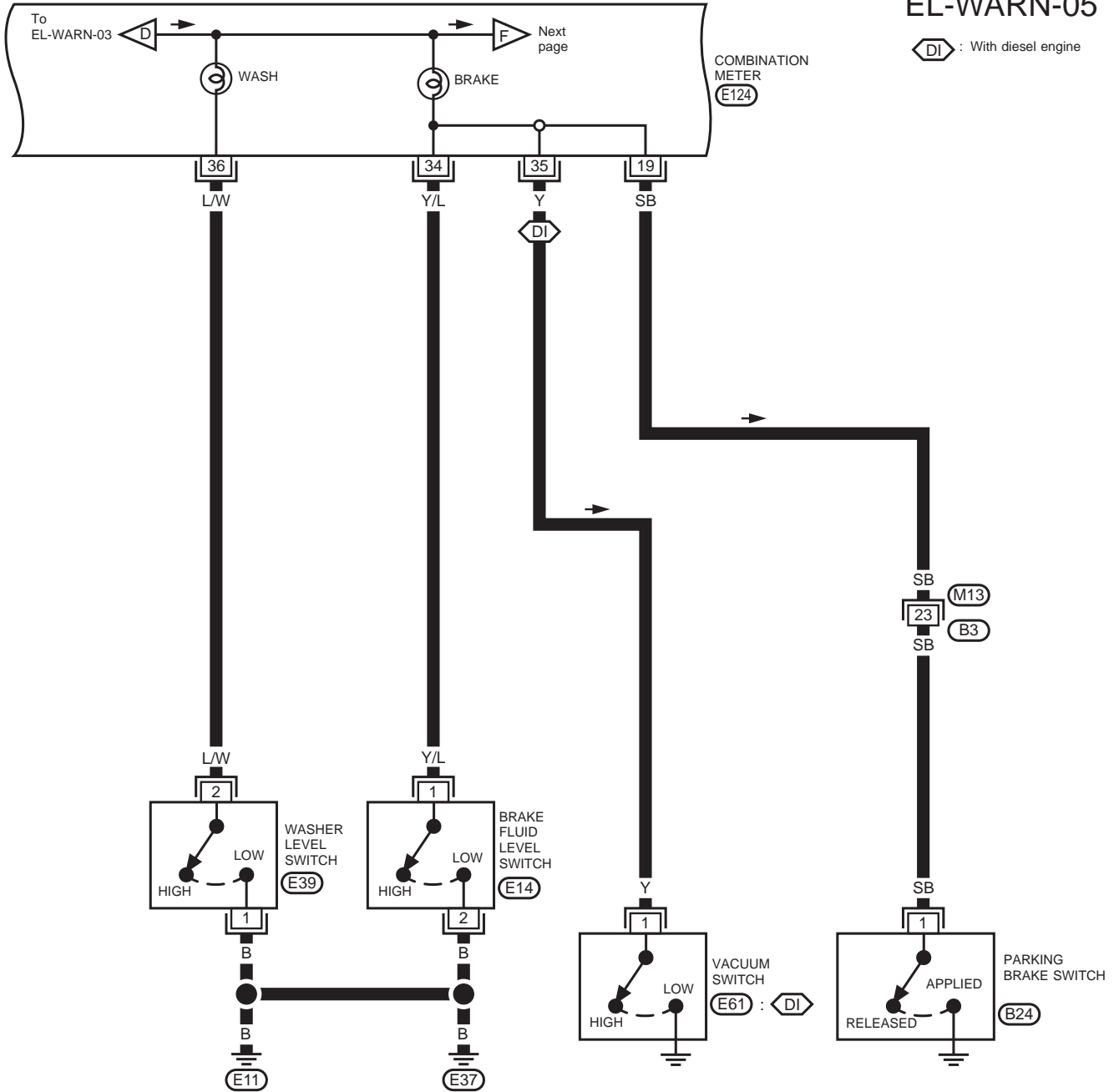


# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-05

 : With diesel engine



1	E14	1 2	E39	1	E61	B24
2	GY	B		GY	B	

33	34	35	36	37	38	39	40	E124	13	14	15	16	17	18	19	20	M38
21	22	23	24	25	26	27	28	W	1	2	3	4	5	6	7	8	GY

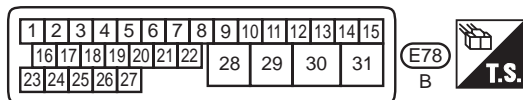
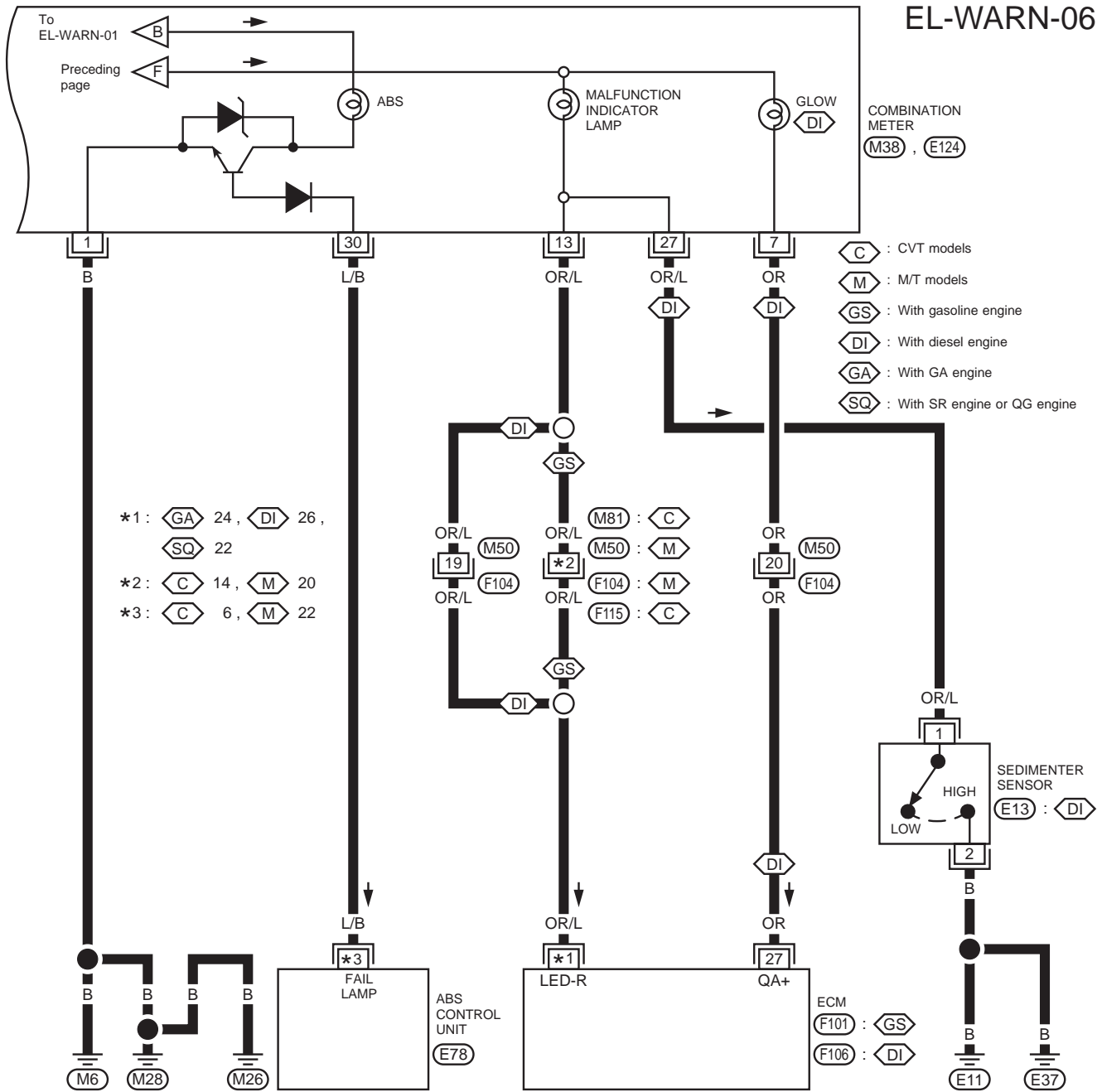
1	2	3	4	5	6	7	8	9	10	M13
11	12	13	14	15	16	17	18	19	20	W

YEL310B

# WARNING LAMPS

## Wiring Diagram — WARN — (Cont'd)

EL-WARN-06



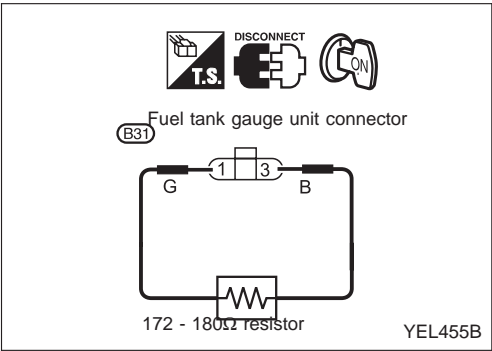
REFER TO THE FOLLOWING

(F101) ELECTRICAL UNITS

(F106) ELECTRICAL UNITS

YEL311B

# WARNING LAMPS

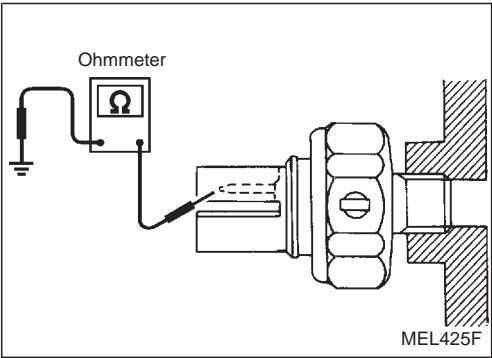


## Electrical Components Inspection

### FUEL WARNING LAMP OPERATION CHECK

1. Turn ignition switch "OFF".
2. Disconnect fuel tank gauge unit harness connector (B31).
3. Connect a resistor (172 - 180Ω) between fuel tank gauge unit harness connector terminals ① and ③.
4. Turn ignition switch "ON".

**The fuel warning lamp should come on.**



### OIL PRESSURE SWITCH CHECK

	Oil pressure kPa (kg/cm <sup>2</sup> , psi)	Continuity
Engine start	More than 10 - 20 (0.1 - 0.2, 1 - 3)	NO
Engine stop	Less than 10 - 20 (0.1 - 0.2, 1 - 3)	YES

Check the continuity between the terminals of oil pressure switch and body ground.

## WARNING CHIME

---

### System Description

The warning chime is combined with the time control unit.

The light warning chime will not sound, when ignition switch in the ON or START position. (When power supply exists at time control unit terminal ①.)

### LIGHT WARNING CHIME

With ignition switch in the OFF position, driver's door open, and lighting switch in 1ST or 2ND position, warning chime will sound. A battery positive voltage is supplied

- from lighting switch terminal ⑫ or daytime light control unit terminal ⑥
- to time control unit terminal ⑩.

Ground is supplied

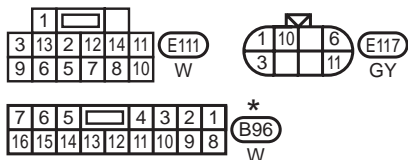
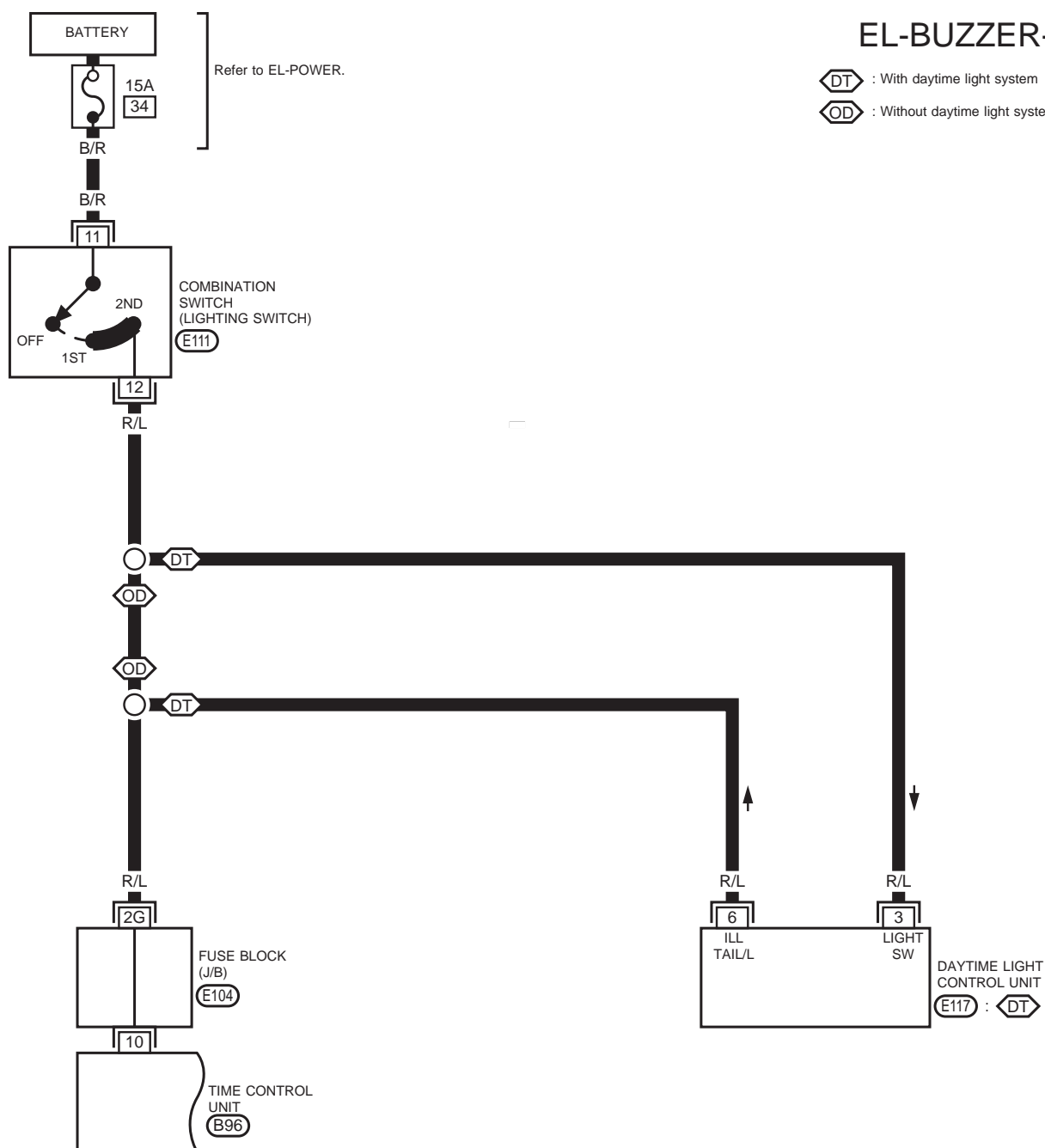
- through driver side door switch
- to time control unit terminal ⑥.

# WARNING CHIME

## Wiring Diagram — CHIME —

### EL-BUZZER-01

DT : With daytime light system  
OD : Without daytime light system



★ :This connector is not shown in "HARNESS LAYOUT" of EL section.

REFER TO THE FOLLOWING

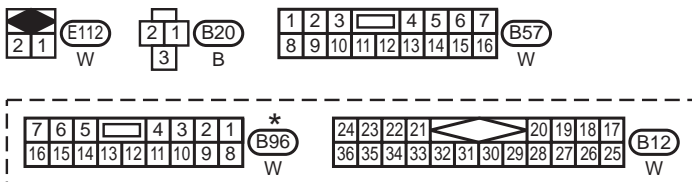
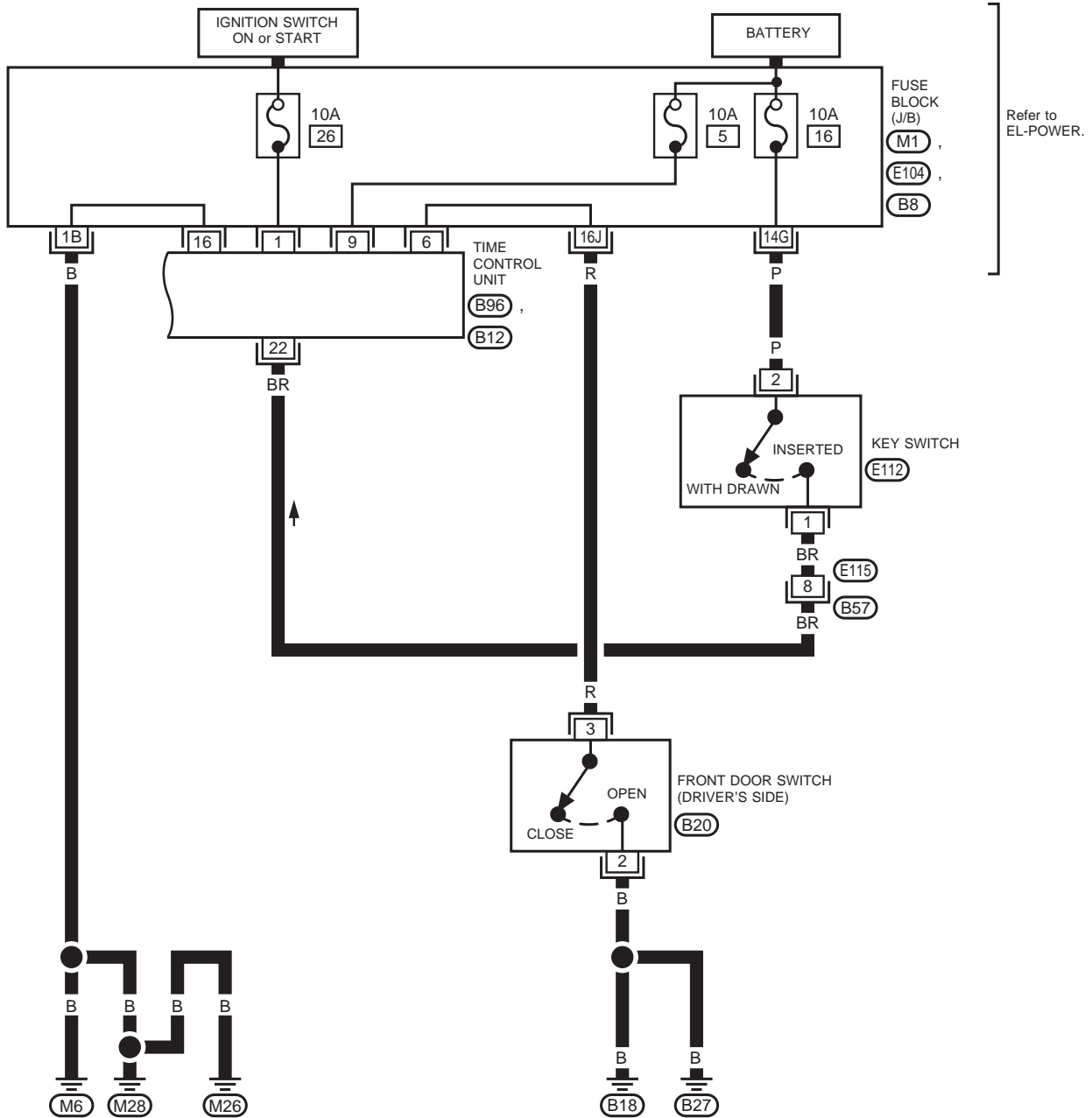
E104 FUSE BLOCK - Junction Box (J/B)

YEL312B

# WARNING CHIME

## Wiring Diagram — CHIME — (Cont'd)

### EL-BUZZER-02



#### REFER TO THE FOLLOWING

- M1 FUSE BLOCK - Junction Box (J/B)
- E104 FUSE BLOCK - Junction Box (J/B)
- B8 FUSE BLOCK - Junction Box (J/B)

★ : This connector is not shown in "HARNESS LAYOUT" of EL section.

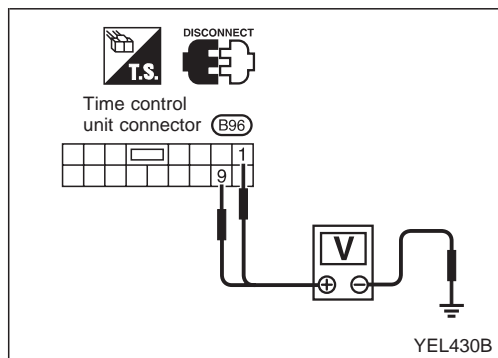
YEL313B

# WARNING CHIME

## Trouble Diagnoses

### SYMPTOM CHART

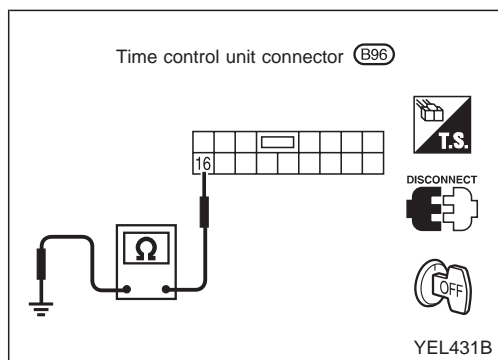
REFERENCE PAGE	EL-151	EL-152	EL-152	EL-153
SYMPTOM	POWER SUPPLY AND GROUND CIRCUIT CHECK	DIAGNOSTIC PROCEDURE 1 (Lighting switch input signal check)	DIAGNOSTIC PROCEDURE 2 (Key switch input signal check)	DIAGNOSTIC PROCEDURE 3
Light warning chime does not activate.	X	X		X
Ignition key warning chime does not activate.	X		X	X
All warning chimes do not activate.	X			X



### POWER SUPPLY AND GROUND CIRCUIT CHECK

#### Power Supply Circuit Check

Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
⑨	Ground	Battery voltage	Battery voltage	Battery voltage
①	Ground	0V	0V	Battery voltage



#### Ground Circuit Check

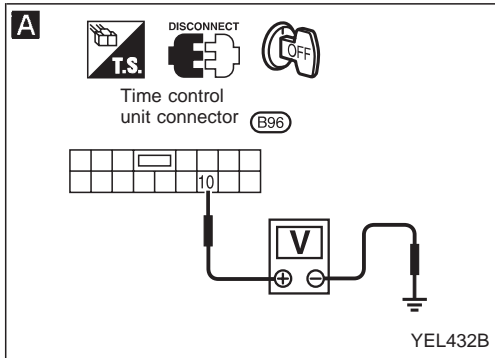
Terminals	Continuity
⑩ - Ground	Yes

## WARNING CHIME

### Trouble Diagnoses (Cont'd)

#### DIAGNOSTIC PROCEDURE 1

##### (Lighting switch input signal check)



**A**

#### CHECK LIGHTING SWITCH INPUT SIGNAL.

Check voltage between control unit terminal ⑩ and ground.

Condition of lighting switch	Voltage [V]
1ST or 2ND	Approx. 12
OFF	0

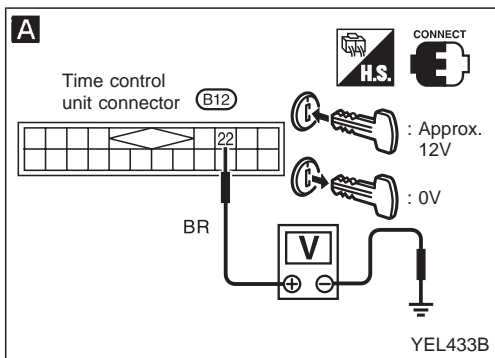
NG

Check the following.

- 15A fuse (No. ③④, located in the fuse and fusible link box)
- Harness for open or short between control unit and lighting switch

OK

Go to Procedure 3.



#### DIAGNOSTIC PROCEDURE 2

##### (Key switch input signal check)

**A**

#### CHECK KEY SWITCH INPUT SIGNAL.

Check voltage between control unit terminal ②② and ground.

Condition of key switch	Voltage [V]
Key is inserted.	Approx. 12
Key is withdrawn.	0

NG

Check the following.

- Key switch  
Refer to "Electrical Components Inspection" (EL-153).
- 10A fuse [No. ①⑥, located in fuse block (J/B)]
- Harness for open or short between key switch and fuse
- Harness for open or short between control unit and key switch

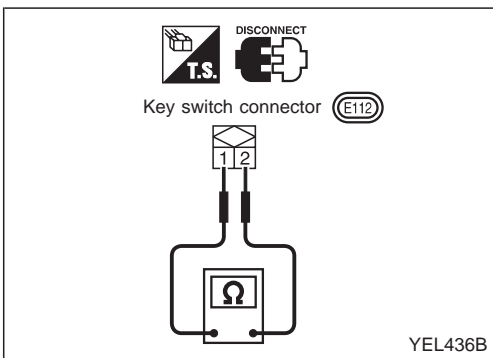
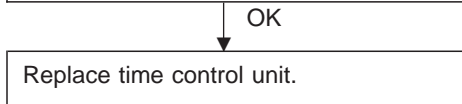
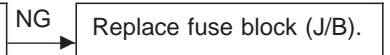
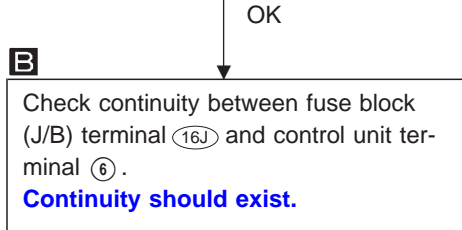
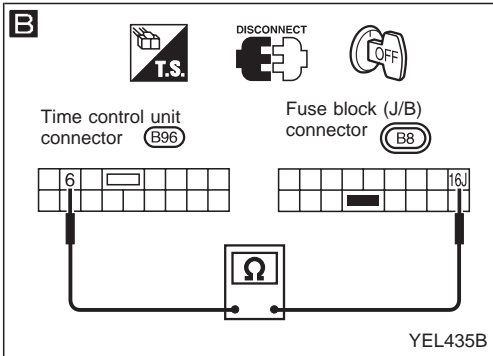
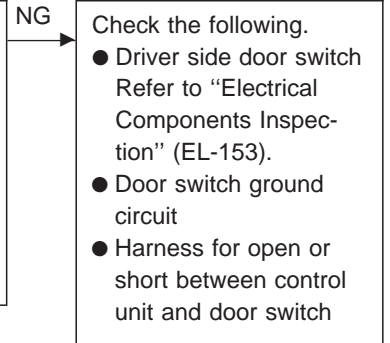
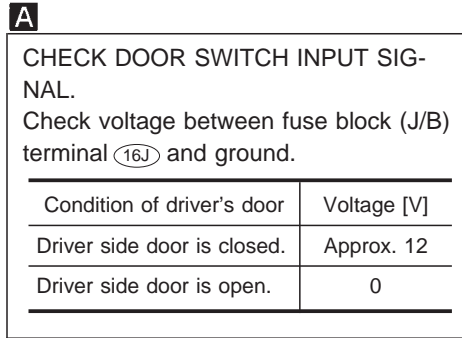
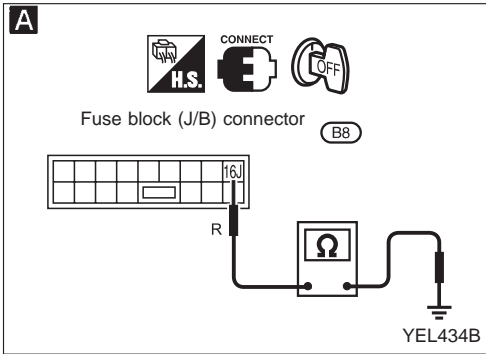
OK

Go to Procedure 3.



## WARNING CHIME

### Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 3



## Electrical Components Inspection

### KEY SWITCH (insert)

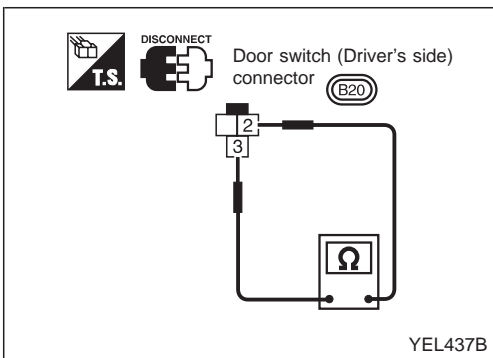
Check continuity between terminals when key is inserted in ignition key cylinder and key is removed from ignition key cylinder.

Terminal No.	Condition	Continuity
① - ②	Key is inserted.	Yes
	Key is removed.	No

### DRIVER SIDE DOOR SWITCH

Check continuity between terminals when door switch is pushed and released.

Terminal No.	Condition	Continuity
② - ③	Door switch is pushed.	No
	Door switch is released.	Yes



## System Description

### WIPER OPERATION

The wiper switch is controlled by a lever built into the combination switch. There are three wiper switch positions:

- LO speed
- HI speed
- INT (Intermittent).

With the ignition switch in the ON or START position, power is supplied

- through 20A fuse (No. 6) located in the fuse block)
- to wiper motor terminal 6 and 3.

### Low and high speed wiper operation

Ground is supplied to wiper switch terminal 17 through body grounds E11 and E37.

When the wiper switch is placed in the LO position, ground is supplied

- Through terminal 14 of the wiper switch
- to wiper motor terminal 2.

With power and ground supplied, the wiper motor operates at low speed.

When the wiper switch is placed in the HI position, ground is supplied

- Through terminal 16 of the wiper switch
- to wiper motor terminal 1.

With power and ground supplied, the wiper motor operates at high speed.

### Auto stop operation

With wiper switch turned OFF, wiper motor will continue to operate until wiper arms reach windshield base.

When wiper arms are not located at base of windshield with wiper switch OFF, ground is provided

- from terminal 14 of the wiper switch
- to wiper motor terminal 2, in order to continue wiper motor operation at low speed.

Ground is also supplied

- through terminal 13 of the wiper switch
- to front wiper relay terminal 3
- through terminal 4 of the front wiper relay
- to wiper motor terminal 5
- through terminal 4 of the wiper motor, and
- through body grounds E11 and E37.

When wiper arms reach base of windshield, wiper motor terminals 5 and 3 are connected instead of terminals 5 and 4. Wiper motor will then stop wiper arms at the PARK position.

### Intermittent operation

#### With variable intermittent

The wiper motor operates the wiper arms at a set interval of approximately 2 to 20 seconds. This feature is controlled by the combination switch wiper amplifier.

When the wiper switch is placed in the INT position, ground is supplied

- to front wiper relay terminal 5
- from wiper switch terminal 13
- through body grounds E37 and E11.
- to wiper motor terminal 2
- through the wiper switch terminal 14
- to wiper switch terminal 13
- through front wiper relay terminal 3

The desired interval time is input

- to front wiper relay terminal 1
- from wiper switch terminal 20.

The wiper motor operates at low speed at the desired time interval.

## FRONT WIPER AND WASHER

### System Description (Cont'd)

#### WIPER OPERATION

##### Without variable intermittent

The wiper motor operates the wiper arms at an interval of approximately 7 seconds. This feature is controlled by the combination switch wiper amplifier.

When the wiper switch is placed in the INT position, ground is supplied

- to front wiper relay terminal ⑤
- from wiper switch terminal ⑬
- to wiper motor terminal ②
- through the wiper switch terminal ⑭
- to wiper switch terminal ⑬
- through front wiper relay terminal ③

#### WASHER OPERATION

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse (No. 21, located in the fuse block)
- to washer switch terminal ⑤.

When the lever is pulled to the WASH/F position, ground is supplied

- to washer motor terminal ②
- from terminal ⑱ of the wiper switch
- through terminal ④ of the wiper switch, and
- through body grounds E37 and E11.

Power is supplied

- from terminal ③ of the washer switch
- to washer motor terminal ①.

With power and ground supplied, the washer motor operates.

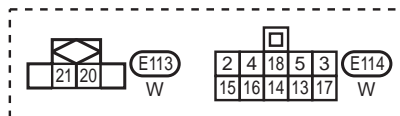
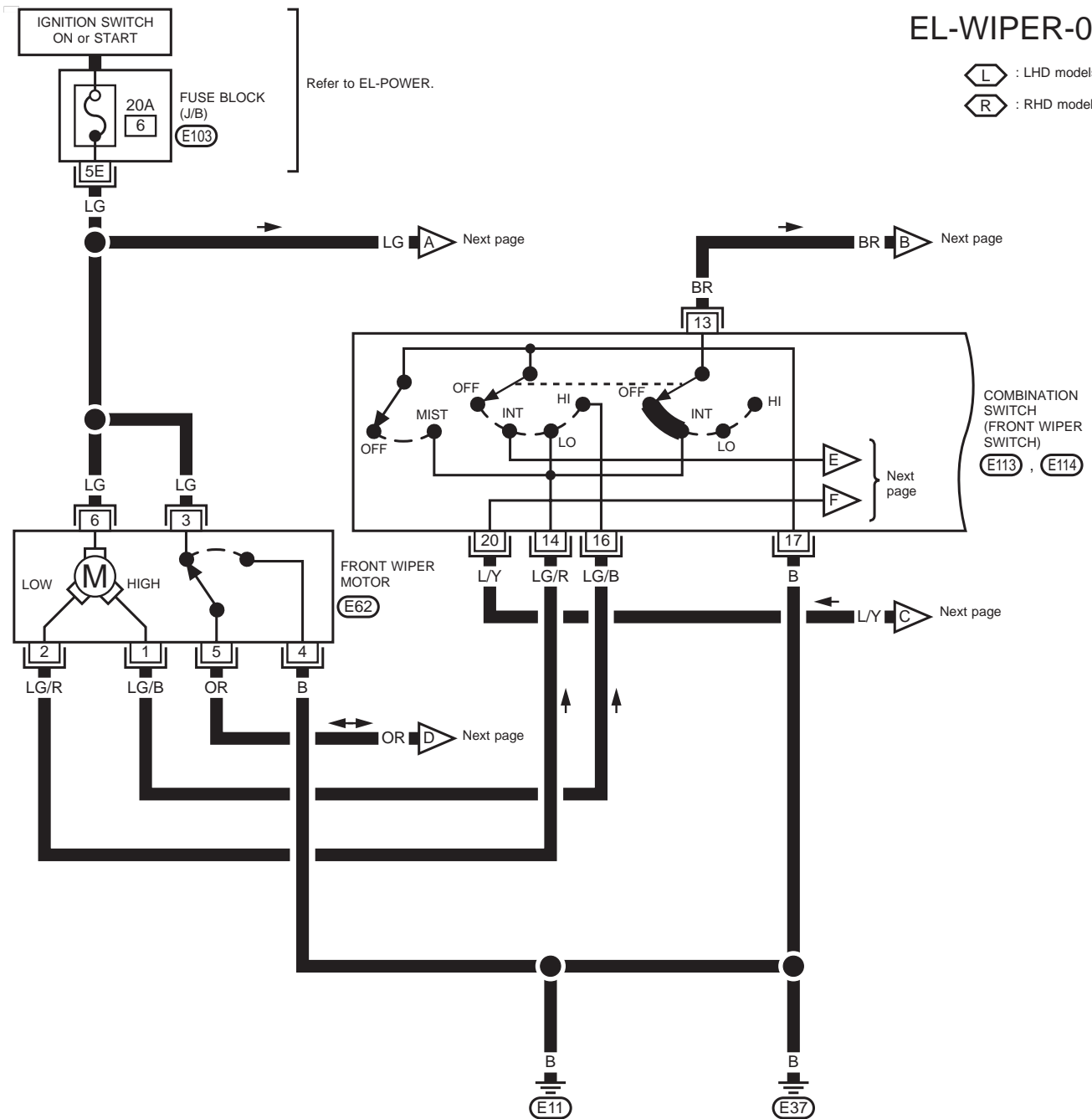
When the lever is pulled to the WASH position for one second or more, the wiper motor operates at low speed for approximately 3 seconds to clean windshield. This feature is controlled by the combination switch (wiper amplifier) in the same manner as the intermittent operation.

# FRONT WIPER AND WASHER

## Wiring Diagram — WIPER —

EL-WIPER-01

⬡ : LHD models  
⬢ : RHD models



REFER TO THE FOLLOWING

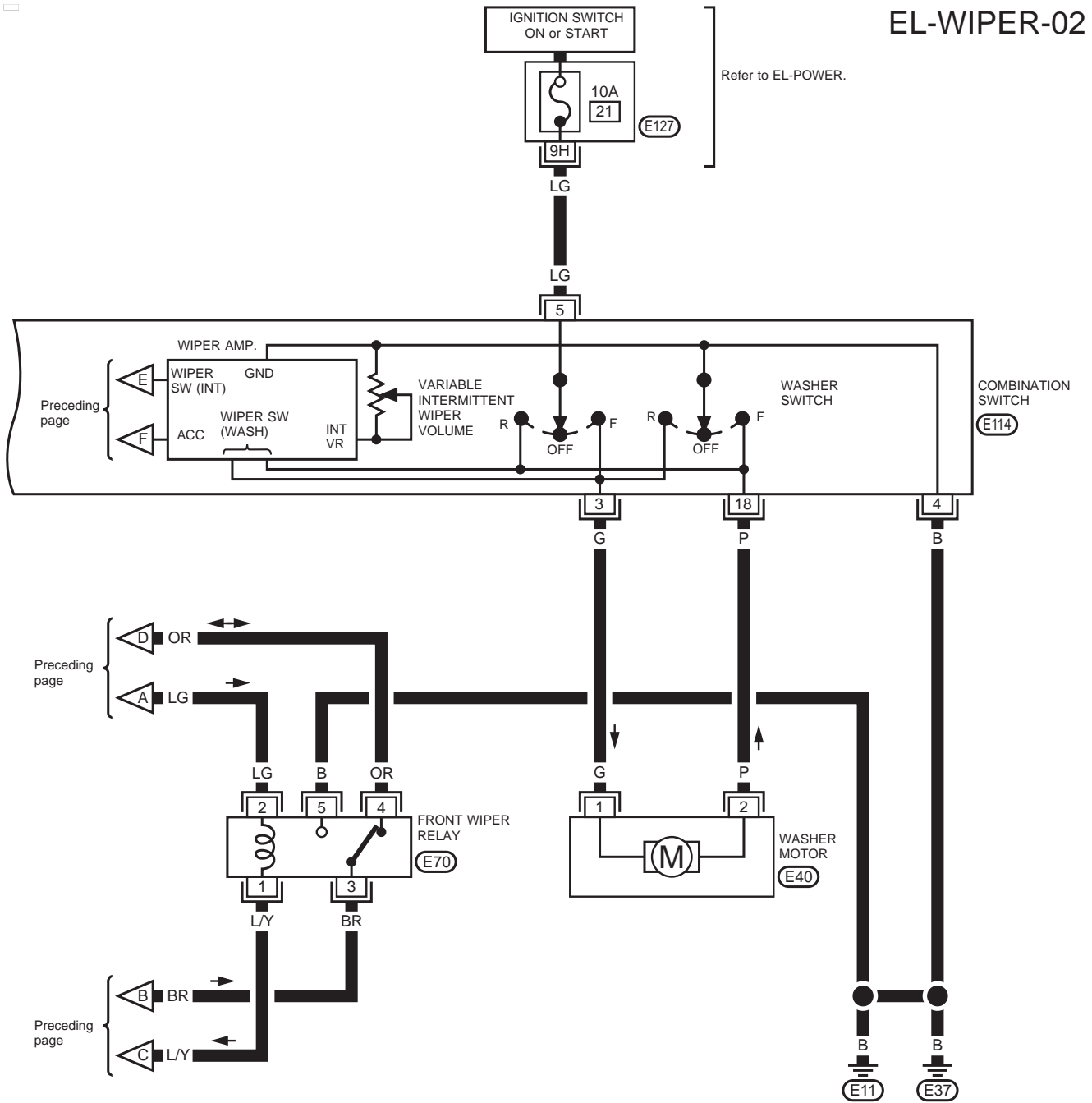
(E103) FUSE BLOCK - Junction Box (J/B)

YEL314B

# FRONT WIPER AND WASHER

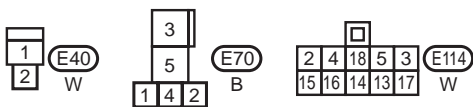
## Wiring Diagram — WIPER — (Cont'd)

EL-WIPER-02



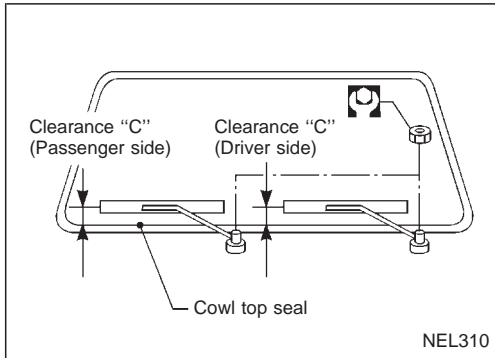
REFER TO THE FOLLOWING

E127 FUSE BLOCK - Junction Box (J/B)



YEL315B

## FRONT WIPER AND WASHER



### Removal and Installation

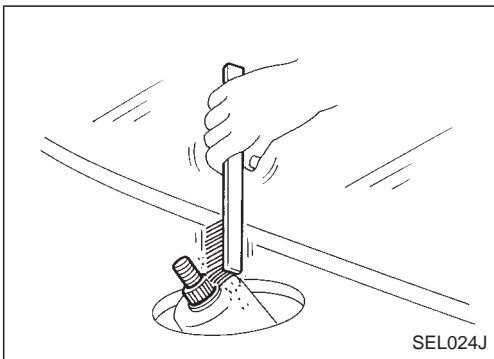
#### WIPER ARMS

1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it "OFF" (Auto Stop).
2. Lift the blade up and then set it down onto glass surface. Set the blade center to clearance "C" immediately before tightening nut.
3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it "OFF".
4. Ensure that wiper blades stop within clearance "C".

**Clearance "C": 19 - 33 mm (0.75 - 1.30 in)**

- Tighten windshield wiper arm nuts to specified torque.

**⚙️: 21 - 26 N-m (2.1 - 2.7 kg-m, 15 - 20 ft-lb)**

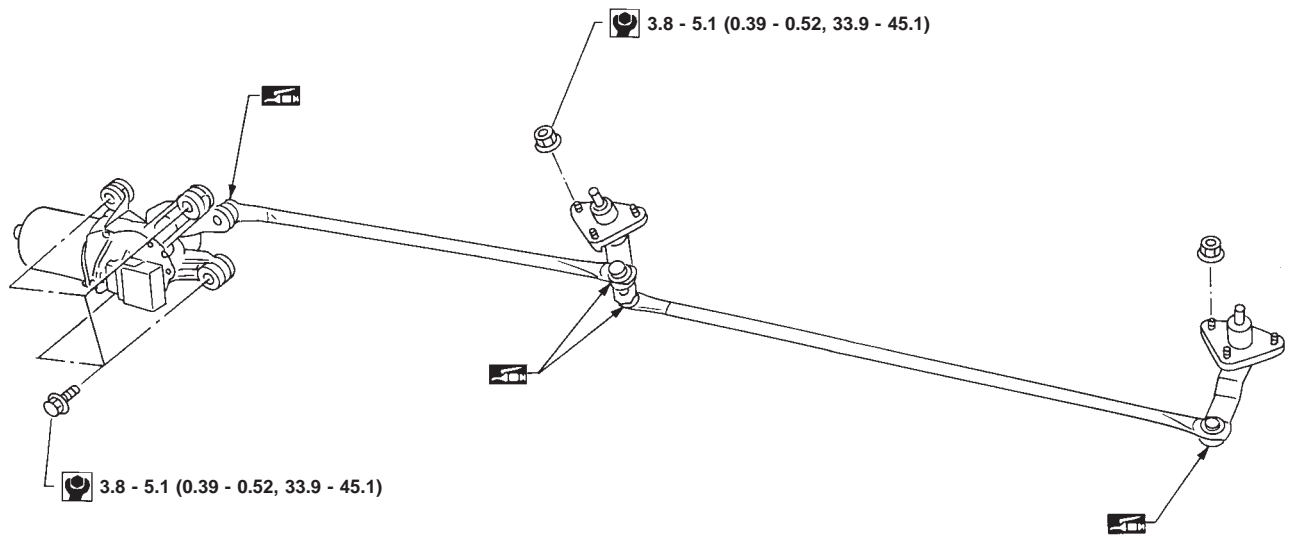


- Before reinstalling wiper arm, clean up the pivot area as illustrated. This will reduce possibility of wiper arm looseness.

## FRONT WIPER AND WASHER

### Removal and Installation (Cont'd) WIPER LINKAGE

LHD models\*



: N·m (kg-m, in-lb)

MEL664DA

\* Structure is basically the opposite for RHD models.

#### Removal

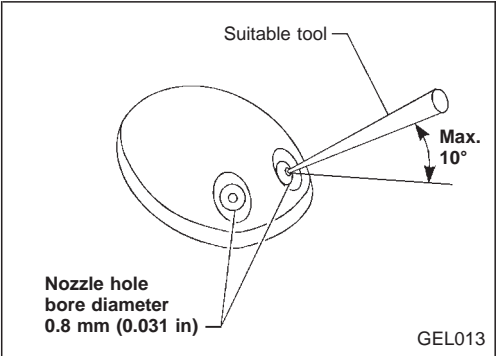
1. Remove 4 bolts that secure wiper motor.
2. Detach wiper motor from wiper linkage at ball joint.
3. Remove wiper linkage.

**Be careful not to break ball joint rubber boot.**

#### Installation

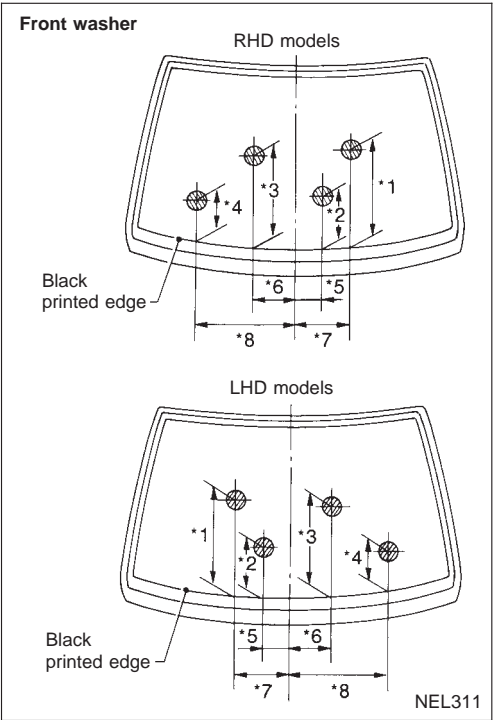
- Grease ball joint area before installation.
1. Installation is the reverse order of removal.

# FRONT WIPER AND WASHER



## Front Washer Nozzle Adjustment

- Adjust washer nozzle with suitable tool as shown in the figure at left.  
Adjustable range:  $\pm 10^\circ$  (In any direction)

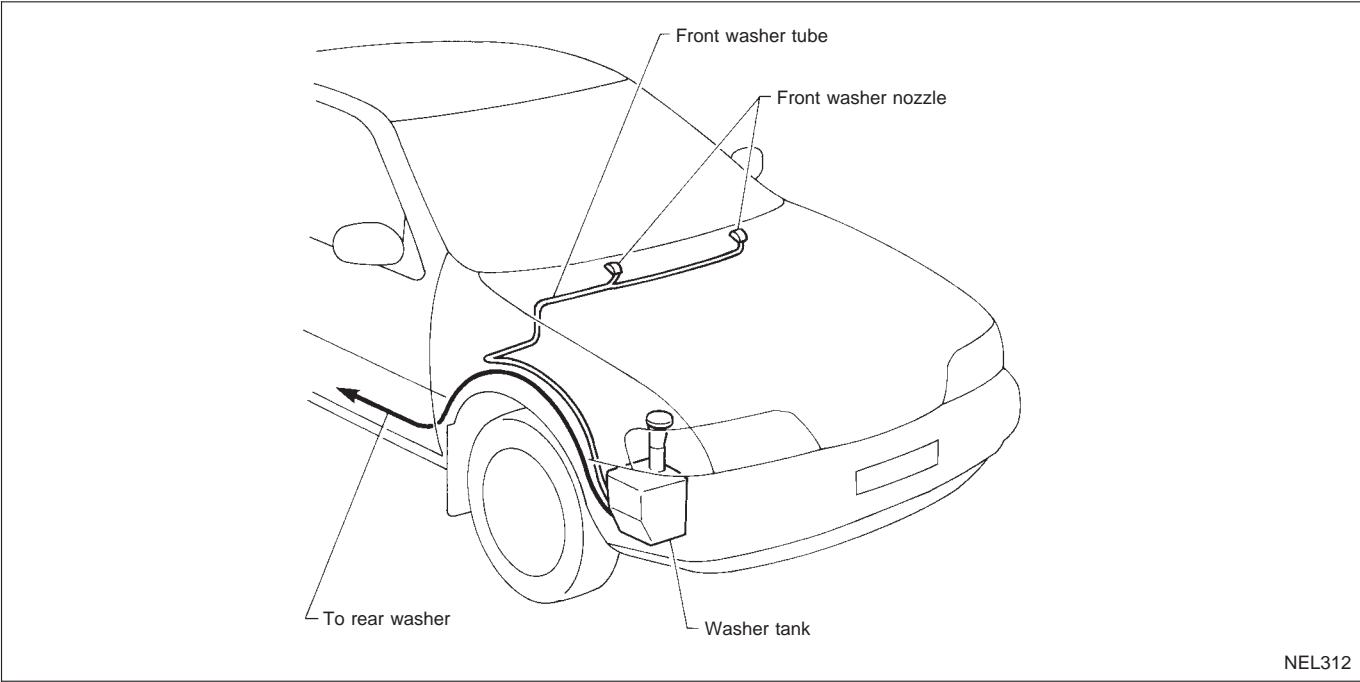


Unit: mm (in)

*1	375 (14.76)	*5	115 (4.53)
*2	160 (6.30)	*6	190 (7.48)
*3	440 (17.32)	*7	320 (12.60)
*4	100 (3.94)	*8	450 (17.72)

Circle diameters are approx. 80 mm (3.15 in).

## Front Washer Tube Layout





## System Description

### WIPER OPERATION

The rear wiper switch and rear intermittent wiper control is built into the combination switch. There are two rear wiper switch positions:

- ON (LO speed)
- INT (Intermittent).

With the ignition switch in the ON or START position, power is supplied

- through 15A fuse (No. 18, located in the fuse block)
- to rear wiper motor terminal ③ (Sedan and H/B); ④ (Wagon), and
- to rear wiper relay terminal ②.

### Low speed wiper operation

Ground is supplied to rear wiper switch terminal ④ through body grounds E37 and E11.

When the rear wiper is placed in the ON position, ground is supplied

- through rear wiper switch terminal ②
- to rear wiper relay terminal ①.

The rear wiper relay is energized and power is supplied

- through 15A fuse (No. 18, located in the fuse block)
- to rear wiper relay terminal ⑤
- through rear wiper relay terminal ③
- to rear wiper motor terminal ②.

Ground is supplied

- to rear wiper motor terminal ① (sedan and H/B); ③ (Wagon)
- through body grounds B18 and B27 (Sedan); D110 and B48 (H/B and Wagon).

### Auto stop operation

With the rear wiper switch turned OFF, rear wiper motor will continue to operate until wiper arm reaches rear window base.

When wiper arm is not located at base of rear window with rear wiper switch OFF, rear wiper relay is not energized.

Power is supplied

- through 15A fuse (No. 18, located in the fuse block)
- to rear wiper motor terminal ③ (Sedan and H/B); ④ (Wagon).

Ground is also supplied

- to rear wiper motor terminal ① (Sedan and H/B); ③ (Wagon)
- through body grounds B18 and B27 (Sedan); D110 and B48 (H/B and Wagon).

When wiper arm reaches base of rear window, rear wiper motor will then stop wiper arm at the PARK position.

### Intermittent operation

The rear wiper motor operates the wiper arm one time at low speed at an interval of approximately 7 seconds. This feature is controlled by the rear wiper amplifier.

With the ignition switch in the ON or START position, power is supplied

- through 15A fuse (No. 18, located in the fuse block)
- to rear wiper relay terminal ②.

When the rear wiper is placed in the INT position, ground is supplied

- to rear wiper relay terminal ①
- through rear wiper switch terminal ②
- to rear wiper amplifier
- from rear wiper switch terminal ④
- through body grounds E37 and E11.

When the rear wiper relay is energized, power is supplied

- through 15A fuse (No. 18, located in the fuse block)
- to rear wiper relay terminal ⑤
- through rear wiper relay terminal ③
- to rear wiper motor terminal ②.

## REAR WIPER AND WASHER

### System Description (Cont'd)

Ground is also supplied

- to rear wiper motor terminal ① (Sedan and H/B); ③ (Wagon)
- through body grounds B18 and B27 (Sedan); D110 and B48 (H/B and Wagon).

With power and ground supplied, the rear wiper motor operates intermittently.

#### WASHER OPERATION

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse (No. 21, located in the fuse block)
- to rear washer switch connector terminal ⑤.

When the rear washer switch is pushed to the WASH/R position, ground is supplied

- to rear washer motor terminal ①
- from terminal ③ of rear wiper switch
- through terminal ④ of rear wiper switch, and
- through body grounds E37 and E11.

Power is supplied

- from terminal ⑩ of the washer switch
- to washer motor terminal ②.

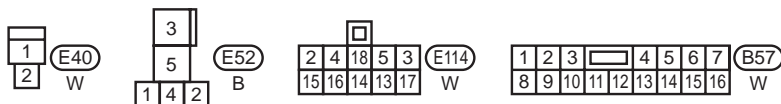
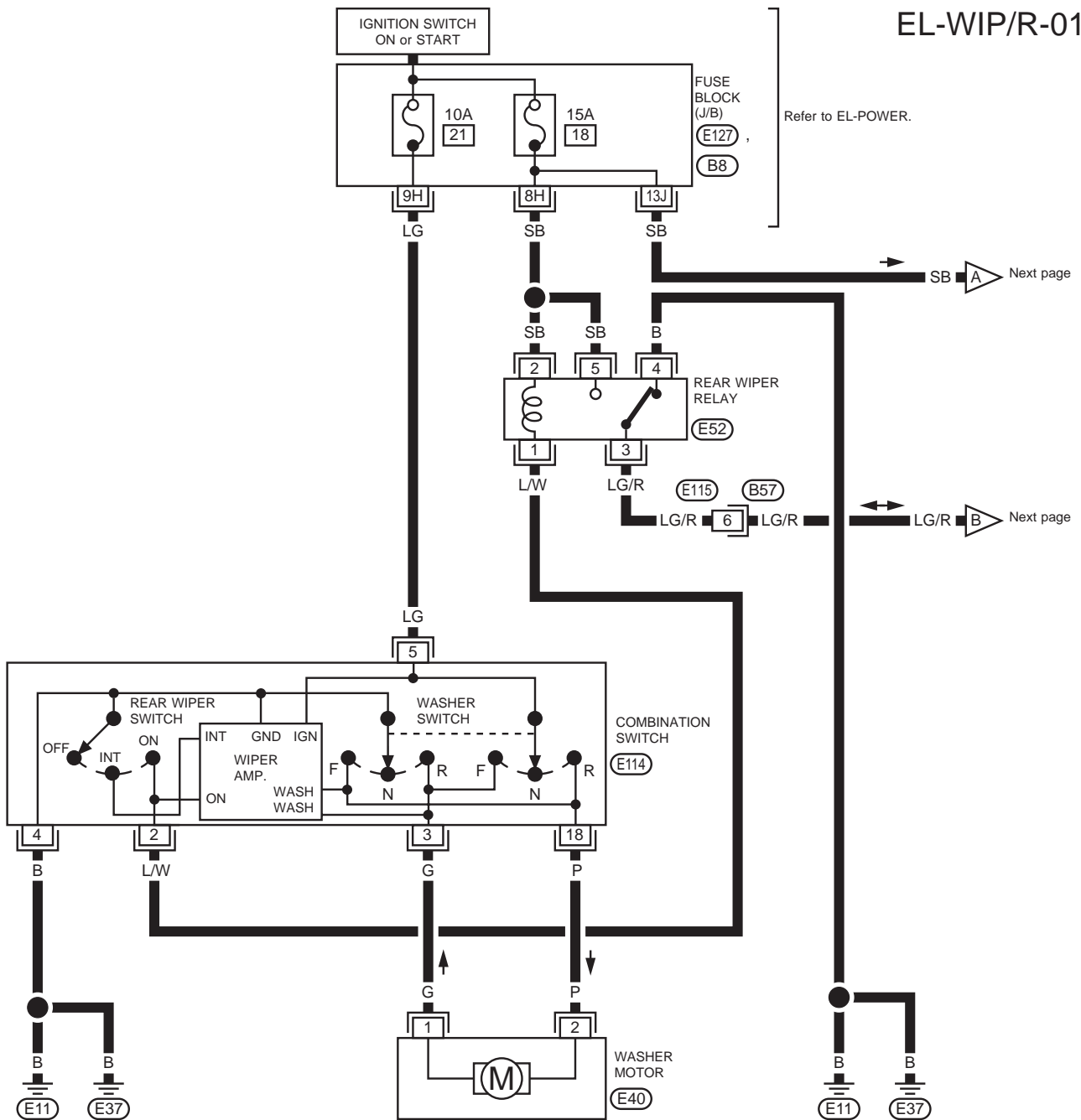
With power and ground is supplied, the rear washer motor operates.

The rear wiper motor operates when the control switch is pushed to WASH position for one second or more and for approximately 3 seconds after the switch is released. This feature is controlled by the rear wiper amplifier in the same manner as the intermittent operation.

# REAR WIPER AND WASHER

## Wiring Diagram — WIP/R —

EL-WIP/R-01



REFER TO THE FOLLOWING

(E127) FUSE BLOCK - Junction Box (J/B)

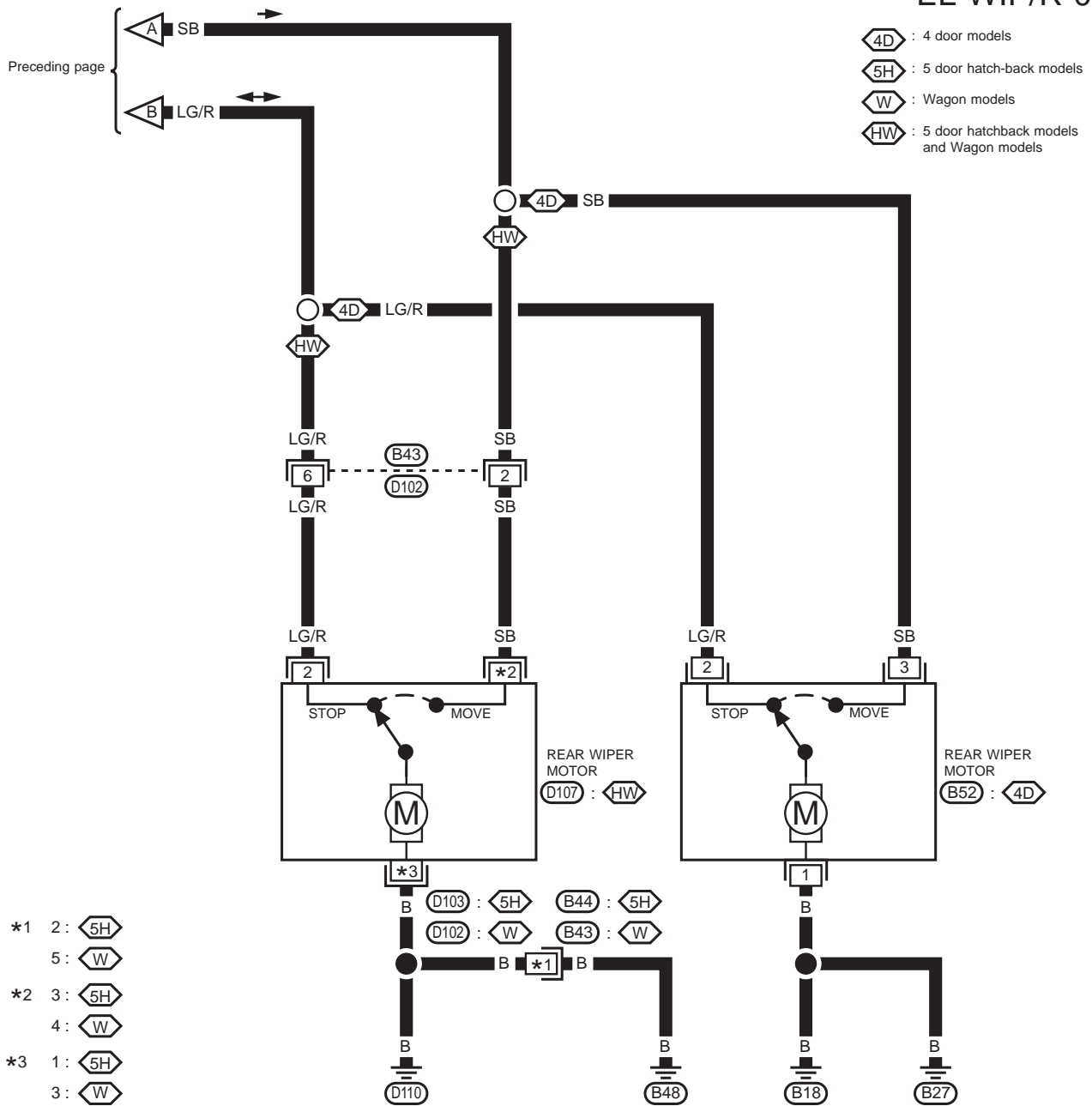
(B8) FUSE BLOCK - Junction Box (J/B)

YEL317B

# REAR WIPER AND WASHER

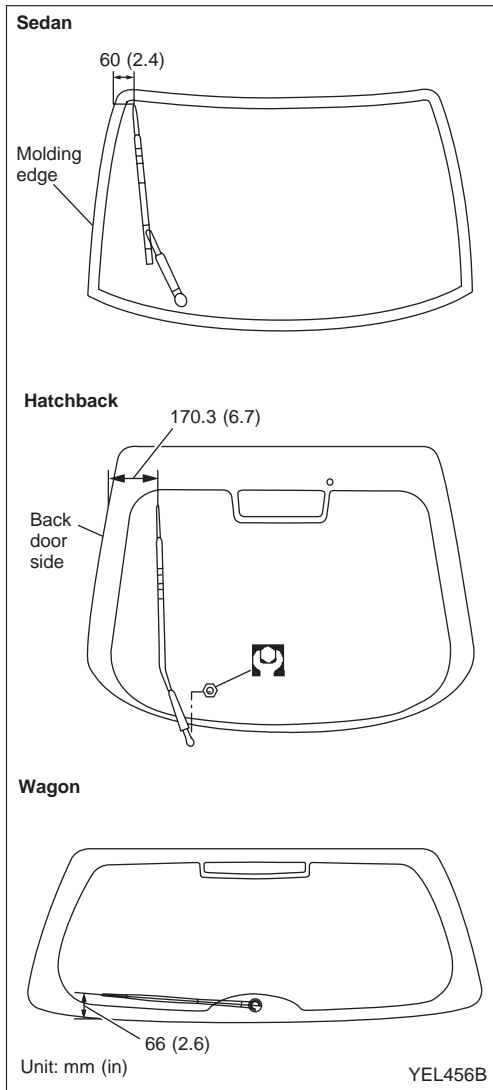
## Wiring Diagram — WIP/R — (Cont'd)

EL-WIP/R-02



YEL318B

## REAR WIPER AND WASHER

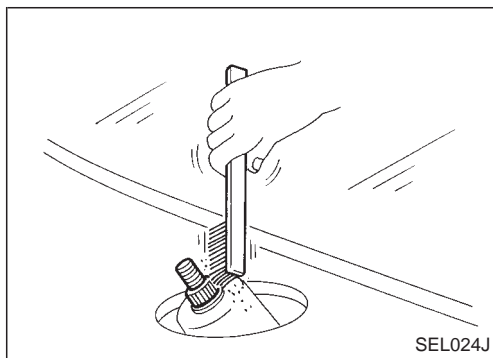


### Removal and Installation

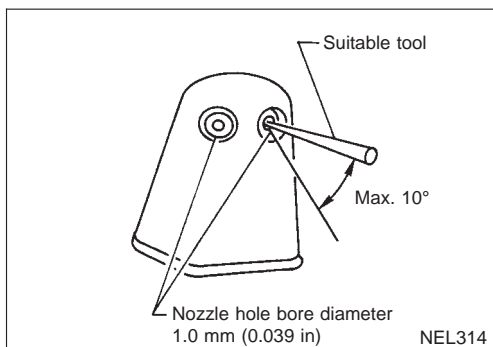
#### WIPER ARM

1. Prior to wiper arm installation, turn on wiper switch to operate wiper motor and then turn it off (Auto Stop).
  2. Lift the blade up and then set it down onto glass surface. Set the blade center before tightening nut.
  3. Eject washer fluid. Turn on wiper switch to operate wiper motor and then turn it off.
  4. Ensure that wiper blade stops in the correct position.
- Tighten windshield wiper arm nut to specified torque.

: 13 - 18 N·m (1.4 - 1.8 kg-m, 10 - 13 ft-lb)



- Before reinstalling wiper arm, clean up the pivot area as illustrated. This will reduce possibility of wiper arm looseness.



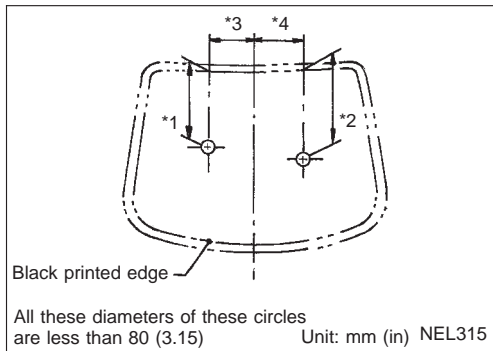
#### Washer Nozzle Adjustment

- Adjust washer nozzle with suitable tool as shown in the figure at left.

**Adjustable range:  $\pm 10^\circ$  (In any direction)**

## REAR WIPER AND WASHER

### Washer Nozzle Adjustment (Cont'd)



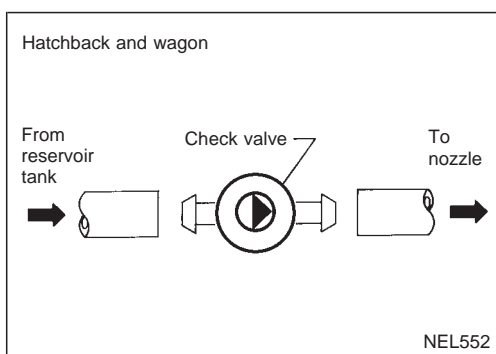
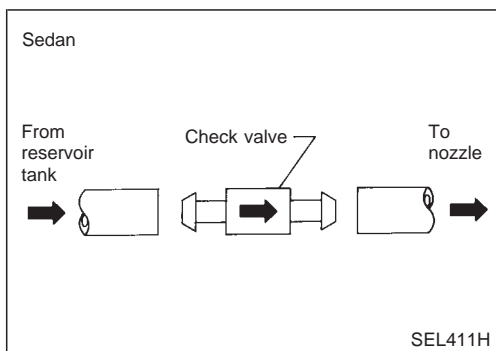
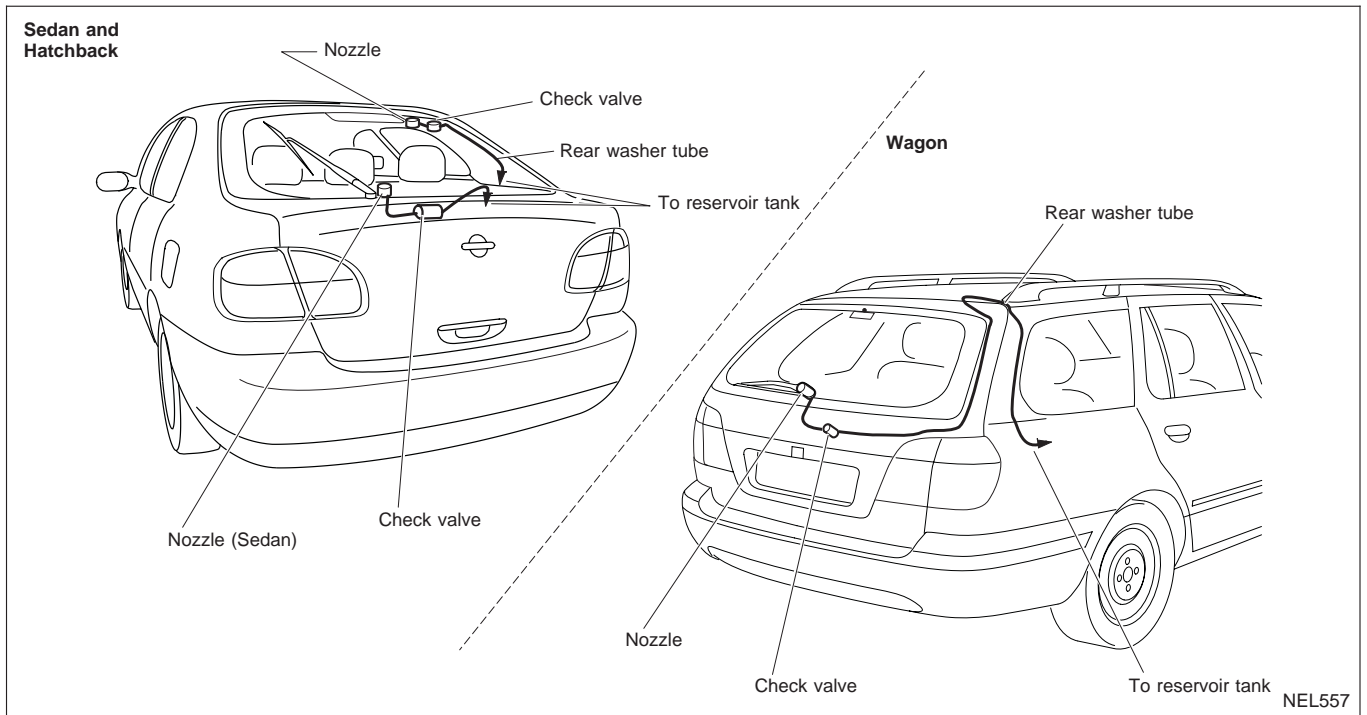
Unit: mm (in)

*1	150 (5.91)	*3	135 (5.31)
*2	290 (11.42)	*4	170 (6.69)

Circle diameters are approx. 80 mm (3.15 in)

## REAR WIPER AND WASHER

### Washer Tube Layout



### Check Valve

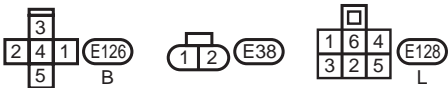
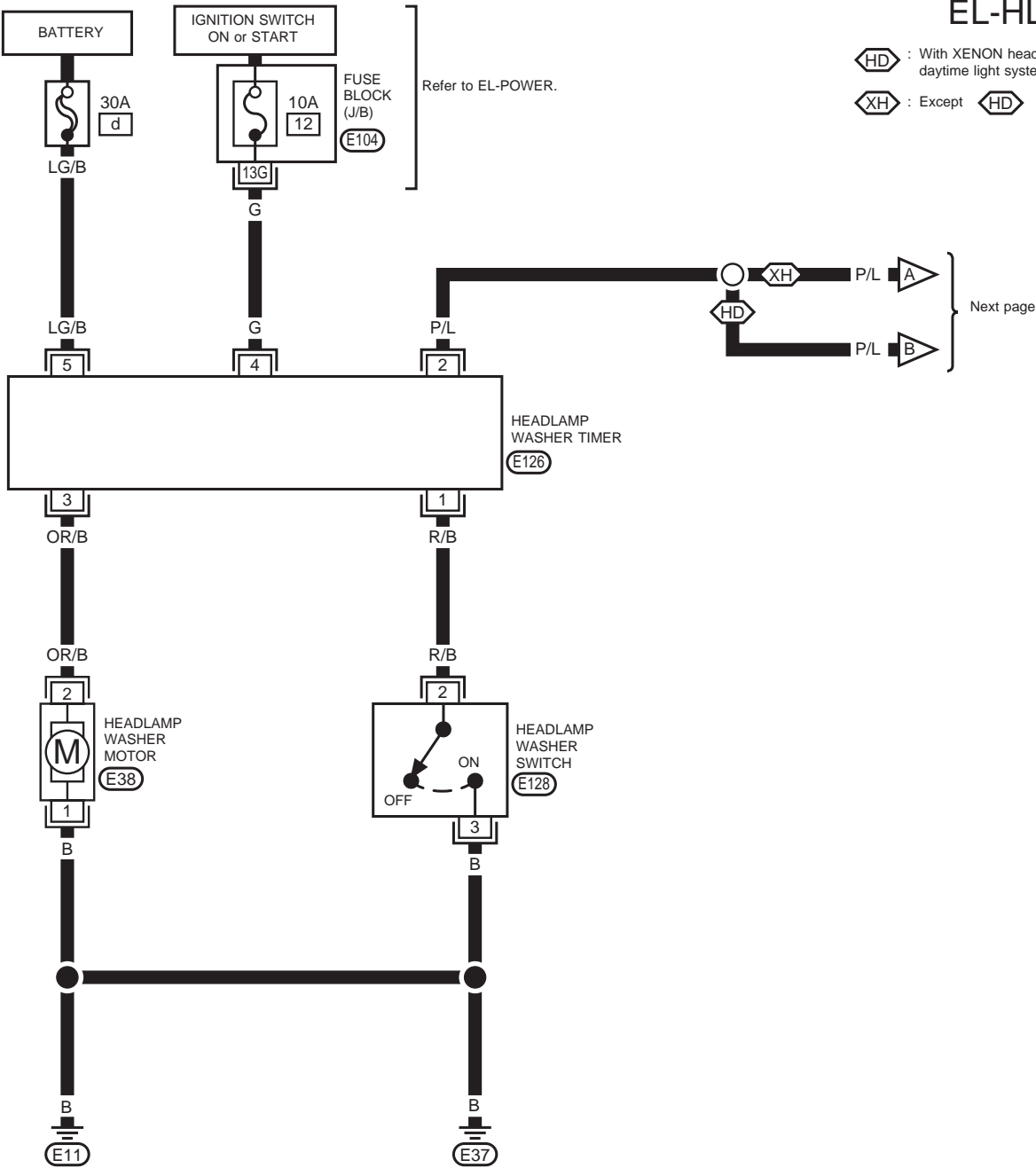
- A check valve is provided in the washer fluid line. Be careful not to connect check valve to washer tube in the wrong direction.

HEADLAMP WASHER

Wiring Diagram — HLC —

EL-HLC-01

HD : With XENON headlamp or daytime light system  
XH : Except HD



REFER TO THE FOLLOWING  
E104 FUSE BLOCK - Junction Box (J/B)

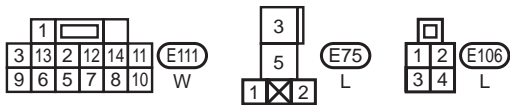
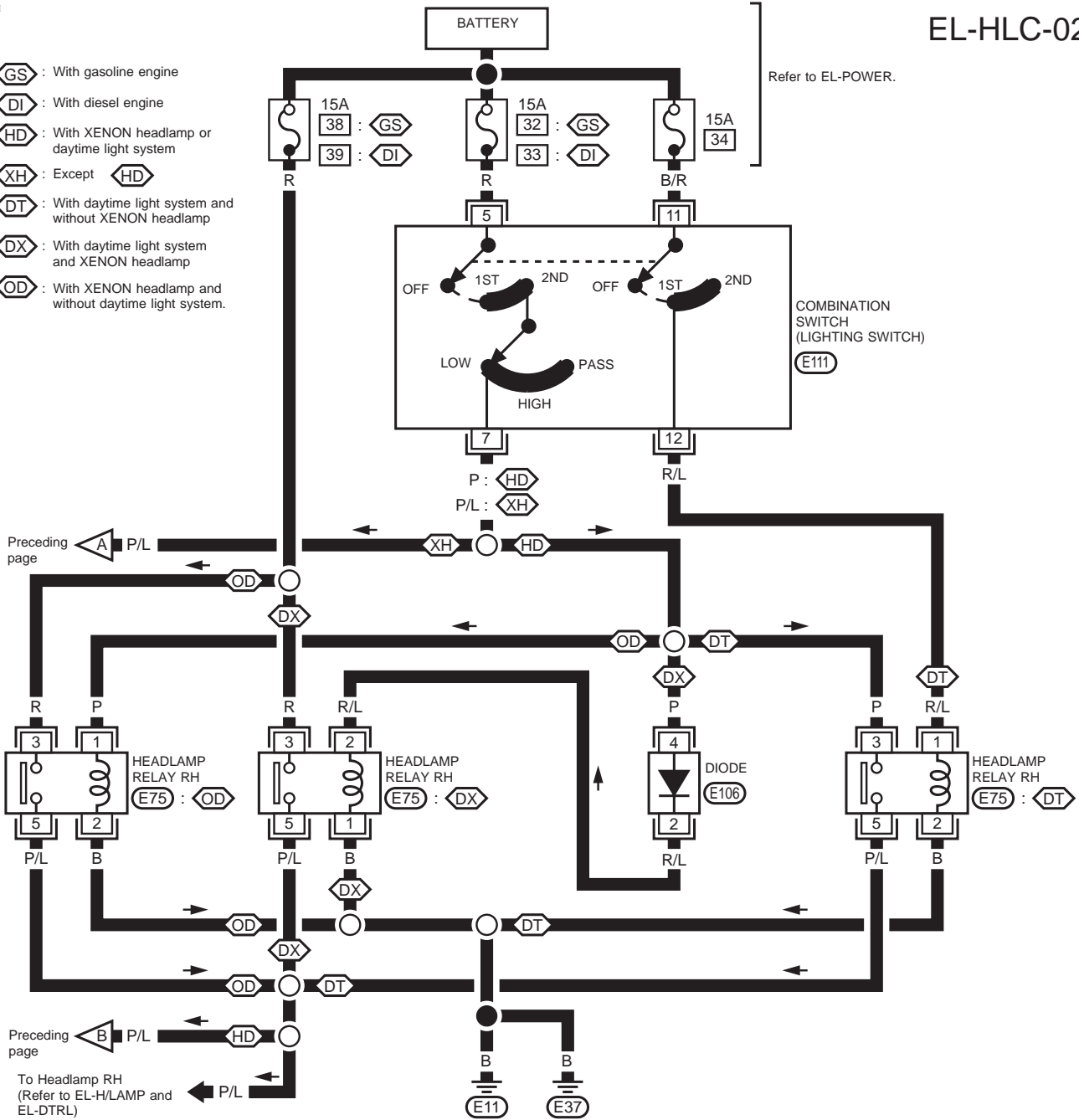


# HEADLAMP WASHER

## Wiring Diagram — HLC — (Cont'd)

EL-HLC-02

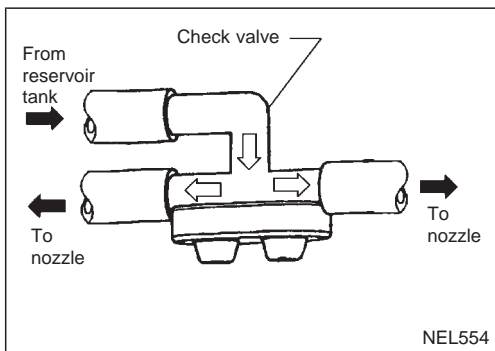
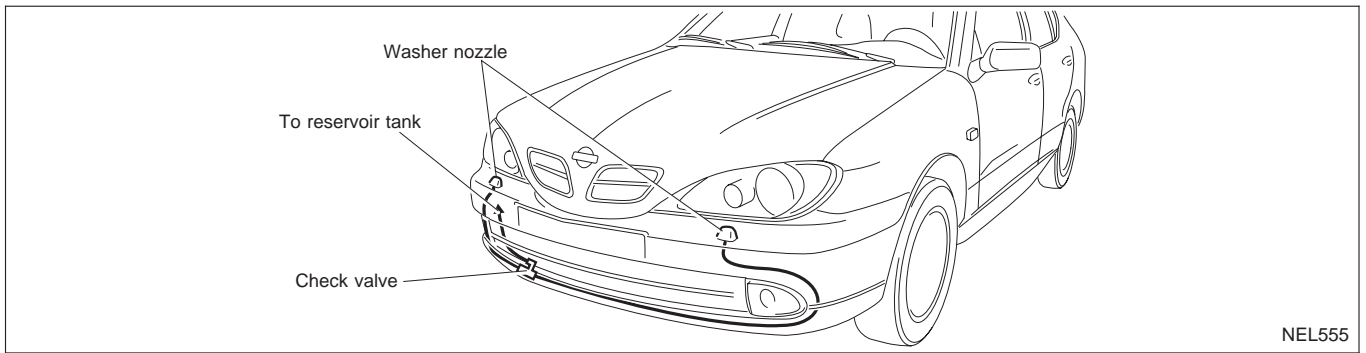
- GS : With gasoline engine
- DI : With diesel engine
- HD : With XENON headlamp or daytime light system
- XH : Except HD
- DT : With daytime light system and without XENON headlamp
- DX : With daytime light system and XENON headlamp
- OD : With XENON headlamp and without daytime light system.



YEL320B

# HEADLAMP WASHER

## Washer Tube Layout



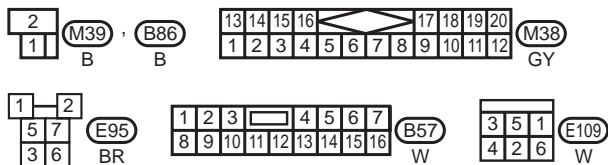
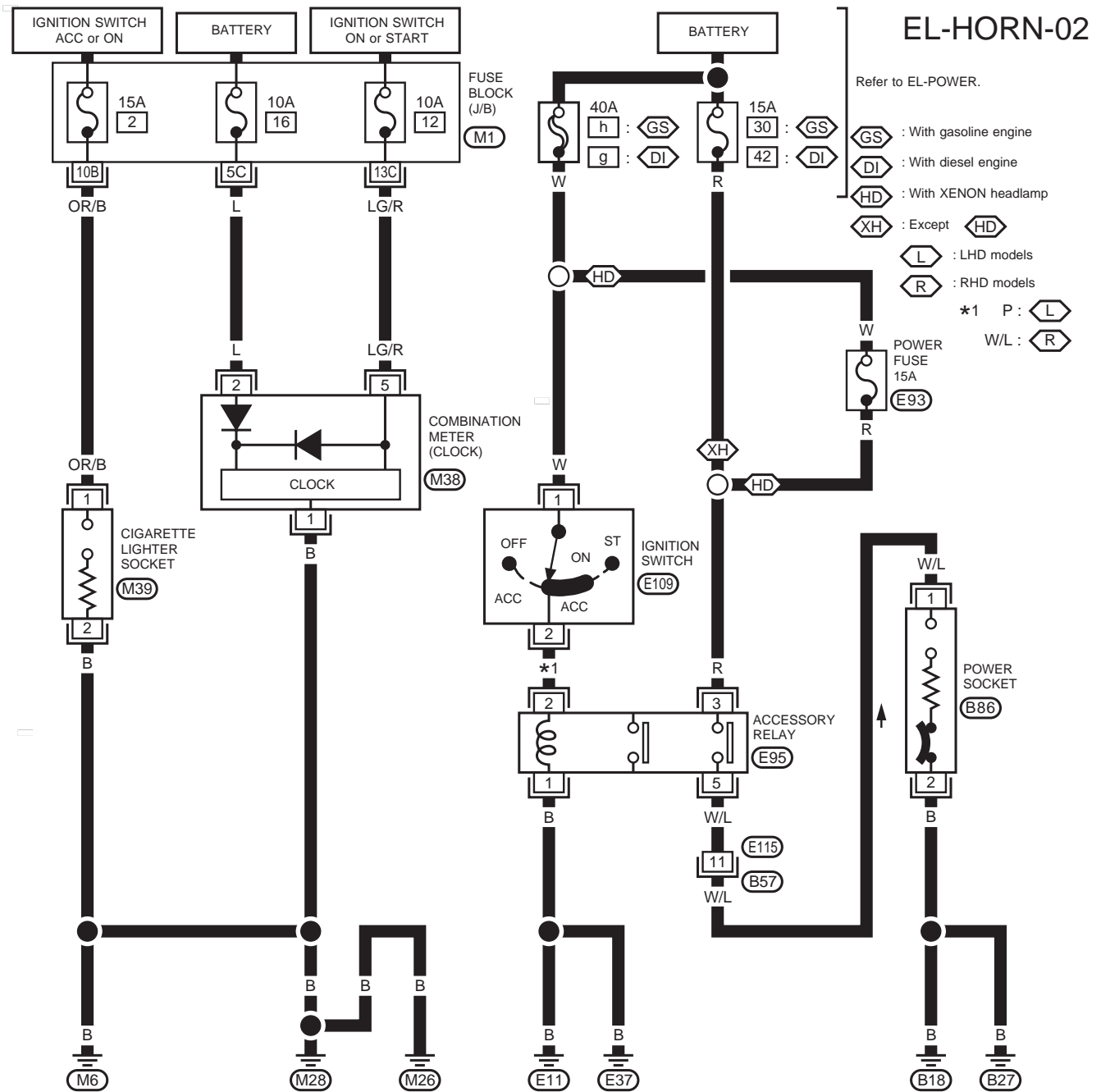
### Check Valve

- A check valve is provided in the washer fluid line. Be careful not to connect check valve to washer tube in the wrong direction.



# HORN, CIGARETTE LIGHTER AND CLOCK

## Wiring Diagram — HORN — (Cont'd)



REFER TO THE FOLLOWING

(M1) FUSE BLOCK - Junction Box (J/B)

YEL340B

### System Description

The rear window and door mirror defogger system is controlled by the time control unit. The rear window and door mirror defogger operates only for approximately 15 minutes.

Power is supplied at all times

- to rear window defogger relay

With the ignition switch in the ON or START position, power is supplied

- to rear window defogger relay
- to time control unit terminal ①
- through 10A fuse [No. 26], located in the fuse block (J/B)].

Ground is supplied to terminal ⑭ of the rear window defogger switch through body grounds M6, M28 and M26.

When the rear window defogger switch is turned ON, ground is supplied

- through terminal ⑯ rear window defogger switch
- to fuse block (J/B) terminal 9C.
- through time control unit terminal ③.

Terminal ⑬ of the time control unit then supplies ground to the rear window defogger relay.

With power and ground supplied, the rear window defogger relay is energized.

For rear window defogger system, power is supplied

- through 15A fuse [No. 14 and 15], located in the fuse block (J/B)].
- to rear window defogger.

For door mirror defogger system, power is supplied

- through 10A fuse [No. 1], located in the fuse block (J/B)].
- to door mirror defogger.

The rear window and door mirror defogger have an independent ground.

With power and ground supplied, the rear window and door mirror filaments heat and defog the rear window and door mirrors.

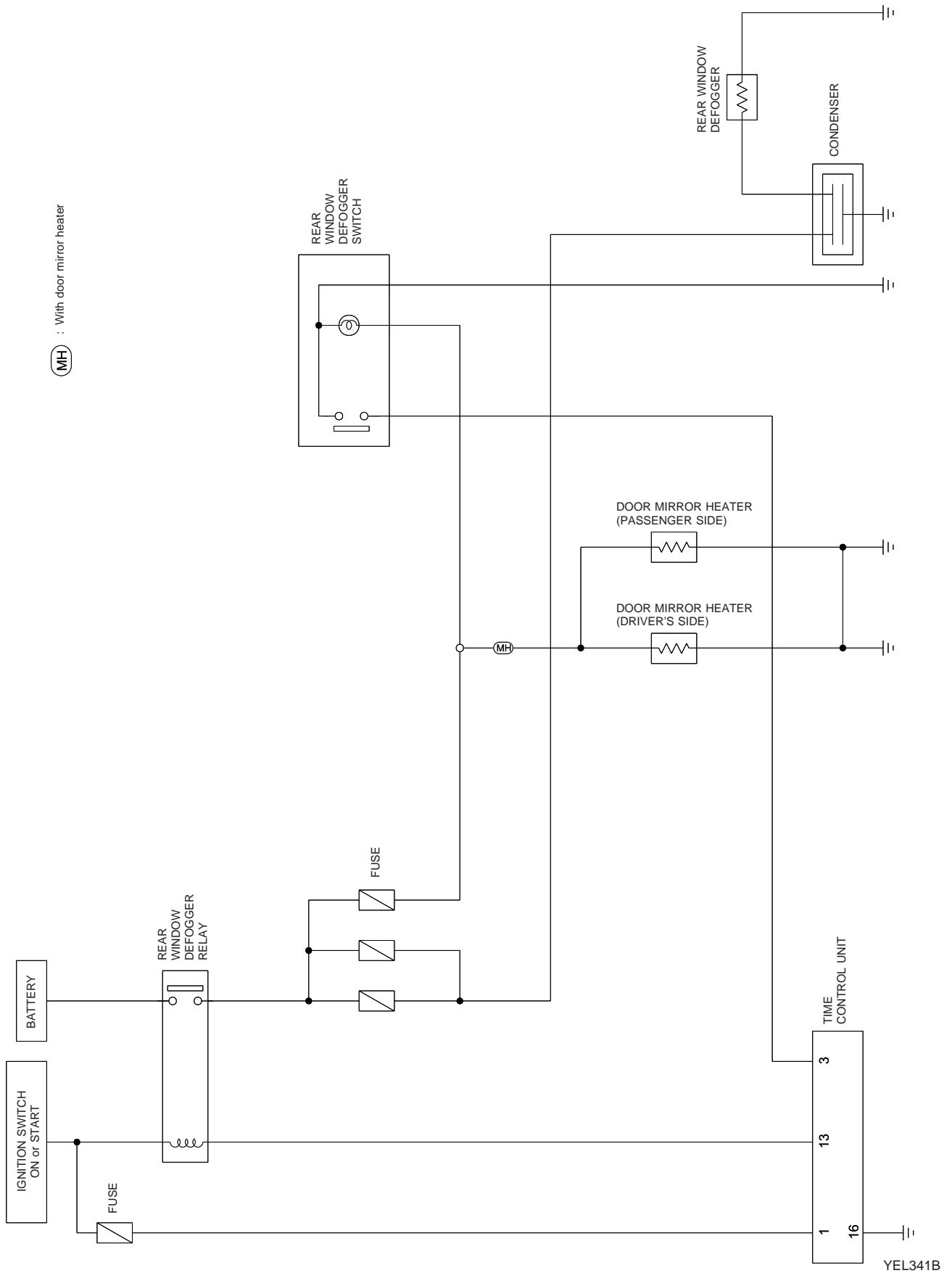
When the system is activated, the rear defogger indicator illuminates in the rear window defogger switch.

Power is supplied

- to terminal ⑬ of the rear window defogger switch
- from 10A fuse [No. 1], located in the fuse block (J/B)].

Terminal ⑭ of the rear window defogger switch is grounded through body grounds M6, M28 and M26.

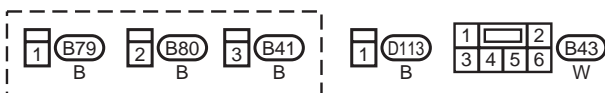
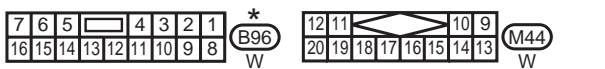
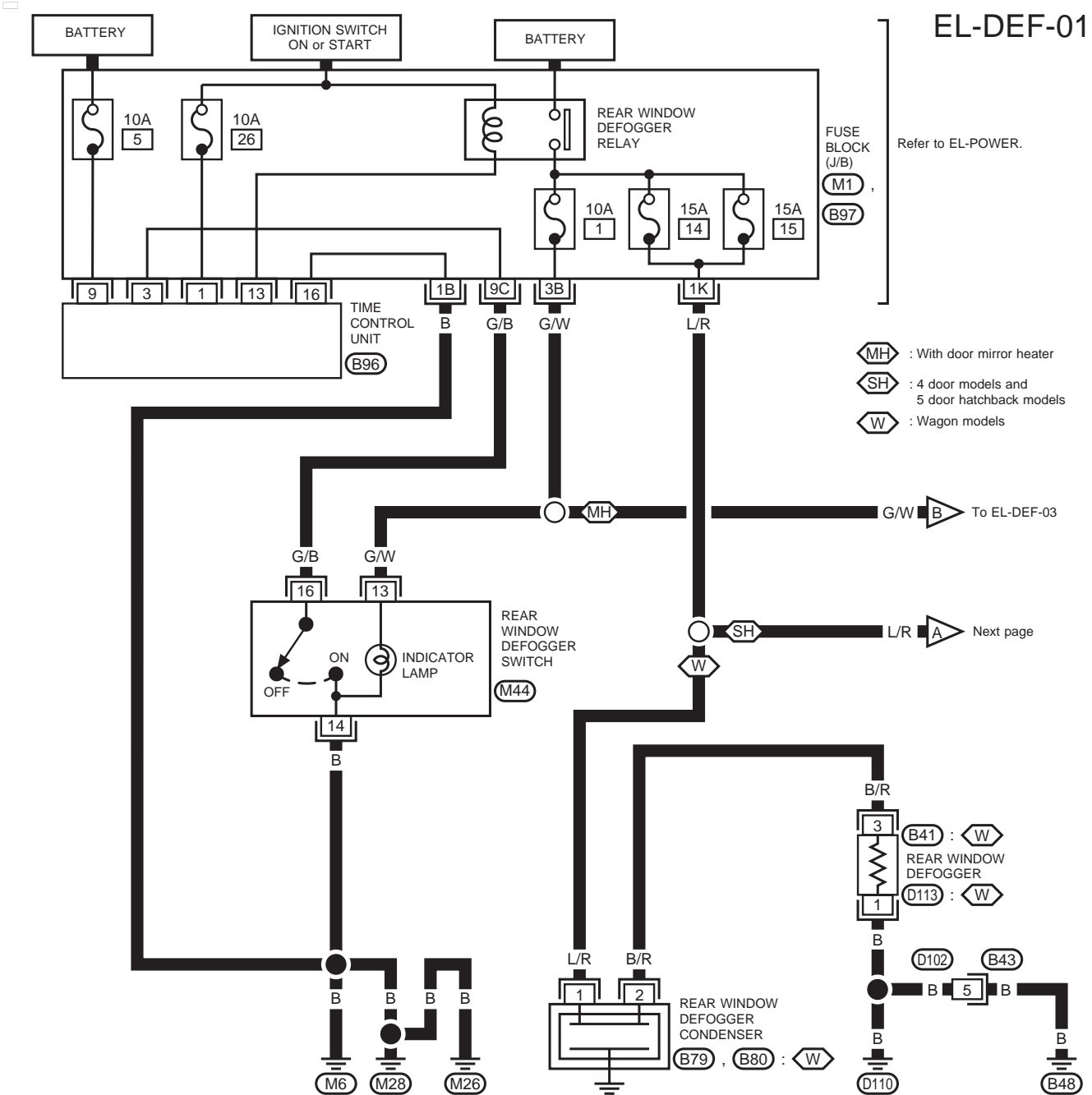
## Schematic



# REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER

## Wiring Diagram — DEF —

EL-DEF-01



\* : This connector is not shown in "HARNESS LAYOUT" of EL section.

REFER TO THE FOLLOWING

- (M1) FUSE BLOCK - Junction Box (J/B)
- (B97) FUSE BLOCK - Junction Box (J/B)

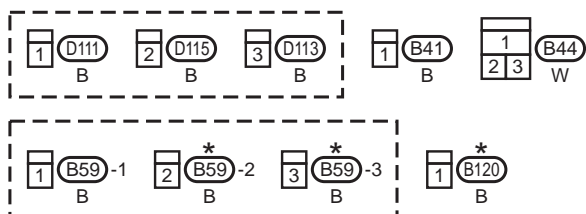
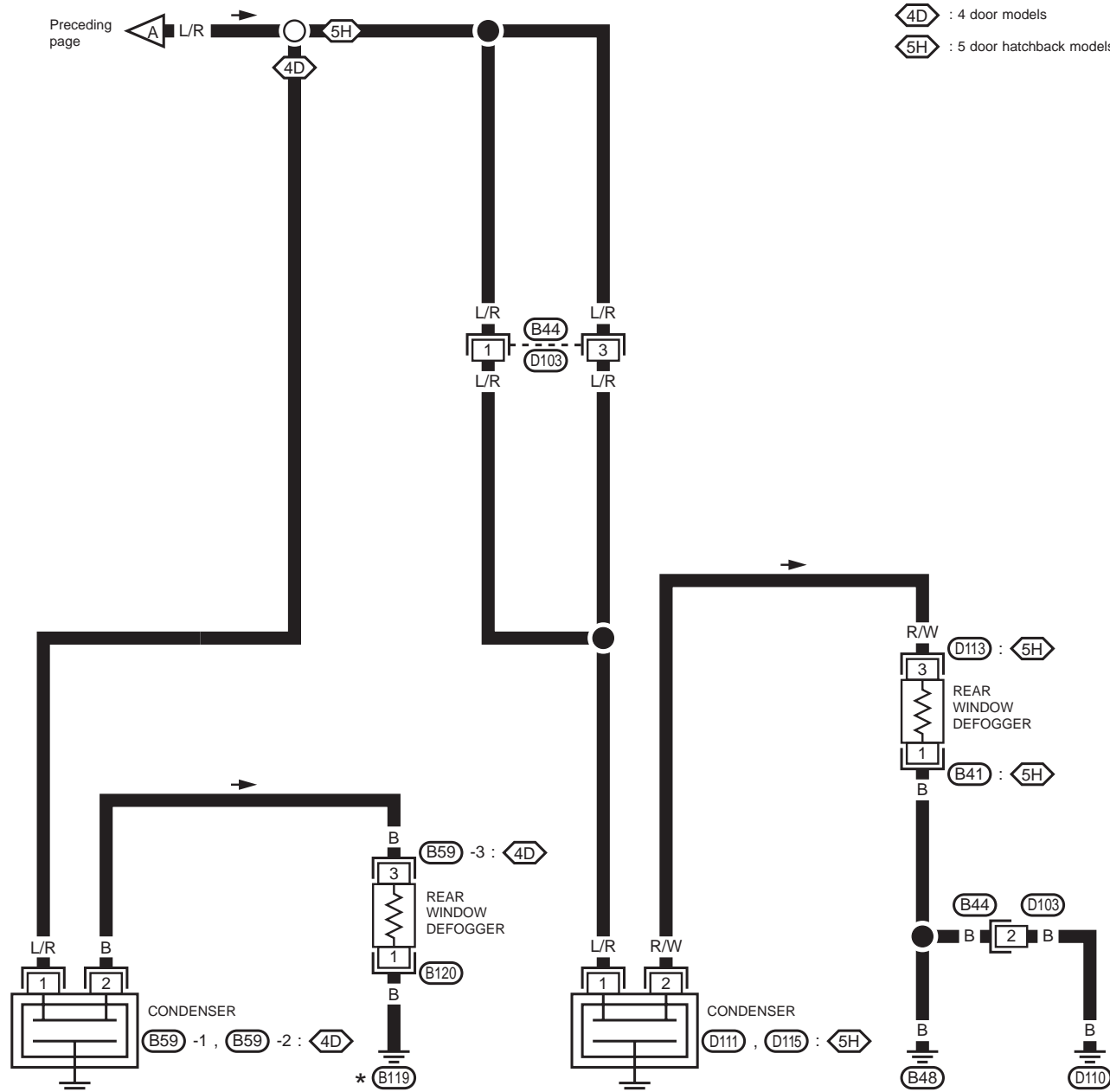
YEL342B

# REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER

## Wiring Diagram — DEF — (Cont'd)

EL-DEF-02

- 4D : 4 door models  
5H : 5 door hatchback models



★ : These connectors are not shown in "HARNESS LAYOUT" of EL section.

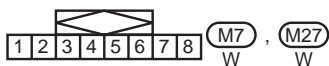
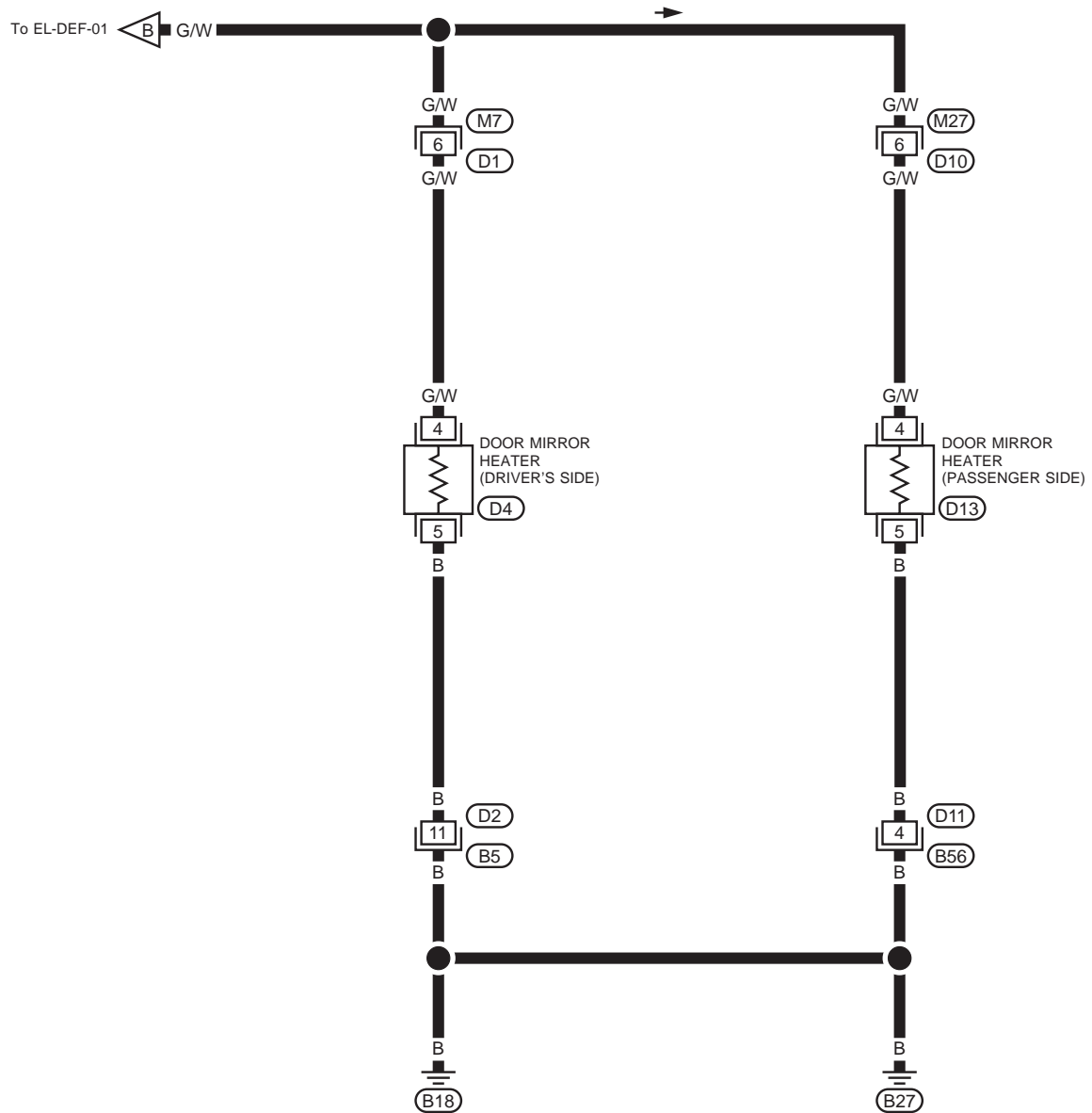
YEL343B



# REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER

## Wiring Diagram — DEF — (Cont'd)

EL-DEF-03

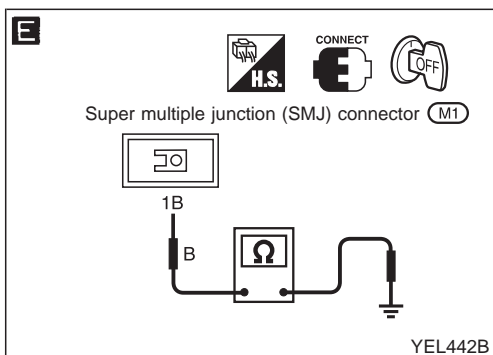
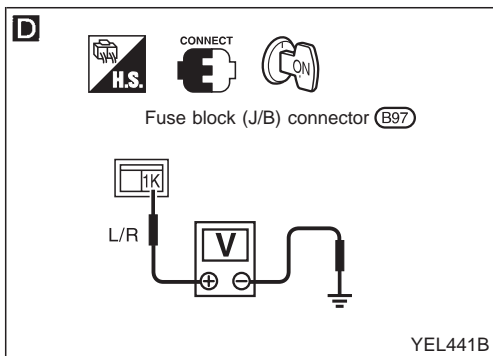
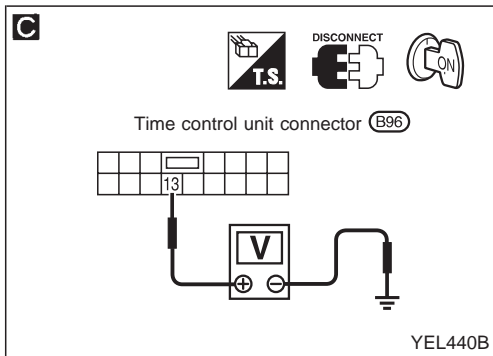
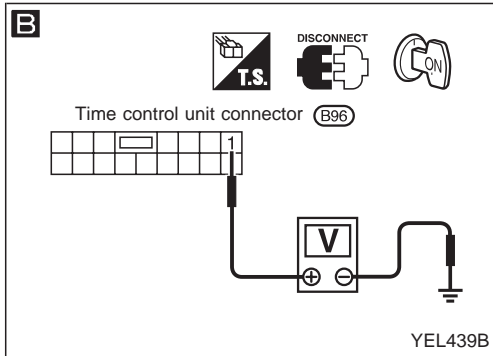
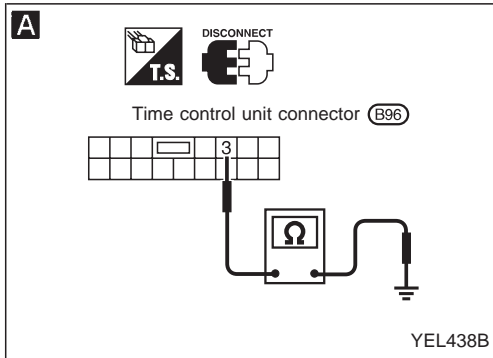


YEL344B

# REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER

## Trouble Diagnoses DIAGNOSTIC PROCEDURE

**SYMPTOM: Rear window defogger/door mirror defogger does not activate, or does not go off after activating.**



**A**

CHECK REAR WINDOW DEFOGGER INPUT SIGNAL.

1. Remove control unit from fuse block (J/B).
2. Check continuity between control unit harness terminal ③ and ground.

Condition	Continuity
Rear window defogger switch is "OFF".	No
Rear window defogger switch is "ON".	Yes

NG

Check the following.

- Rear window defogger switch
- Harness for open or short between control unit and rear window defogger switch
- Rear window defogger switch ground circuit

**B**

OK

1. Turn ignition switch to ON position.
2. Check voltage between control unit terminal ① and ground.  
**Battery voltage should exist.**

NG

Check the following.

- 10A fuse [No. 26], located in the fuse block (J/B)]

**C**

OK

1. Turn ignition switch to ON position.
2. Check voltage between control unit terminal ⑬ and ground.  
**Battery voltage should exist.**

NG

Check the following.

- Rear window defogger relay

**D**

OK

CHECK REAR WINDOW DEFOGGER OUTPUT SIGNAL.

1. Install control unit to fuse block (J/B).
2. Turn ignition switch to ON POSITION.
3. Check voltage between fuse block (J/B) harness terminal ①K and ground.

Condition	Voltage [V]
Rear window defogger switch is "ON".	0
Rear window defogger switch is "ON".	Approx. 12

OK

Check the following.

- Rear window defogger filament (Refer to EL-179)

**E**

NG

CHECK CONTROL UNIT GROUND CIRCUIT.

Check continuity between fuse block (J/B) terminal ①B and ground.  
**Continuity should exist.**

NG

Check the following.

- 15A fuse [No. 14, 15], located in the fuse block (J/B)]
- Rear window defogger relay

OK

Repair harness or connectors.

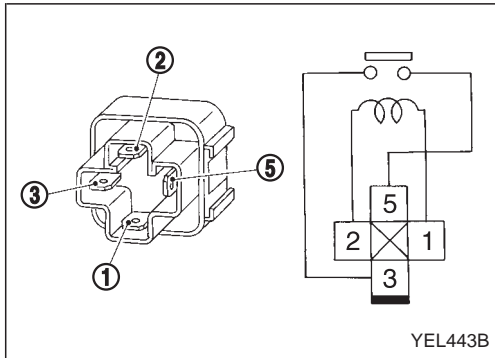
OK

Replace relay or fuse.

NG

Replace control unit.

## REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER

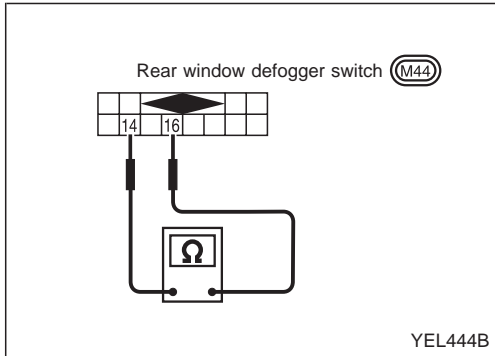


### Electrical Components Inspection

#### REAR WINDOW DEFOGGER RELAY

Check continuity between terminals ③ and ⑤.

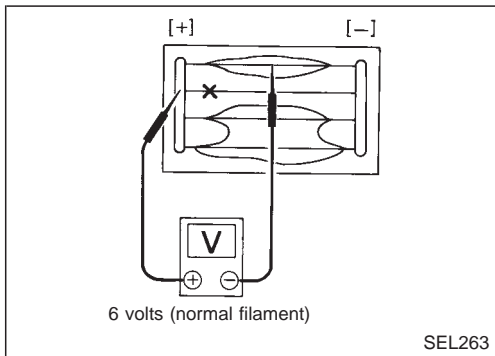
Condition	Continuity
12V direct current supply between terminals ① and ②	Yes
No current supply	No



#### REAR WINDOW DEFOGGER SWITCH

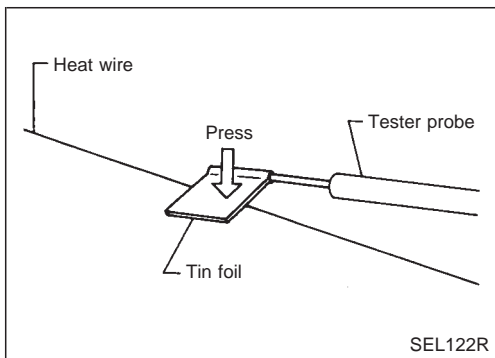
Check continuity between terminals when rear window defogger switch is pushed and released.

Terminals	Condition	Continuity
①⑥ - ①④	Rear window defogger switch is pushed	Yes
	Rear window defogger switch is released	No



### Filament Check

1. Attach probe circuit tester (in volt range) to middle portion of each filament.

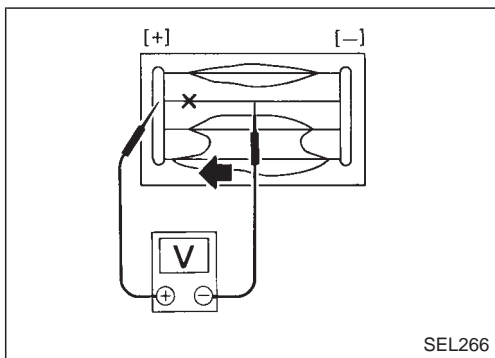
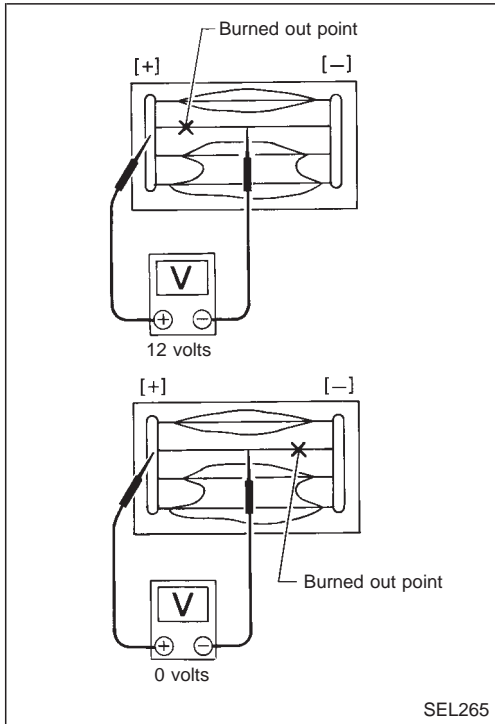


- When measuring voltage, wrap tin foil around the top of the negative probe. Then press the foil against the wire with your finger.

## REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER

### Filament Check (Cont'd)

2. If a filament is burned out, circuit tester registers 0 or 12 volts.



3. To locate burned out point, move probe to left and right along filament. Test needle will swing abruptly when probe passes the point.

### Filament Repair

#### REPAIR EQUIPMENT

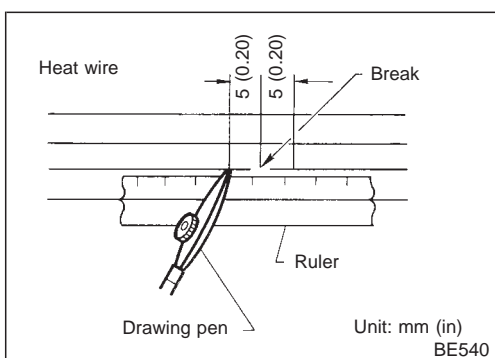
1. Conductive silver composition (Dupont No. 4817 or equivalent)
2. Ruler 30 cm (11.8 in) long
3. Drawing pen
4. Heat gun
5. Alcohol
6. Cloth

#### REPAIRING PROCEDURE

1. Wipe broken heat wire and its surrounding area clean with a cloth dampened in alcohol.
2. Apply a small amount of conductive silver composition to tip of drawing pen.

**Shake silver composition container before use.**

3. Place ruler on glass along broken line. Deposit conductive silver composition on break with drawing pen. Slightly overlap existing heat wire on both sides [preferably 5 mm (0.20 in)] of the break.

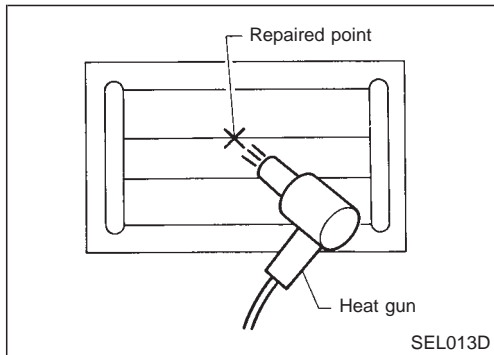
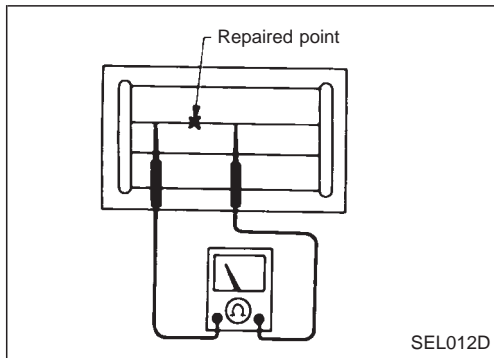


## REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER

### Filament Repair (Cont'd)

4. After repair has been completed, check repaired wire for continuity. This check should be conducted 10 minutes after silver composition is deposited.

**Do not touch repaired area while test is being conducted.**



5. Apply a constant stream of hot air directly to the repaired area for approximately 20 minutes with a heat gun. A minimum distance of 3 cm (1.2 in) should be kept between repaired area and hot air outlet. If a heat gun is not available, let the repaired area dry for 24 hours.

### Anti-theft System

#### Description

By integrating the radio in the vehicle's interior and linking it to the vehicle's immobilizer system, the possibility of the audio unit being stolen is effectively reduced. Each time the radio is switched on, the radio will start up communication with the vehicle's immobilizer control unit (IMMU) and verify an identification code. If communication cannot be established, or the verified code is incorrect, the radio will lock up showing "SECURE" on the radio display. If the IMMU is replaced by a new unit, the personal 4-digit security code will have to be entered. There is no need to enter a personal code after the battery or radio has been disconnected.

### Speed Dependent Volume Control

#### Description

If activated, the radio output volume will be automatically adjusted to compensate for increasing driving noises at higher driving speeds.

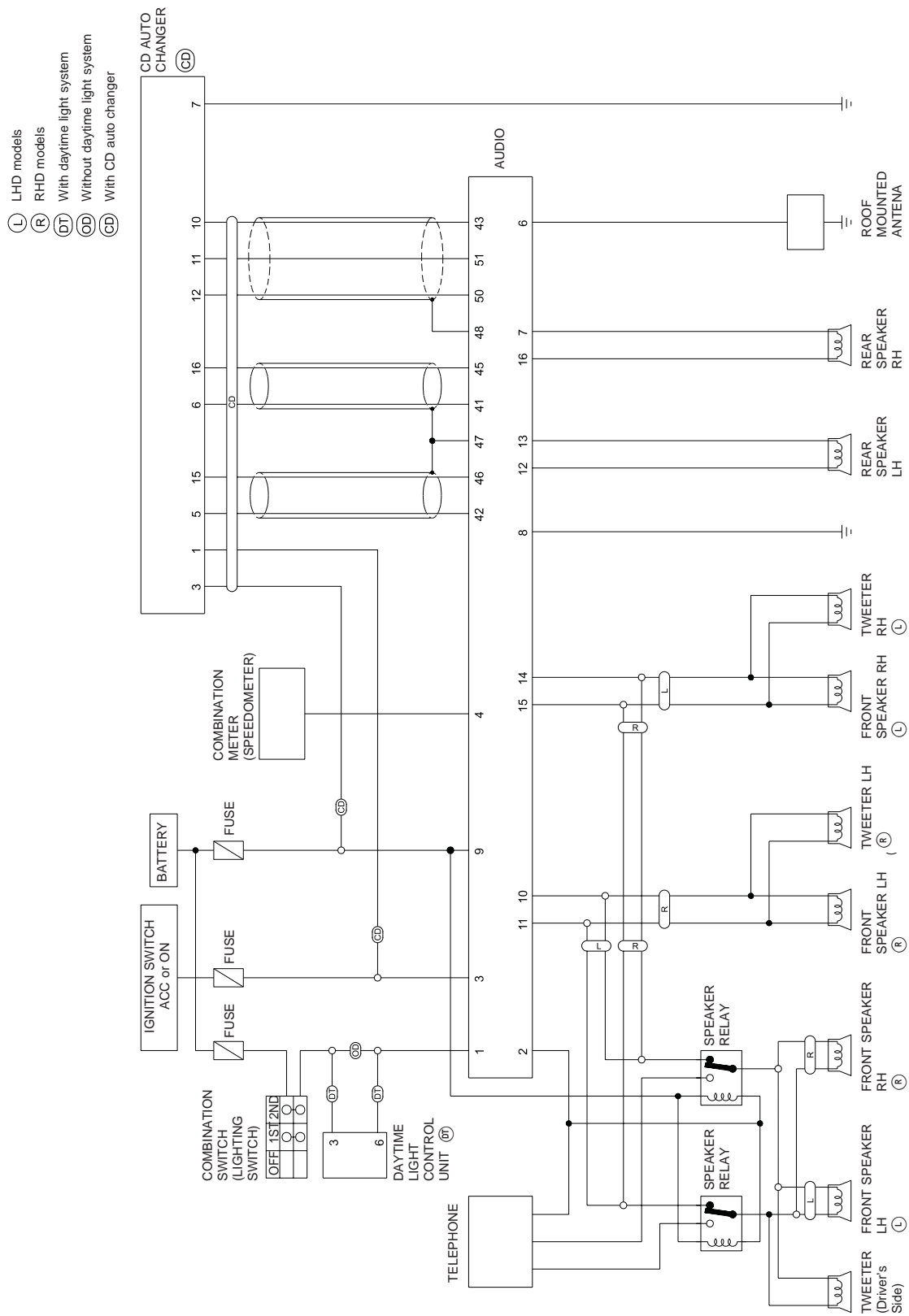
The radio receives a speed signal from the vehicle speed sensor (VSS) and selects the output volume.

### Personal Audio Settings

#### Description

The radio is designed to store several settings (volume, bass, treble, preset stations and level of speed dependent volume control) with every NATS ignition key used. Up to a maximum of 4 NATS keys can be registered. During the communication as mentioned under "Anti-theft System", the radio will recognize the used ignition key and select the accompanying settings.

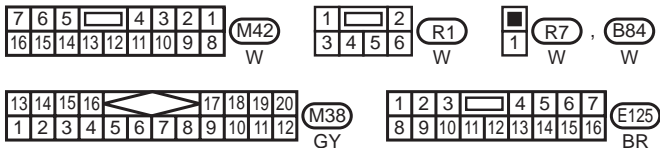
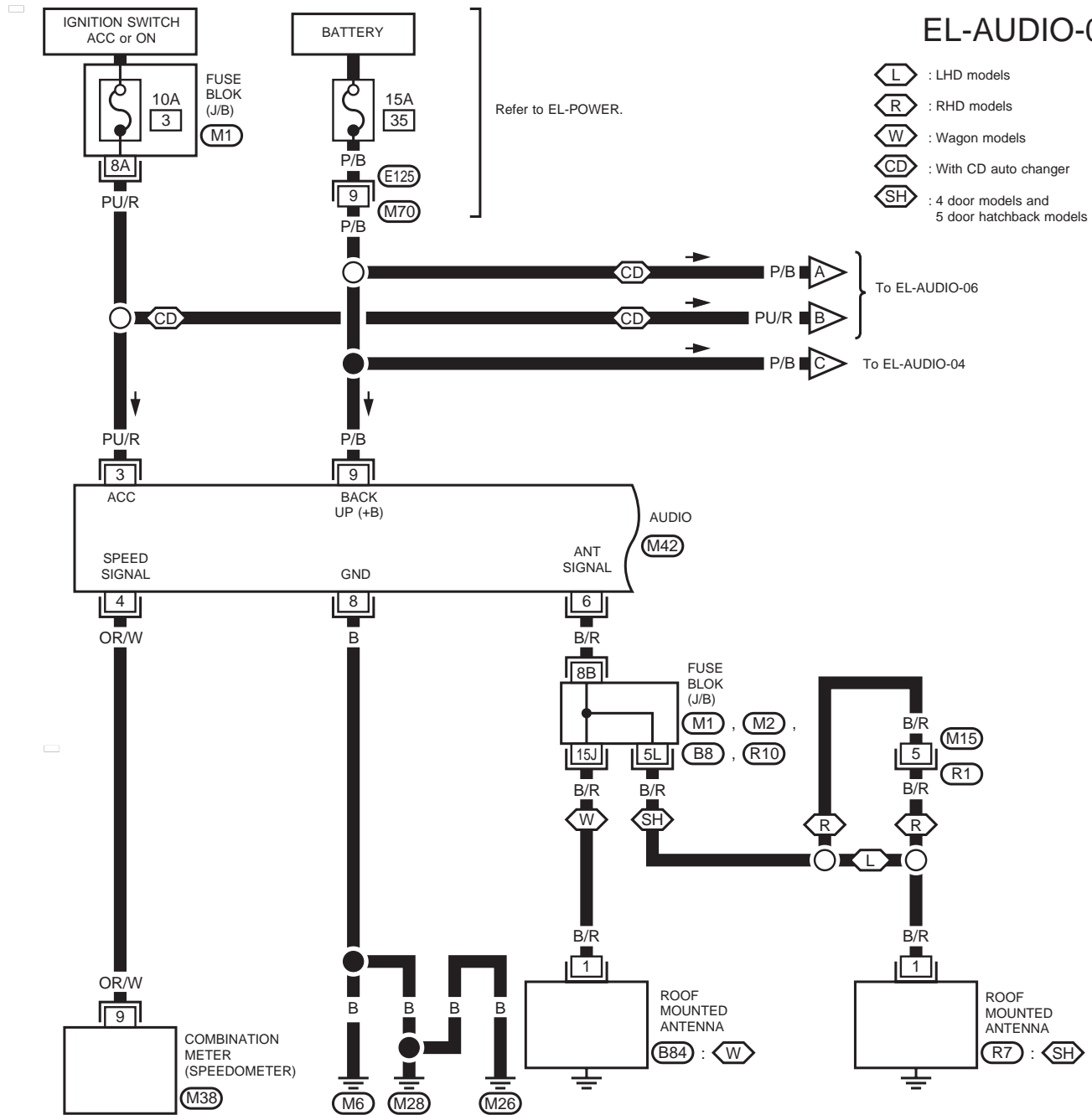
Schematic



# AUDIO

## Wiring Diagram — AUDIO —

### EL-AUDIO-01



#### REFER TO THE FOLLOWING

- (M1) FUSE BLOCK - Junction Box (J/B)
- (M2) FUSE BLOCK - Junction Box (J/B)
- (B8) FUSE BLOCK - Junction Box (J/B)
- (R10) FUSE BLOCK - Junction Box (J/B)

YEL346B

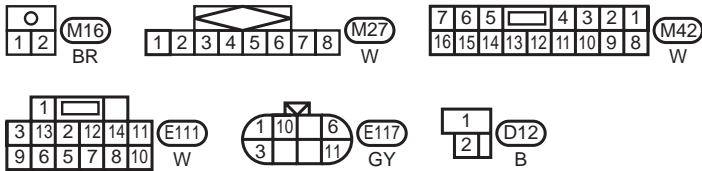
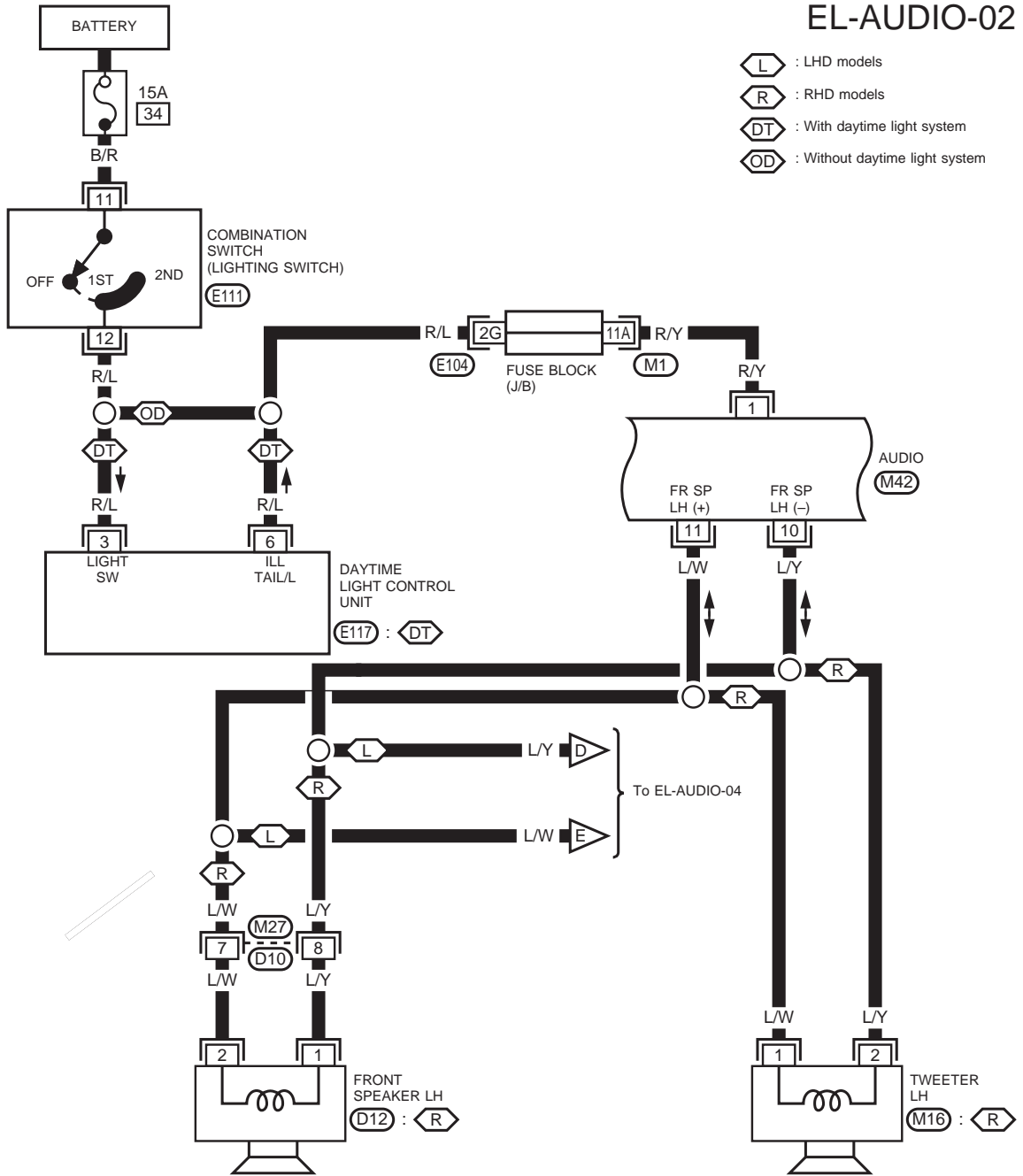


# AUDIO

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-02

- L : LHD models
- R : RHD models
- DT : With daytime light system
- OD : Without daytime light system



REFER TO THE FOLLOWING

M1 FUSE BLOCK - Junction Box (J/B)



E104 FUSE BLOCK - Junction Box (J/B)

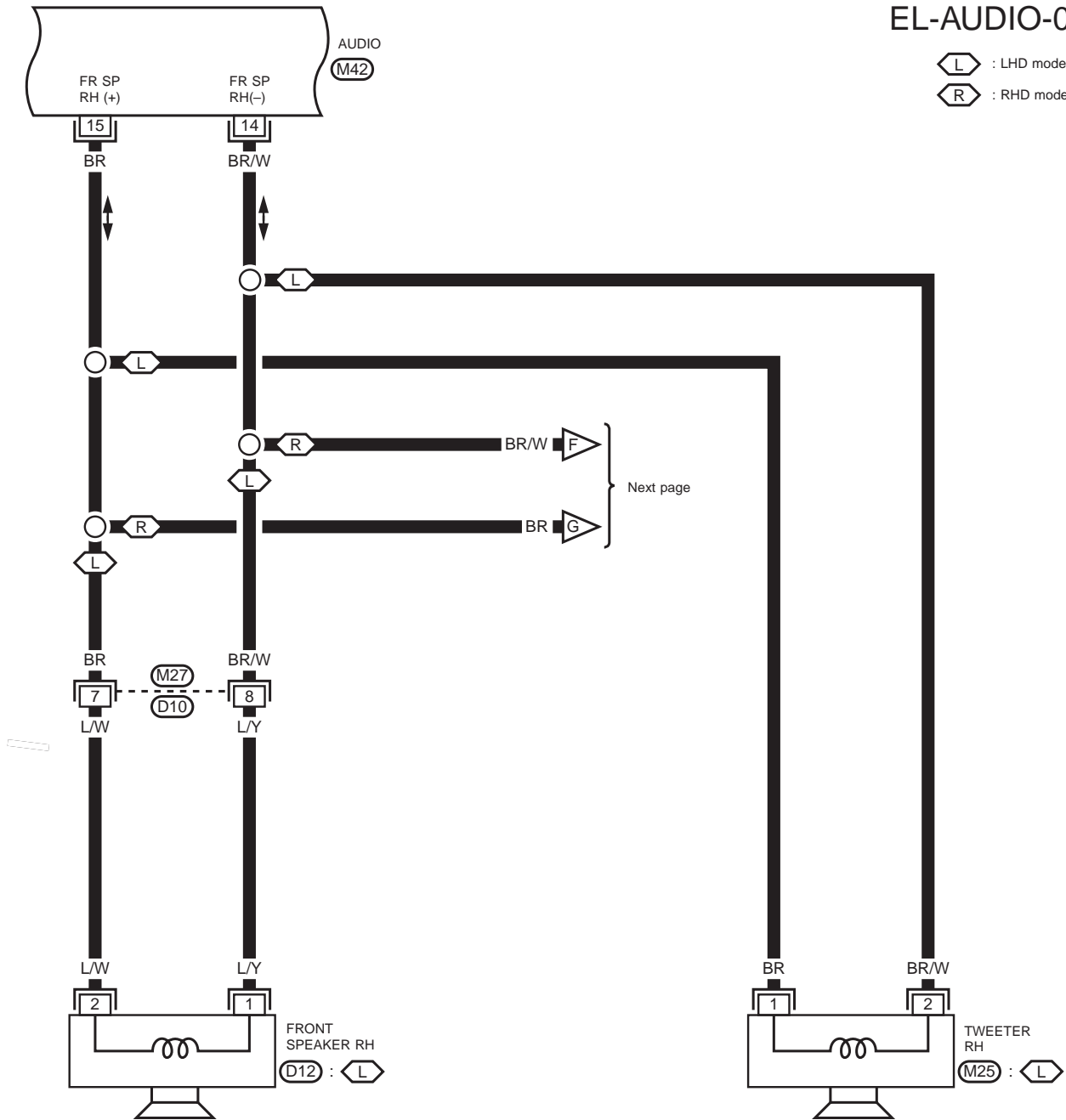
YEL347B

# AUDIO

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-03

 : LHD models  
 : RHD models



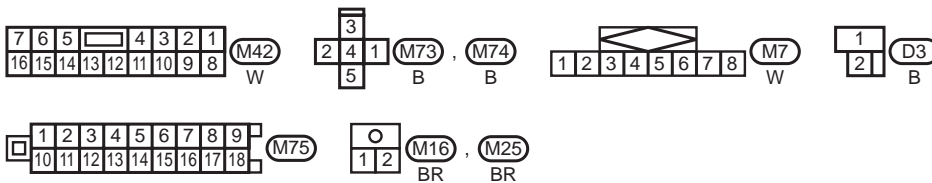
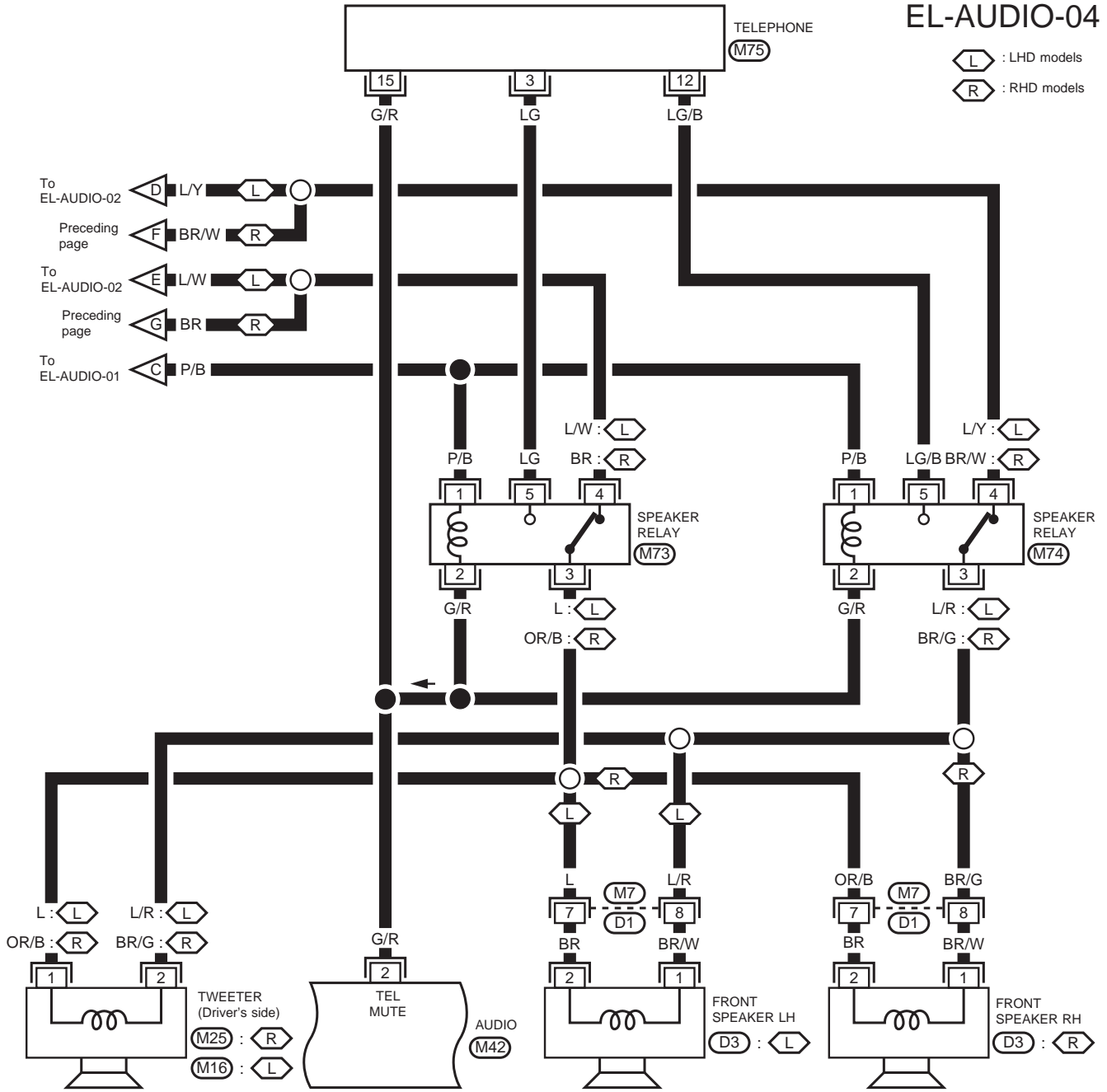
YEL348B

# AUDIO

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-04

L : LHD models  
R : RHD models

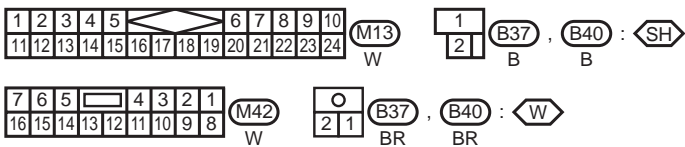
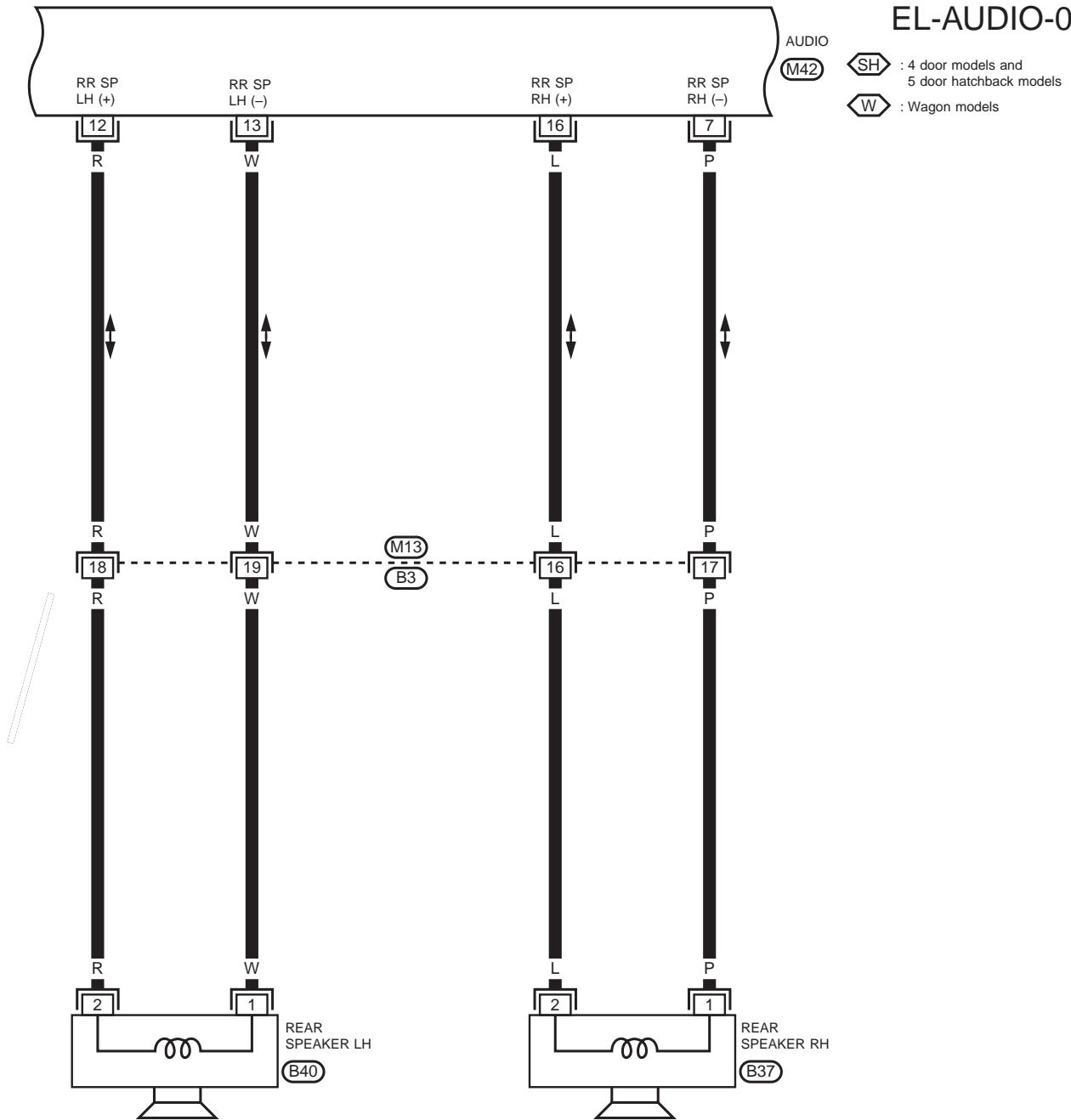


YEL349B

# AUDIO

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-05

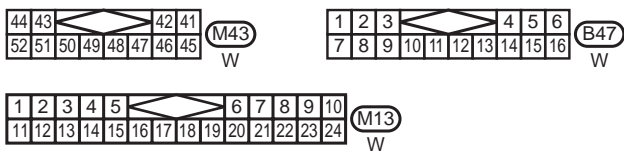
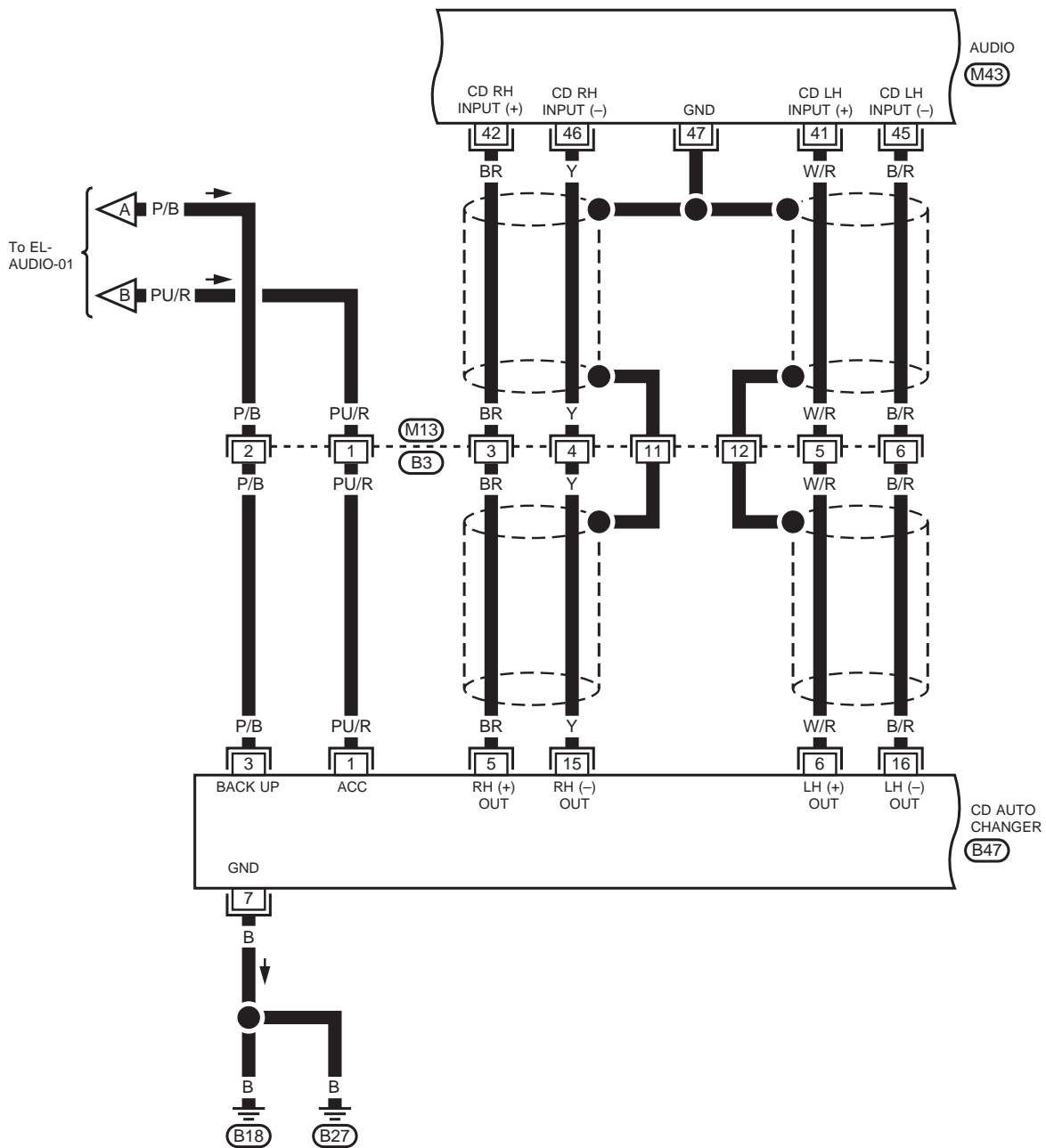


YEL350B

## Wiring Diagram — AUDIO — (Cont'd)

## Wiring Diagram — AUDIO — (Cont'd)

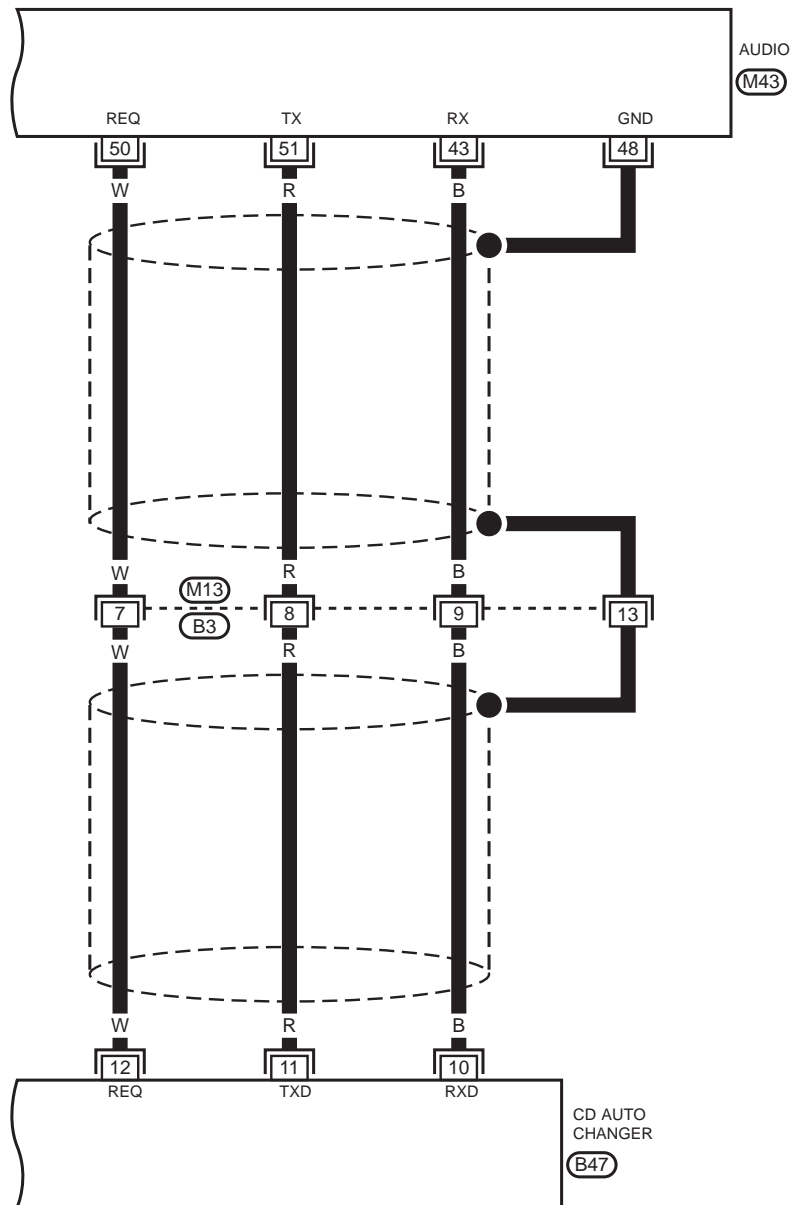
EL-AUDIO-06



# AUDIO

## Wiring Diagram — AUDIO — (Cont'd)

EL-AUDIO-07



YEL352B

## Trouble Diagnoses

Symptom	Possible cause	Repair order
Radio inoperative (no digital display and no sound from speakers).	<ol style="list-style-type: none"> <li>10A Fuse</li> <li>Poor radio case ground</li> <li>Radio</li> </ol>	<ol style="list-style-type: none"> <li>Check 10A fuse [No. <b>3</b>], located in fuse block (J/B)]. Turn ignition switch ON and verify battery positive voltage is present at terminal <b>③</b> of radio</li> <li>Check radio case ground.</li> <li>Remove radio for repair.</li> </ol>
Radio controls are operational, but no sound is heard from any speaker.	<ol style="list-style-type: none"> <li>Radio output</li> <li>Radio</li> </ol>	<ol style="list-style-type: none"> <li>Check radio output voltages.</li> <li>Remove radio for repair.</li> </ol>
Radio presets are lost when ignition switch is turned OFF.	<ol style="list-style-type: none"> <li>15A fuse</li> <li>Radio</li> </ol>	<ol style="list-style-type: none"> <li>Check 15A fuse [No. <b>35</b>], located in fuse and fusible box and verify battery positive voltage is present at terminal <b>⑨</b> of radio.</li> <li>Remove radio for repair.</li> </ol>
Individual speaker is noisy or inoperative.	<ol style="list-style-type: none"> <li>Speaker</li> <li>Radio output</li> <li>Speaker circuit</li> <li>Radio</li> </ol>	<ol style="list-style-type: none"> <li>Check speaker</li> <li>Check radio output voltages.</li> <li>Check wires for open or short between radio and speaker.</li> <li>Remove radio for repair.</li> </ol>
Radio stations are weak or noisy.	<ol style="list-style-type: none"> <li>Antenna</li> <li>Poor radio ground</li> <li>Radio</li> </ol>	<ol style="list-style-type: none"> <li>Check antenna.</li> <li>Check radio ground.</li> <li>Remove radio for repair.</li> </ol>
Radio generates noise in AM and FM modes with engine running.	<ol style="list-style-type: none"> <li>Poor radio ground</li> <li>Loose or missing ground bonding straps</li> <li>Ignition condenser or rear window defogger noise suppressor condenser</li> <li>Alternator</li> <li>Ignition coil or secondary wiring</li> <li>Radio</li> </ol>	<ol style="list-style-type: none"> <li>Check radio ground.</li> <li>Check ground bonding straps.</li> <li>Replace ignition condenser or rear window defogger noise suppressor condenser.</li> <li>Check alternator</li> <li>Check ignition coil and secondary wiring.</li> <li>Remove radio for repair.</li> </ol>
Radio generates noise in AM and FM modes with accessories on (switch pops and motor noise).	<ol style="list-style-type: none"> <li>Poor radio ground</li> <li>Antenna</li> <li>Accessory ground</li> <li>Faulty accessory</li> </ol>	<ol style="list-style-type: none"> <li>Check radio ground.</li> <li>Check antenna.</li> <li>Check accessory ground.</li> <li>Replace accessory.</li> </ol>

## AUDIO

### Trouble Diagnoses (Cont'd)

#### CD AUTOCHANGER

Symptom	Possible cause	Repair order
No play of the CD after CD play button is pushed.	1. Radio (The radio is not working.) 2. Harness connection (Magazine does not eject.) 3. Discs 4. Magazine does not eject or a disc remains in CD player. 5. Changer	1. Remove the radio for repair. 2. Check harness connection. 3. Inspect disc. (Refer to testing magazines and discs.) 4. Reset the changer. (Disconnect harness connector at the changer and reconnect after 30 sec.) 5. Remove the changer for repair.
CD skipping.	1. Rough road driving 2. Discs 3. Bracket 4. Changer	1. System is not malfunctioning. 2. Inspect discs. (Refer to testing magazines and discs.) 3. Check and repair bracket and installation of changer. 4. Remove the changer for repair.
Error code [NO DISC] is shown on the radio after CD play button is pressed.	1. Magazine setting 2. Magazine 3. Changer	1. Confirm the magazine is pushed completely. 2. Inspect magazine. (Refer to testing magazines and discs.) 3. Remove the changer for repair.

#### Testing magazines and discs

1. Confirm discs are installed correctly into the magazine (not upside down).
2. Visually inspect/compare the customer's discs with each other and other discs.  
Identify any of the following conditions:
  - Discs with a large outside diameter. [Normal size is 120mm (4.72 in).]
  - Discs with rough or lipped edges.
  - Discs with excessive thickness [Normal size is 1.2 mm (0.047 in).]
  - Discs with scratches, abrasions, or pits on the surface.
  - Discs with grease/oil, fingerprints, foreign material.
  - Discs are warped due to excessive heat exposure.
3. Slide/place the discs in and out of the various magazine positions.  
Identify any discs and/or positions that require additional force for placement/ejection. If interference (sticking, excessive tensions) is found, replace the magazine or the discs.

#### Note:

- Discs which are marginally out of specification (ex. dirty, scratched and so on) may play correctly on a home stereo.  
However, when used in the automotive environment skipping may occur due to the added vehicle movement and/or vibration due to road conditions. Autochangers should not be replaced when discs are at fault.
- Use a soft damp cloth to wipe the discs starting from the center outward in radial direction. Never use chemical cleaning solutions to clean the discs.



### Inspection

#### SPEAKER

1. Disconnect speaker harness connector.
2. Measure the resistance between speaker terminals ① and ②.
  - The resistance should be 2 - 4Ω.
3. Using jumper wires, momentarily connect a 9V battery between speaker terminals ① and ②.
  - A momentary hum or pop should be heard.

#### ANTENNA

Using a jumper wire, clip an auxiliary ground between antenna and body.

- If reception improves, check antenna ground (at body surface).
- If reception does not improve, check main feeder cable for short circuit or open circuit.

#### RADIO

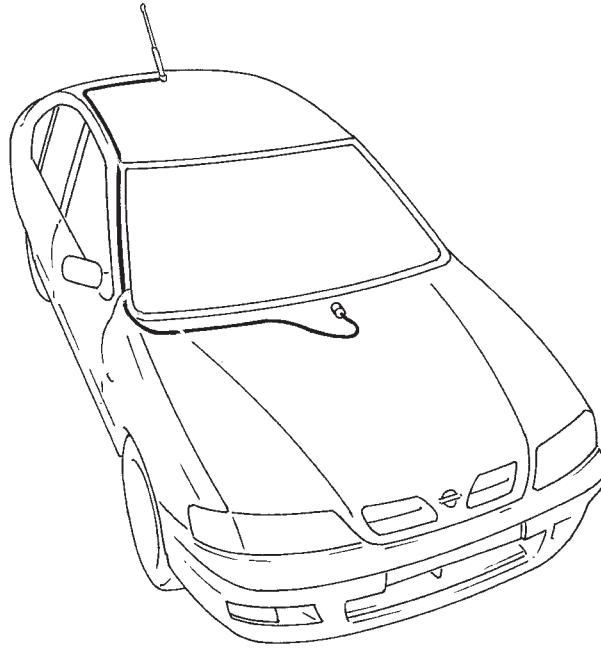
All voltage inspections are made with:

- Ignition switch ON or ACC
- Radio ON
- Radio connected (If removed for inspection, supply a ground to the case using a jumper wire.)

## AUDIO ANTENNA

---

### Location of Antenna

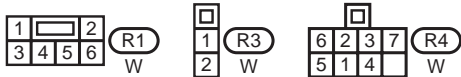
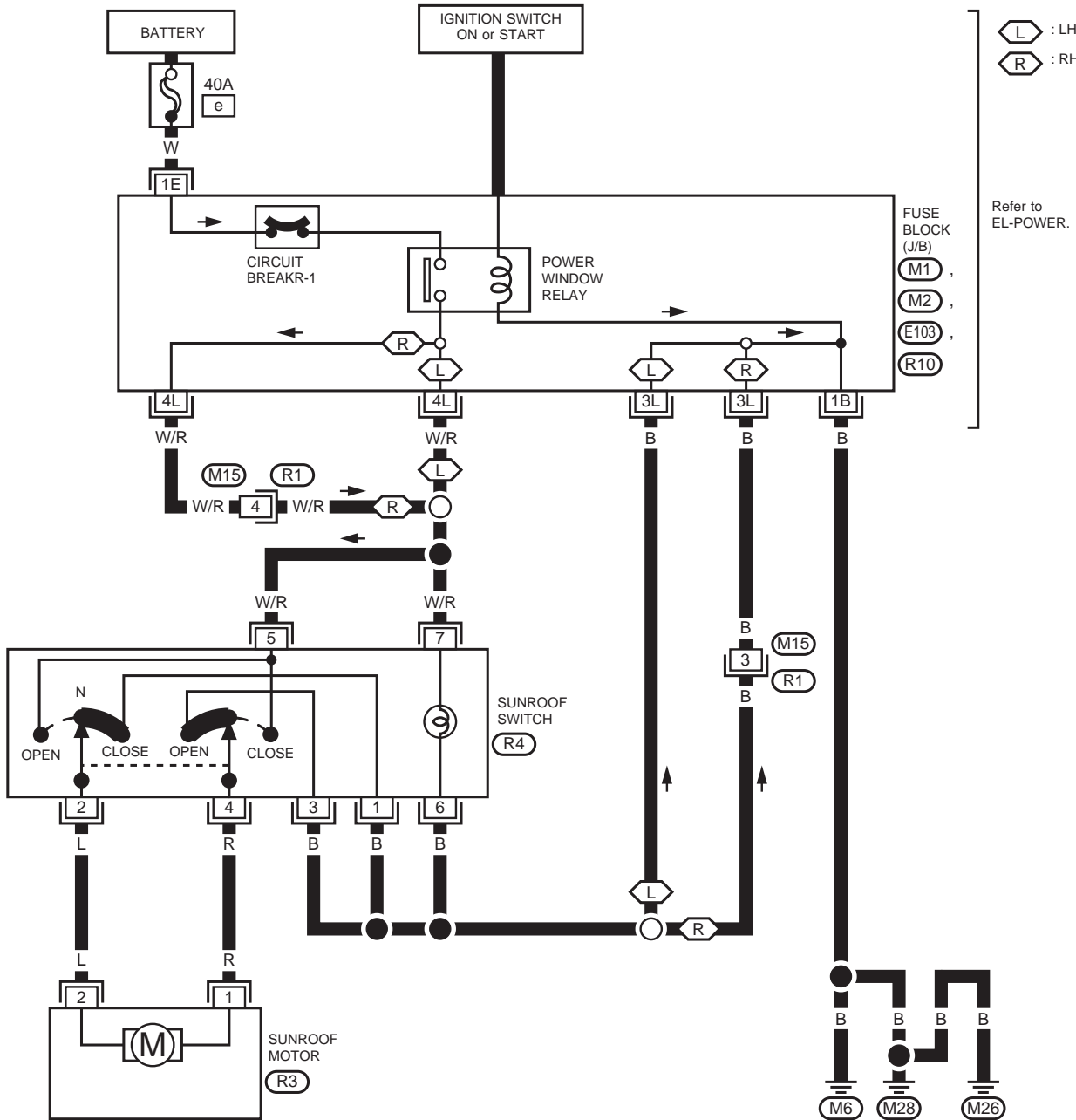


NEL556

# ELECTRIC SUNROOF

## Wiring Diagram — SROOF —

EL-SROOF-01



REFER TO THE FOLLOWING

- M1 FUSE BLOCK - Junction Box (J/B)
- M2 FUSE BLOCK - Junction Box (J/B)
- E103 FUSE BLOCK - Junction Box (J/B)
- R10 FUSE BLOCK - Junction Box (J/B)

YEL338B

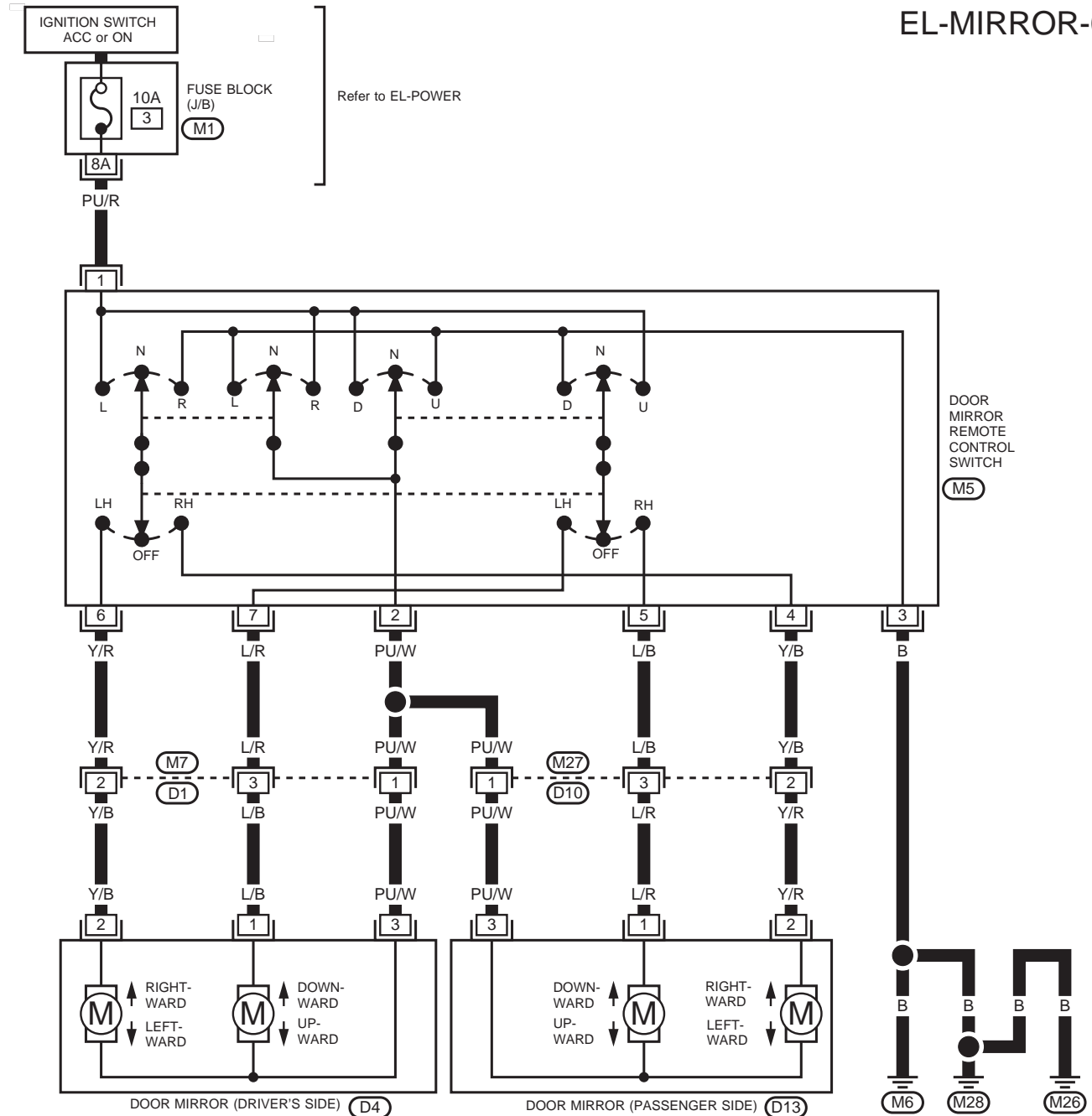
# POWER DOOR MIRROR

## Wiring Diagram — MIRROR —

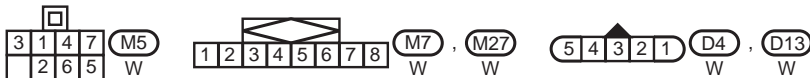
### LHD models

★ For removal of door mirror, refer to “DOOR MIRROR” in BT section.

EL-MIRROR-01



REFER TO THE FOLLOWING  
 (M1) FUSE BLOCK - Junction Box (J/B)



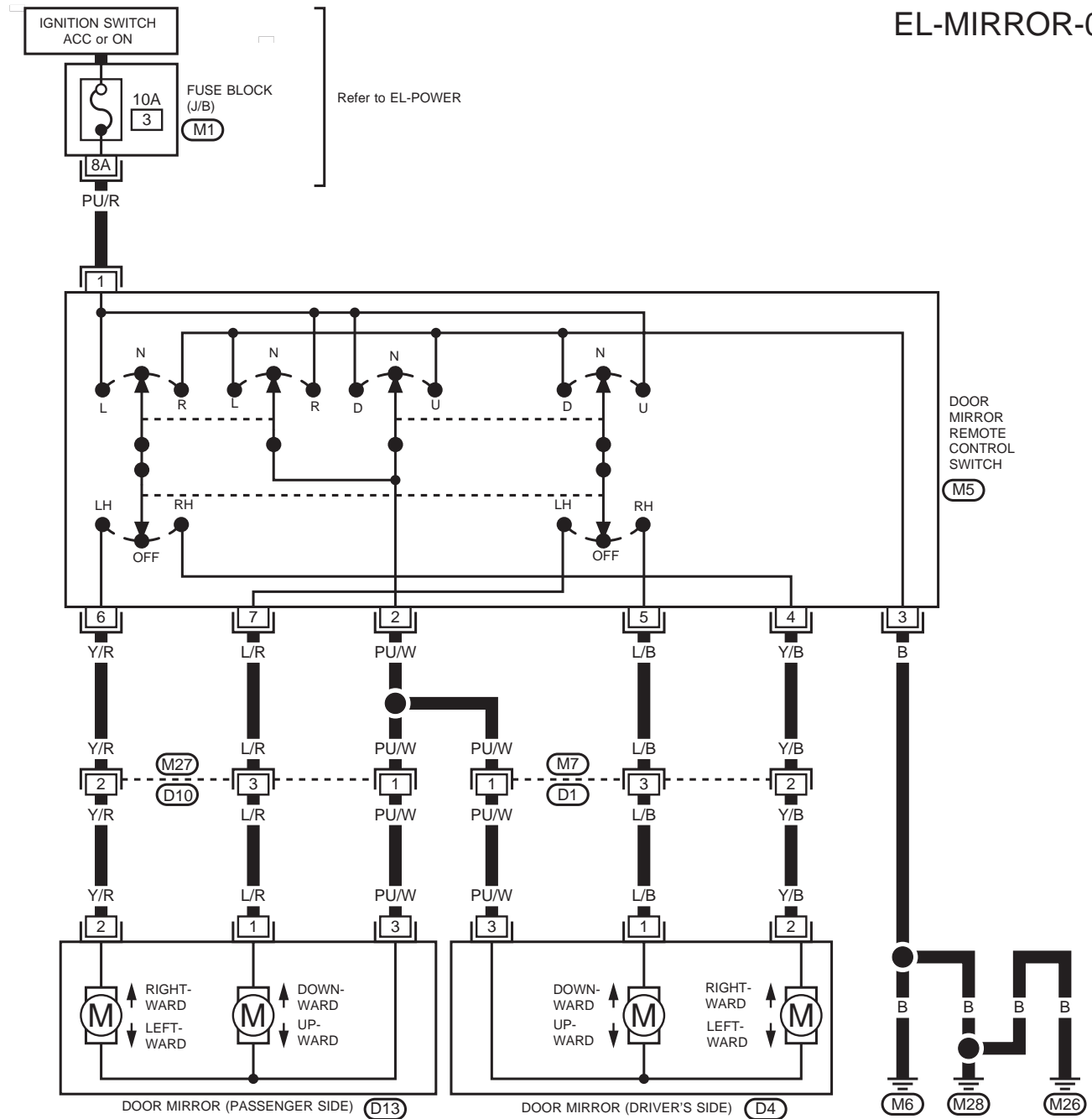
YEL336B

# POWER DOOR MIRROR

## Wiring Diagram — MIRROR — (Cont'd)

RHD models

EL-MIRROR-02



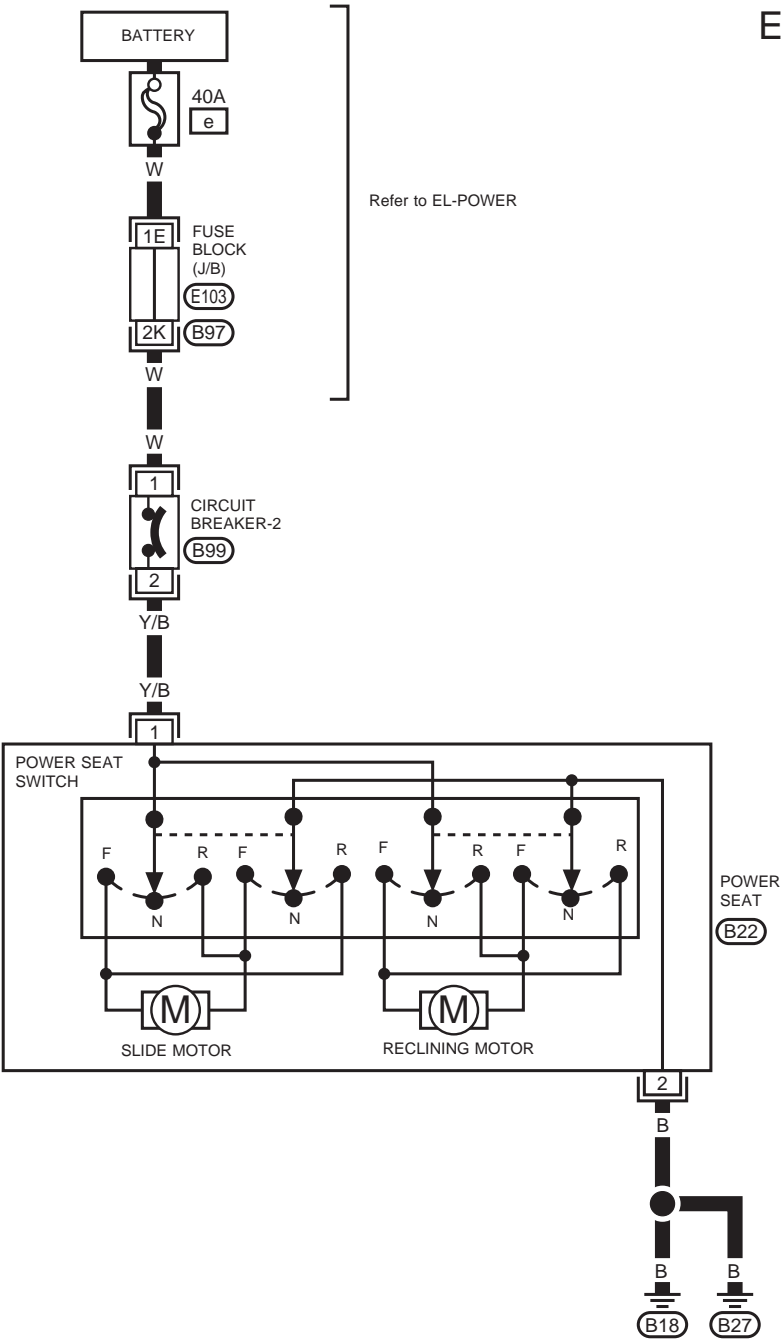
REFER TO THE FOLLOWING  
M1 FUSE BLOCK - Junction Box (J/B)

YEL337B

POWER SEAT

Power Seat/Wiring Diagram — SEAT —

EL-SEAT-01



- REFER TO THE FOLLOWING
- E103 FUSE BLOCK - Junction Box (J/B)
  - B97 FUSE BLOCK - Junction Box (J/B)

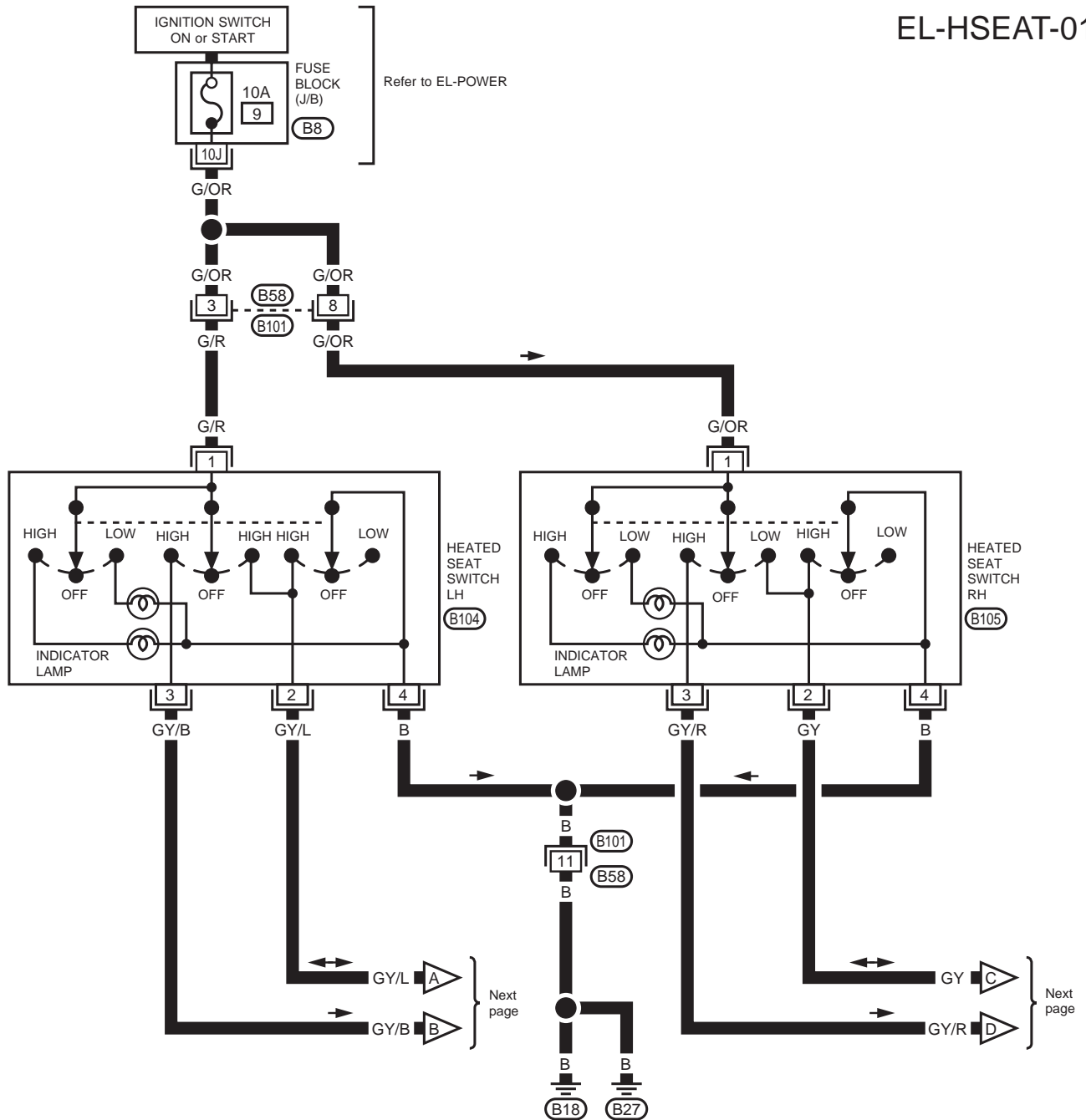
YEL353B

# HEATED SEAT

## Heated Seat/Wiring Diagram — H/SEAT —

★ For location of heating unit, refer to “SEAT” in BT section.

EL-HSEAT-01



1	2	3	4	5	6	B101	1	2	B104	B105
7	8	9	10	11	12	W	3	4	L	W

REFER TO THE FOLLOWING

**B8** FUSE BLOCK - Junction Box (J/B)

YEL354B





## System Description

Power is supplied at all times

- from 40A fusible link (Letter [e], located in the fusible link and fuse box)
- through circuit breaker-1
- to power window relay.

With ignition switch in ON or START position, power is supplied

- to power window relay.

Ground is supplied to power window relay

- through body grounds (M6), (M28) and (M26).

The power window relay is energized and power is supplied

- through power window relay.
- to power window main switch terminal (12),
- to passenger side power window sub-switch terminal (5),
- to rear power window sub-switch LH terminal (5),
- to rear power window sub-switch RH terminal (5).

## MANUAL OPERATION

### Driver's door

Ground is supplied

- to front power window main switch terminals (2)
- through body grounds (B18) and (B27).

### WINDOW UP

When a driver side switch in the power window main switch is pressed in the up position, power is supplied

- to driver side power window regulator terminal (1)
- through power window main switch terminal (3).

Ground is supplied

- to driver side power window regulator terminal (2)
- through power window main switch terminal (4).

Then, the motor raises the window until the switch is released.

### WINDOW DOWN

When a driver side switch in the power window main switch is pressed in the down position, power is supplied

- to driver side power window regulator terminal (2)
- through power window main switch terminal (4).

Ground is supplied

- to driver side power window regulator terminal (1)
- through power window main switch terminal (3).

Then, the motor lowers the window until the switch is released.

### Except driver's door

Ground is supplied

- to power window main switch terminal (2)
- through body grounds (B18) and (B27).

### PASSENGER'S DOOR

#### NOTE:

Figures in parentheses ( ) refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

#### Operation by main switch.

Power is supplied

- through power window main switch (⑥, ⑩)
- to passenger side power window sub-switch (③, ①).

The subsequent operations are the same as those outlined under "Operation by sub-switches".

#### Operation by sub-switches

Power is supplied

- through passenger side power window sub-switch (②, ④)
- to passenger side power window regulator (①, ②).

Ground is supplied

- to passenger side power window regulator (②, ①)
- through passenger side power window sub-switch (②, ④)
- to passenger side power window sub-switch (①, ③)
- through power window main switch (⑥, ⑩).

Then, the motor raises or lowers the window until the switch is released.

### REAR DOOR LH

#### NOTE:

Figures in parentheses ( ) refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

#### Operation by main switch

Power is supplied

- through power window main switch (⑬, ⑭)
- to rear power window sub-switch LH (③, ①).

The subsequent operations are the same as those outlined under "Operation by sub-switches".

#### Operation by sub-switches

Power is supplied

- through rear power window sub-switch LH (②, ④)
- to rear power window regulator LH (①, ②).

Ground is supplied

- to rear power window regulator LH (②, ①)
- through rear power window sub-switch LH (④, ②)
- to rear power window sub-switch LH (①, ③)
- through power window main switch LH (⑭, ⑬).

Then, the motor raises or lowers the window until the switch is released.

## POWER WINDOW

### System Description (Cont'd)

REAR DOOR RH

#### NOTE:

Figures in parentheses ( ) refer to terminal Nos. arranged in order when the UP or DOWN section of power window switch is pressed.

#### Operation by main switch

Power is supplied

- through power window main switch (⑮, ⑯)
- to rear power window sub-switch RH (③, ①).

The subsequent operations are the same as those outlined under "Operation by sub-switches".

#### Operation by sub-switches

Power is supplied

- through rear power window sub-switch RH (②, ④)
- to rear power window regulator RH (①, ②).

Ground is supplied

- to rear power window regulator RH (②, ①)
- through rear power window sub-switch RH (④, ②)
- to rear power window sub-switch RH (①, ③)
- through power window main switch (⑯, ⑮)

Then, the motor raises or lowers the window until the switch is released.

#### AUTO OPERATION

The power window AUTO feature enables the driver to open or close the driver's window without holding the window switch in the respective position.

When the AUTO switch in the main switch is pressed and released, the driver's window will travel to the fully open or closed position.

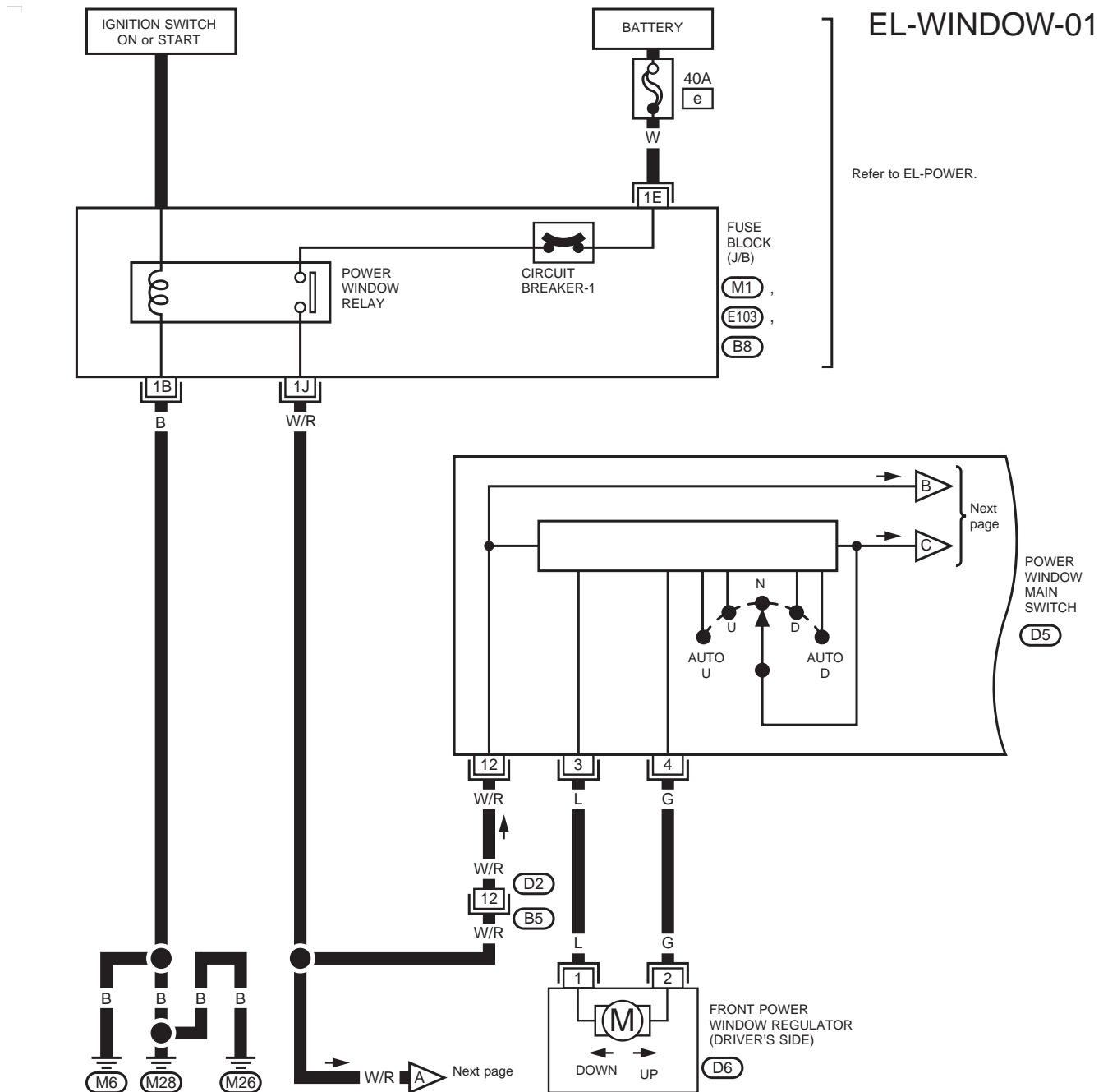
#### POWER WINDOW LOCK

The power window lock is designed to lock-out window operation to all windows except the driver's door window.

When the lock switch is pressed to lock position, ground of the passenger side switch, rear RH switch and rear LH switch in the power window main switch is disconnected. This prevents the power window motors from operating.

## Schematic



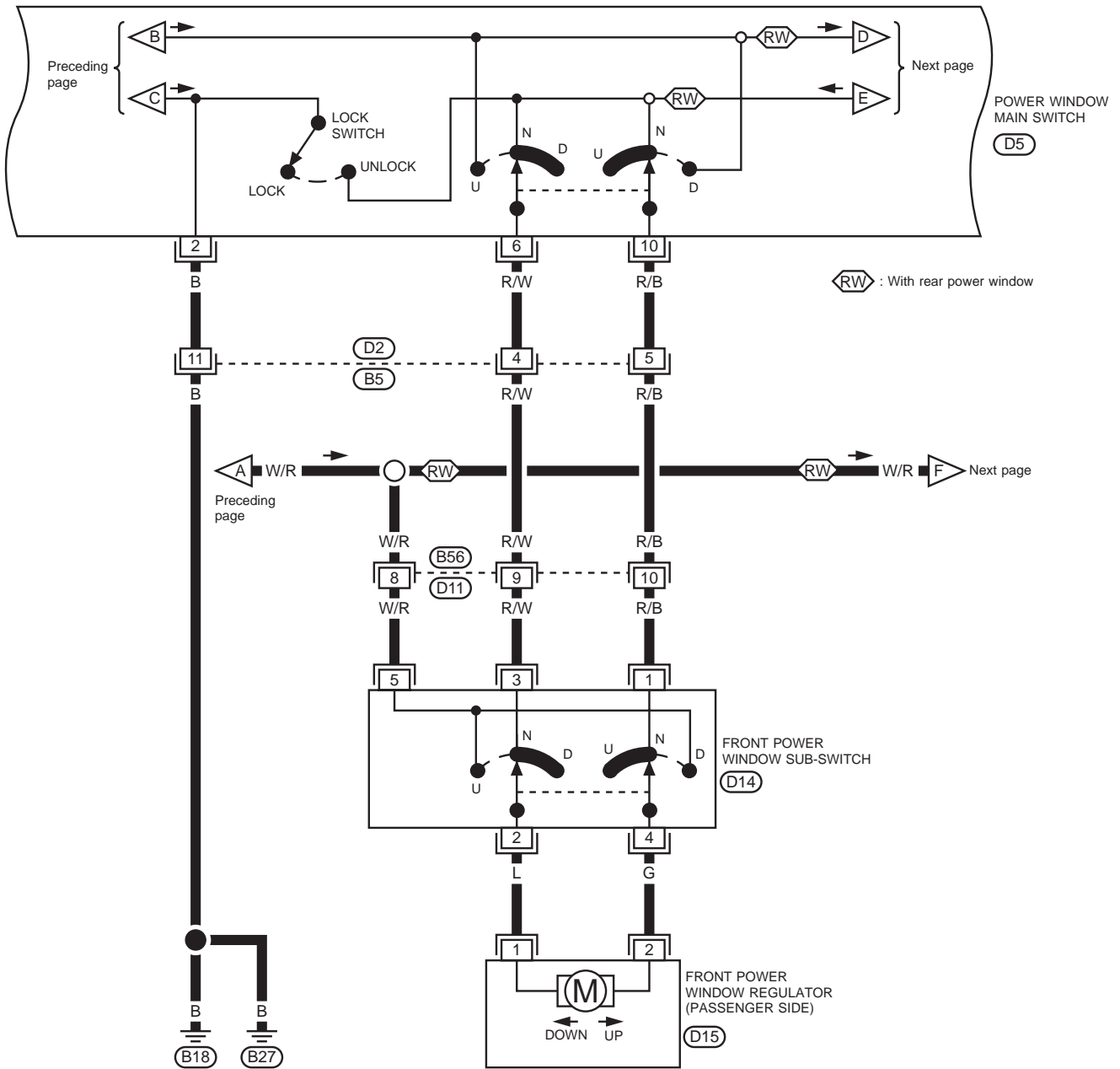


(M1) FUSE BLOCK - Junction Box (J/B)  
(E103) FUSE BLOCK - Junction Box (J/B)  
(B8) FUSE BLOCK - Junction Box (J/B)

# POWER WINDOW

## Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-02



1	2	3	4	5
6	7	8	9	10
11	12			

(B5) W

1	2	3	4	5
6	7	8	9	10
11	12			

(B56) W

7	6	5	4	3	2	1
8	9	10	11	12	13	14
15	16					

(D5) W

5	4	3	2	1

(D14) W

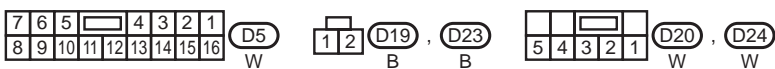
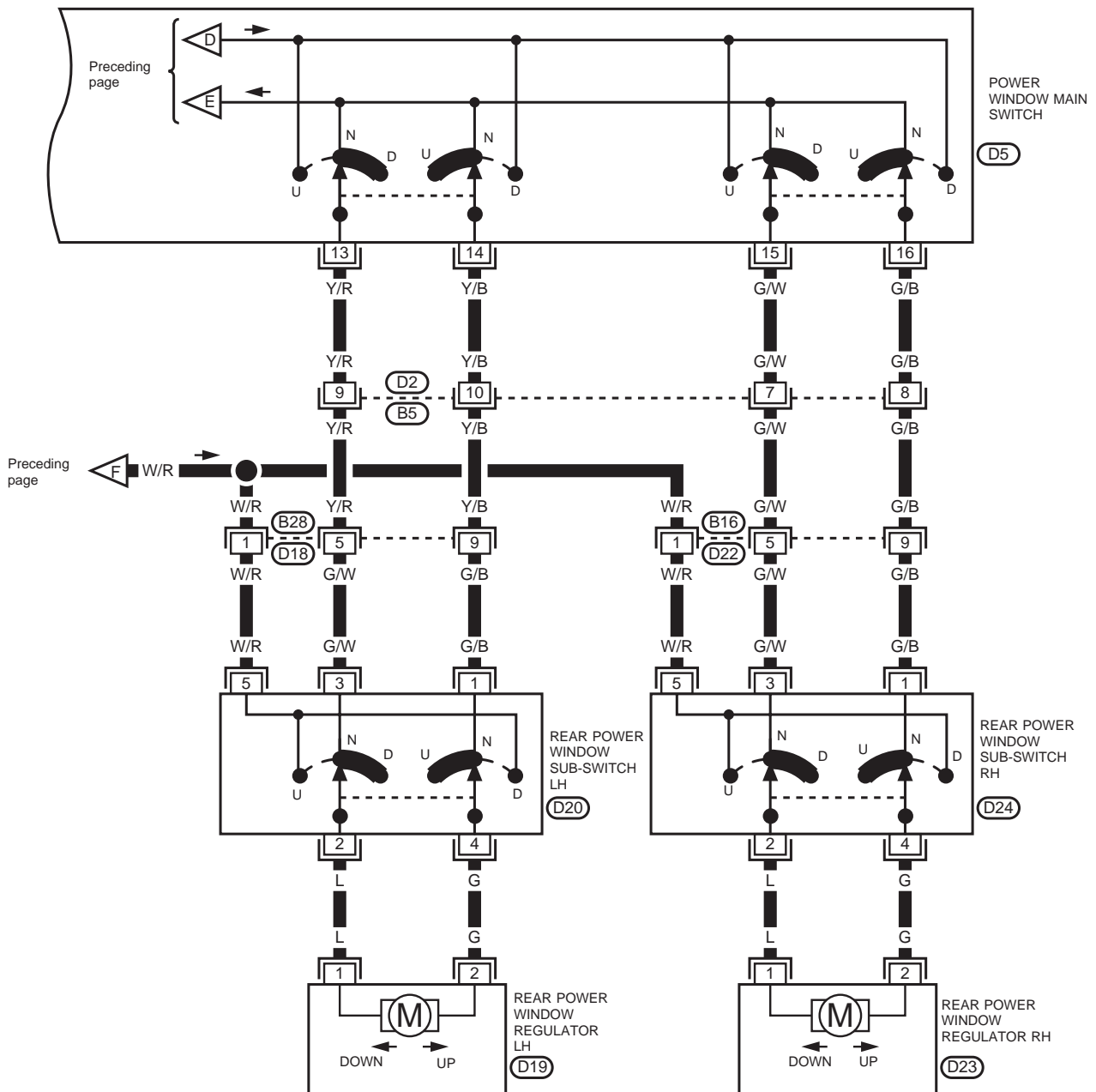
1	2

(D15) B

# POWER WINDOW

## Wiring Diagram — WINDOW — (Cont'd)

EL-WINDOW-03



# POWER WINDOW

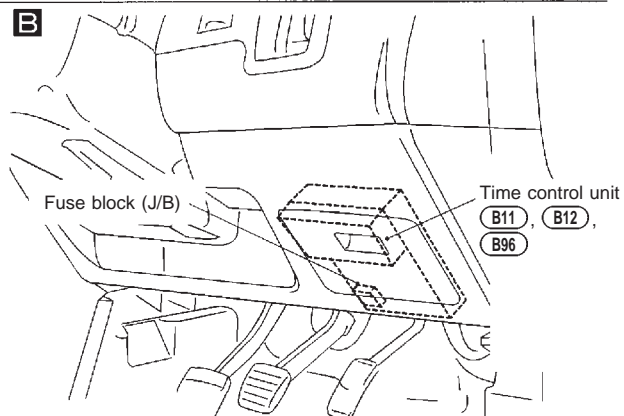
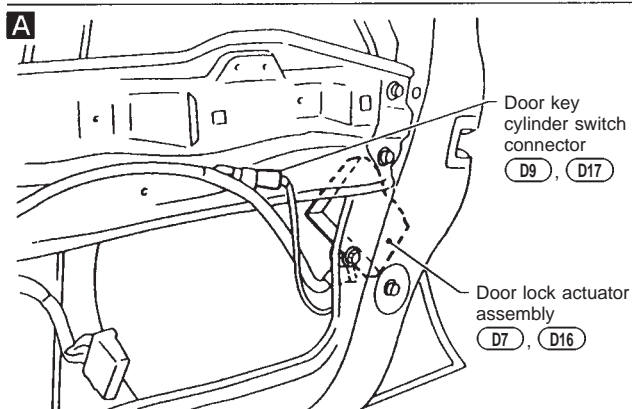
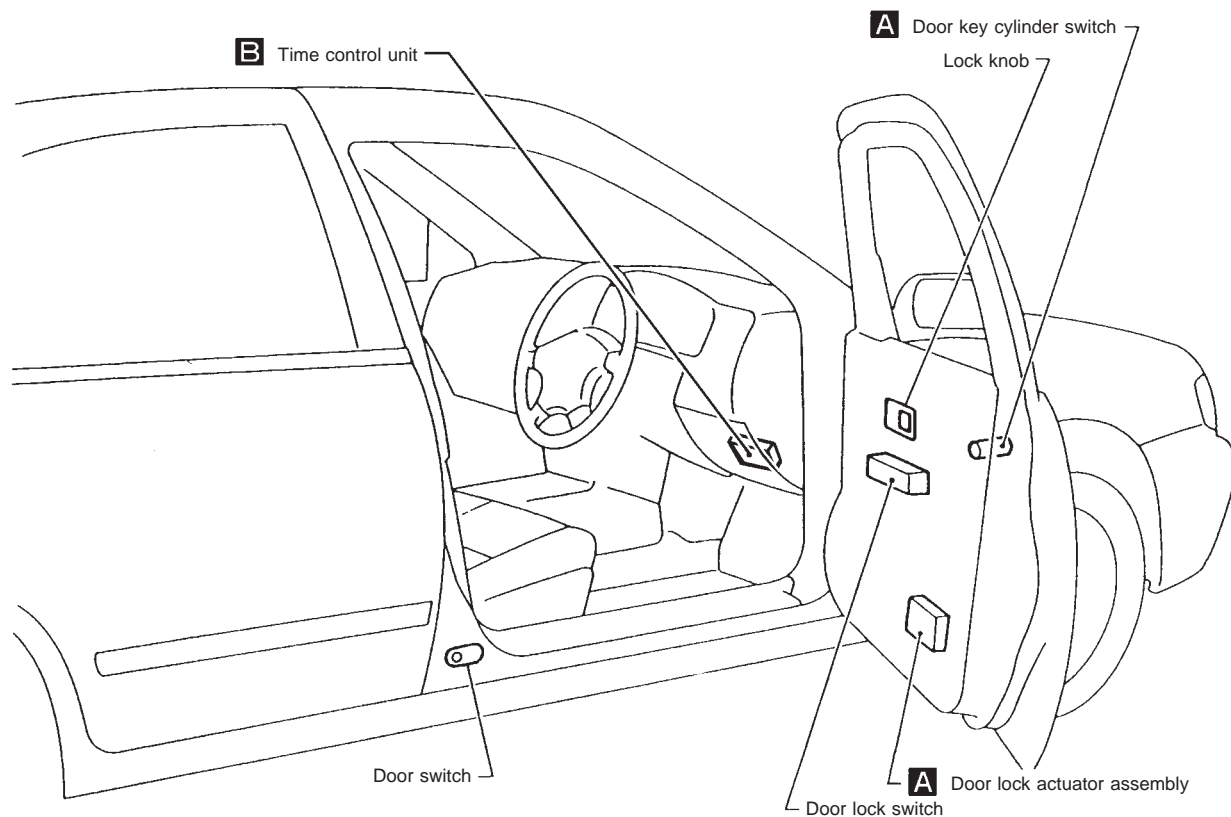
## Trouble Diagnoses

Symptom	Possible cause	Repair order								
None of the power windows can be operated using any switch.	1. 40A fusible link and circuit breaker-1.  2. Grounds (B18) and (B27). 3. Power window relay. 4. Open/short in power window main switch circuit.	1. Check 40A fusible link (letter <span style="border: 1px solid black; padding: 0 2px;">E</span> , located in fuse and fusible link box) and circuit breaker-1. Turn ignition switch to “ON” position and verify battery positive voltage is present at terminal (12) of power window main switch, and other switches as follows. <table><tr><th>Location of sub-switch</th><th>Terminals</th></tr><tr><td>Passenger</td><td>(5)</td></tr><tr><td>Rear RH</td><td>(5)</td></tr><tr><td>Rear LH</td><td>(5)</td></tr></table>	Location of sub-switch	Terminals	Passenger	(5)	Rear RH	(5)	Rear LH	(5)
		Location of sub-switch	Terminals							
Passenger	(5)									
Rear RH	(5)									
Rear LH	(5)									
		2. Check grounds (B18) and (B27). 3. Check power window relay. 4. Check W/R wire between fuse block (J/B) and power window main switch for open/short circuit.								
Driver's side power window cannot be operated but other windows can be operated.	1. Driver's side power window regulator circuit. 2. Driver's side power window regulator.	1. Check driver's side power window regulator circuit 2. Check driver's side power window regulator								
One or more passenger power windows cannot be operated.	1. Power window switches (front sub-switch, rear sub-switch RH, rear sub-switch LH). 2. Power window regulators. (Passenger side, rear LH, rear LH.) 3. Power window main switch. 4. Power window circuit.	1. Check power window switches (front sub-switch, rear sub-switch RH, rear sub-switch LH) 2. Check power window regulators (front sub-switch, rear sub-switch RH, rear sub-switch LH) 3. Check power window main switch 4-1. Check harnesses between power window main switch and power window sub-switches for open/short circuit. 4-2. Check harnesses between power window sub-switches and power window regulators for open/short circuit.								
One or more passenger power windows cannot be operated using power window main switch but can be operated by power window sub-switches.	1. Power window main switch.	1. Check power window main switch.								
Driver's side power window auto function cannot be operated using power window main switch.	1. Power window main switch.	1. Check power window main switch.								



# POWER DOOR LOCK — Super Lock —

## Component Parts Location



NEL562

# POWER DOOR LOCK — Super Lock —

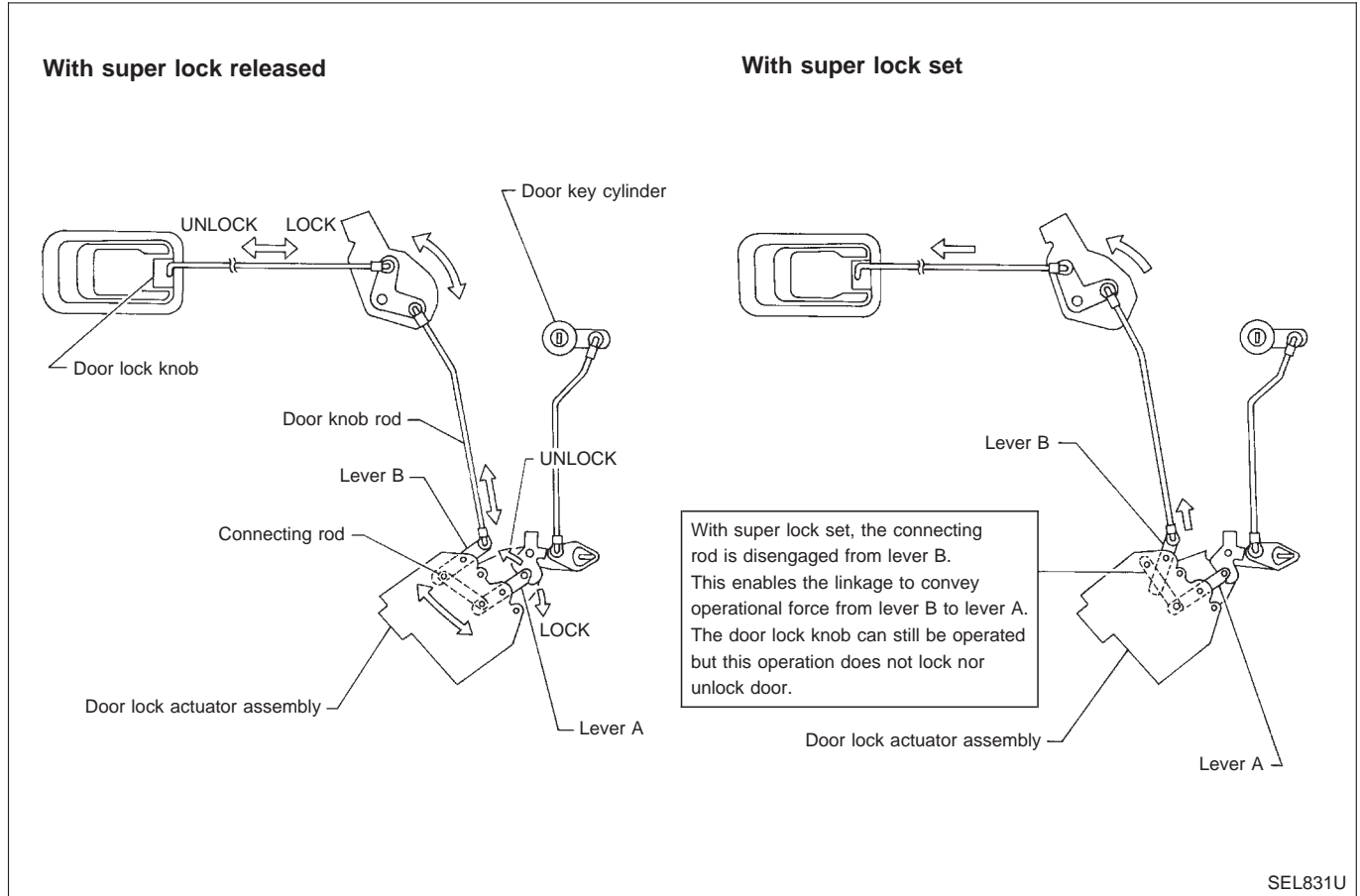
## System Description

### OUTLINE

Power door lock system with super lock and key reminder is controlled by time control unit. Super lock has a higher anti-theft performance than conventional power door lock systems.

When super lock is in released condition, lock knob operation locks or unlocks door.

When super lock is in set condition; lock knob operation cannot lock nor unlock door.



### OPERATION

#### Power door lock/unlock and super lock set/release operation by door key cylinder

- With the key inserted into front door key cylinder, turning it to LOCK will lock all doors and set super lock while all doors are closed or any door is open. (Super lock will not be set while key is inserted in the ignition key cylinder.)
- With the key inserted into front door key cylinder, turning it to UNLOCK will unlock all doors and release super lock.

#### Power door lock/unlock and super lock set/release operation by multi-remote controller (if equipped)

- Pressing multi-remote controller LOCK button will lock all doors and set super lock while all doors are closed and key is not inserted in the ignition key cylinder.
- Pressing once will release super lock and unlock driver's door.
- Pressing twice will release super lock and unlock all doors.

#### Power door lock and super lock release operation (by NATS IMMU signal)

- When the super lock is set, turning ignition key switch to ON will release super lock and unlock all doors.

## POWER DOOR LOCK — Super Lock —

### System Description (Cont'd)

#### Power door lock/unlock operation by lock knob

- With lock knob on driver or passenger door setting to LOCK while all doors are closed will lock all doors.  
**When one or more door is opened, with lock knob on passenger door setting to LOCK will lock passenger door only. (Power door lock system will not operate.)**
- With lock knob on driver or passenger door setting to UNLOCK while all doors are closed will unlock all doors.

**Lock knob operation cannot control super lock.**

#### Key reminder system

- If the ignition key is in the ignition key cylinder and any door is open, setting the lock/unlock switch or lock knob on driver or passenger door to “LOCK” locks the door once but then immediately unlocks all doors.

#### Central unlock/trunk or back door release switch

Signal input								Status
Short press		Long press		DR	AS	RL	RR	
Without ultra sonic	With ultra sonic	Without ultra sonic	With ultra sonic					
No action	No action	Trunk release	Trunk release	U	U	U	U	Fully unlocked
No action	No action	Trunk release	Trunk release	U	U	U	L	
No action	No action	Trunk release	Trunk release	U	U	L	U	
No action	Central unlock (not DR door)	Trunk release	Central unlock (not DR door) + Trunk release	U	U	L	L	DR and AS doors unlocked
Central unlock (not DR door)	Central unlock (not DR door)	Central unlock (not DR door) + Trunk release	Central unlock (not DR door) + Trunk release	U	L	X	X	DR door unlocked, AS door locked
Central unlock	Central unlock	Central unlock + Trunk release	Central unlock + Trunk release	L	L	X	X	Both front doors locked
No action	No action	No action	No action	L	L	L	L	Super locked

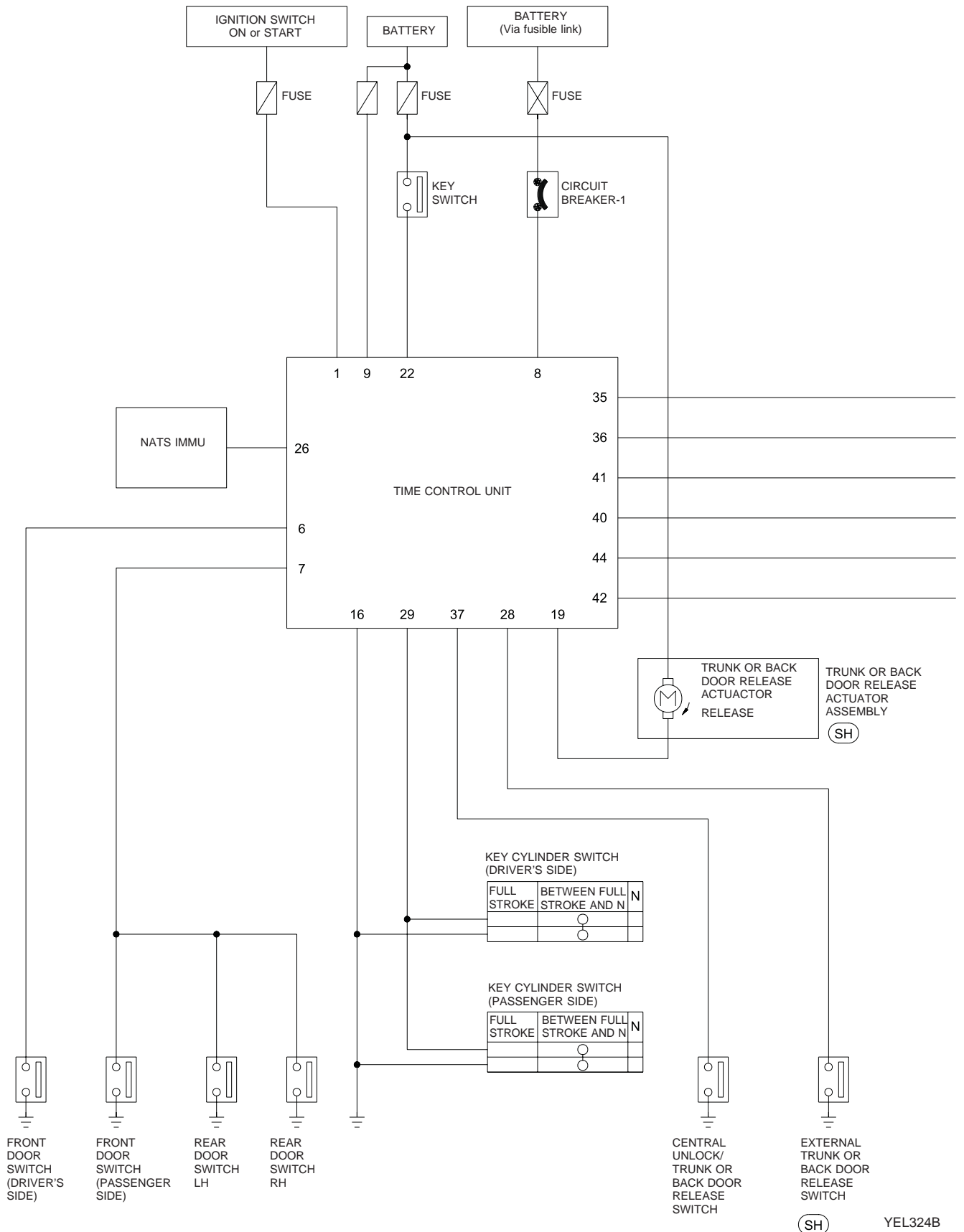
U: Unlocked; L:locked; X: Don't care

#### System initialisation

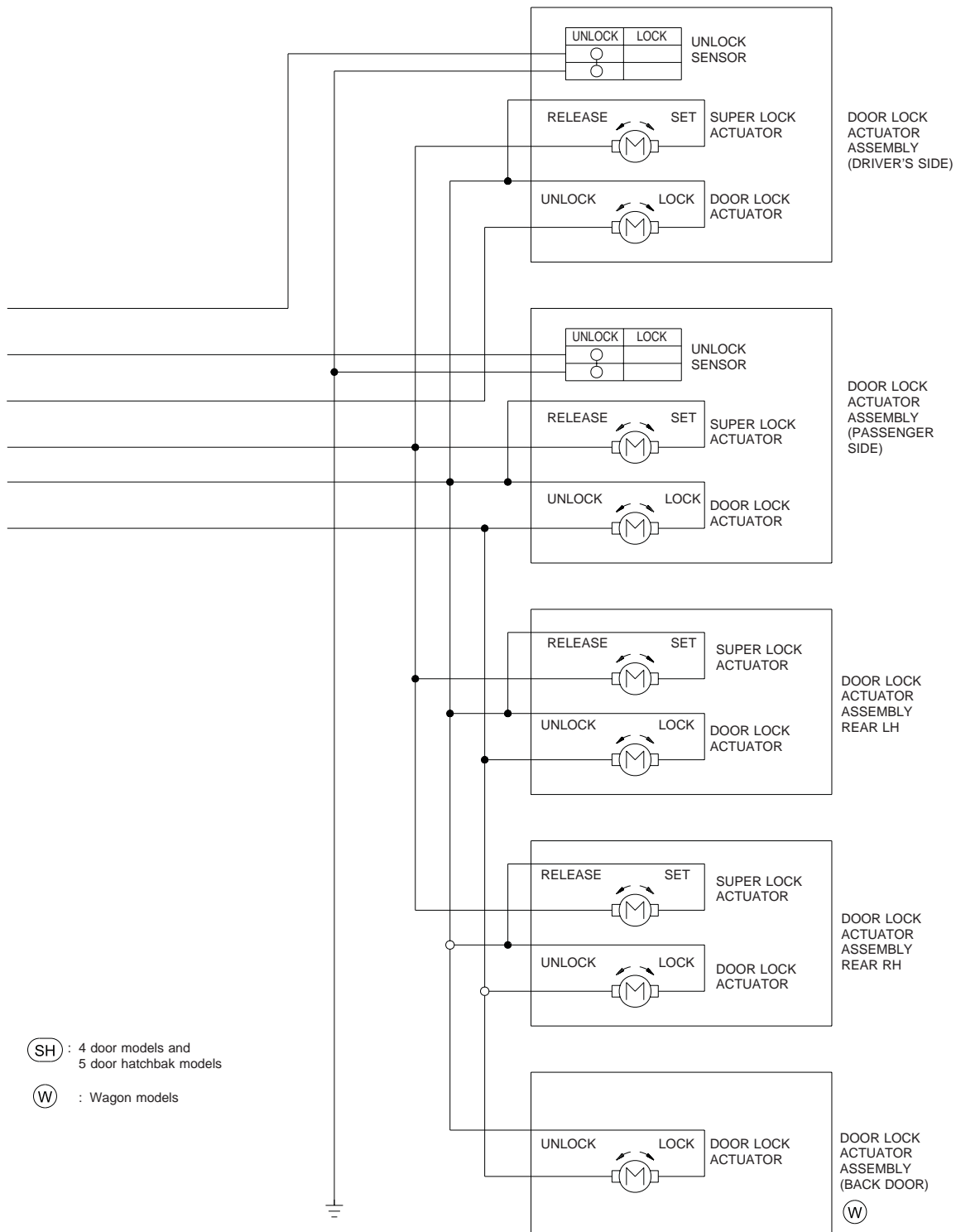
- System initialisation is required when battery cables are reconnected. Conduct one of the followings to release super lock once;
  - insert the key into ignition key cylinder and turn it to ON.
  - LOCK/UNLOCK operation using door key cylinder.

# POWER DOOR LOCK — Super Lock —

## Schematic



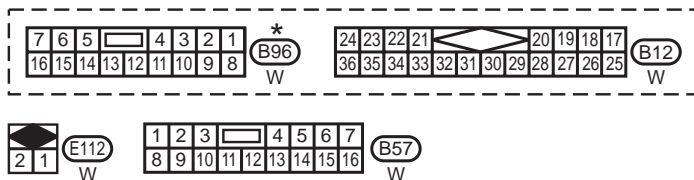
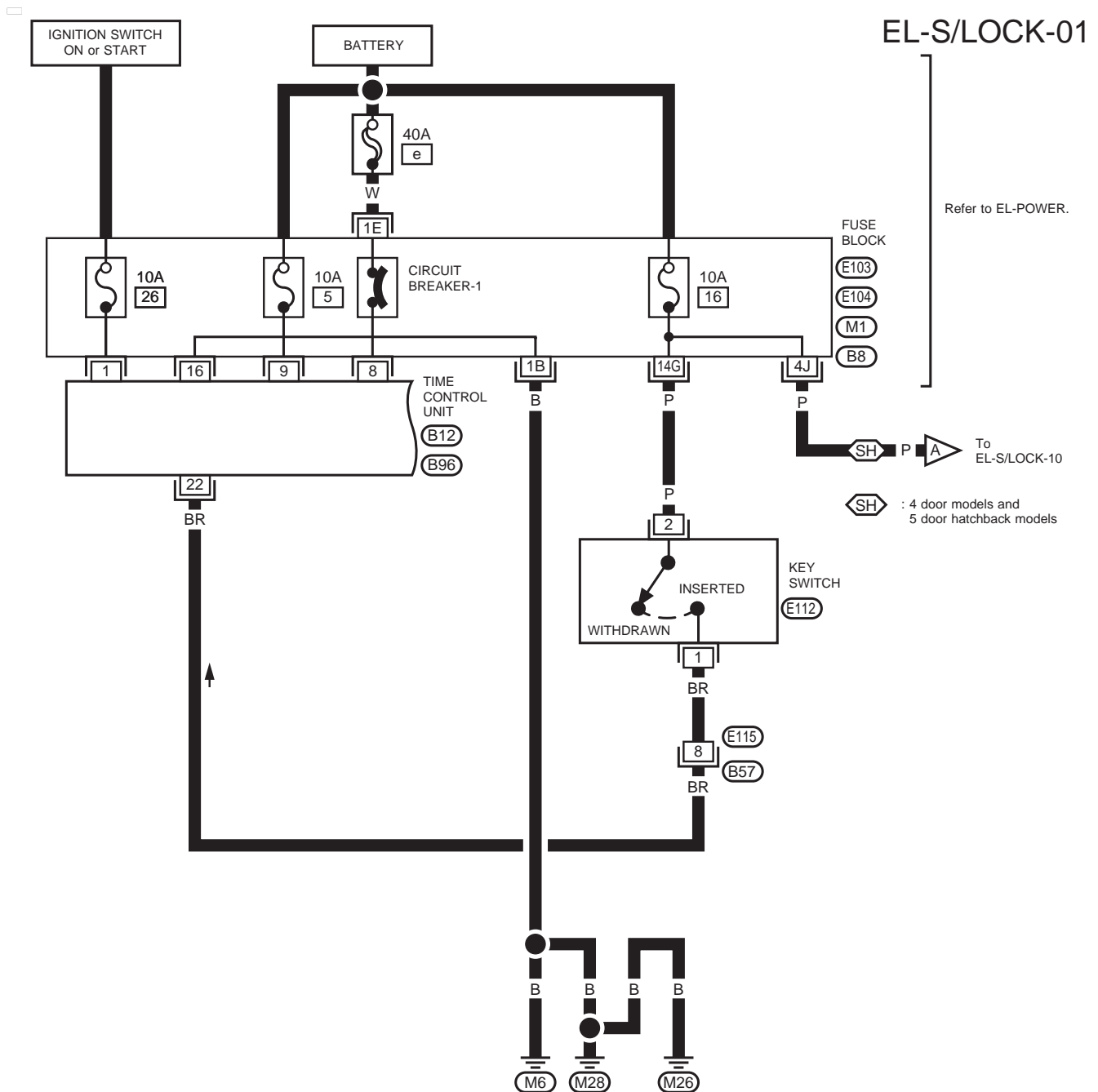
# POWER DOOR LOCK — Super Lock — Schematic (Cont'd)



YEL325B

## POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK —



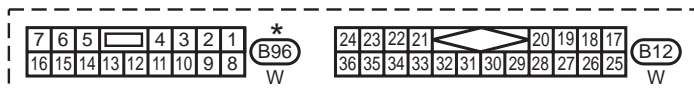
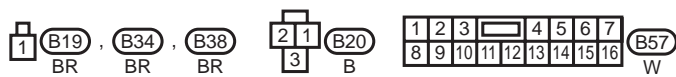
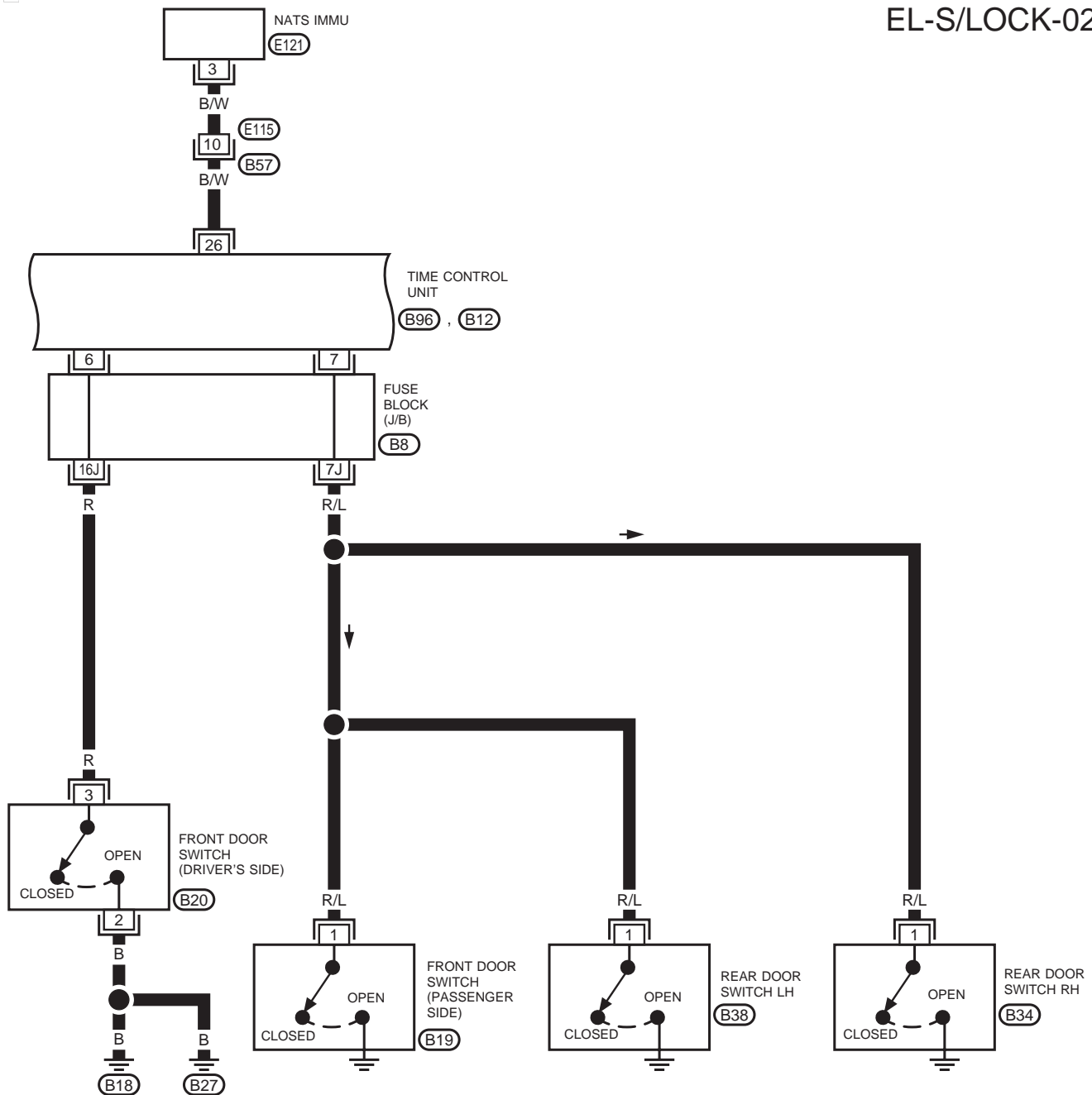
\*: This connector is not shown in "HARNESS LAYOUT" of EL section.

REFER TO THE FOLLOWING

- (M1)** FUSE BLOCK - Junction Box (J/B)
- (E103)** FUSE BLOCK - Junction Box (J/B)
- (E104)** FUSE BLOCK - Junction Box (J/B)
- (B8)** FUSE BLOCK - Junction Box (J/B)

### Wiring Diagram — S/LOCK — (Cont'd)

EL-S/LOCK-02



\*: This connector is not shown in "HARNESS LAYOUT" of EL section.

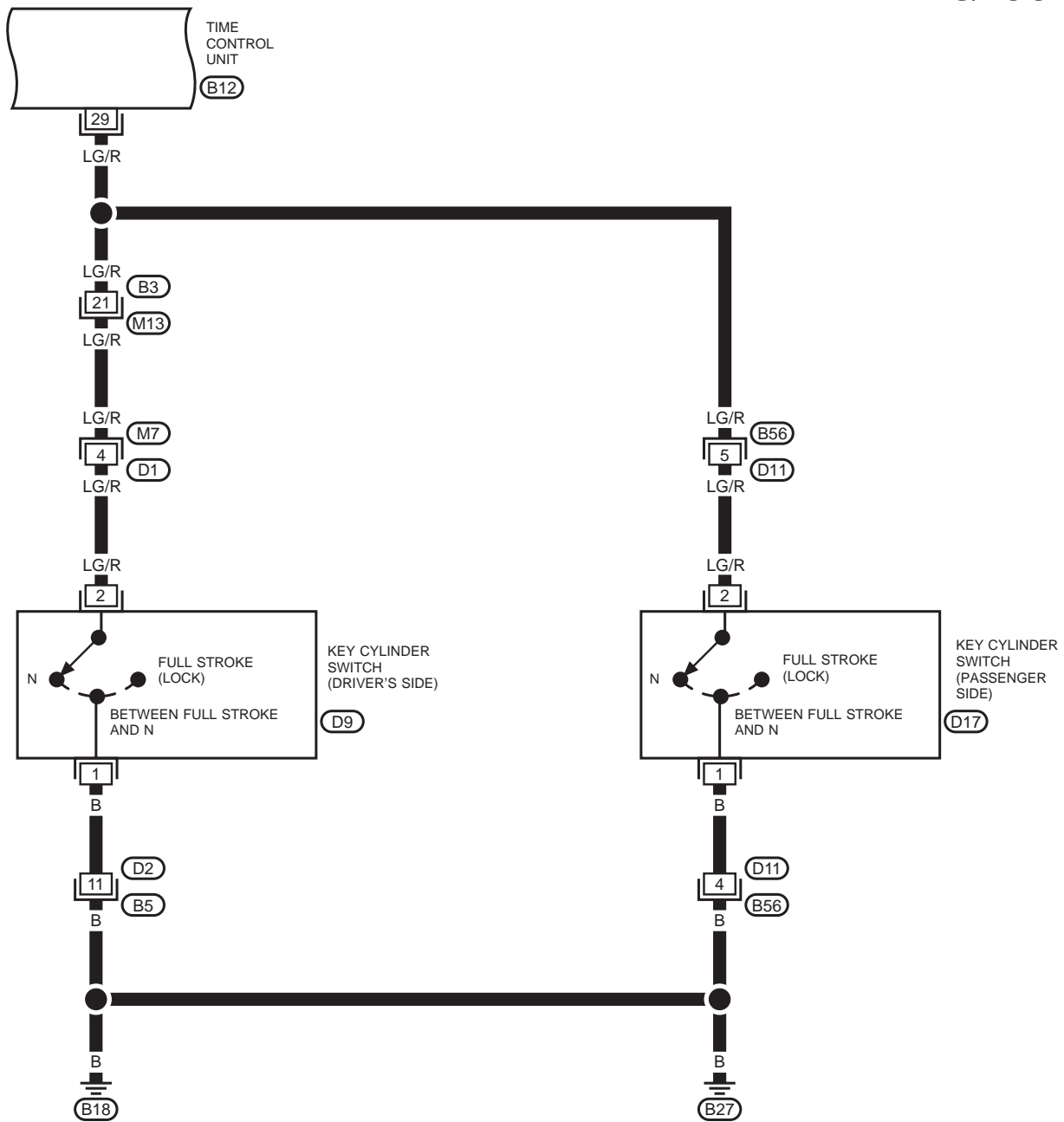
REFER TO THE FOLLOWING

**B8** FUSE BLOCK - Junction Box (J/B)

# POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK — (Cont'd)

EL-S/LOCK-03



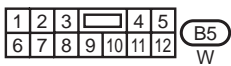
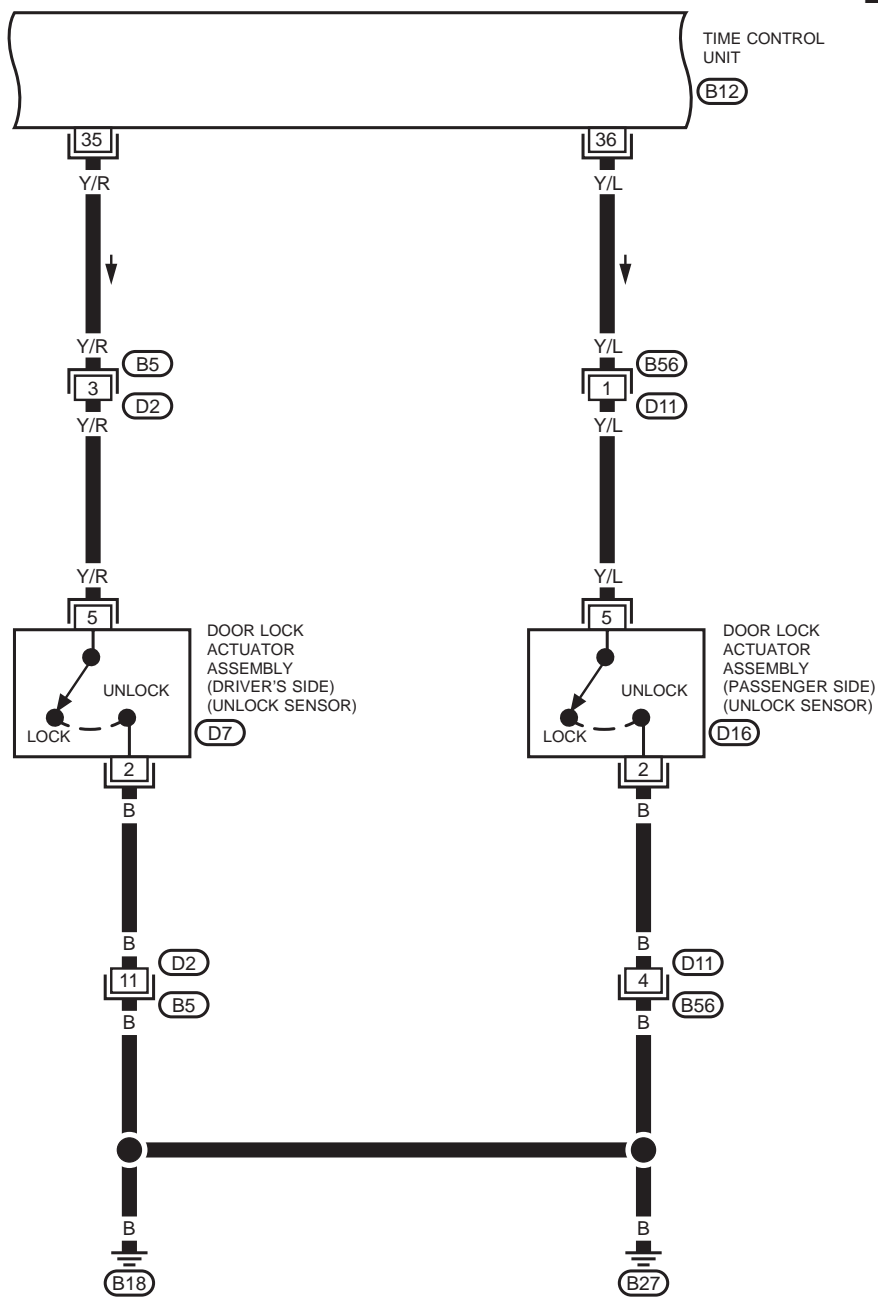
YEL328B



# POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK — (Cont'd)

EL-S/LOCK-04



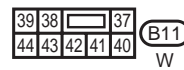
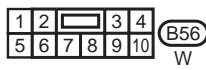
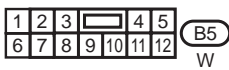
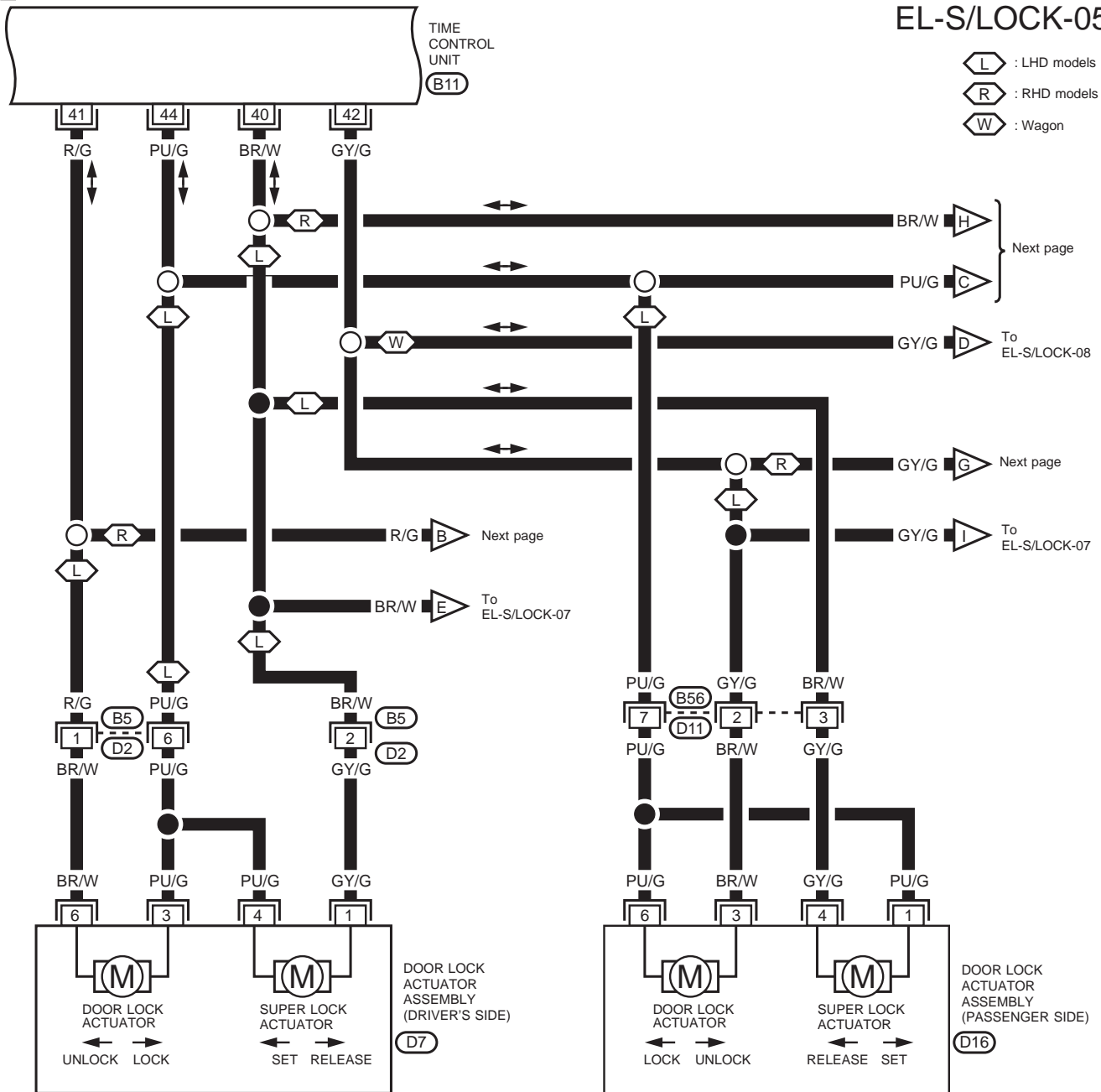
YEL329B

# POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK — (Cont'd)

EL-S/LOCK-05

- L : LHD models
- R : RHD models
- W : Wagon

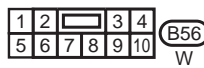
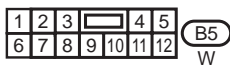
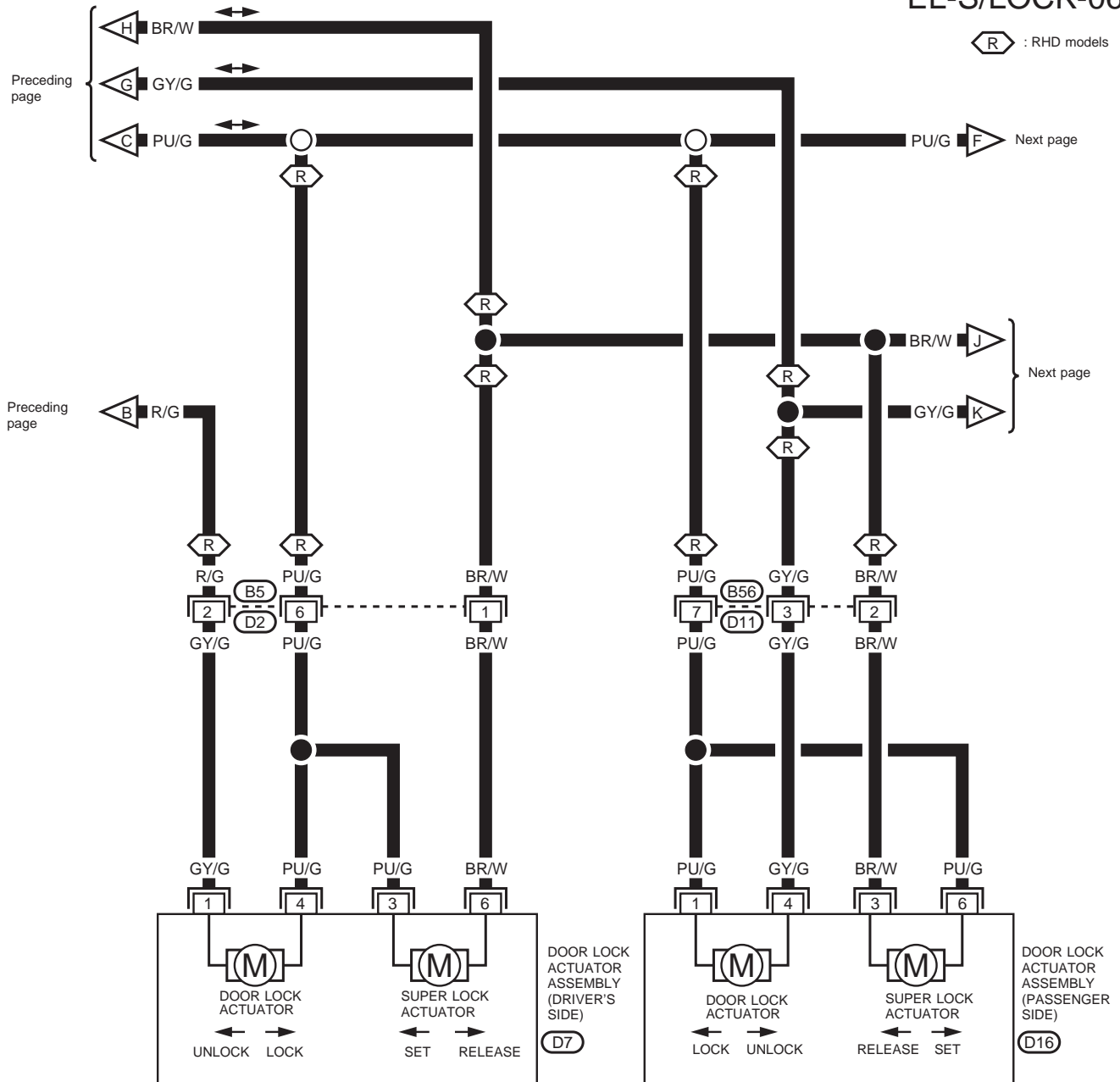


# POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK — (Cont'd)

EL-S/LOCK-06

 : RHD models

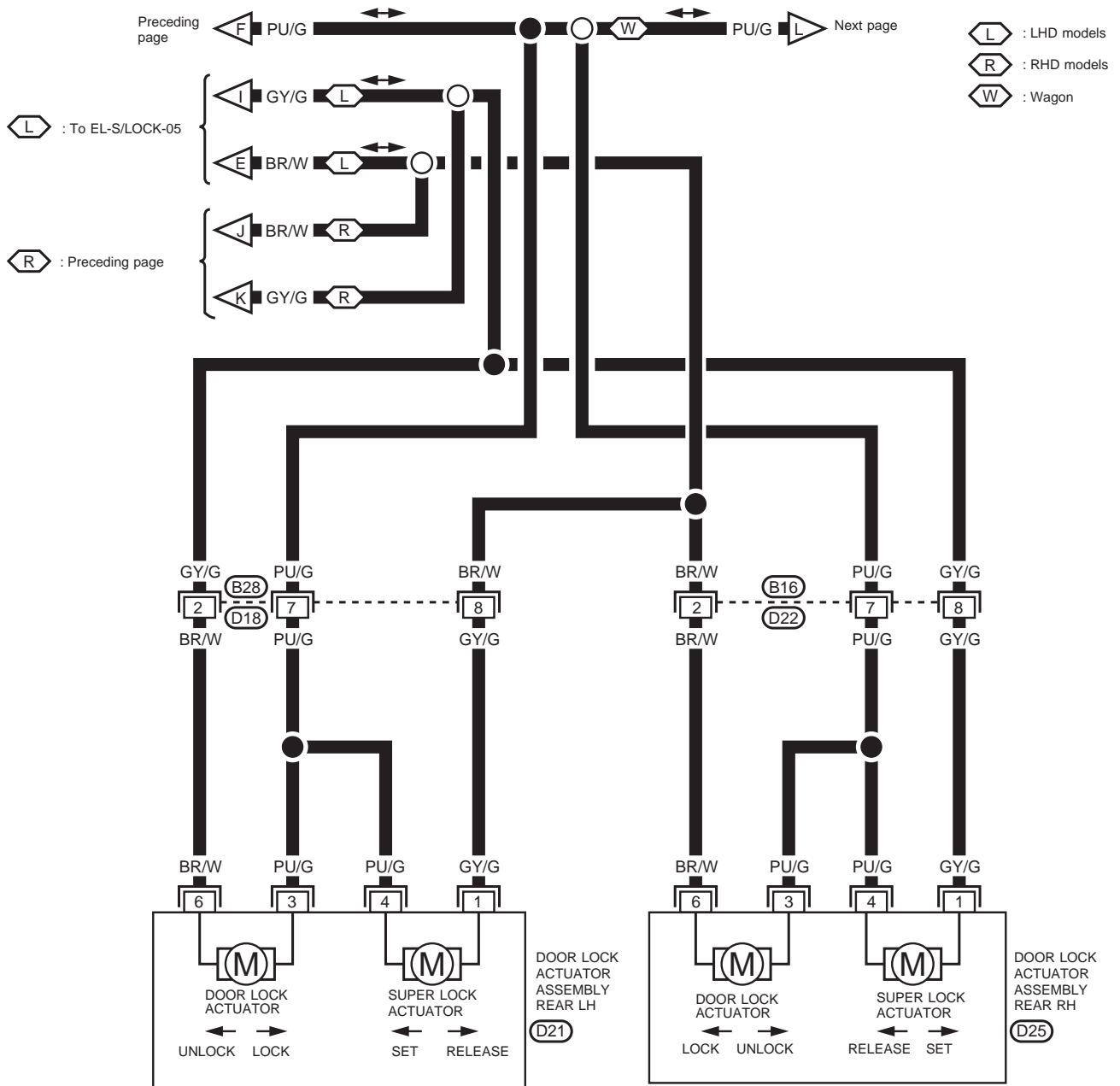


YEL331B

# POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK — (Cont'd)

EL-S/LOCK-07



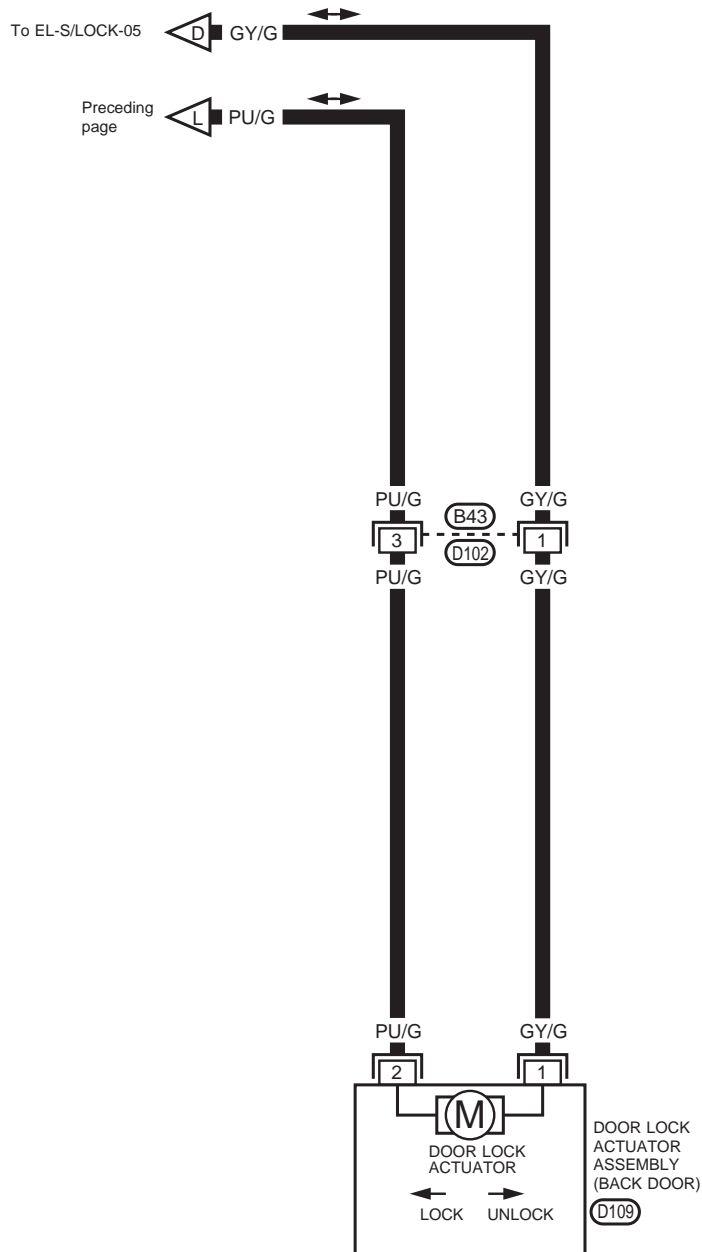
YEL332B

# POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK — (Cont'd)

WAGON MODELS

EL-S/LOCK-08

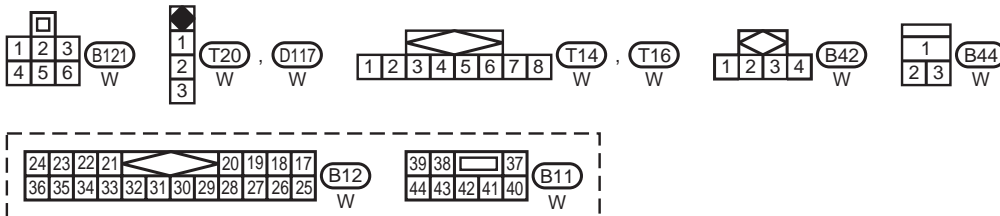
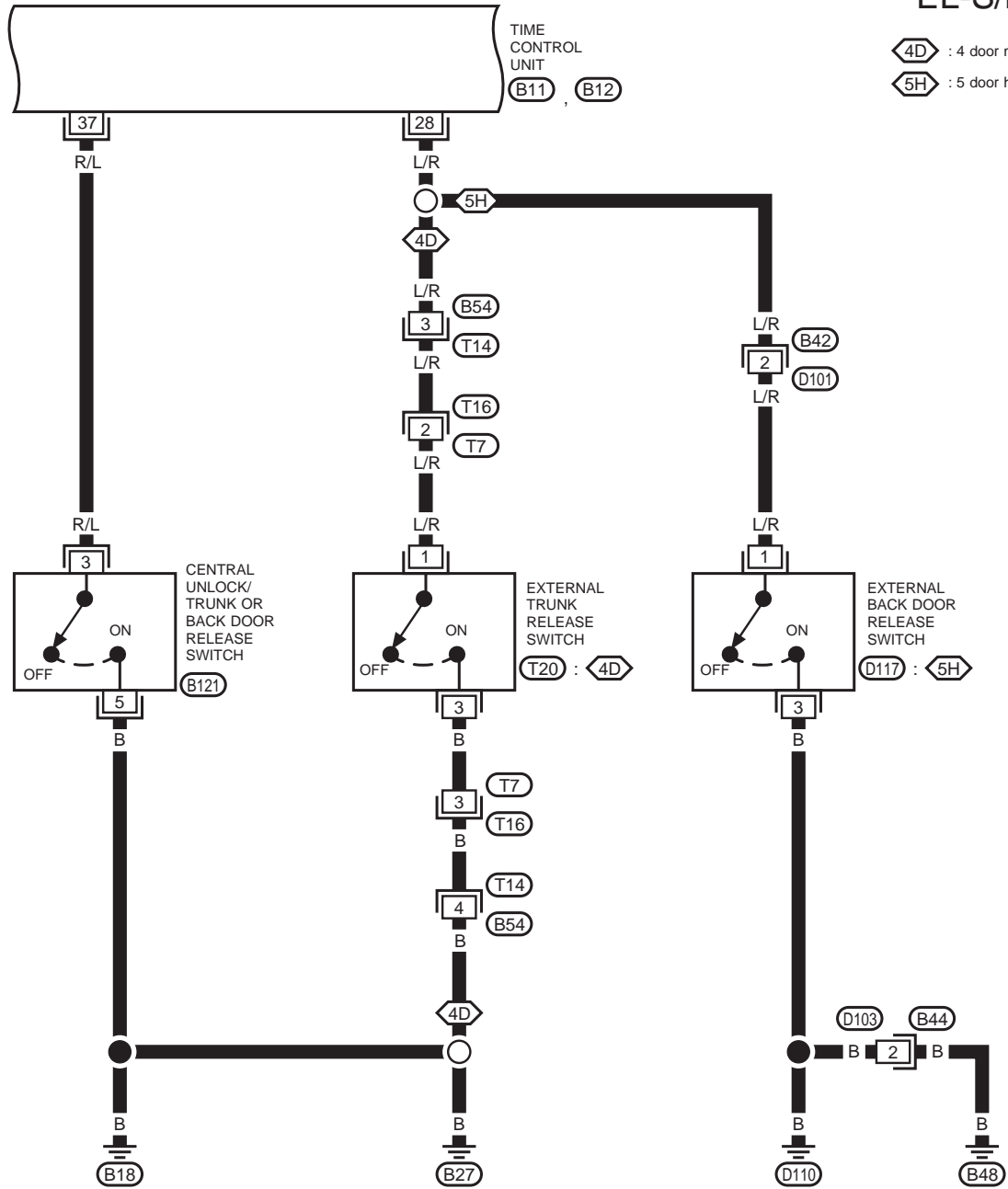


YEL333B

# POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK — (Cont'd)

EL-S/LOCK-09



YEL334B

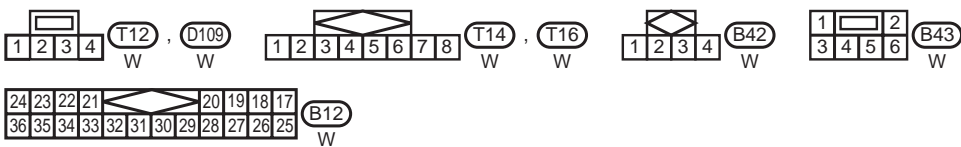
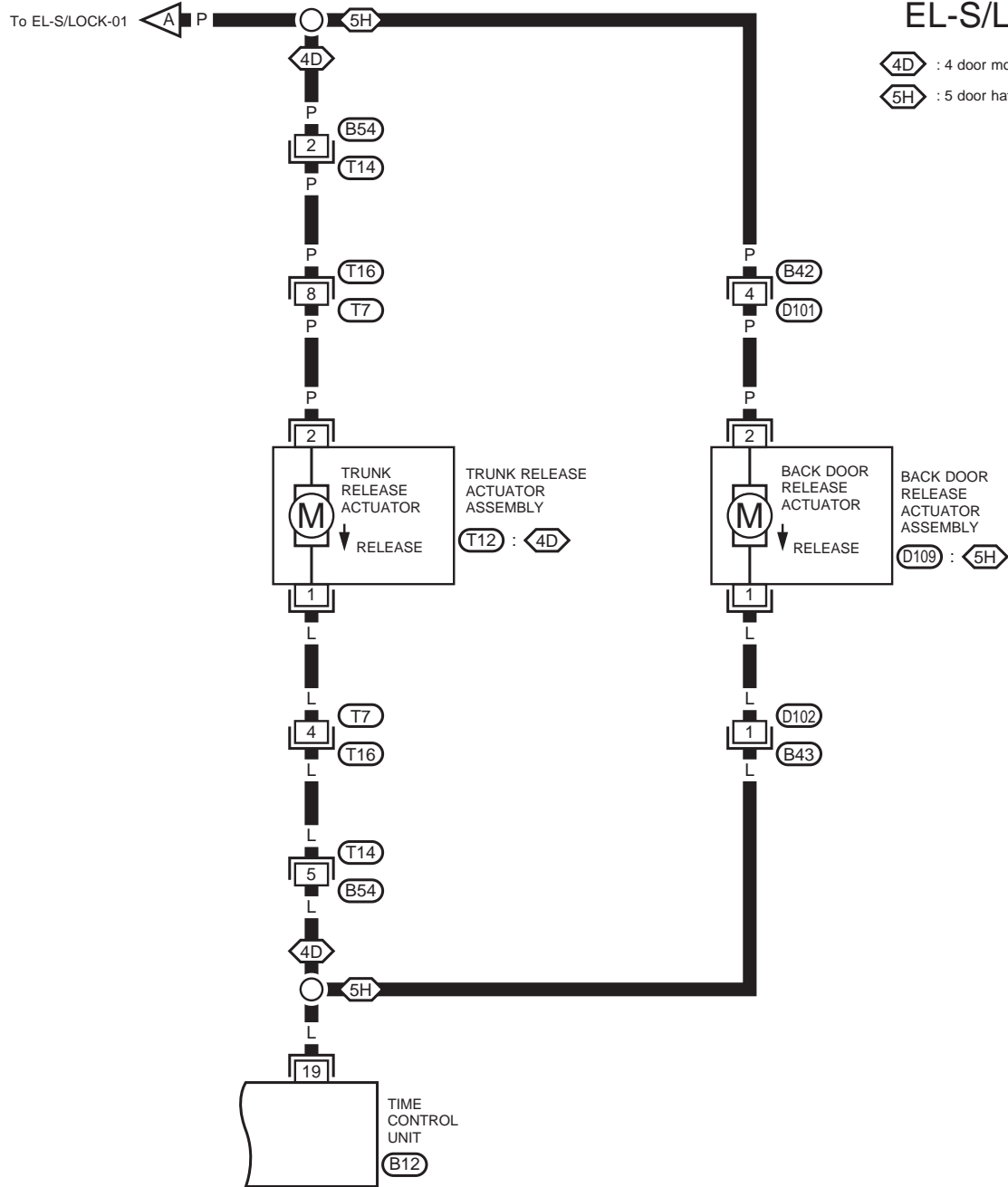
# POWER DOOR LOCK — Super Lock —

## Wiring Diagram — S/LOCK — (Cont'd)

EL-S/LOCK-10

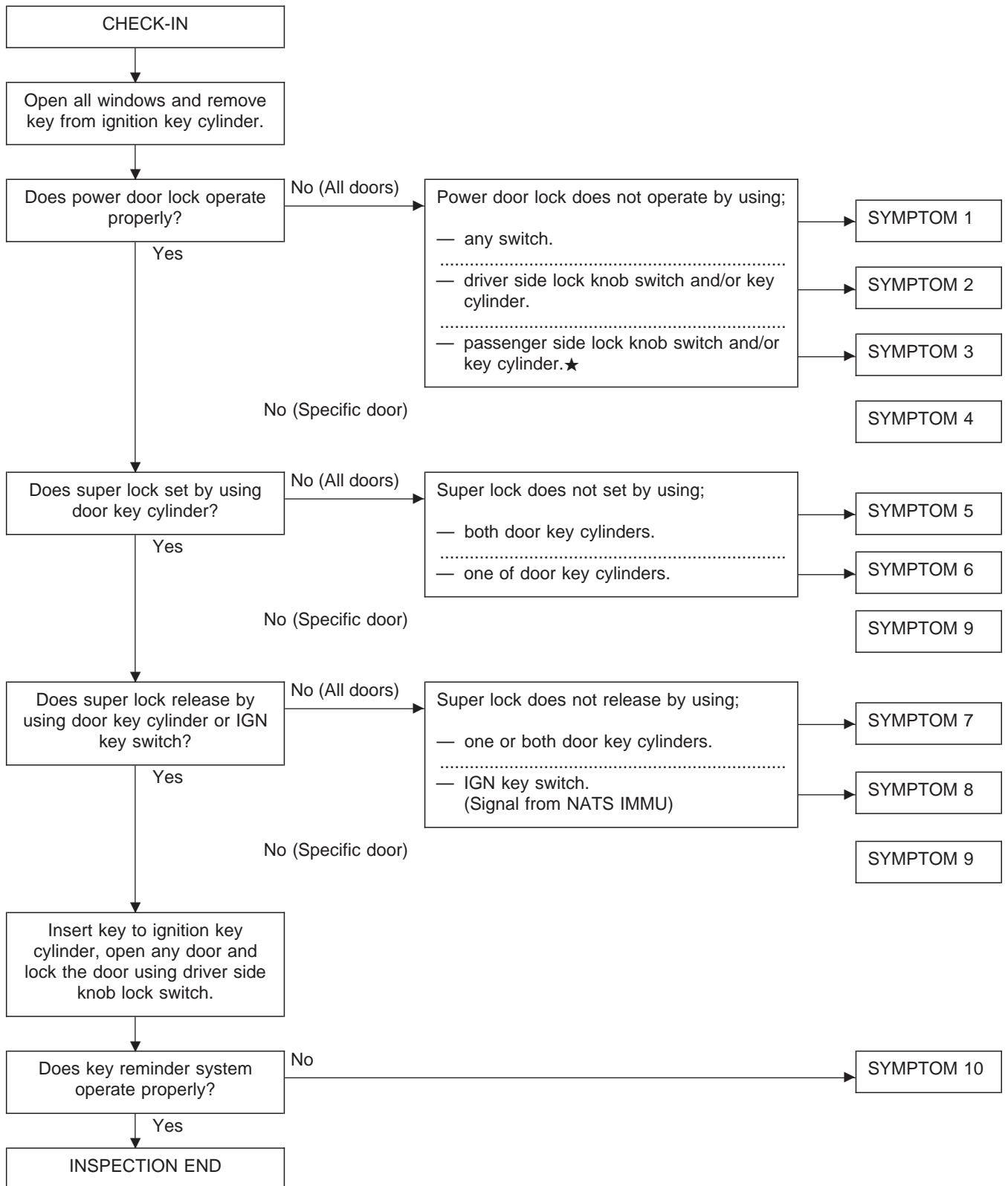
4D : 4 door models

5H : 5 door hatchback models



## Trouble Diagnoses

### PRELIMINARY CHECK



**After performing preliminary check, go to symptom chart on the next page.**

★ When one or more doors are opened, with lock knob on passenger door setting to LOCK, will lock passenger door only. (Power door lock system will not operate.)



## POWER DOOR LOCK — Super Lock —

### Trouble Diagnoses (Cont'd)

**Before starting trouble diagnoses below, perform preliminary check, EL-224.**

Symptom numbers in the symptom chart correspond with those of Preliminary check.

#### SYMPTOM CHART

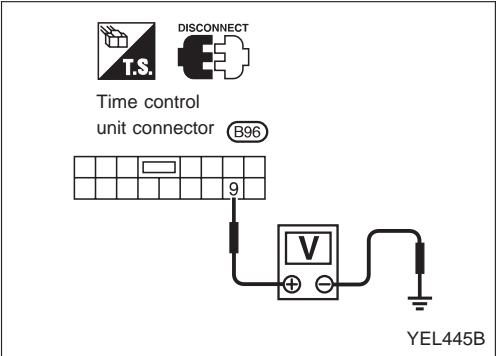
REFERENCE PAGE		EL-226	EL-227	EL-271	EL-229	EL-230	EL-231	EL-232	EL-233	EL-233
SYMPTOM		Power supply and ground circuit check	Procedure 1 (Door unlock sensor check)	Procedure 2 (Door key cylinder switch check)	Procedure 3 (Door lock actuator check)	Procedure 4 (Super lock actuator check)	Procedure 5 (Door switch check)	Procedure 6 (NATS release signal check)	Procedure 7 (Key switch check)	Procedure 8 (Ignition switch "ON" circuit check)
1	Power door lock does not operate using any switch.	X	X		X					
2	Power door lock does not operate with any switch of driver side.		X							
3	Power door lock does not operate with any switch of passenger side.		X				X			
4	Specific door lock acutator does not operate.				X					
5	Super lock cannot be set by both door key cylinders.	X		X		X			X	X
6	Super lock cannot be set by one of door key cylinders.			X						
7	*Super lock cannot be released by one or both door key cylinders.		X							
8	*Super lock cannot be released by ignition key switch. (Signal from NATS IMMU)							X		
9	Specific super lock actuator does not operate.					X				
10	*Key reminder system does not operate.						X		X	

X: Applicable

\*: Make sure the power door lock and key reminder system operate properly.

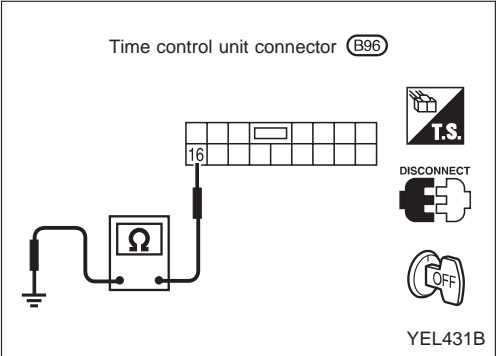
POWER DOOR LOCK — Super Lock —

Trouble Diagnoses (Cont'd)  
POWER SUPPLY AND GROUND CIRCUIT CHECK  
Main power supply circuit check



Terminals		Ignition switch position		
⊕	⊖	LOCK	ACC	ON
⑨	Ground	Battery voltage	Battery voltage	Battery voltage

Ground circuit check

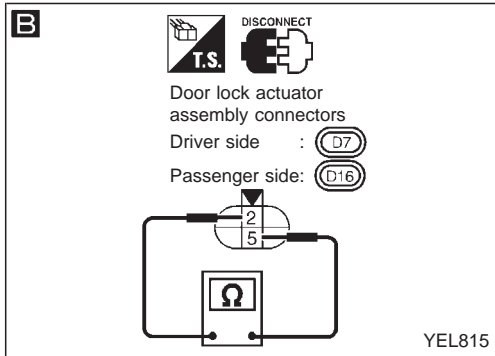
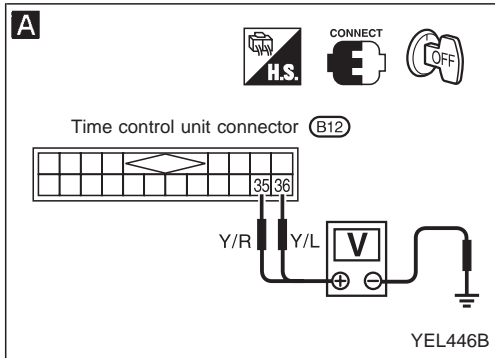


Terminals	Continuity
⑩ - Ground	Yes

# POWER DOOR LOCK — Super Lock —

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1 (Door unlock sensor check)



**A**

**CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.**  
Check voltage between time control unit connector terminals (35) or (36) and ground.

OK

Door unlock sensor is OK.

	Terminals		Condition	Voltage [V]
	⊕	⊖		
Driver side	(35)	Ground	Locked	Approx. 2 (Approx. 20 sec.)
			Unlocked	0
Pas-senger side	(36)	Ground	Locked	Approx. 12 (Approx. 20 sec.)
			Unlocked	0

NG

**B**

**CHECK DOOR UNLOCK SENSOR.**  
1) Disconnect door unlock sensor connector.  
2) Check continuity between door unlock sensor terminals.

NG

Replace door lock actuator assembly.

Terminals	Condition	Continuity
(2) - (5)	Locked	No
	Unlocked	Yes

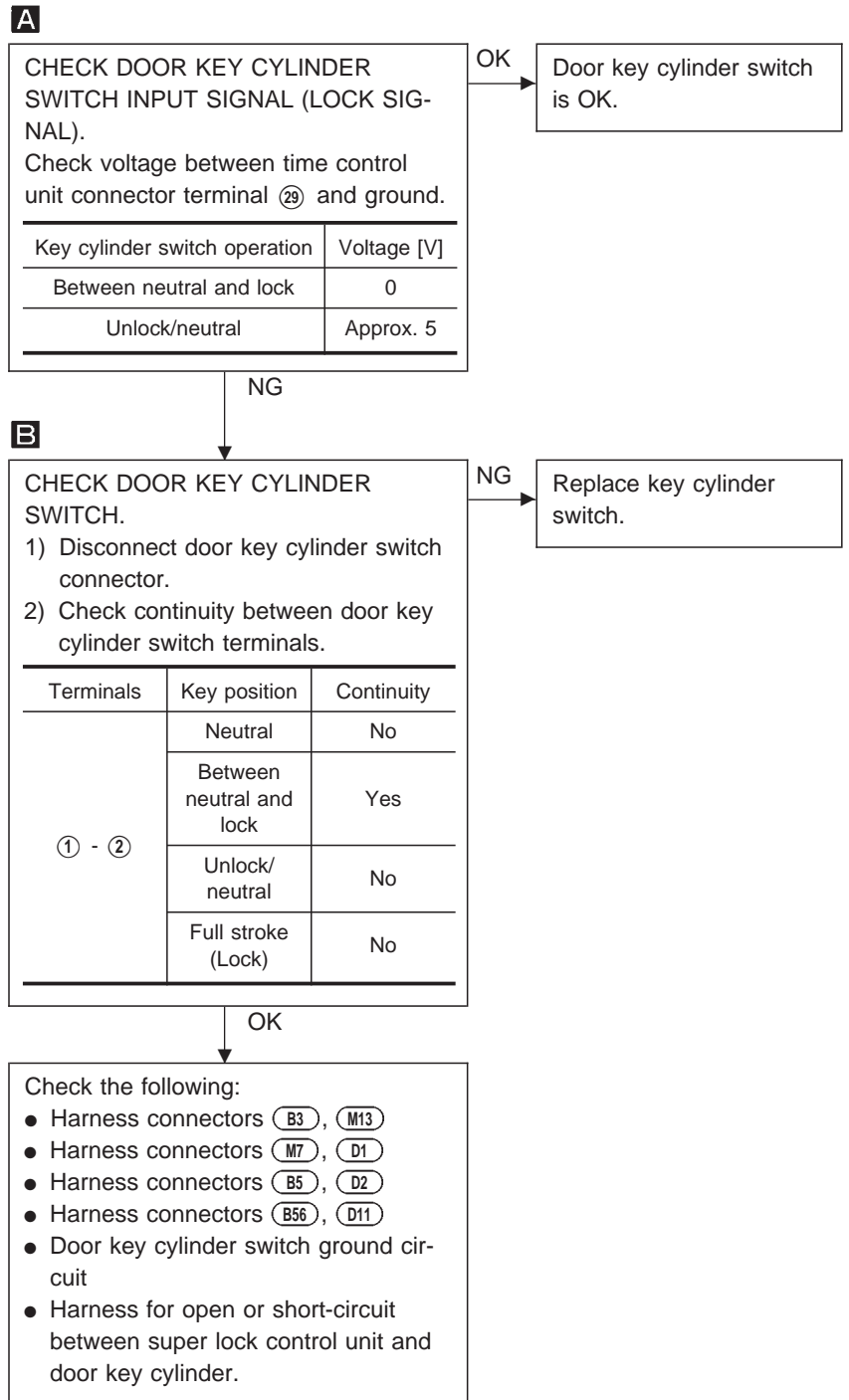
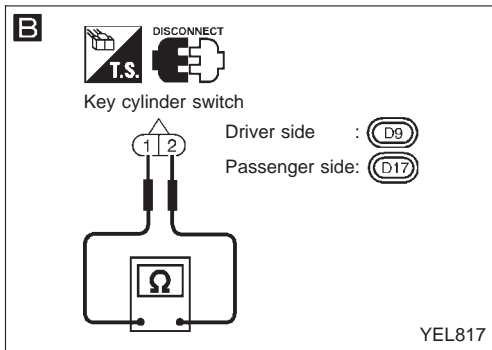
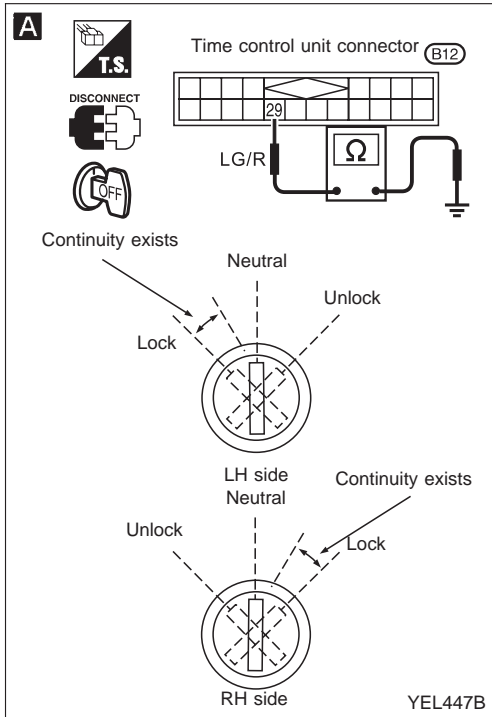
OK

Check the following:

- Door unlock sensor ground circuit.
- Harness for open or short-circuit between control unit and door unlock sensor

# POWER DOOR LOCK — Super Lock —

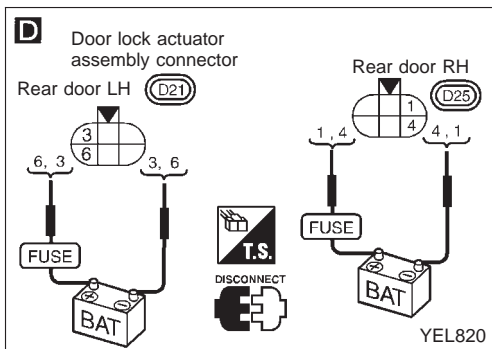
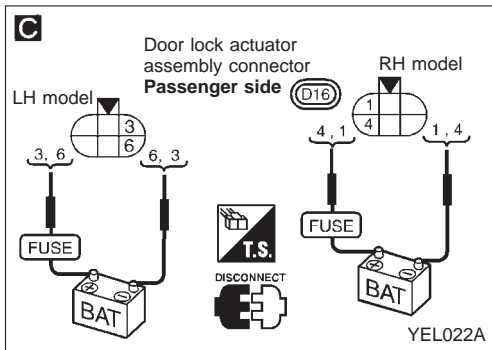
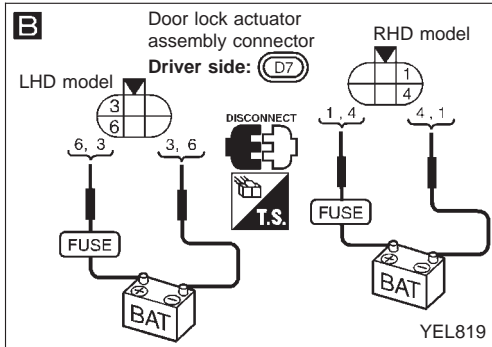
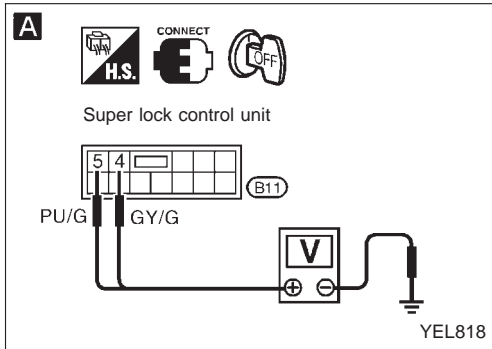
## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 2 (Door key cylinder switch check)



# POWER DOOR LOCK — Super Lock —

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3 (Door lock actuator check)



**A**

**CHECK DOOR LOCK ACTUATOR CIRCUIT.**  
Check voltage for door lock actuator.

Knob lock switch condition	Terminals		Voltage (V)
	⊕	⊖	
Unlock → Lock	(41)	Ground	Approx. 12 (Approx. 5 seconds)
Lock → Unlock	(44)	Ground	

**Before operating passenger side knob lock switch, close all doors.**

NG → Door lock actuator is OK.

OK →

**B C D**

**CHECK DOOR LOCK ACTUATOR.**  
1. Disconnect door lock actuator connector.  
2. Apply 12V direct current to door lock actuator and check operation.

OK → Check harness between control unit and door lock actuator.

NG →

**Driver side**

Door lock actuator operation	Terminals	
	⊕	⊖
Unlocked → Locked	(6) : (LHD)	(3) : (LHD)
	(1) : (RHD)	(4) : (RHD)
Locked → Unlocked	(3) : (LHD)	(6) : (LHD)
	(4) : (RHD)	(1) : (RHD)

**Passenger side**

Door lock actuator operation	Terminals	
	⊕	⊖
Unlocked → Locked	(3) : (LHD)	(6) : (LHD)
	(4) : (RHD)	(1) : (RHD)
Locked → Unlocked	(6) : (LHD)	(3) : (LHD)
	(1) : (RHD)	(4) : (RHD)

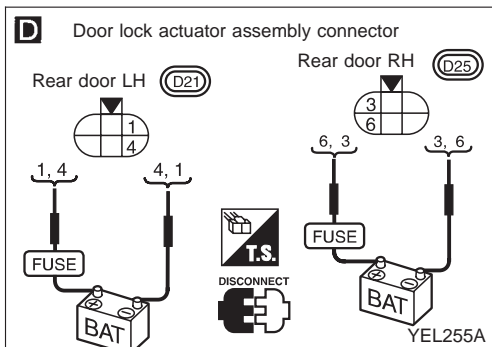
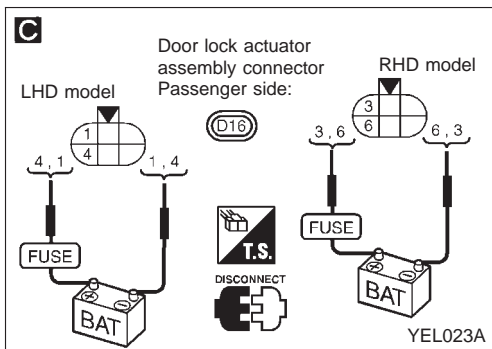
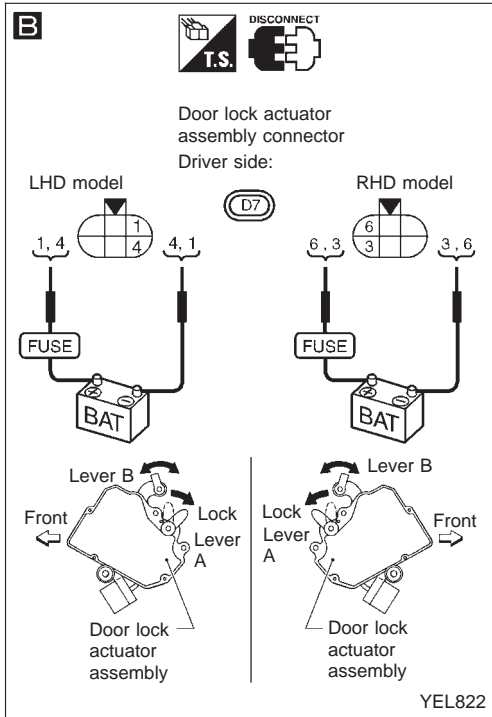
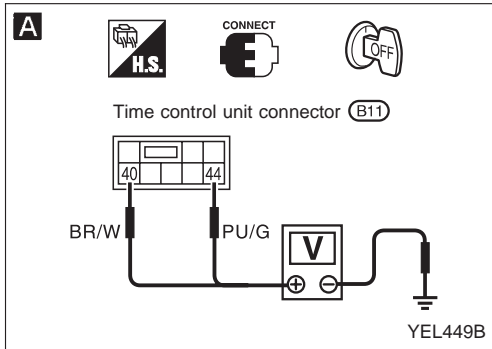
**Rear door**

Door lock actuator operation	Terminals	
	⊕	⊖
Unlocked → Locked	(6) : (LHD)	(3) : (LHD)
	(1) : (RHD)	(4) : (RHD)
Locked → Unlocked	(3) : (LHD)	(6) : (LHD)
	(4) : (RHD)	(1) : (RHD)

NG → Replace door lock actuator assembly.

# POWER DOOR LOCK — Super Lock —

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 4 (Super lock actuator check)



**A**

CHECK SUPER LOCK ACTUATOR CIRCUIT.  
Check voltage for super lock actuator.

NG → Super lock actuator is OK.

Door key cylinder switch condition	Terminals		Voltage (V)
	⊕	⊖	
Lock (Set)	④①	Ground	Approx. 12
Unlock (Released)	④④	Ground	

Note:  
Put the system in set condition before checking release signal.

OK

**B C D**

CHECK SUPER LOCK ACTUATOR.

1. Disconnect door lock actuator assembly connector.
2. Set lever A in lock position.
3. Apply 12V direct current to door lock actuator assembly and check operation.

OK → Check harness between control unit and door lock actuator assembly.

### Driver side

Super lock actuator operation	Terminals		Connection from lever A to lever B
	⊕	⊖	
Released → Set	① : (LHD) ⑥ : (RHD)	④ : (LHD) ③ : (RHD)	Disconnect
Set → Released	④ : (LHD) ③ : (RHD)	① : (LHD) ⑥ : RHD	Connect

### Passenger side

Super lock actuator operation	Terminals		Connection from lever A to lever B
	⊕	⊖	
Released → Set	④ : (LHD) ③ : (RHD)	① : (LHD) ⑥ : (RHD)	Disconnect
Set → Released	① : (LHD) ⑥ : (RHD)	④ : (LHD) ③ : RHD	Connect

### Rear door

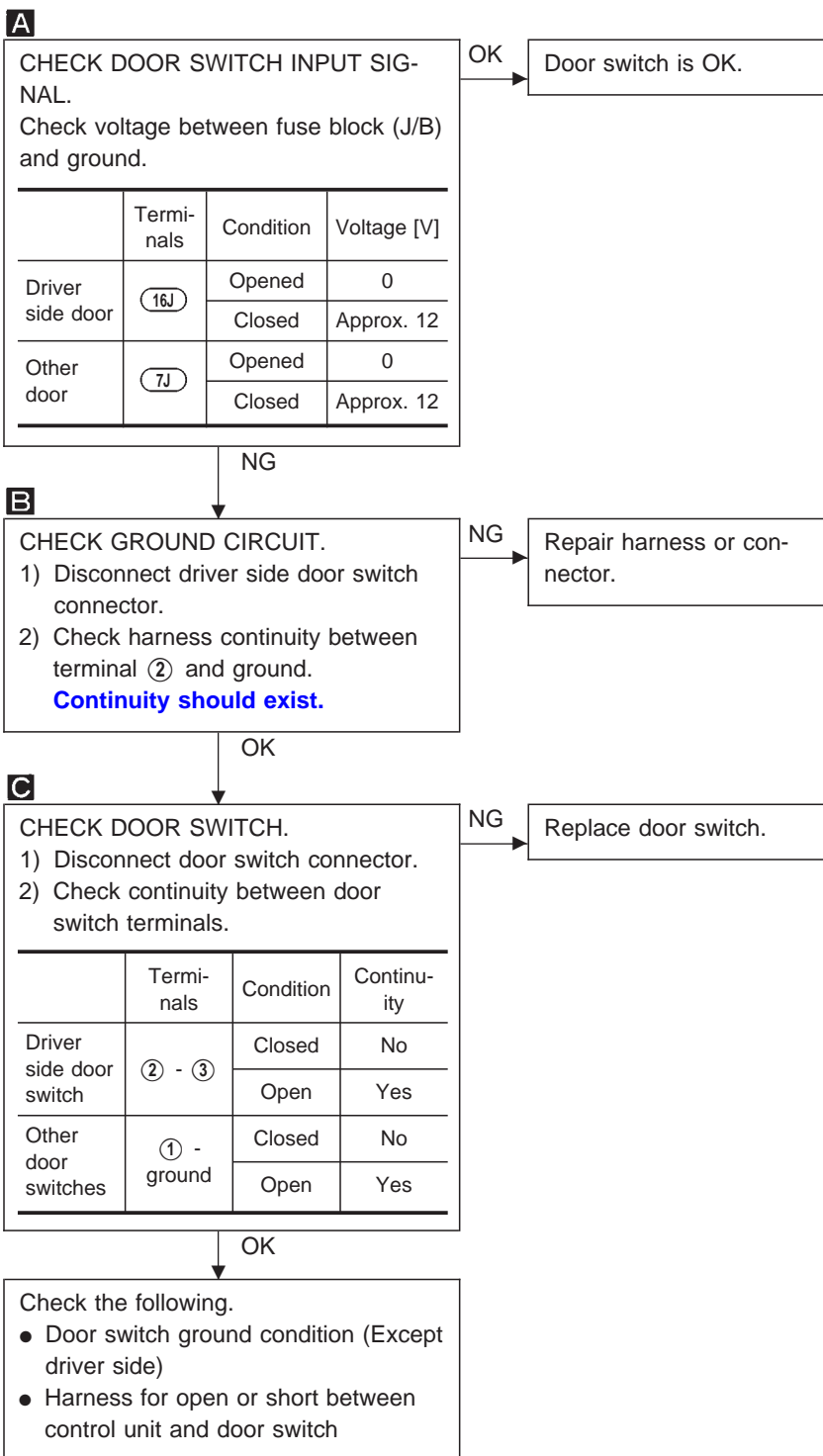
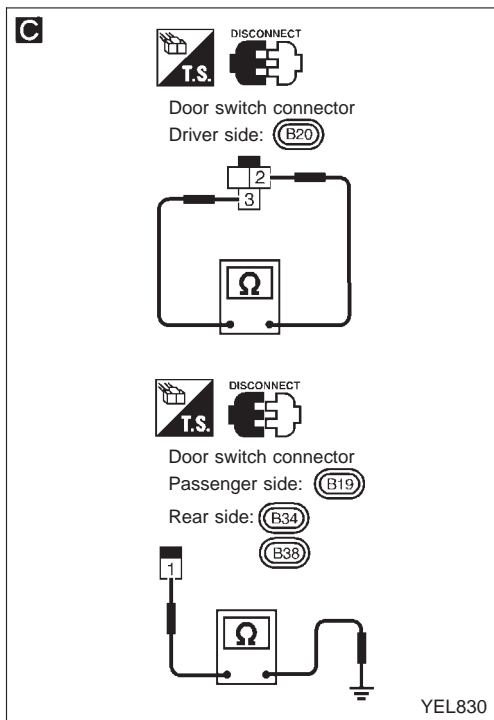
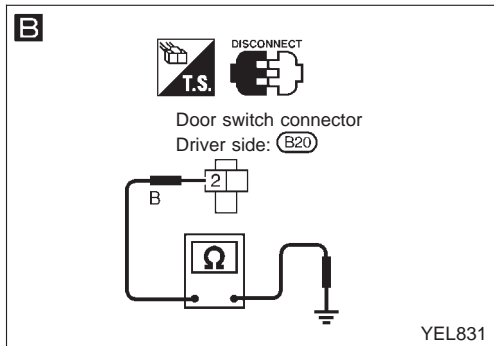
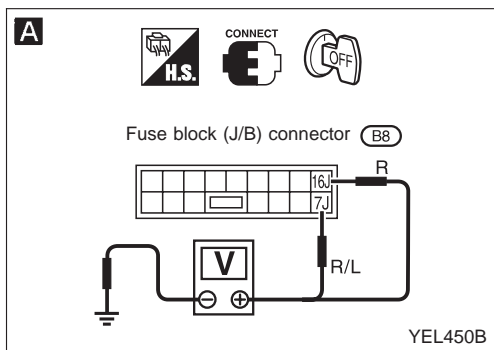
Super lock actuator operation	Terminals		Connection from lever A to lever B
	⊕	⊖	
Released → Set	① : (LHD) ⑥ : (RHD)	④ : (LHD) ③ : (RHD)	Disconnect
Set → Released	④ : (LHD) ③ : (RHD)	① : (LHD) ⑥ : RHD	Connect

NG

Replace door lock actuator assembly.

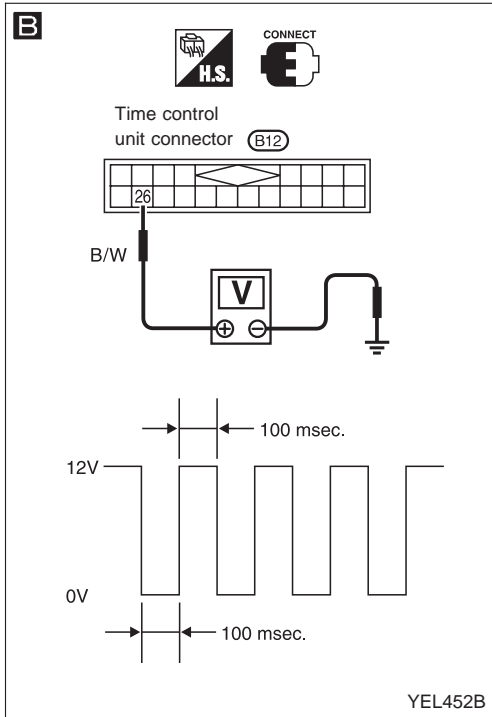
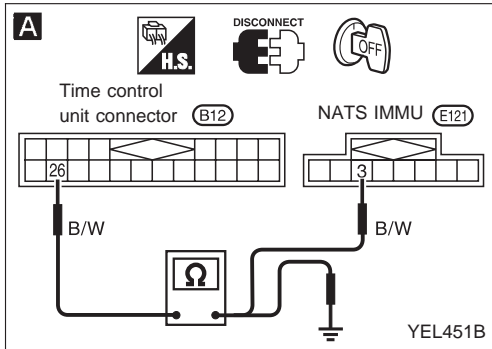
# POWER DOOR LOCK — Super Lock —

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 5 (Door switch check)



# POWER DOOR LOCK — Super Lock —

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 6 (NATS release signal check)



Does engine start properly?

No

Check NATS system.

Yes

**A**

### CHECK NATS SIGNAL CIRCUIT.

- 1) Disconnect control unit connector and NATS IMMU connector.
- 2) Check continuity between control unit terminal (26) and NATS IMMU terminal (3).

**Continuity should exist.**

- 3) Check continuity between control unit terminal (26) and ground.

**Continuity should not exist.**

NG

Repair harness.

OK

**B**

### CHECK NATS RELEASE SIGNAL.

- 1) Connect control unit connector and NATS IMMU connector.
- 2) Check voltage between control unit terminal (26) and ground.

NG

Check NATS system.

Ignition switch condition	Voltage [V]
LOCK	12
More than 10 seconds after ignition switch turned to "ON" position	
For 10 seconds after ignition switch turned to "ON" position	Pulse

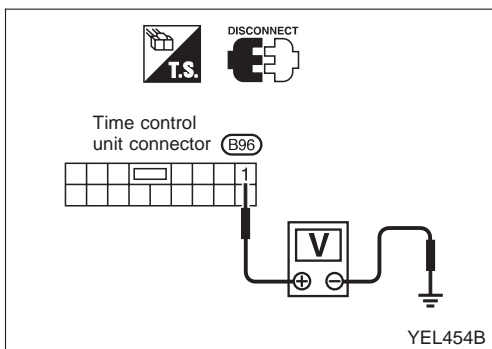
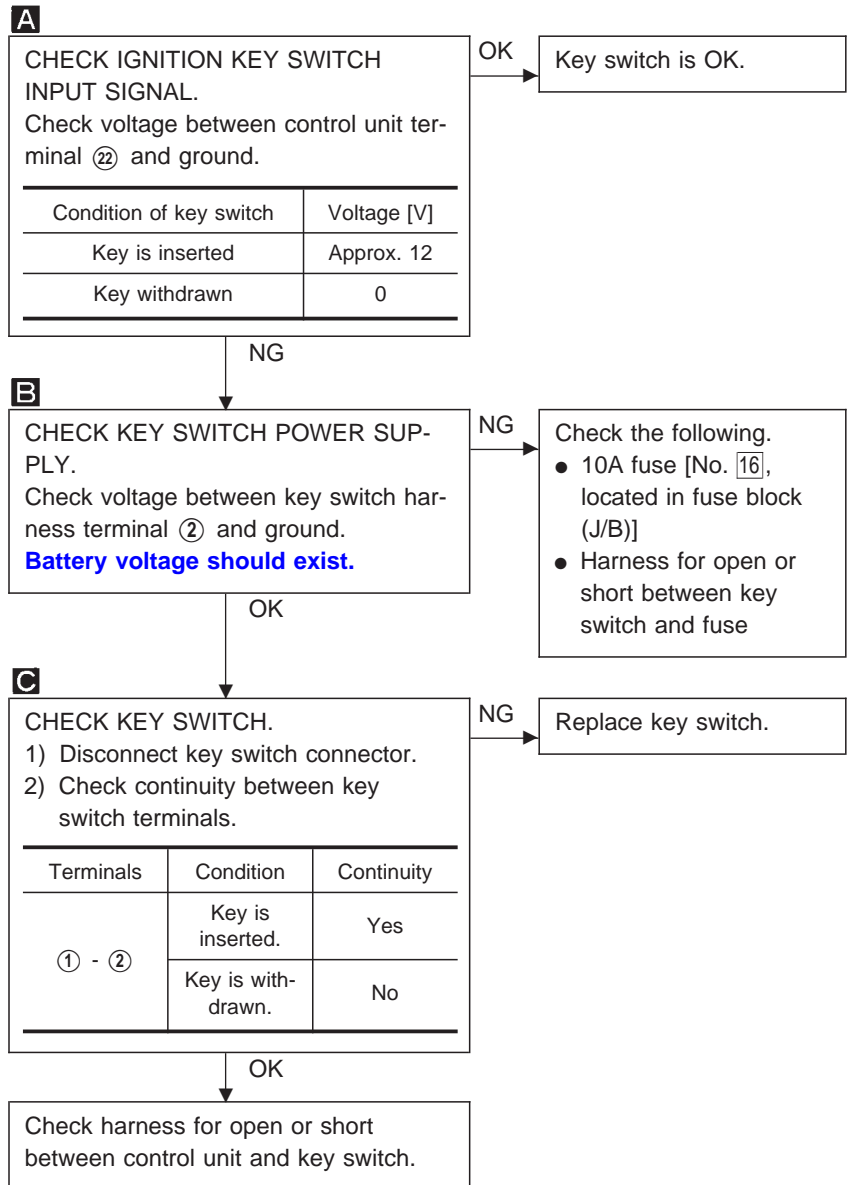
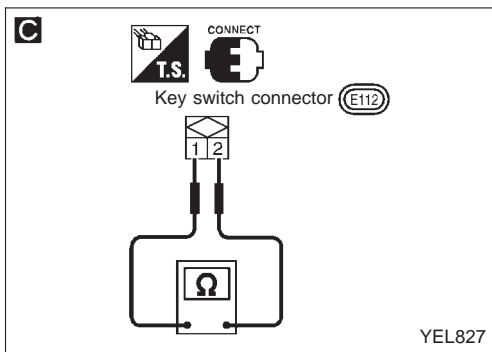
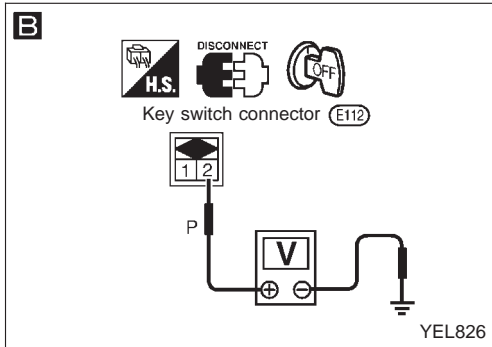
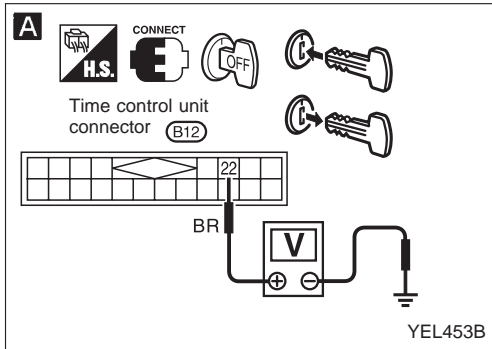
OK

Replace super lock control unit.



## POWER DOOR LOCK — Super Lock —

### Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 7 (Key switch check)



### DIAGNOSTIC PROCEDURE 8 (Ignition switch "ON" circuit check)

Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
①	Ground	0V	0V	Battery voltage

If NG, check the following.

- 10A fuse [No. 26], located in the fuse block (J/B)]
- Harness for open or short

# MULTI-REMOTE CONTROL SYSTEM

---

## System Description

The multi-remote control system controls operation of the

- power door lock (and super lock)

## OPERATED PROCEDURE

### Power door lock operation

When the following input signals are both supplied:

- Key switch OFF (when ignition key is not inserted in key cylinder);
- door switch CLOSED (when all the doors are closed);

The two above signals are already input into time control unit. At this point, time control unit receives a LOCK signal from remote controller. Time control unit locks all doors and set super lock with input of LOCK signal from remote controller.

When an UNLOCK signal is sent from remote controller once, driver's door will be unlocked and release super lock.

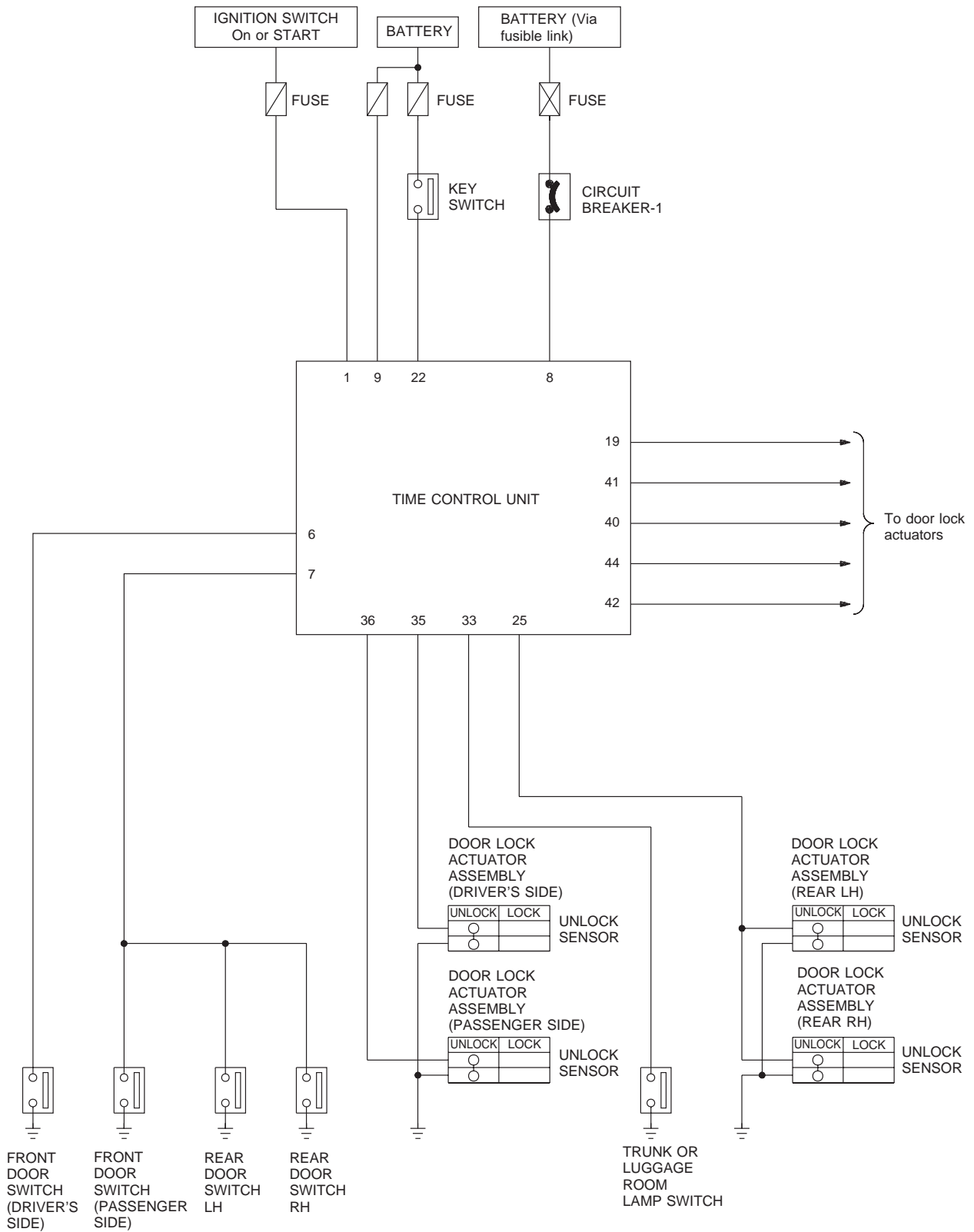
Then, if an UNLOCK signal is sent from remote controller again, all other door will be unlocked.

### Multi-remote controller ID code entry

For detailed procedure, refer to "ID Code Entry Procedure" in EL-242.

# MULTI-REMOTE CONTROL SYSTEM

## Schematic

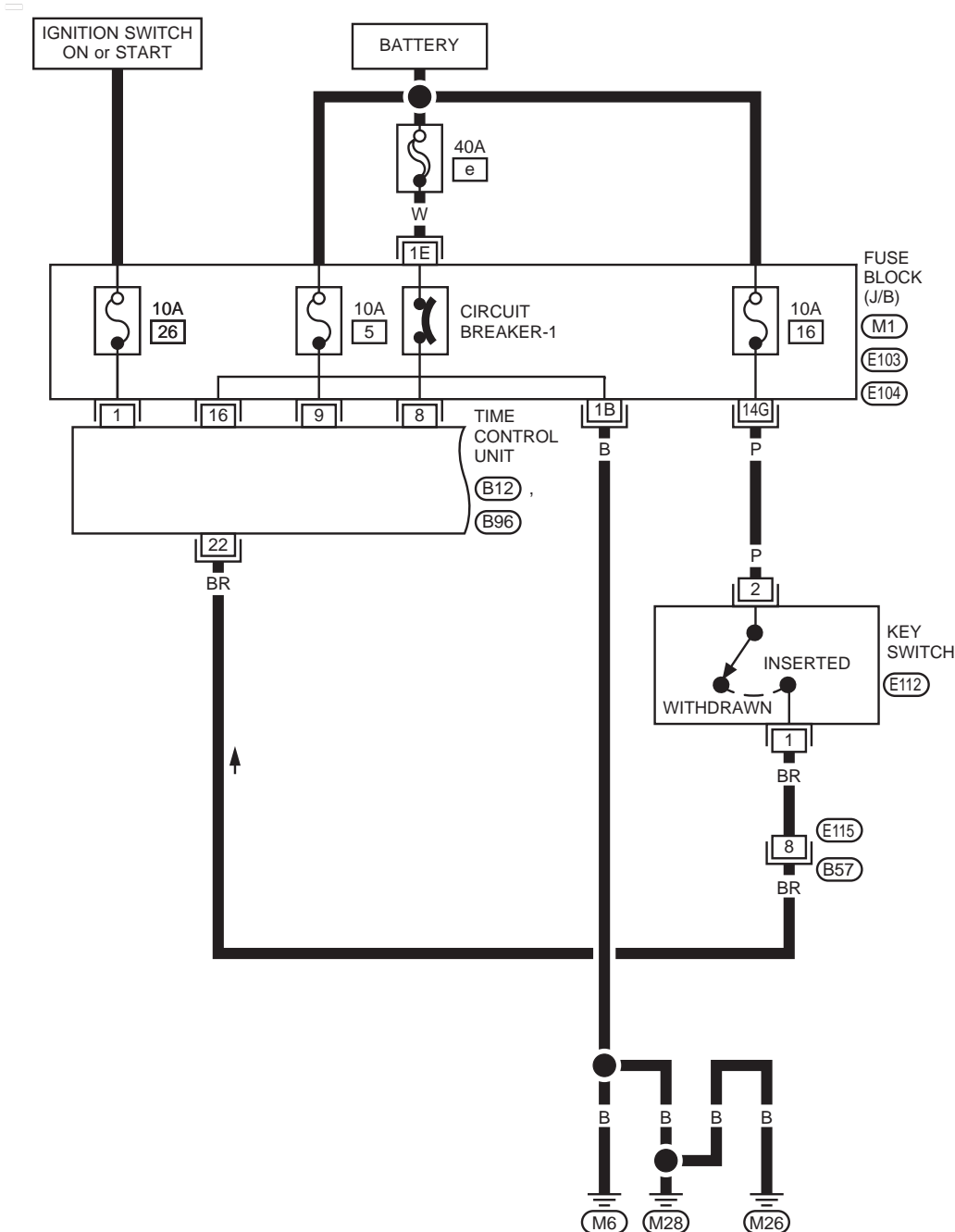


YEL611B

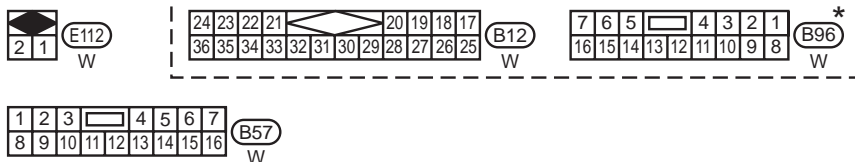
# MULTI-REMOTE CONTROL SYSTEM

## Wiring Diagram — MULTI —

EL-MULTI-01



Refer to EL-POWER



REFER TO THE FOLLOWING

- M1:** FUSE BLOCK - Junction Box (J/B)
- E103:** FUSE BLOCK - Junction Box (J/B)
- E104:** FUSE BLOCK - Junction Box (J/B)

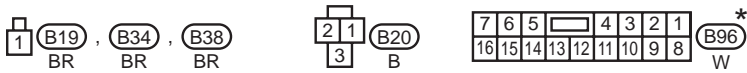
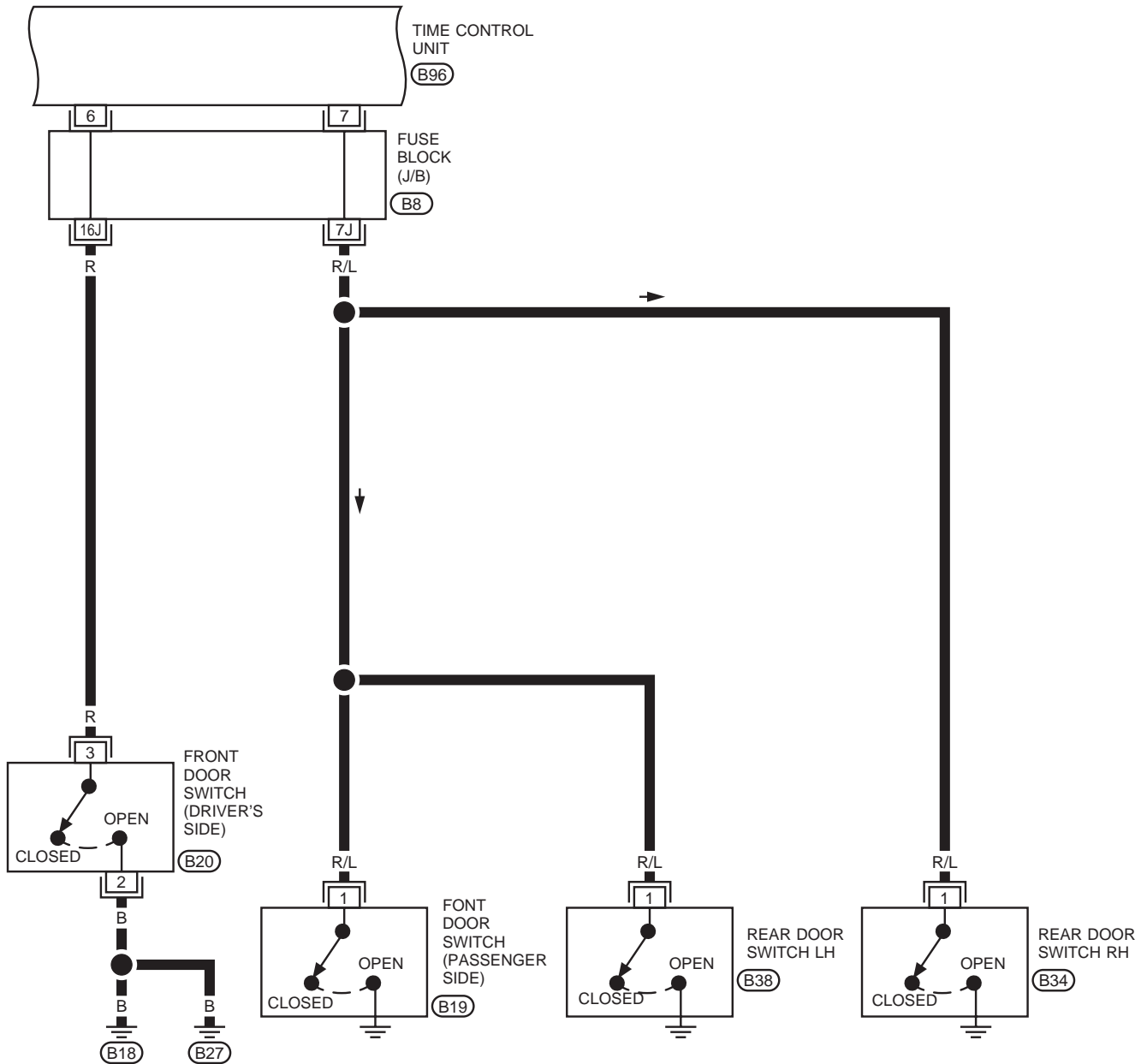
\* : This connector is not shown in "HARNESS LAYOUT" of EL section.

YEL612B

# MULTI-REMOTE CONTROL SYSTEM

## Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-02



REFER TO THE FOLLOWING  
 (B8) FUSE BLOCK - Junction Box (J/B)

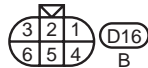
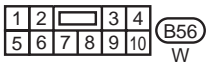
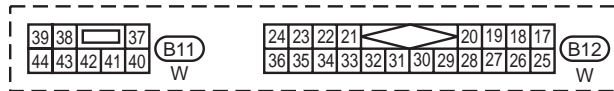
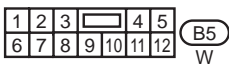
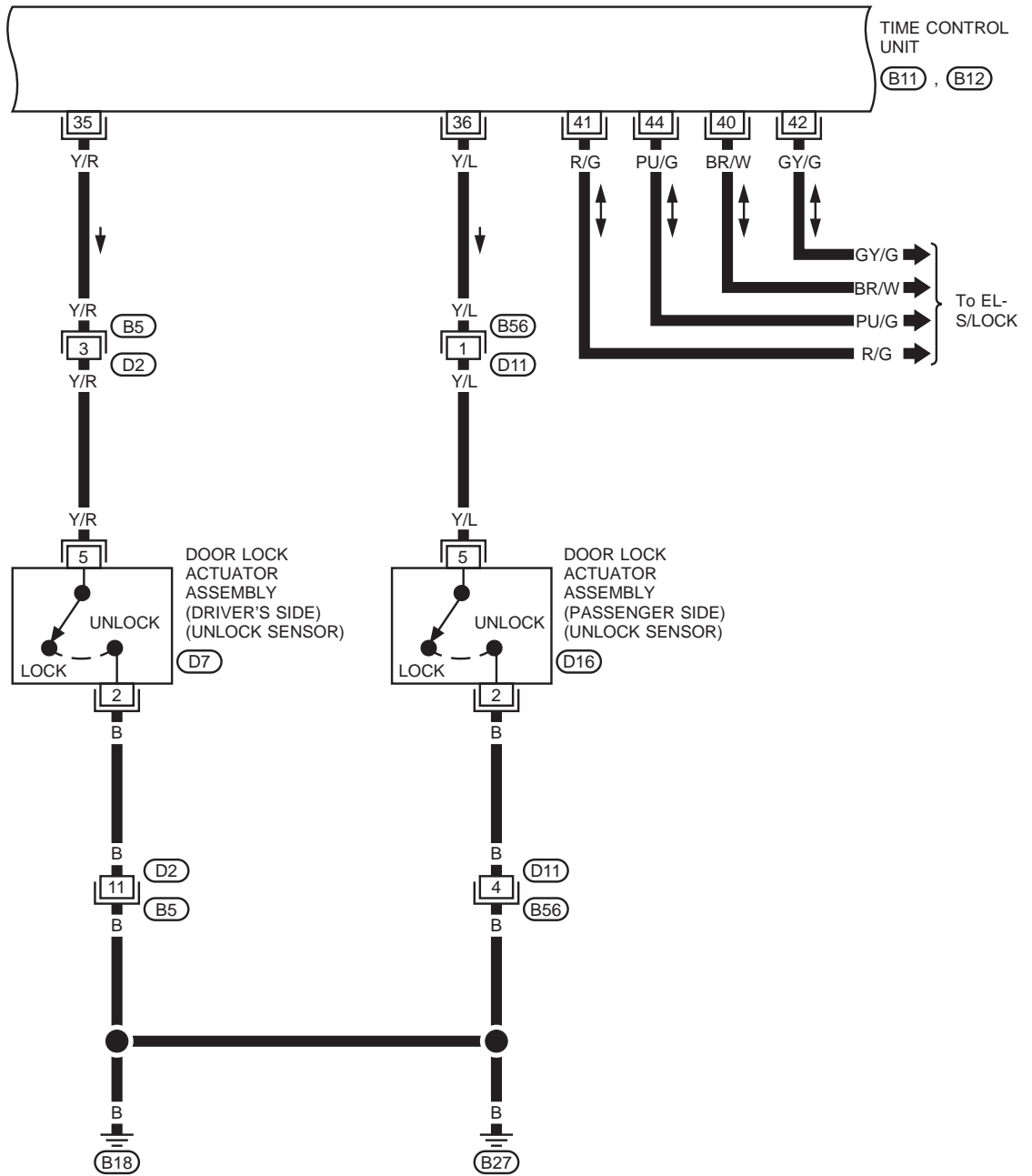
\* : This connector is not shown in "HARNESS LAYOUT" of EL section.

YEL613B

# MULTI-REMOTE CONTROL SYSTEM

## Wiring Diagram — MULTI — (Cont'd)

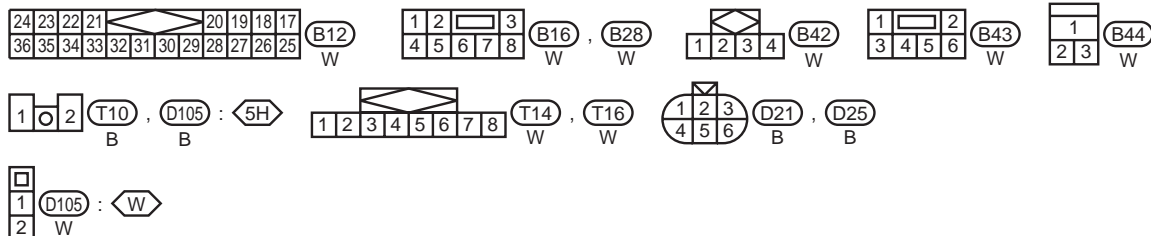
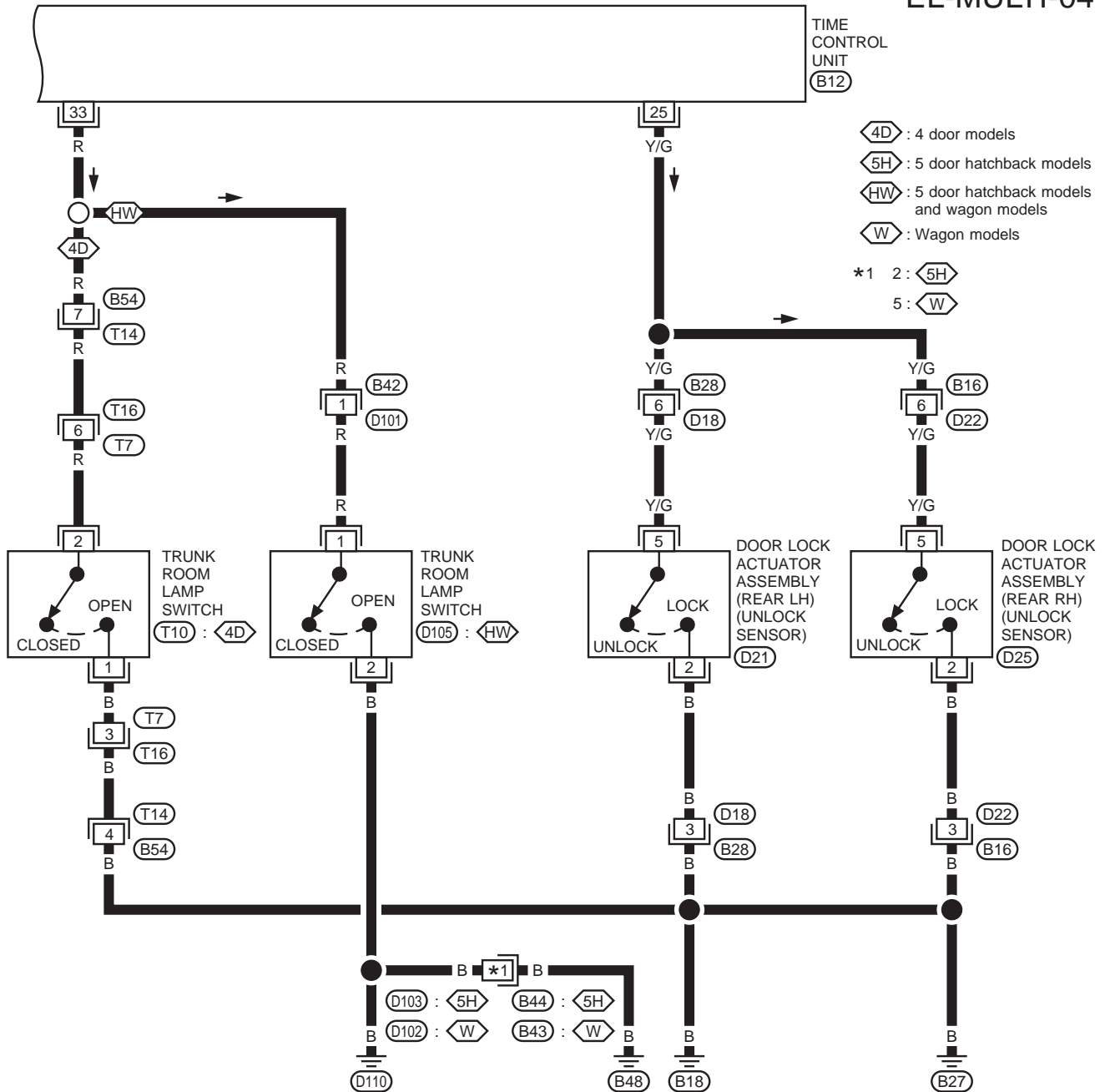
EL-MULTI-03



YEL614B

## Wiring Diagram — MULTI — (Cont'd)

EL-MULTI-04



YEL615B

## MULTI-REMOTE CONTROL SYSTEM

### Trouble Diagnoses

If no doors can not be unlocked by remote controller operation then the following procedure is required.

A) Unlock the vehicle by a mechanical key in the drivers door key cylinder.

Note: this may cause the alarm to sound.

B) Put the key in ignition, turn to ON position for at least five seconds. Assuming the ignition key contains a valid transponder then a signal will be generated by the immobilizer which will disarm the alarm and allow key learn mode to be entered.

C) Turn ignition OFF and wait for ten seconds.

### SYMPTOM CHART

Symptom	Possible cause	Diagnoses/service order
No doors can be locked or unlocked by remote control operation.	1. Remote controller battery 2. Power door lock system 3. Key switch (insert) 4. Door switch 5. Power supply circuit for time control unit 6. Ground circuit for time control unit 7. Remote controller	1. Check remote controller battery. Refer to EL-241. 2. Check that power door lock operates properly. If NG, check power door lock. 3. Check key switch (insert) signal at terminal ②② of time control unit. 4. Check door switch signal at terminals ⑥ and ⑦ of time control unit. 5. Make sure battery voltage is present at terminal ⑨ of time control unit. 6. Check continuity between terminal ①⑥ of time control unit and ground. 7. Replace remote controller. Refer to EL-242.
The new ID of remote controller cannot be entered.	1. Remote controller battery 2. Key switch (insert) 3. Door switch 4. Driver's door unlock sensor 5. Ignition ON power supply circuit for time control unit 6. Remote controller	1. Check remote controller battery. Refer to EL-241. 2. Check key switch (insert) signal at terminal ②⑨ of time control unit. 3. Check door switch signal at terminals ⑥ and ⑦ of time control unit. 4. Check driver's door unlock sensor signal at terminal ③⑤ of time control unit. 5. Make sure battery voltage is present at terminal ① of time control unit while ignition switch is in ON position. 6. Replace remote controller. Refer to EL-242.

Refer to "TIME CONTROL UNIT INSPECTION TABLE" on next page to check the control unit signals.

#### NOTE:

- The unlock operation of multi-remote control system does not activate with key inserted in the ignition key cylinder.
- The lock operation of multi-remote controller does not activate with the key inserted ignition key cylinder or if one of the door is opened.

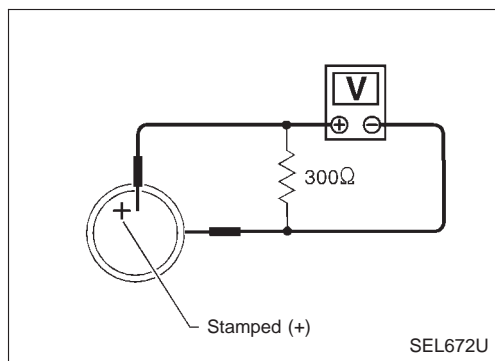


## MULTI-REMOTE CONTROL SYSTEM

### Trouble Diagnoses (Cont'd)

#### TIME CONTROL UNIT INSPECTION TABLE

Terminal No.	Wire color	Connections	Operated condition	Voltage (V) (approximate values)
1	—	Ignition switch (ON)	Ignition key "ON" position	12V
5	—	Driver door switch	OFF (Closed) → ON (Open)	12V → 0V
7	—	All door switches	OFF (Closed) → ON (Open)	12V → 0V
8	—	Power source (C/B)	—	12V
9	—	Power source (Fuse)	—	12V
16	—	Ground	—	12V
22	BR	Ignition key switch (Insert)	Key inserted → key removed from IGNB key cylinder	12V → 0V
25	Y/G	Rear door unlock sensors	Rear doors: Locked → Unlocked	0V → 12V
33	R	Trunk or luggage room lamp switches	OFF (Closed) → ON (Open)	12V → 0V
35	Y/R	Driver door unlock sensor	Driver door: Locked → Unlocked	0V → 12V
36	Y/L	Passenger door unlock sensor	Passenger door: Locked → Unlocked	0V → 12V



#### REMOTE CONTROLLER BATTERY CHECK

Remove battery and measure voltage across battery positive and negative terminals, ⊕ and ⊖.

Measuring terminal		Standard value
⊕	⊖	
Battery positive terminal ⊕	Battery negative terminal ⊖	2.5 - 3.0V

#### Note:

**Remote controller does not function if battery is not set correctly.**

# MULTI-REMOTE CONTROL SYSTEM

## ID Code Entry Procedure

### Activation of the registration mode:

The vehicle must have been unlocked by either the multi-remote controller or a transponder OK signal (TPOK) from the vehicle's immobilizer.

Preparation:

- Make sure all doors unlock.
- Make sure all multi-remote controllers to be registered are available.
- Make sure the batteries of all multi-remote controllers are in a good condition.
- Make sure all transmitting sources are out of the neighbourhood of the vehicle .
- Make sure the battery of the vehicle is in a good condition.

Switch ignition-switch exactly six times from the "LOCK" to the "ON" position within 10 seconds and return the ignition switch to the "LOCK" position (leaving the key in the ignition switch).

After 2 seconds the registration mode is activated. The turn signal lamps will flash twice.

NG

OK

Proceed with the registration mode.

#### NOTE

The registration mode is operated when:

- The ignition-switch is turned to the "ON" position.
- 4 multi remote controllers have been learned.
- No multi-remote controller or ignition switch input is received within 120 seconds.

### Registration mode

Press and hold the "UNLOCK" button of the multi-remote controller.

Press the "LOCK" button 3 times.

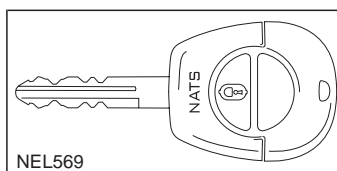
Release the "UNLOCK" button.

Do you want to register another multi-remote controller? (max. 4)

No

Yes

After registration of the requested No. of multi-remote controller(s), confirm the ID-code(s) by switching the ignition switch to the "ON" position.



If the multi-remote controller code is registered correctly, the turn signal lamp will flash once.

NG

OK

If the multi-remote controller registration is performed correctly, the turn signal lamp will flash twice.

OK

NG

Take the ignition key out of the ignition switch and confirm the functioning of all multi-remote controllers by locking and unlocking the vehicle with each of the multi-remote controllers.

End

### **System Description**

The TCU has the following functions.

#### **INTERIOR LAMP TIMER**

The interior lamp timer is controlled by the TCU.

For further information, refer to "INTERIOR, SPOT, VANITY MIRROR AND LUGGAGE ROOM LAMPS" (EL-123).

#### **IGNITION KEY WARNING CHIME AND LIGHT WARNING CHIME**

The ignition key and light warning chime are controlled by the TCU.

For further information, refer to "WARNING CHIME" (EL-148).

#### **REAR WINDOW DEFOGGER TIMER**

The rear window defogger and door mirror defogger system are controlled by the TCU.

For further information, refer to "REAR WINDOW DEFOGGER AND DOOR MIRROR DEFOGGER" (EL-173).

#### **POWER DOOR LOCK (Super Lock)**

The power door lock (super lock) is controlled by the TCU.

For further information, refer to "POWER DOOR LOCK — Super Lock" (EL-209)

#### **MULTI-REMOTE CONTROL SYSTEM**

The multi-remote control system is controlled by the TCU.

For further information, refer to "MULTI-REMOTE CONTROL SYSTEM" (EL-234).

#### **THEFT WARNING SYSTEM**

The theft warning system is controlled by the TCU.

For further information, refer to "THEFT WARNING SYSTEM" (EL-248).

## TIME CONTROL UNIT (TCU)

### System Description (Cont'd)

#### FUNCTION

- The TCU has the following control functions.

Item		Details of control
Direction indicators		Switches the direction indicators (Left, Right or All) when the combination switch or hazard switch is operated.
Trailer direction indicator buzzer		Sounds a buzzer during direction indicator operation when towing a trailer.
Light warning buzzer		Sounds warning buzzer when driver's door is opened with light switch in the 1st or 2nd position and ignition switch "OFF".
Ignition key warning buzzer		Sounds warning buzzer when driver's door is opened with key in ignition and the driver door lock knob is moved from the "unlock" position to the "lock" position.
Rear window defogger timer		Turn off rear window defogger and door mirror heater, if equipped, about 15 minutes after the rear window defogger switch is turned "ON".
Battery saver		Shuts off interior lamp in 30 minutes if any door is left open when ignition switch is "OFF". The battery saver will reset if ignition switch is cycled or any door is opened or closed.
Interior lamp timer		<p>Keep interior lamp illuminated for about 30 seconds when:</p> <ul style="list-style-type: none"> <li>● driver's door is unlocked,</li> <li>● the ignition is switched off,</li> <li>● driver's door is opened and then closed.</li> </ul> <p>The timer is cancelled, and interior lamp turns off when:</p> <ul style="list-style-type: none"> <li>● driver's door is locked, or</li> <li>● ignition switch is turned "ON".</li> </ul>
Theft warning system	Normal operation	Monitors doors, hood, boot lid, door locks, volumetric sensors (if not excluded), ignition and glass break sensors (wagon) when armed. Flashes the direction indicators and sounds the horn for 30 seconds in case one of the monitored sensors is triggered.
	Diagnostic mode	Indicates the last three alarm triggers by flashing the direction indicators.
Central door lock		Centrally locks and unlocks the vehicle
Super lock		Activates and de-activates the super lock system.

#### REAR WINDOW DEFOGGER TIMER

The rear window defogger and door mirror defogger system are controlled by the TCU. With the ignition switch in the ON or START position, power is supplied

- to the rear window defogger relay
- to TCU terminal ①
- through 10A fuses [No. ⑤], located in the fuse block (J/B)].

Ground is supplied to terminal ⑭ of the rear window defogger switch through body grounds (M6), (M26) and (M28).

When the rear window defogger switch is ON, ground is supplied

- through terminal ⑯ of the rear window defogger switch
- to TCU terminal ③.

Terminal ⑬ of the TCU then supplies ground to the rear window defogger relay.

With power and ground supplied, the rear window defogger relay is energized to operate rear window defogger and door mirror defogger for about 15 minutes.

For further information, refer to REAR WINDOW DEFOGGER DOOR and MIRROR DEFOGGER (EL-173).

#### IGNITION KEY WARNING BUZZER

Ground is supplied to TCU terminal ⑥ through front driver's side door switch terminals ② and ③ when switch is in OPEN position from body grounds (B18) and (B27).

With the key in the ignition switch in the ACC or OFF position, and locking the driver's door from the inside, the warning buzzer will sound.

#### LIGHT WARNING BUZZER

Power is supplied at all times

- through 30A fusible link (letter ⑨, located in the fuse and fusible link box) (LHD models)
- through 15A fuse (No. ⑥⑥, located in the fuse and fusible link box) (RHD models)
- to lighting switch terminal ⑪.

Power is supplied at all times

- through 7.5A fuse [No. ④①, located in the fuse block (J/B)]
- to warning buzzer terminal ①.

With the ignition switch in the ON or START position, power is supplied

- through 7.5A fuse [No. ①②, located in the fuse block (J/B)]
- to BCM terminal ②⑨.

Ground is supplied to TCU terminal ⑥ through front driver's side door switch terminals ② and ③ when switch is in OPEN position from body grounds (B18) and (B27).

With the ignition switch in the ACC or OFF position, the driver's door OPEN, and the lighting switch in the 1st or 2nd position, the warning buzzer will sound.

#### INTERIOR LAMP TIMER

Power is supplied at all times

- through 10A fuse [No. ⑤], located in the fuse block (J/B)]
- to interior lamp terminal ①

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No. ②⑥, located in the fuse block (J/B)]
- to TCU terminal ①.

When the driver's door is unlocked, a door is opened and then closed, or the ignition is turned from "ON" to "Acc" or "LOCK", ground is supplied to the interior lamp terminal ② for approximately 30 seconds.

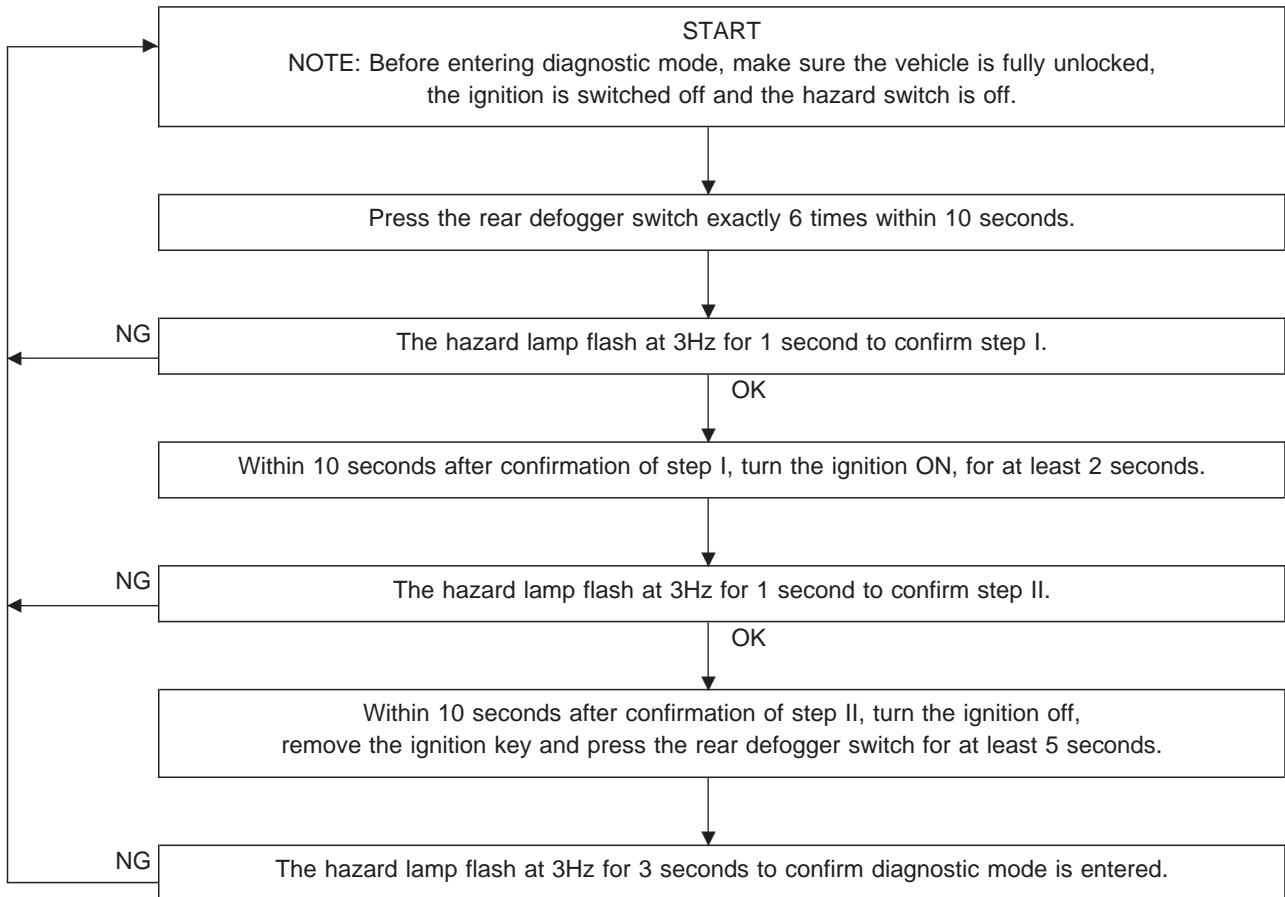
The 30 seconds timer will be cancelled if the ignition switch is turned to "ON", or the driver's door is locked.

### Trouble Diagnosis

The Timer Control Unit includes software to help during development testing, manufacturing and service. It allows the technician to put it into Diagnostic Mode. In this mode, all switch inputs can be tested for continuity and if so equipped, alarm triggers identified.

When the time control unit is in Diagnostic Mode, the control unit tests the component and indicate the result by the hazard lamp flashing.

On vehicles with a theft warning system, the TCU will first indicate the source of the last three alarm triggers by flashing the hazard lamp. (Refer to "THEFT WARNING SYSTEM", EL-248.)



## TIME CONTROL UNIT (TCU)

### Trouble Diagnosis (Cont'd)

#### Checks

Once in Diagnostic Mode (and after identifying the last three alarm triggers in case a theft warning system is equipped on the vehicle), the following inputs can be tested.

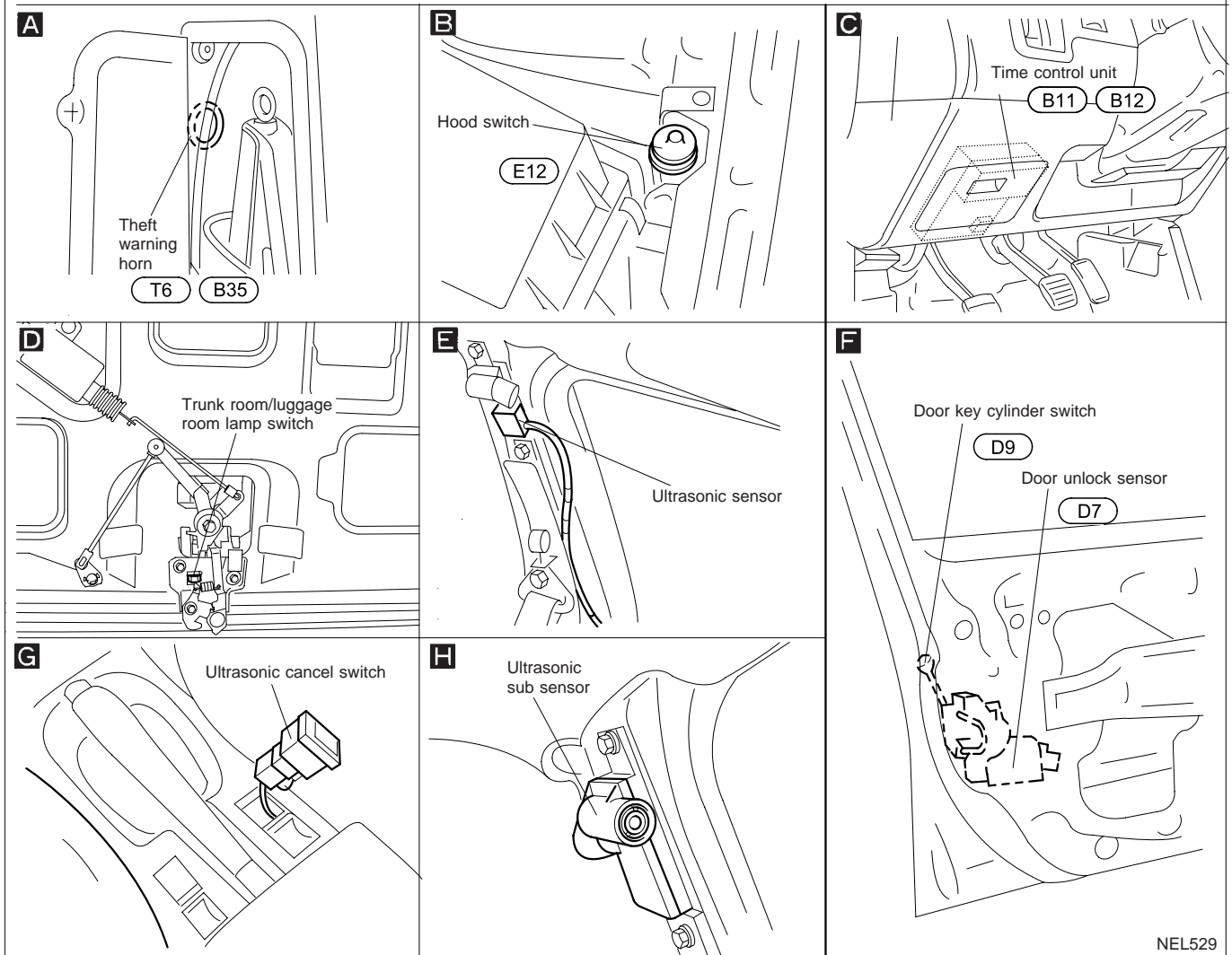
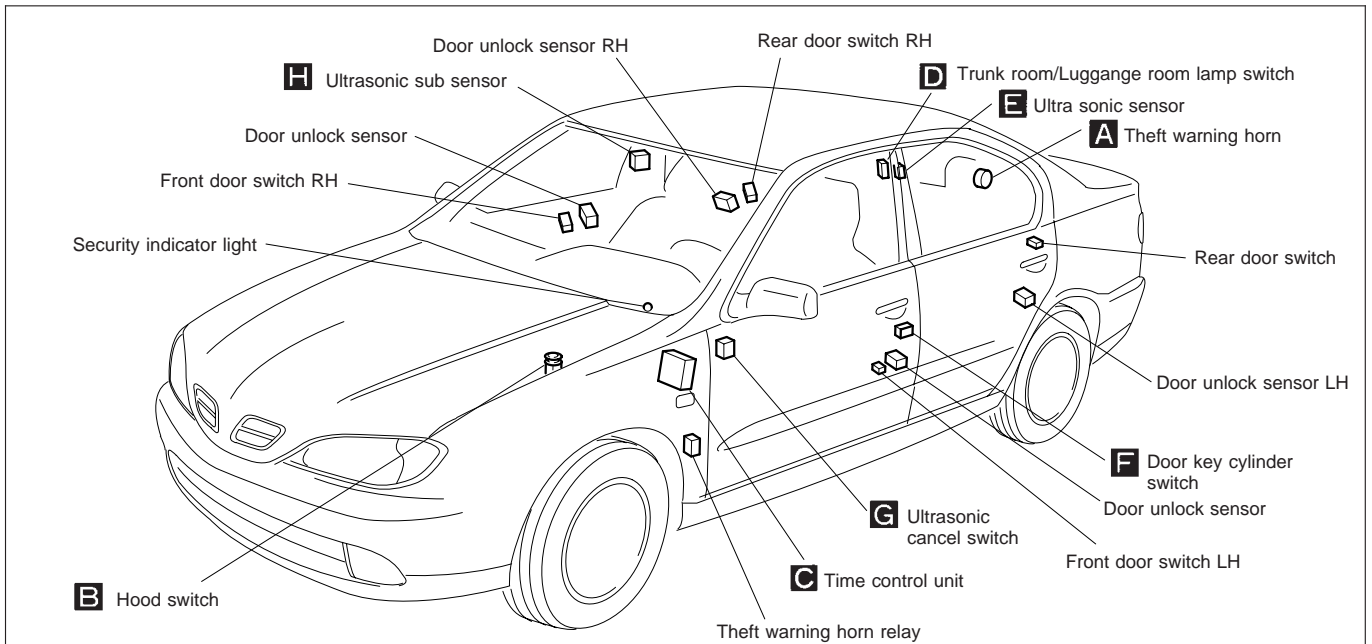
USER ACTION	TCU Reaction	COMPONENT TESTED
Driver's door opened from closed (all other doors closed)	Hazards flash once	Driver's door open signal
Passenger or rear door opened from closed (all other doors closed)	Hazards flash once	Door open signal for opened door
Driver's door locked from unlocked	Hazards flash once	Driver's door status signal
Passenger door locked from unlocked	Hazards flash once	Assist door status signal
Rear doors locked from unlocked (with ultrasonic model)	Hazards flash once	Rear doors status signal
Ultrasonics cancel switch is pressed (with ultrasonic model)	Hazards flash once	U/S cancel signal
Trunk or back door is opened from closed	Hazards flash once	Trunk open signal
Hood is opened from closed (with ultrasonic model)	Hazards flash once	Hood open signal
Hazard switch is pressed from off	Hazards flash once	Hazard switch signal
Turn signal switch is moved to left from off	Hazards flash once	Left turn signal
Turn signal switch is moved to right from off	Hazards flash once	Right turn signal
Key turned to lock position in door	Hazards flash once *	Key cylinder lock switch signal
Lighting switch turned 1st position or 2nd position from off	Hazards flash once	Tail lamp signal
Key put in ignition from out	Hazards flash once	Key in detect signal
Central unlock/Trunk release switch is pressed	Hazards flash once	Central unlock/Trunk release signal
External trunk release switch pressed from off	Hazards flash once	External trunk release switch signal

\*) Hazards may flash a second time because of Driver's door status signal change. The min. delay time between flash actions is 100ms.

In case the system does not operate as described above, check the concerned circuit for open or short. After completion, the Diagnostic Mode can be switched off by pressing the rear defogger switch or by turning the ignition to "ON". The hazard lamp will flash at 3Hz for 3 seconds to confirm that Diagnostic Mode has been switched off.

# THEFT WARNING SYSTEM

## Components Parts and Harness Connector Location



NEL529





# THEFT WARNING SYSTEM

## System Description (Cont'd)

### SETTING THE THEFT WARNING SYSTEM

#### Initial condition

- (1) Close all doors.
- (2) Close hood and trunk lid.

#### Pre-armed phase and armed phase

The theft warning system turns into the “pre-armed” phase when hood, trunk lid and all doors are closed and locked by key or multi-remote controller. (The security indicator lamp blinks intermittently for 30 seconds.)

After about 30 seconds, the system automatically shifts into the “armed” phase (the system is set).

### CANCELING THE SET THEFT WARNING SYSTEM

When the following (a) or (b) operation is performed, the armed phase is canceled.

- (a) Unlock the doors with the multi-remote controller.
- (b) Insert key in ignition key cylinder and turn it to ON. Then NATS IMMU will send a disarm signal to the time control unit.

### ACTIVATING THE ALARM OPERATION OF THE THEFT WARNING SYSTEM

Make sure the system is in the armed phase. When the following operation (a) (b) (c) (d) or (e) is performed, the system sounds the horns and flashes the hazard lamp for about 30 seconds.

- (a) Engine hood, trunk lid or any doors is opened before unlocking door with the multi-remote controller.
- (b) A door is unlocked without using the multi-remote controller.
- (c) The ignition is switched ON without using a NATS registered key.
- (d) The ultra sonic sensing is triggered.
- (e) A rear side or rear screen breakage is detected (Wagon).

### POWER SUPPLY AND GROUND CIRCUIT

Power is supplied at all times.

- Through 10A fuse [No. 16], located in the fuse block (J/B)]
- to security indicator lamp terminal ②.

Power is supplied at all times

- through 10A fuse [No. 5], located in the fuse block (J/B)]
- to time control unit terminal ⑨.

With the ignition switch in the ON or START position, power is supplied

- through 10A fuse [No. 26], located in the fuse block (J/B)]
- to time control unit terminal ①.

Ground is supplied

- to time control unit terminal ⑩.
- through body grounds (M6), (M28) and (M26).

### INITIAL CONDITION TO ARM THE SYSTEM

The operation of the theft warning system is controlled by all the doors, hood and trunk lid.

To activate the theft warning system, the time control unit must receive signals indicating all the doors, hood and trunk lid are closed and the doors are locked.

When a door is open, time control unit terminal ⑥ or ⑦ receives a ground signal from each door switch.

When a door is unlocked, time control unit terminal ②⑤, ③⑤ or ③⑥ receives a ground signal from terminal ⑤ of each door unlock sensor.

When the hood is open, time control unit terminal ③② receives a ground signal

- from terminal ① of the hood switch
- through body grounds (E11) and (E37).

When the trunk lid is open, time control unit terminal ③③ receives a ground signal

- from terminal ① of the trunk room lamp switch
- through body grounds (B18) and (B27).

When the back door, trunk or tail gate is open, time control unit terminal ③③ receives a ground signal

- from terminal ① of the luggage room lamp switch
- through body grounds (B48) and (D110).

## THEFT WARNING SYSTEM

### System Description (Cont'd)

#### THEFT WARNING SYSTEM ARMING (With key or remote controller used to lock doors)

If the key is used to lock doors, time control unit terminal ②⑨ receives a ground signal

- from terminal ② of the key cylinder switch
- through body grounds ⑧18 and ⑧27.

If this signal or lock signal from remote controller is received by the time control unit, the theft warning system will arm automatically.

When arming the theft warning system, time control unit terminal ①⑧ supplies ground intermittently to terminal ① of the security indicator lamp. The security lamp will blink intermittently for approximately 30 seconds (and then blink every 2.6 seconds, due to NATS).

Now the theft warning system is in armed phase.

#### THEFT WARNING SYSTEM ALARM OPERATION

The theft warning system is triggered by

- opening a door
- opening the trunk lid or back door
- opening the hood
- unlocking door without using the multi-remote controller
- switching the ignition ON without a NATS registered key
- triggering the ultra sonic sensors
- smashing the back door or rear side quarter window (wagon model only).

Once the theft warning system is in armed phase, if the time control unit receives a signal at terminal ②⑤, ③⑤, ③⑥ (door unlock sensor), ⑥, ⑦ (door switch), ③③ (trunk room lamp switch or luggage room lamp switch), ③② (hood switch), ③① (smash sensor) or ①⑦ (ultra sonic sensor) the theft warning system will be triggered. The hazard lamps flash and the horn sounds intermittently.

Power is supplied at all times

- through 10A fuse [No. 16], located in the fuse block (J/B).
- to theft warning relay terminal ②.

If the theft warning system is triggered, ground is supplied

- from terminal ④③ of the time control unit
- to theft warning relay terminal ①.

The hazard lamps flash and the horn sounds intermittently.

The alarm automatically turns off after 30 seconds but will reactivate if the vehicle is tampered with again, or if the initial cause remains present.

#### THEFT WARNING SYSTEM ALARM DISARMING

The theft warning system alarm operation can be deactivated by either unlocking the vehicle with the remote controller, or turning the ignition to the "ON" position with a registered NATS key.

#### SMASH SENSOR

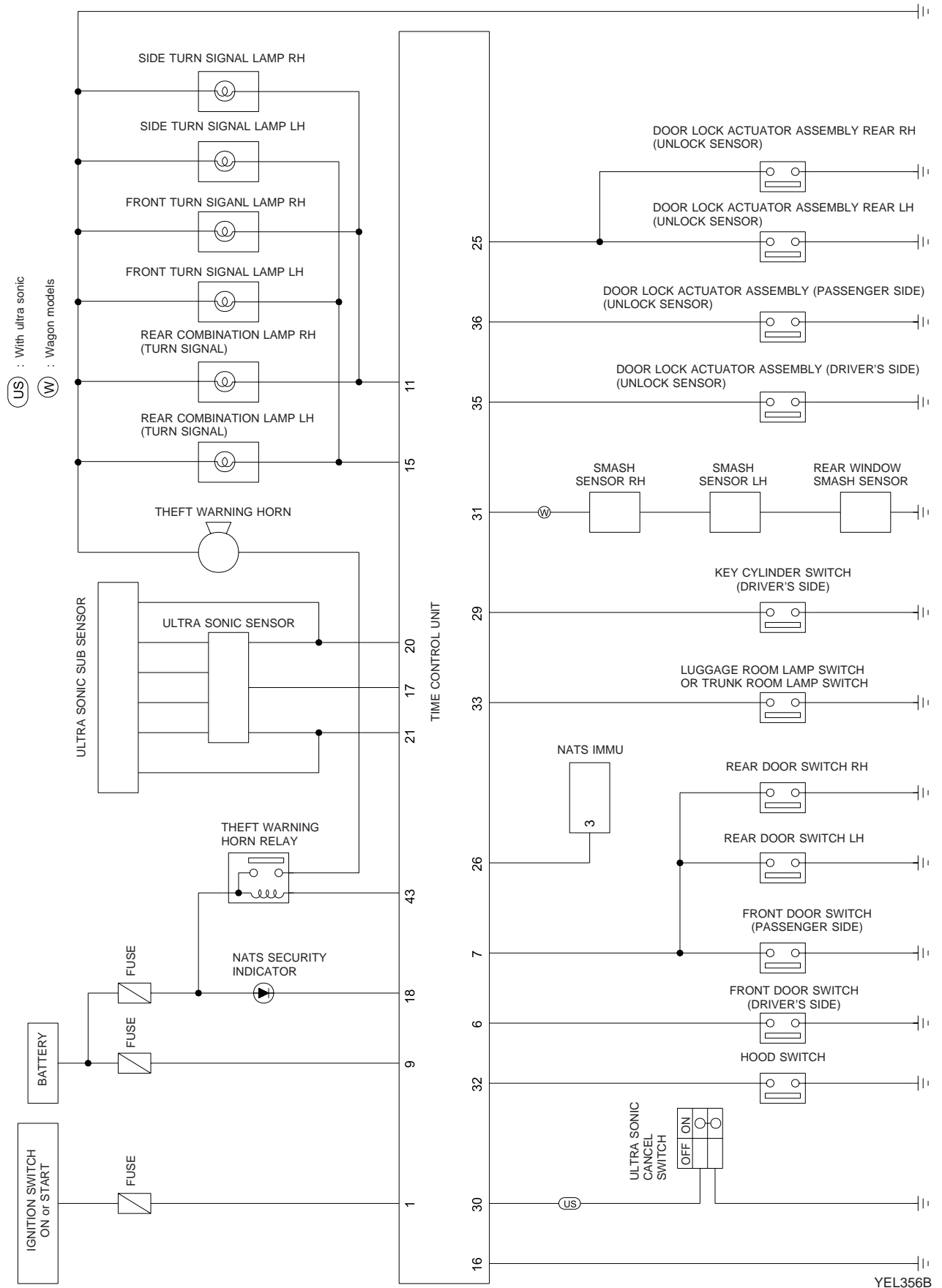
The smash sensor will trigger the alarm when the rear side or rear screen is broken. There are three windshield protected:

1. Back door window. Sensor circuit is bonded to the glass.
2. Rear side quarter windows (one each side). Sensor circuit is bonded to the glass.

All three sensor are wired in series. By breaking any of the three windshields (sensor circuit open), the alarm will sound.

# THEFT WARNING SYSTEM

## Schematic



# THEFT WARNING SYSTEM

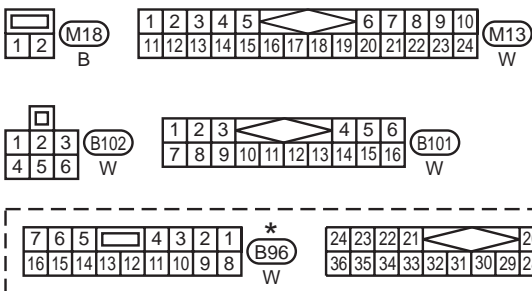
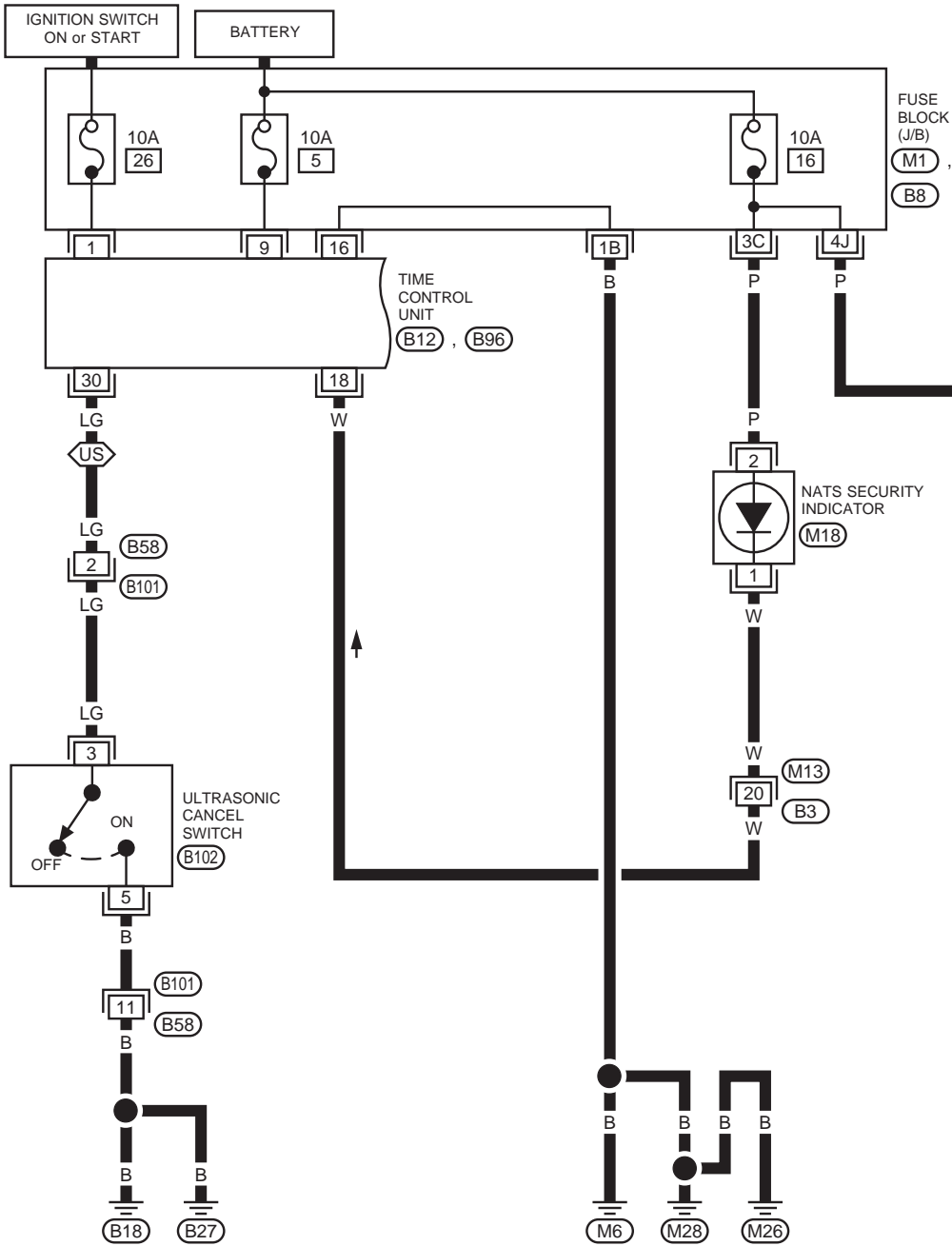
## Wiring Diagram — THEFT —

EL-THEFT-01

⬡ : With ultrasonic

Refer to EL-POWER

To EL-THEFT-04



★ : This connector is not shown in "HARNESS LAYOUT" of EL section.

REFER TO THE FOLLOWING

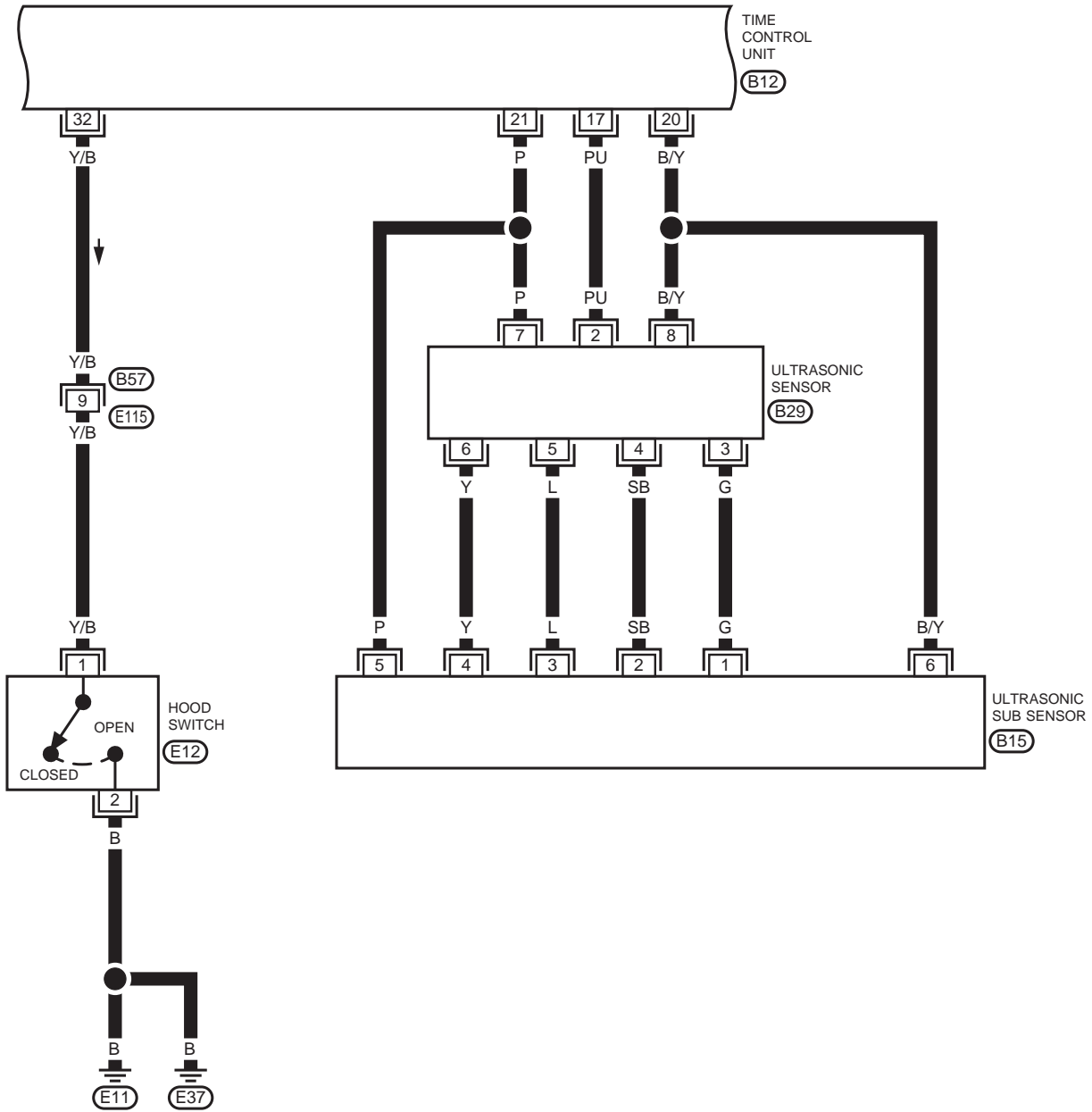
- (M1) FUSE BLOCK - Junction Box (J/B)
- (B8) FUSE BLOCK - Junction Box (J/B)

YEL357B

# THEFT WARNING SYSTEM

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-02

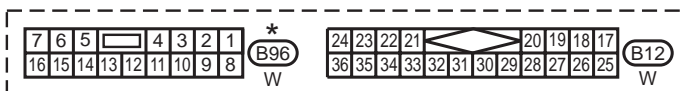
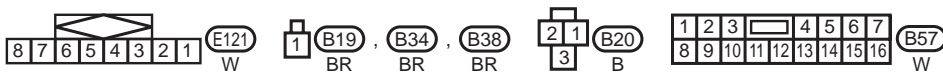
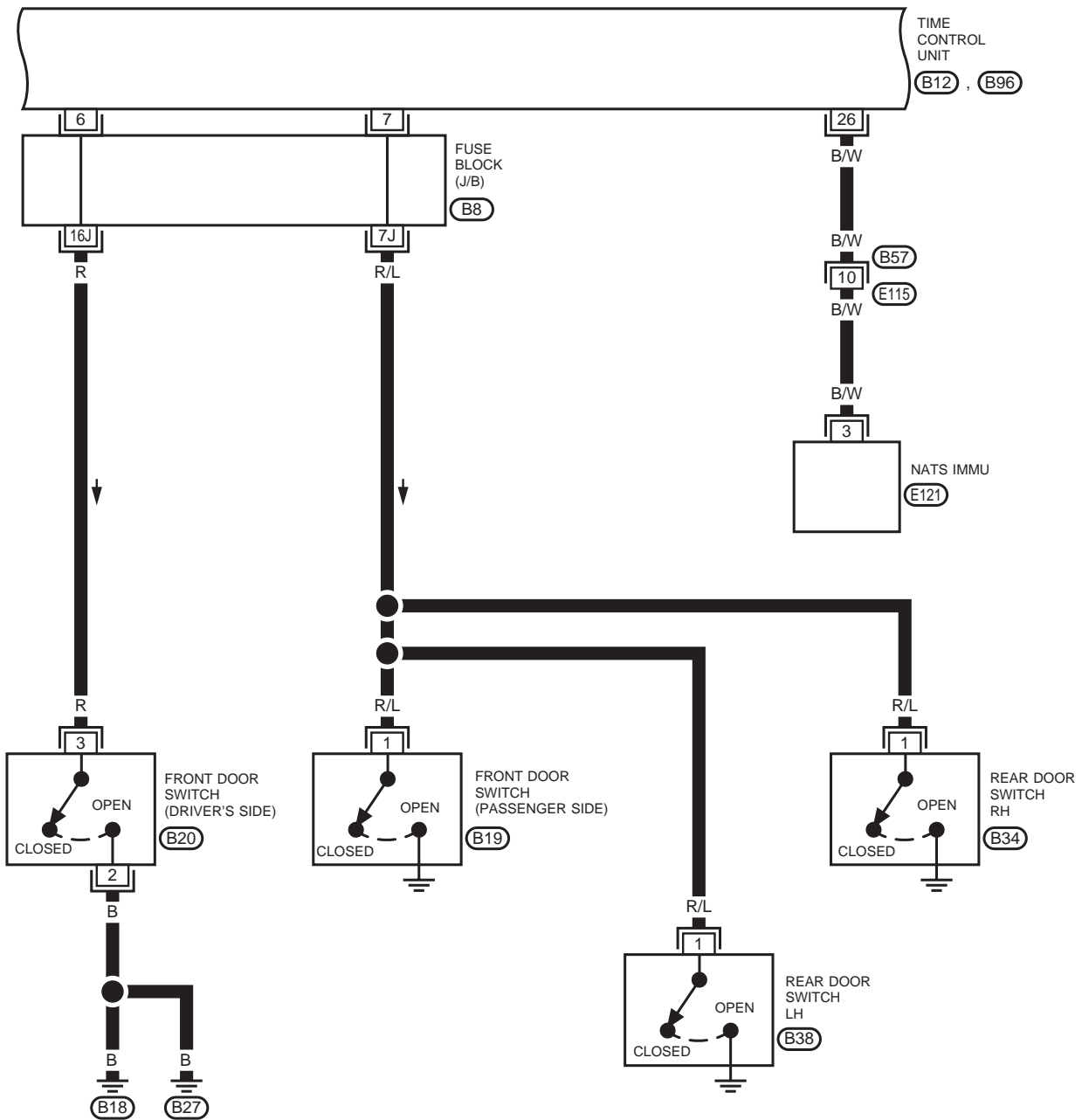


YEL358B

# THEFT WARNING SYSTEM

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-03



★ : This connector is not shown in "HARNESS LAYOUT" of EL section.

REFER TO THE FOLLOWING

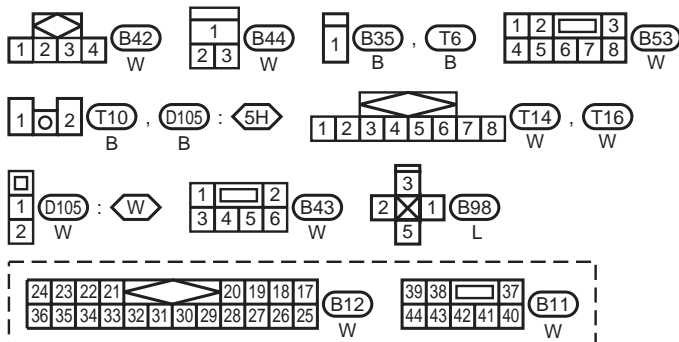
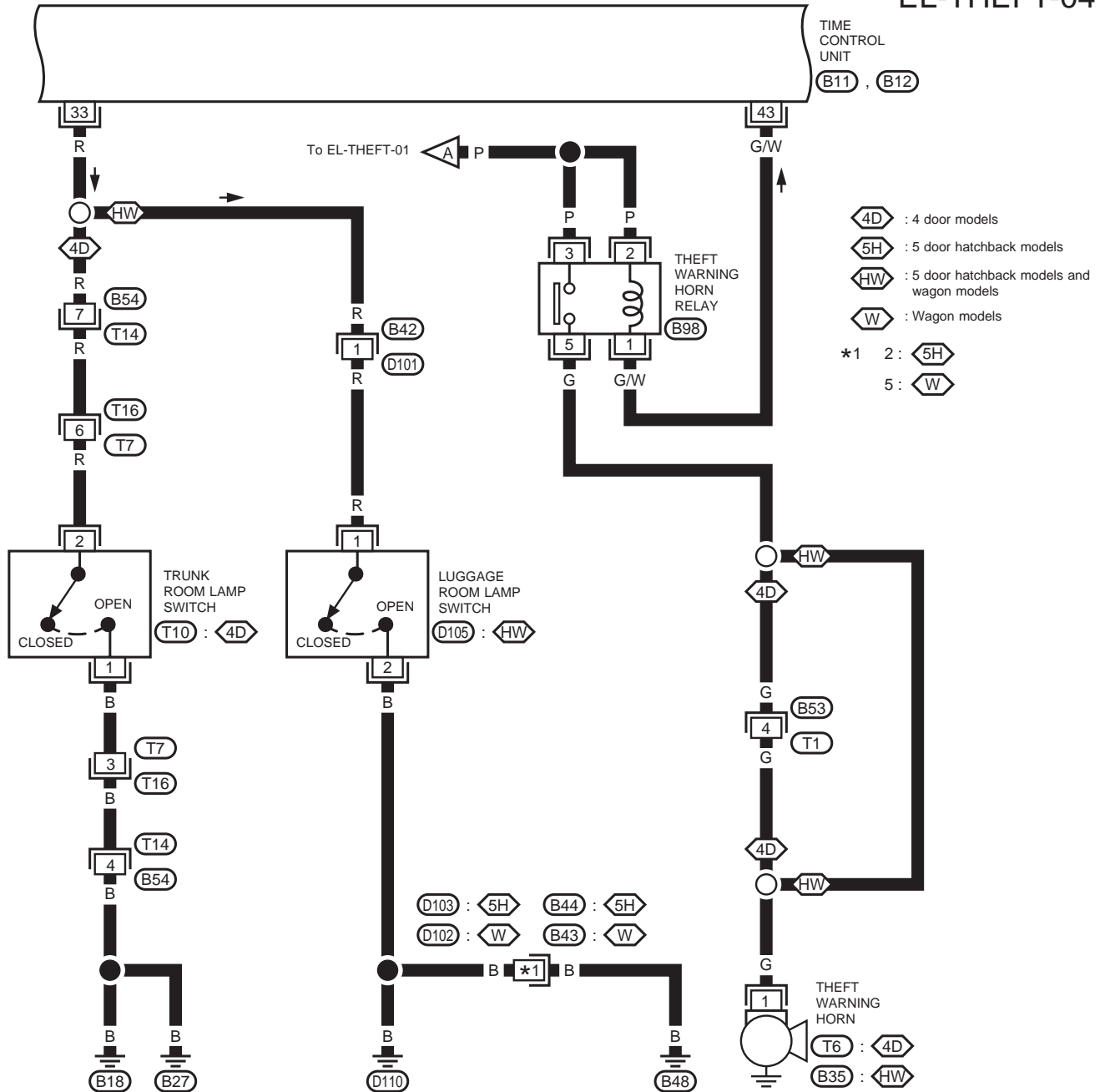
(B8) FUSE BLOCK - Junction Box (J/B)

YEL359B

# THEFT WARNING SYSTEM

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-04



YEL360B

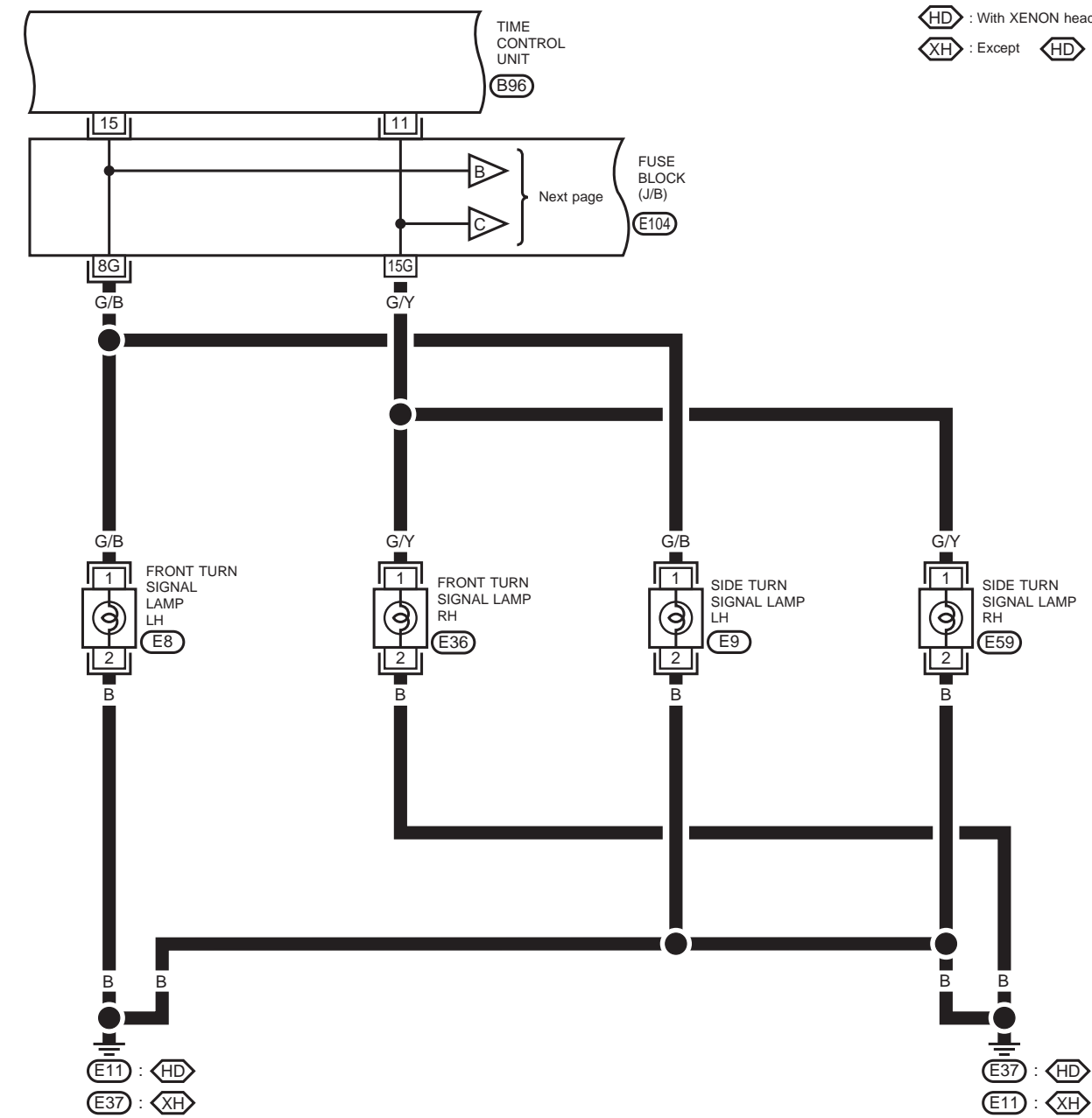


# THEFT WARNING SYSTEM

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-05

HD : With XENON headlamp  
XH : Except HD



REFER TO THE FOLLOWING

E104 FUSE BLOCK - Junction Box (J/B)

1 2 E8 , E36  
GY GY

1 2 E9 , E59  
B B

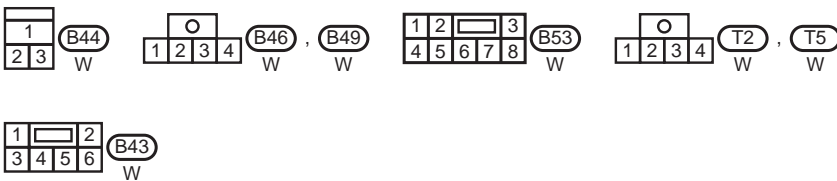
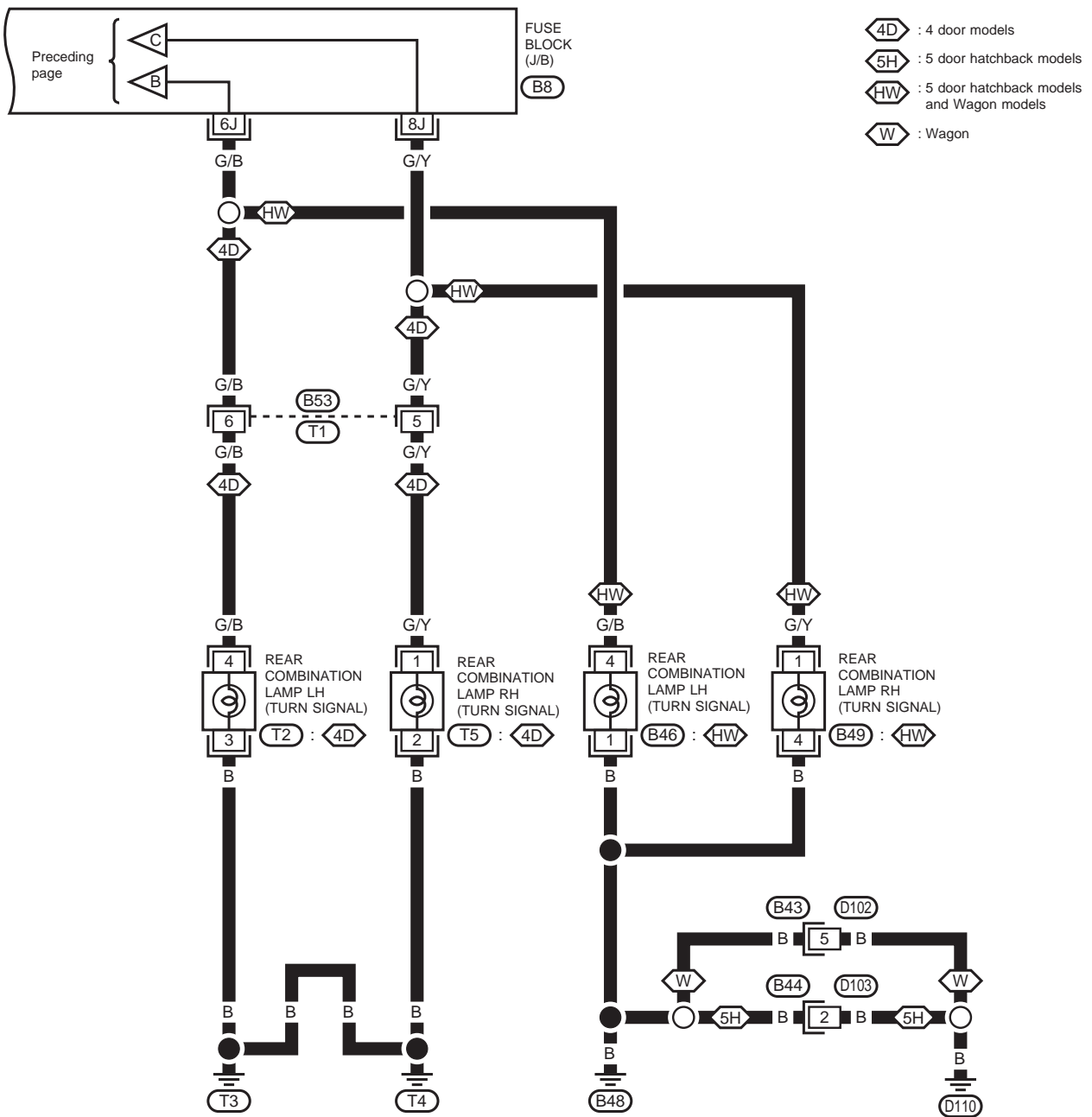
7 6 5 4 3 2 1 \*  
16 15 14 13 12 11 10 9 8 B96  
W

\* : This connector is not shown in "HARNESS LAYOUT" of EL section.

# THEFT WARNING SYSTEM

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-06



REFER TO THE FOLLOWING

B8 FUSE BLOCK - Junction Box (J/B)

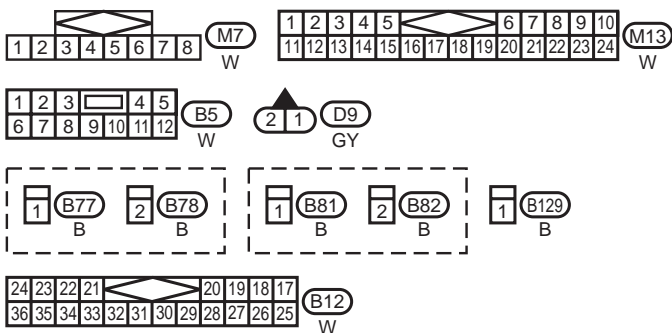
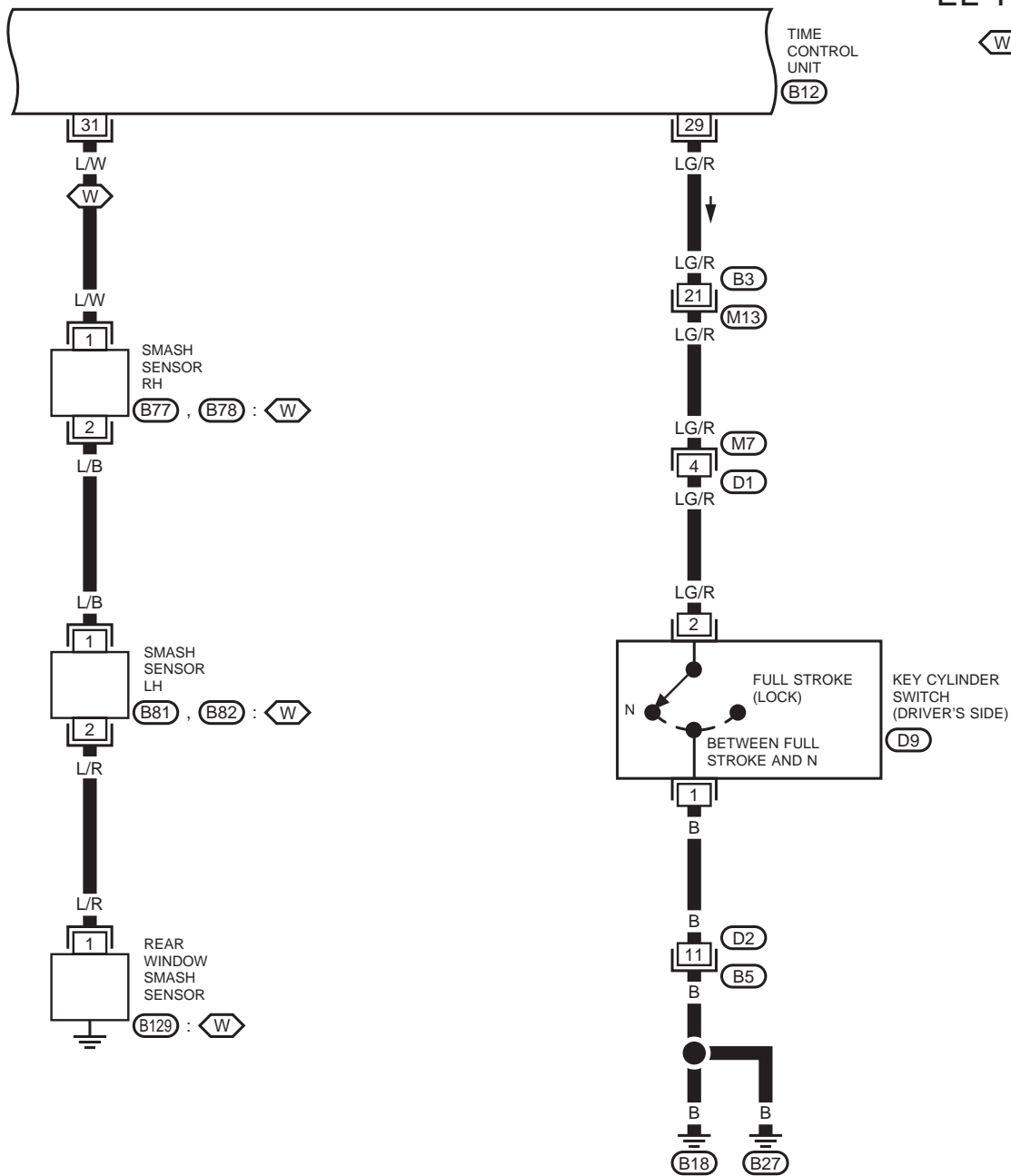
YEL362B

# THEFT WARNING SYSTEM

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-07

W : Wagon models

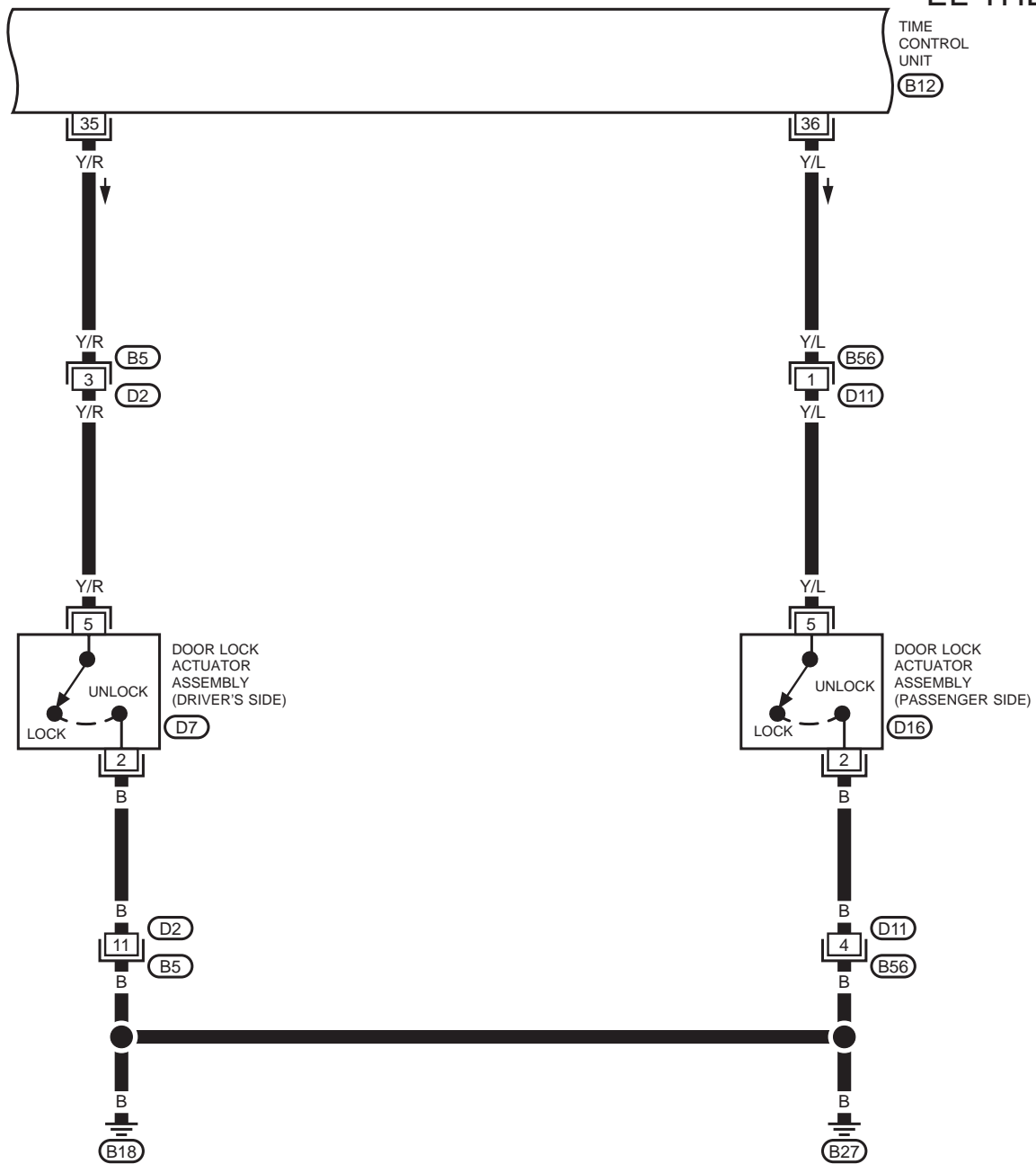


YEL363B

## Wiring Diagram — THEFT — (Cont'd)

## Wiring Diagram — THEFT — (Cont'd)

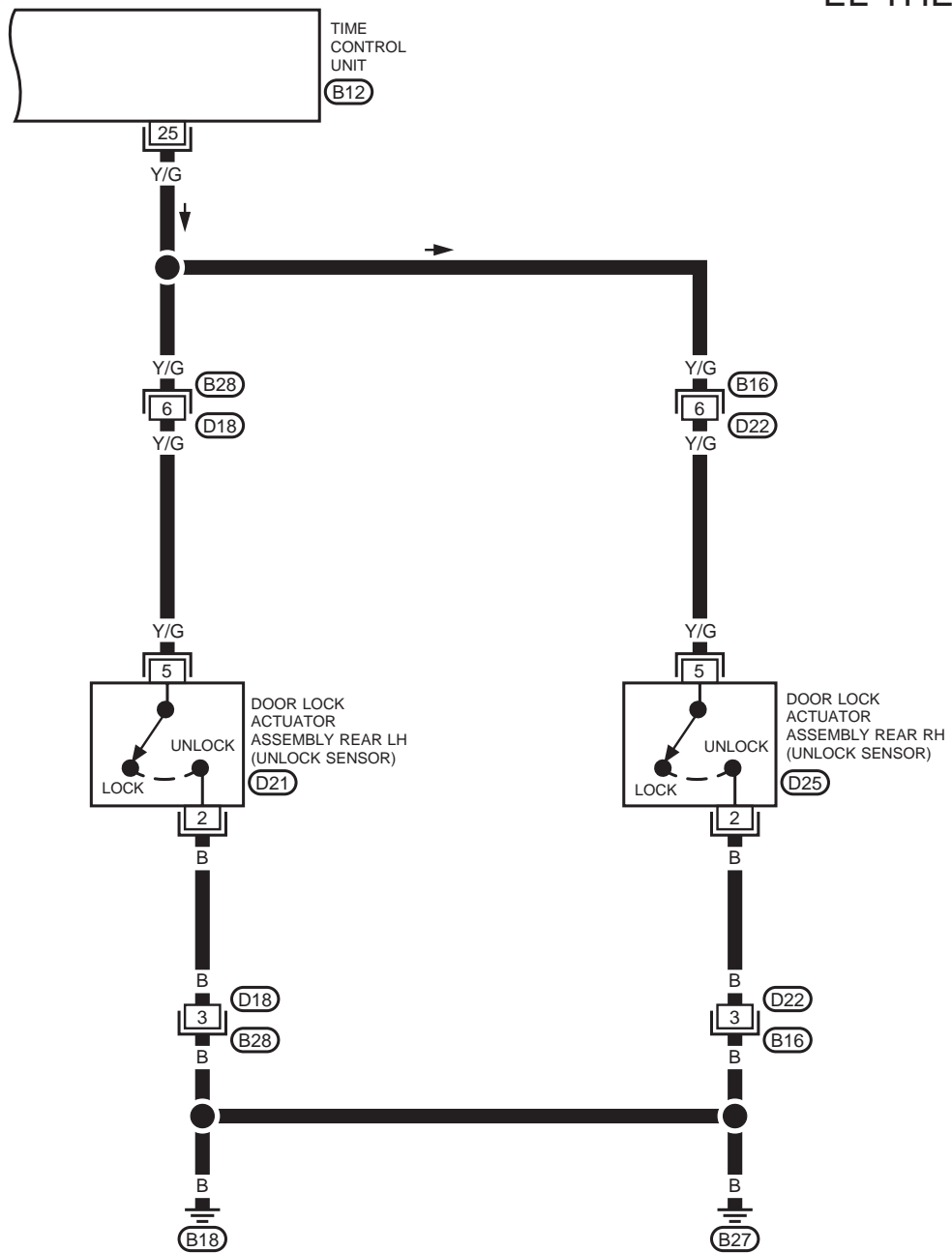
EL-THEFT-08



# THEFT WARNING SYSTEM

## Wiring Diagram — THEFT — (Cont'd)

EL-THEFT-09



YEL365B

## THEFT WARNING SYSTEM

### Trouble Diagnoses

#### Alarm Trigger Feedback

To verify the last three triggers that activated the theft warning system, the Time Control Unit (TCU) can be switched into Diagnostic Mode (see page EL-246 how to enter Diagnostic Mode).

Approximately 2 seconds after the TCU has finished flashing the hazard lamp to confirm that the Diagnostic Mode has been successfully entered, the TCU will generate a short beep indicating the trigger that will be displayed. A single beep means the most recent trigger, three beeps means the oldest trigger. Following each beep or group of beeps, the hazard lamp will flash to indicate the alarm trigger.

Source of Alarm Trigger	Number (of flashes)
Driver's door lock status switch	1
Passenger door lock status switch	2
Rear door lock status switch	3
Ignition line	4
Driver's door open switch	5
Other door open switch	6
Trunk or back door open switch	8
Hood switch	9
Ultra sonic sensors	10
Smash sensor (Wagon vehicles)	11

In case there have been no alarm triggers, there will be no indicator flashes between the audible signals. After completing the alarm trigger feedback, the TCU will enter Diagnostic Mode as described on page EL-246.

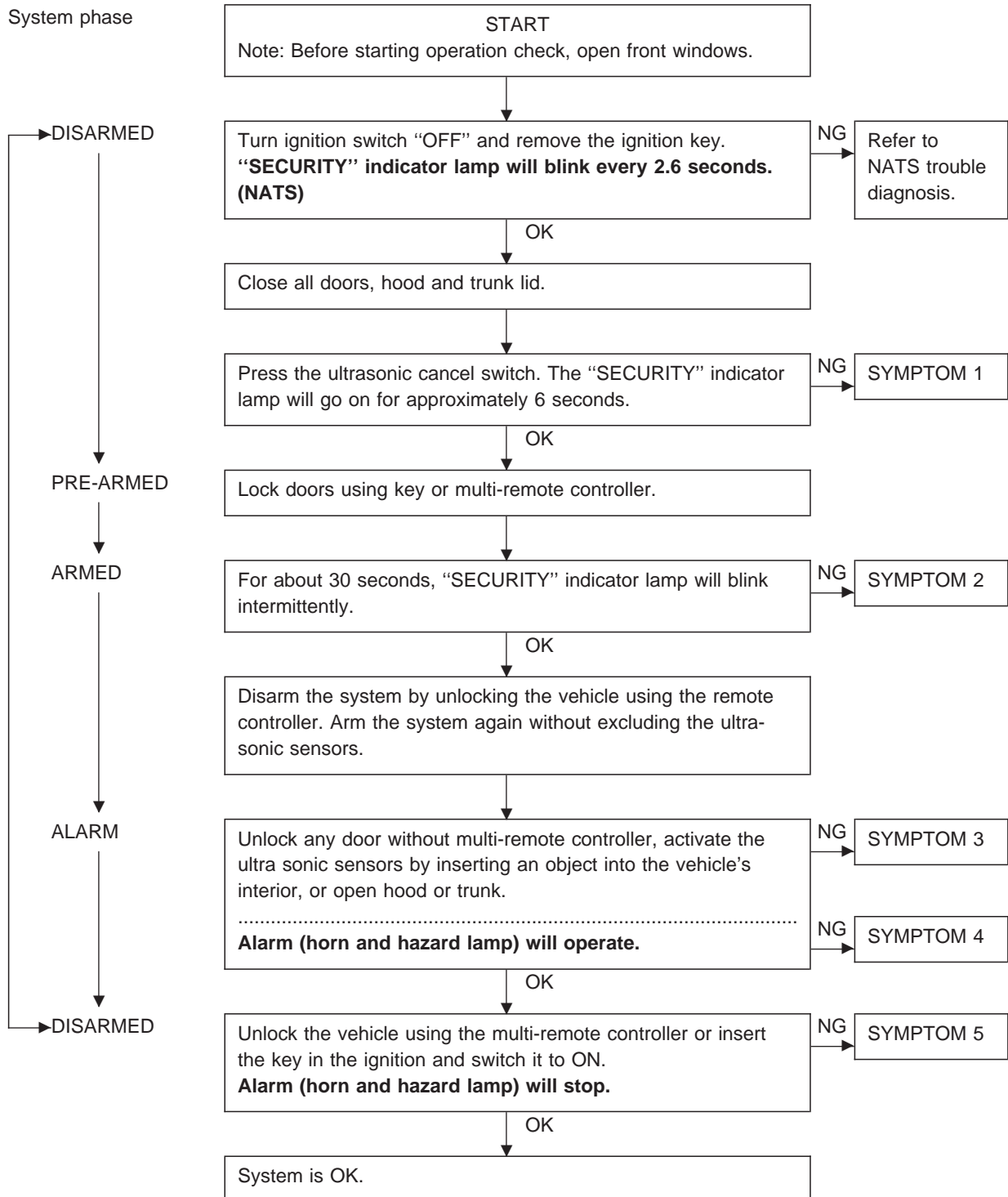
Before continuing trouble diagnoses on the next page, perform the checks as mentioned in the table on page EL-247.

# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

### PRELIMINARY CHECK

The system operation is canceled by turning the ignition switch to "ON" at any step between START and ARMED in the following flow chart.



After performing preliminary check, go to symptom chart on next page.

# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

**Before starting trouble diagnoses below, perform preliminary check, EL-263.**

Symptom numbers in the symptom chart correspond with those of Preliminary check.

### SYMPTOM CHART

Procedure		—	Power supply and ground circuit check			Diagnostic procedure						—	—
REFERENCE PAGE		EL-263	EL-265	EL-265	EL-266	EL-269	EL-270	EL-271	EL-272	EL-273	EL-274	EL-234	EL-275
SYMPTOM		Preliminary check	Power supply circuit check	Ground circuit check	Diagnostic Procedure 1 (Door, hood and trunk room lamp switch check)	Diagnostic Procedure 2 (Security indicator lamp check)	Diagnostic Procedure 3 (Door unlock sensor check)	Diagnostic Procedure 4 (Door key cylinder switch check)	Diagnostic Procedures 5 (Smash sensor check)	Diagnostic Procedure 6 (Theft warning horn alarm check)	Diagnostic procedure 7 (Hazard lamp alarm check)	Check "MULTI-REMOTE CONTROL" system.	Check "NATS (Nissan Anti-Theft system)".
1	Security indicator does not turn "ON" or blinking.	X	X	X		X							
2	Theft warning system cannot be set by...	All items	X	X	X		X						
		Door out side key	X	X	X			X					
		Multi-remote control	X	X	X							X	
3	*1 Theft warning system does not alarm when...	Any door is opened.	X	X	X	X							
		Any door is unlocked without using key or multi-remote controller	X	X	X		X						
		Glass breakage is detected (Wagon)	X	X	X				X				
4	Theft warning alarm does not activate.	All function	X	X	X	X	X						
		Horn alarm	X	X	X					X			
		Hazard lamp	X	X	X						X		
5	Theft warning system cannot be canceled by...	Turning the ignition ON *2	X	X	X								X
		Multi-remote controller	X	X	X							X	

X: Applicable

\*1: Make sure the system is in the armed phase.

\*2: Make sure the key is NATS registered.

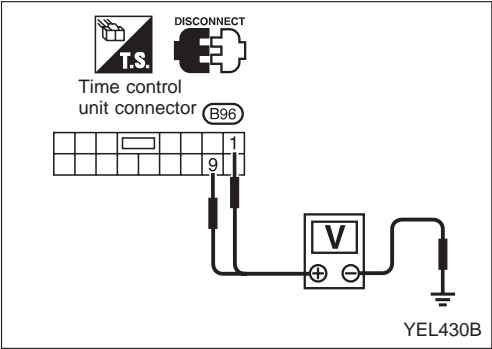


THEFT WARNING SYSTEM

Trouble Diagnoses (Cont'd)  
POWER SUPPLY AND GROUND CIRCUIT CHECK

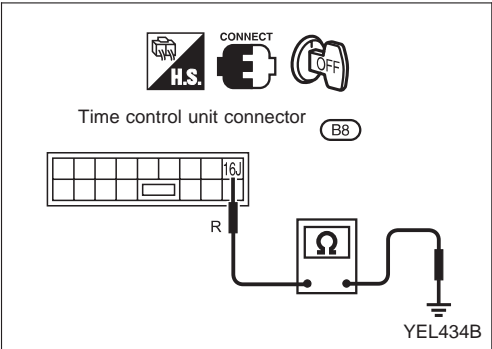
Main power supply circuit check

Terminals		Ignition switch position		
⊕	⊖	OFF	ACC	ON
⑨	Ground	Battery voltage	Battery voltage	Battery voltage
①	Ground	0V	0V	Battery voltage



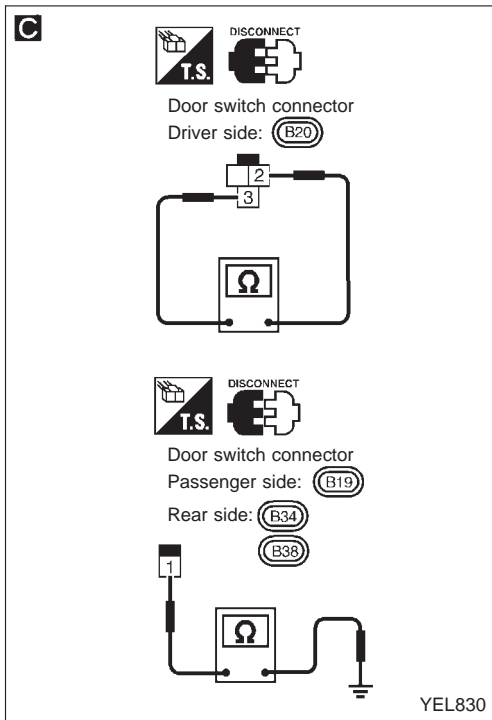
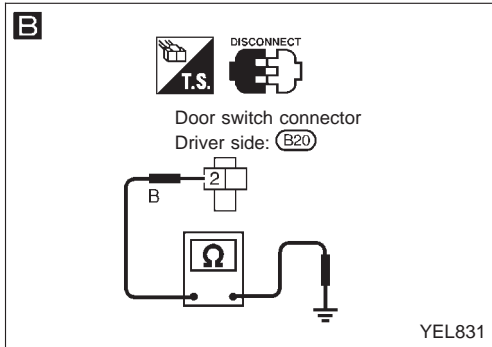
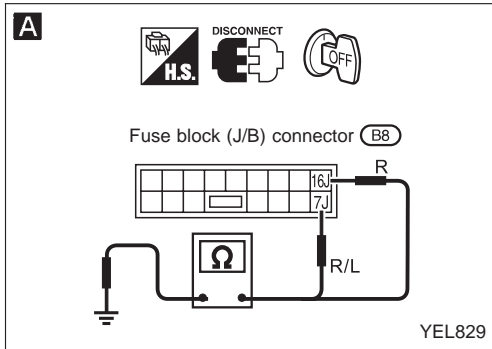
Ground circuit check

Terminals	Continuity
⑩ - Ground	Yes



# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 1-(1) (Door switch check)



**A**

CHECK DOOR SWITCH INPUT SIGNAL.  
Remove time control unit from fuse block.

**Note:** Fuse block (J/B) is very fragile. TCU should be removed carefully to avoid breaking the locking bars.

Check continuity between fuse block (J/B) and ground.

	Terminals	Condition	Continuity
Driver side door	(16J)	Opened	Yes
		Closed	No
Other door	(7J)	Opened	Yes
		Closed	No

OK → Door switch is OK.

NG →

**B**

CHECK GROUND CIRCUIT.

- 1) Disconnect driver side door switch connector.
- 2) Check harness continuity between terminal (2) and ground.

**Continuity should exist.**

OK →

NG → Repair harness or connector.

**C**

CHECK DOOR SWITCH.

- 1) Disconnect door switch connector.
- 2) Check continuity between door switch terminals.

	Terminals	Condition	Continuity
Driver side door switch	(2) - (3)	Closed	No
		Open	Yes
Other door switches	(1) - ground	Closed	No
		Open	Yes

OK →

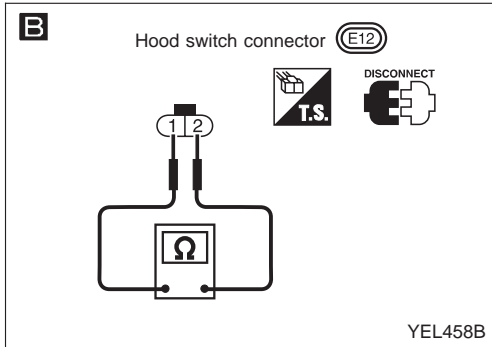
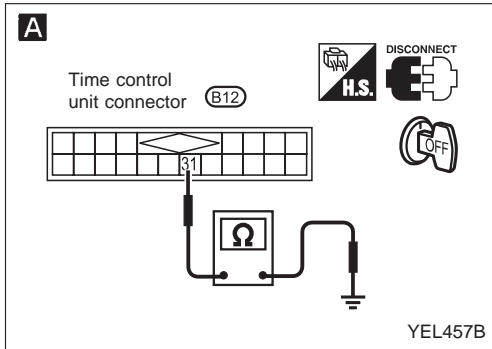
NG → Replace door switch.

Check the following.

- Door switch ground condition (Except driver side)
- Harness for open or short between control unit and door switch

# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 1-(2) (Hood switch check)



**A**

### CHECK HOOD SWITCH INPUT SIGNAL.

Remove time control unit from fuse block.

**Note:** Fuse block (J/B) is very fragile. TCU should be removed carefully to avoid breaking the locking bars.

Check continuity between control unit terminal (32) and ground.

Condition	Continuity
Hood is open.	Yes
Hood is closed.	No

Refer to wiring diagram in EL-254.

OK

Hood switch is OK.

OK

**B**

### CHECK HOOD SWITCH.

1. Disconnect hood switch connector.
2. Check continuity between hood switch terminals.

Terminals	Condition	Continuity
① - ②	Pushed	No
	Released	Yes

NG

Replace hood switch.

OK

Check the following.

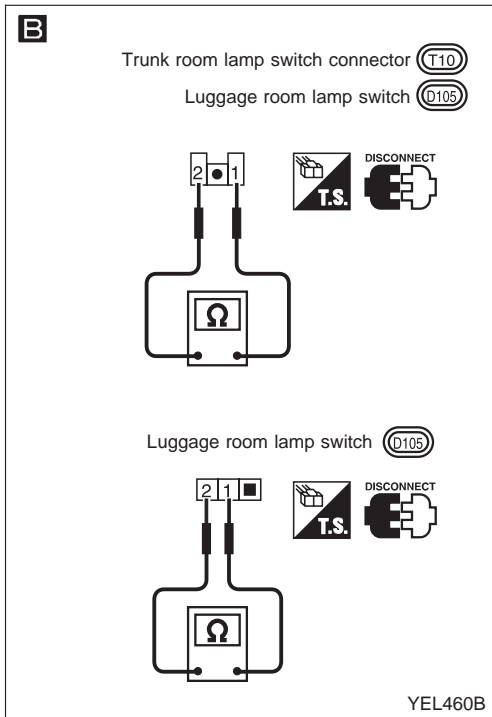
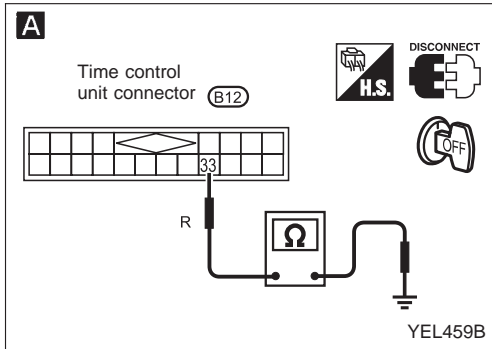
- Hood switch ground circuit
- Harness for open or short between control unit and hood switch

# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1-(3)

#### (Trunk room or luggage room lamp switch check)



**A**

CHECK TRUNK ROOM OR LUGGAGE ROOM LAMP SWITCH INPUT SIGNAL.

Remove time control unit from fuse block.

**Note:** Fuse block (J/B) is very fragile. TCU should be removed carefully to avoid breaking the locking bars.

Check continuity between control unit terminal (33) and ground.

Condition	Continuity
Trunk lid or back door is open.	Yes
Trunk lid or back door is closed.	No

Refer to wiring diagram in EL-256.

OK

Trunk room or luggage room lamp switch is OK.

NG

**B**

CHECK TRUNK ROOM OR LUGGAGE ROOM LAMP SWITCH.

1. Disconnect trunk room or luggage room lamp switch connector.
2. Check continuity between trunk room lamp switch terminals.

Terminals	Condition	Continuity
① - ②	Closed	No
	Open	Yes

NG

Replace trunk room or luggage room lamp switch.

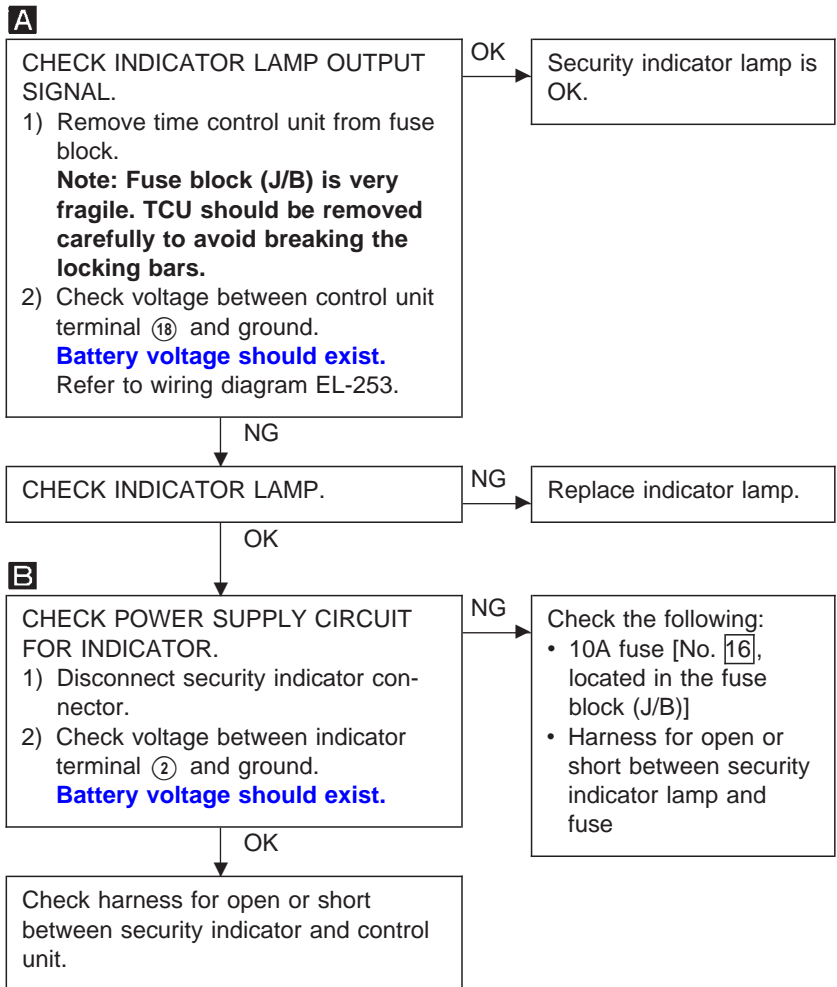
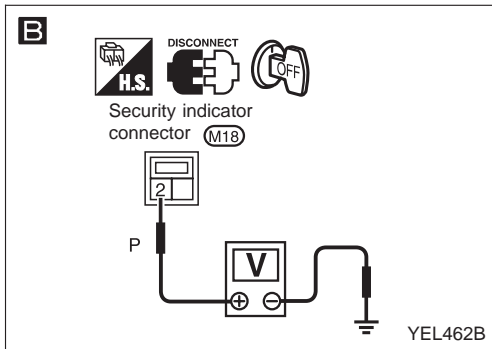
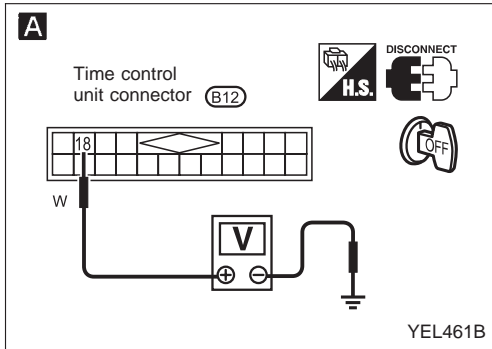
OK

Check the following.

- Trunk room or luggage room lamp switch ground circuit
- Harness for open or short between control unit and trunk room or luggage room lamp switch

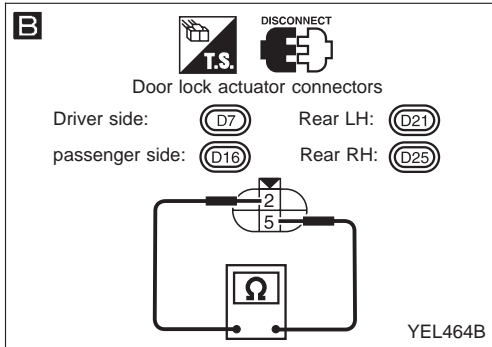
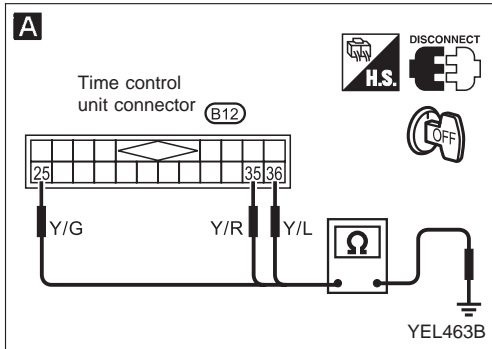
# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 2 (Security indicator check)



# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 3 (Door unlock sensor check)



**A**

### CHECK DOOR UNLOCK SENSOR INPUT SIGNAL.

Remove time control unit from fuse block.

**Note:** Fuse block (J/B) is very fragile.

**TCU should be removed carefully to avoid breaking the locking bars.**

Check continuity between control unit terminals (25), (35), (36) and ground.

OK

Door unlock sensor is OK.

	Terminals		Condition	Continuity
	+	-		
Driver side door	(35)	Ground	Locked	No
			Unlocked	Yes
Passenger side door	(36)	Ground	Locked	No
			Unlocked	Yes
Rear door	(25)	Ground	Locked	No
			Unlocked	Yes

Refer to wiring diagram in EL-261.

NG

**B**

### CHECK DOOR UNLOCK SENSOR.

1. Disconnect door unlock sensor connector.
2. Check continuity between door unlock sensor terminals.

NG

Replace door unlock sensor.

Terminals	Condition	Continuity
(2) - (5)	Locked	No
	Unlocked	Yes

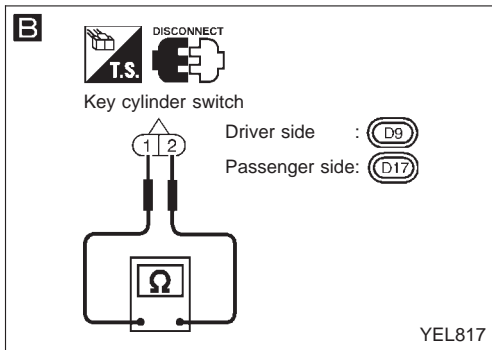
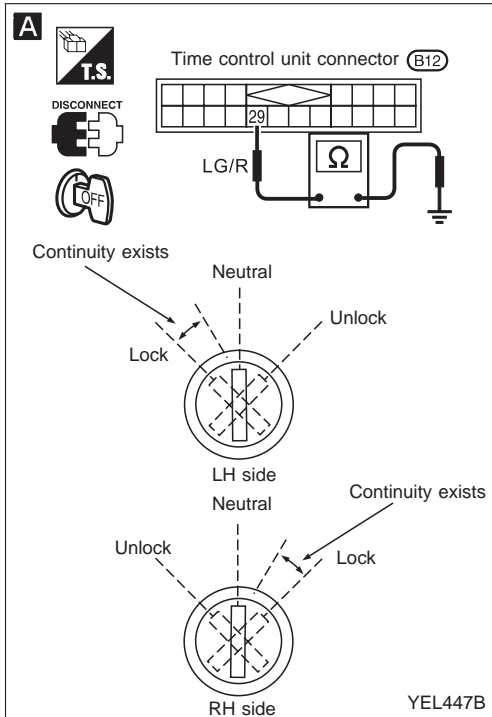
OK

Check the following:

- Door unlock sensor ground circuit
- Harness for open or short between control unit and door unlock sensor

# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 4 (Door key cylinder switch check)



**A**

CHECK DOOR KEY CYLINDER SWITCH INPUT SIGNAL (LOCK SIGNAL).

Remove time control unit from fuse block.

**Note: Fuse block (J/B) is very fragile. TCU should be removed carefully to avoid breaking the locking bars.**

Check continuity between time control unit connector terminal (29) and ground.

Key cylinder switch operation	Continuity
Between neutral and lock	Yes
Unlock/neutral	No

OK

Door key cylinder switch is OK.

NG

**B**

CHECK DOOR KEY CYLINDER SWITCH.

- 1) Disconnect door key cylinder switch connector.
- 2) Check continuity between door key cylinder switch terminals.

Terminals	Key position	Continuity
(1) - (2)	Neutral	No
	Between neutral and lock	Yes
	Unlock/neutral	No
	Full stroke (Lock)	No

NG

Replace key cylinder switch.

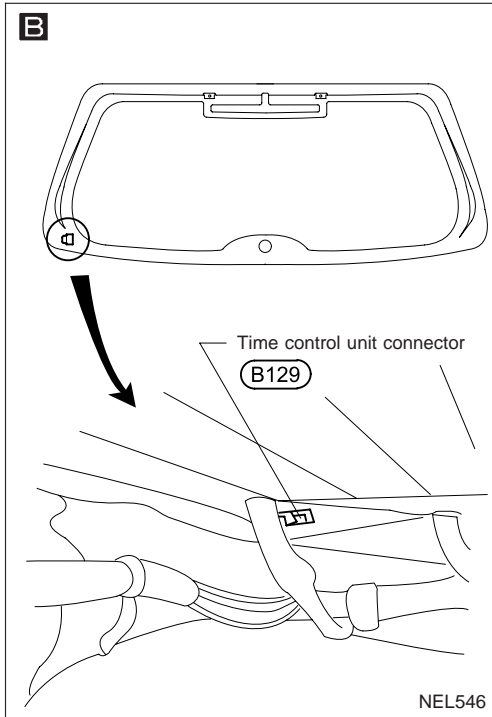
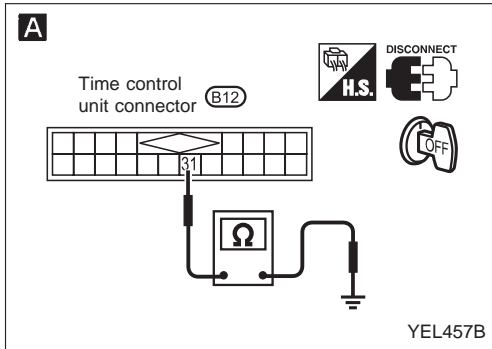
OK

Check the following:

- Harness connectors (B3), (M13)
- Harness connectors (M7), (D1)
- Harness connectors (B5), (D2)
- Harness connectors (B56), (D11)
- Door key cylinder switch ground circuit
- Harness for open or short-circuit between super lock control unit and door key cylinder.

# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 5 (Smash sensor check)



**A**

1. Remove time control unit from fuse block.  
**Note:** Fuse block (J/B) is very fragile. TCU should be removed carefully to avoid breaking the locking bars.
2. Check harness continuity between control unit terminal (31) and ground.  
**Continuity should exist.**

NG

Check the following.

- Smash sensor circuit for open.
- Harness for open between control unit, smash sensors and ground.

OK

**B**

1. Disconnect rear window smash sensor connector.
2. Check harness continuity between control unit and ground.  
**Continuity should not exist.**

OK

Smash sensor is OK.

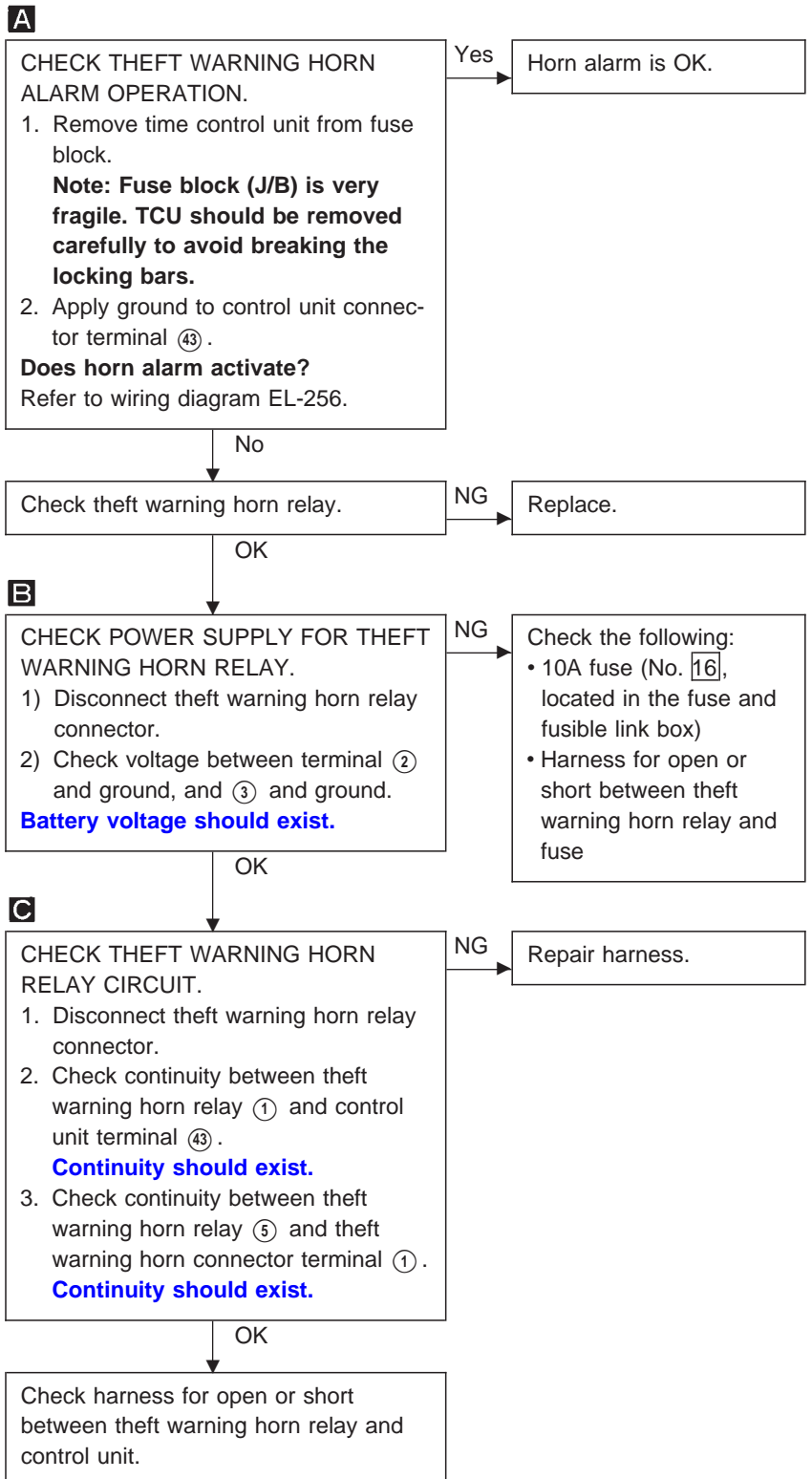
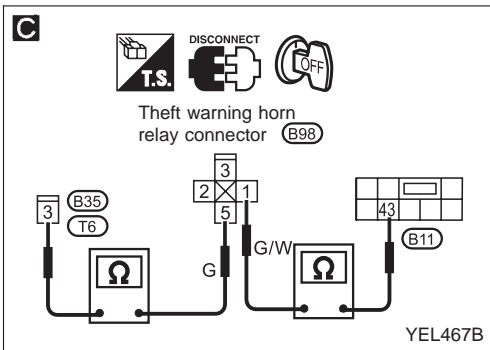
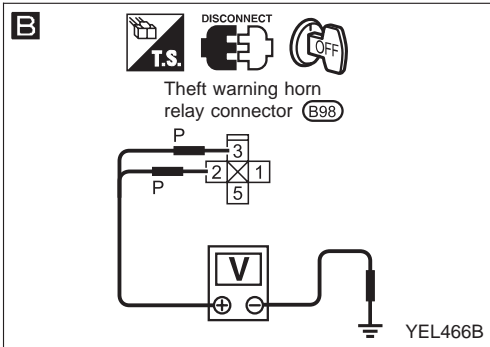
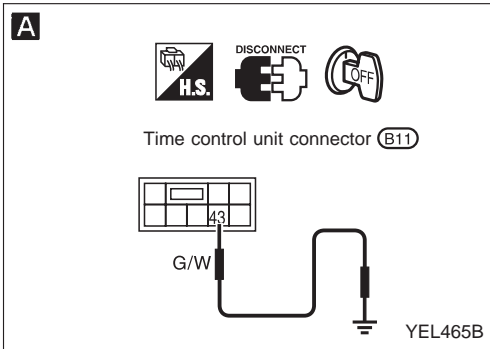
NG

Check harness for short between control unit and ground.



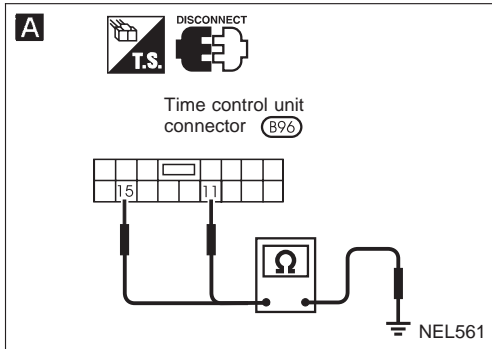
# THEFT WARNING SYSTEM

## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 6 (Theft warning horn alarm check)



## THEFT WARNING SYSTEM

### Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 7 (Hazard lamp alarm check)



Push hazard switch to ON.  
Check hazard lamp operation.

OK

Replace time control unit.

NG

**A**

1. Remove time control unit from fuse block (J/B).  
Remove time control unit from fuse block.

**Note: Fuse block (J/B) is very fragile. TCU should be removed carefully to avoid breaking the locking bars.**

2. Check harness continuity between control unit terminals (11) and (15) and ground.

**Continuity should exist.**

NG

Check the following.

- Harness connectors (E104), (B8)
- Fuse block (J/B)
- Turn signal lamps

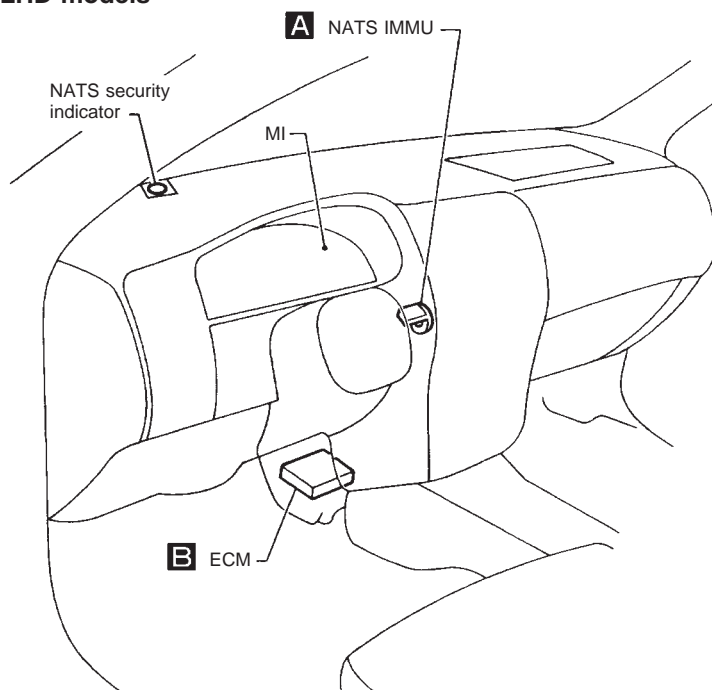
OK

Replace time control unit.

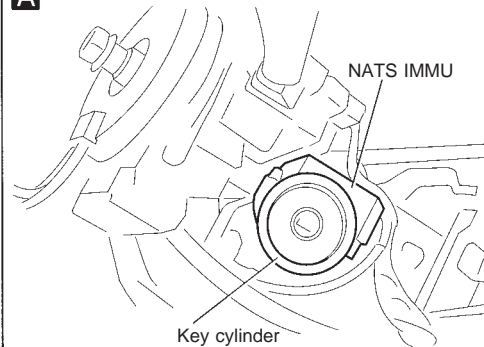
# NATS (Nissan Anti-Theft System)

## Component Parts Location

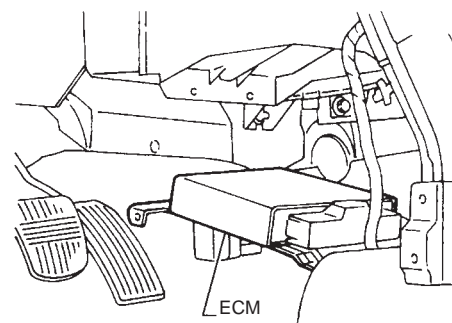
### LHD models



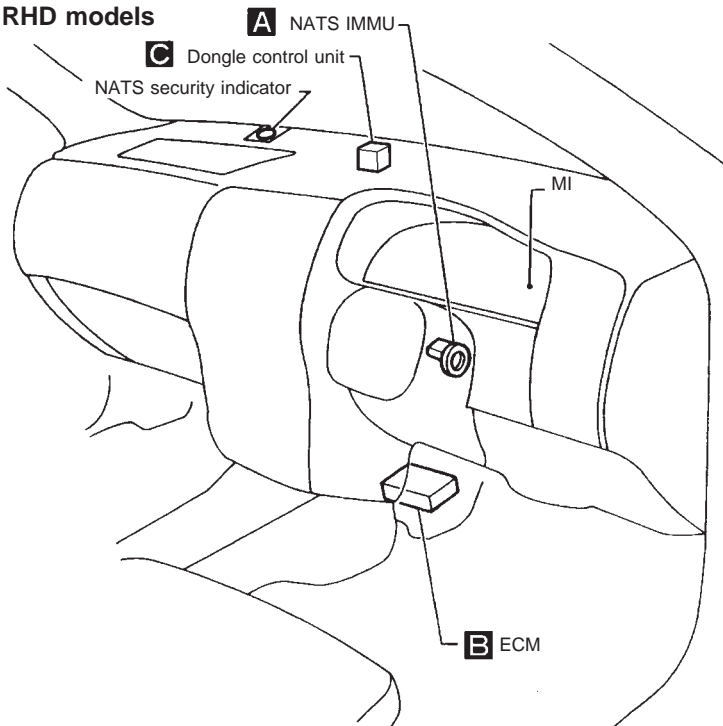
**A**



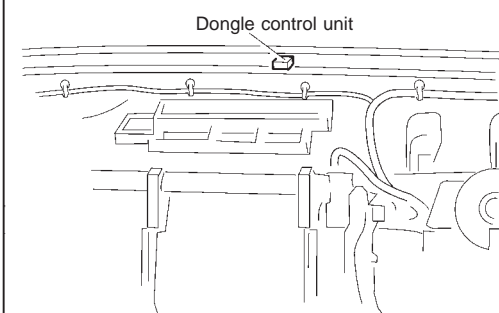
**B**



### RHD models

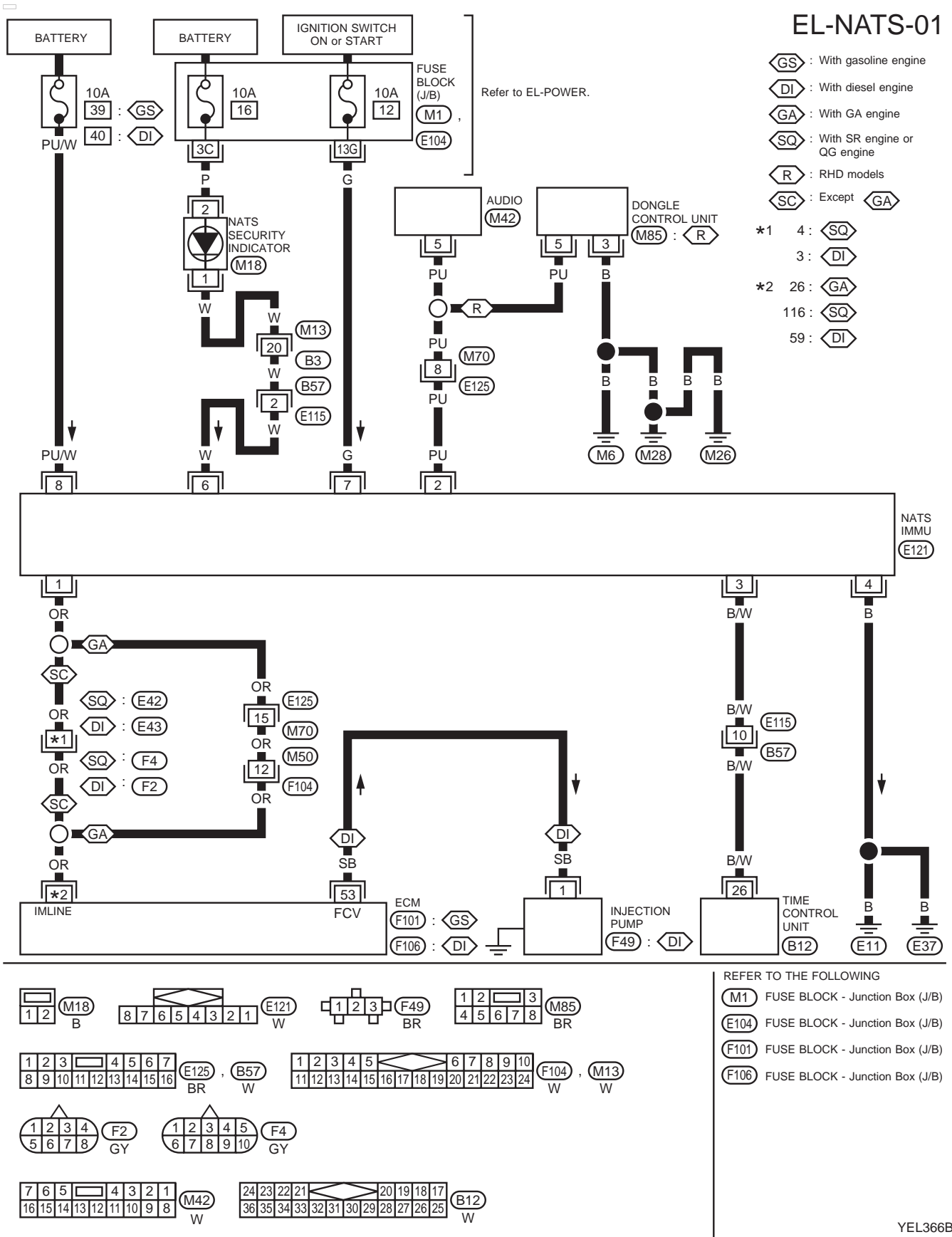


**C**



## NATS (Nissan Anti-Theft System)

## Wiring Diagram — NATS —



### System Description

NATS has the following immobiliser functions:

- This version of NATS has dongle unit to improve its anti-theft performance (RHD models for Europe). Dongle unit has its own ID which is registered into NATS IMMU. So if dongle unit is replaced, initialization must be carried out.
- When malfunction of dongle unit is detected:
  - The security indicator lamp illuminates for about 15 minutes after ignition switch is turned to ON.
  - When dongle unit has a malfunction, and the indicator lamp is illuminated, engine can not be started. However engine can be started only one time when security indicator lamp turns off in about 15 minutes after ignition switch is turned to ON.
- Since only NATS ignition keys, whose ID nos. have been registered into the ECM and IMMU of NATS, allow the engine to run, operation of a stolen vehicle without a NATS registered key is prevented by NATS.

That is to say, NATS will immobilize the engine if someone tries to start it without the registered key of NATS.
- All of the originally supplied ignition key IDs have been NATS registered.

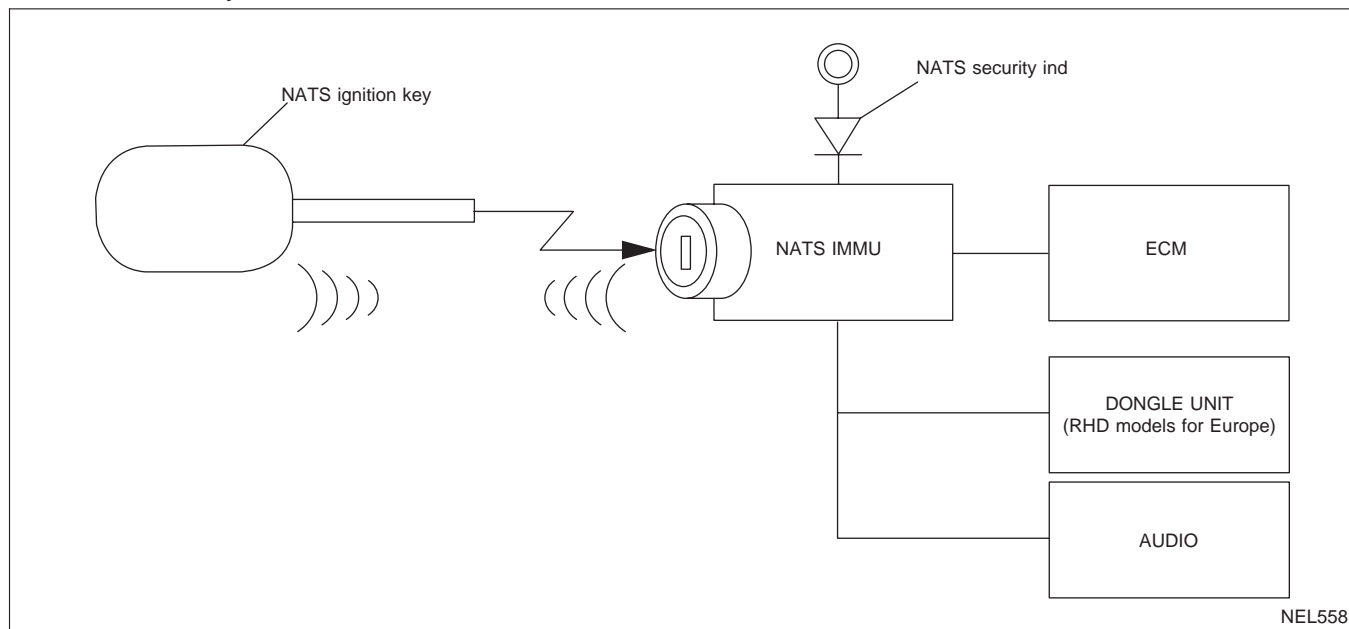
If requested by the vehicle owner, a maximum of five key IDs can be registered into the NATS components.
- The NATS security indicator (NATS security ind.) blinks when the ignition switch is in “OFF” or “ACC” position. Therefore, NATS warns outsiders that the vehicle is equipped with the anti-theft system.
- When NATS detects trouble, the security indicator lamp lights up while ignition key is in the ON position.
- NATS trouble diagnoses, system initialisation and additional registration of other NATS ignition key IDs must be carried out using CONSULT-II hardware and CONSULT-II NATS software.

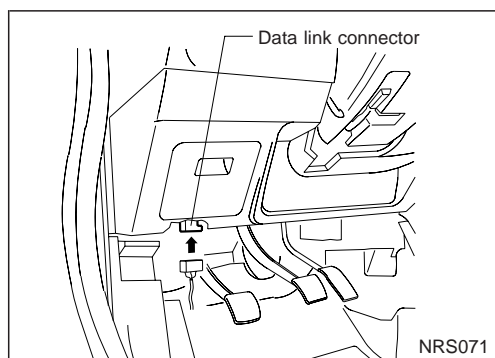
Regarding the procedures of NATS initialisation and NATS ignition key ID registration, refer to CONSULT-II operation manual, NATS.
- **When servicing a malfunction of the NATS (indicated by lighting up of security Indicator Lamp) or registering another NATS ignition key ID no., it may be necessary to re-register original key identification. Therefore, be sure to receive all keys and the PIN code from vehicle owner.**

### System Composition

The immobiliser function of the NATS for Nissan model P11 consists of the following:

- NATS ignition key
- NATS immobiliser control unit (NATS IMMU), located in the ignition key cylinder
- Engine control module (ECM)
- Dongle unit (RHD models for Europe)
- NATS security indicator

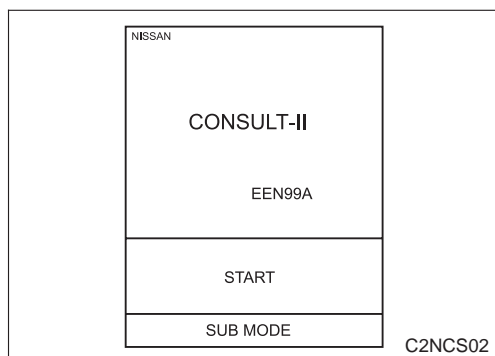




## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch OFF.
2. Connect "CONSULT-II" to Data link connector.



3. Insert NATS program card into CONSULT-II.

➡ : Program card  
**EEN99A**

4. Turn ignition switch ON.
5. Touch "START".



6. Perform each diagnostic test mode according to each service procedure.

**For further information, see the CONSULT-II Operation Manual, NATS.**

### CONSULT-II DIAGNOSTIC TEST MODE FUNCTION

CONSULT-II DIAGNOSTIC TEST MODE	Description
C/U INITIALIZATION	When replacing any of the following components, C/U initialization is necessary. [NATS ignition key/IMMU/ECM/Dongle]
SELF-DIAGNOSTIC RESULTS	Detected items (screen terms) are as shown in the chart below.

#### NOTE:

When any initialisation is performed, all ID previously registered will be erased and all NATS ignition keys must be registered again.

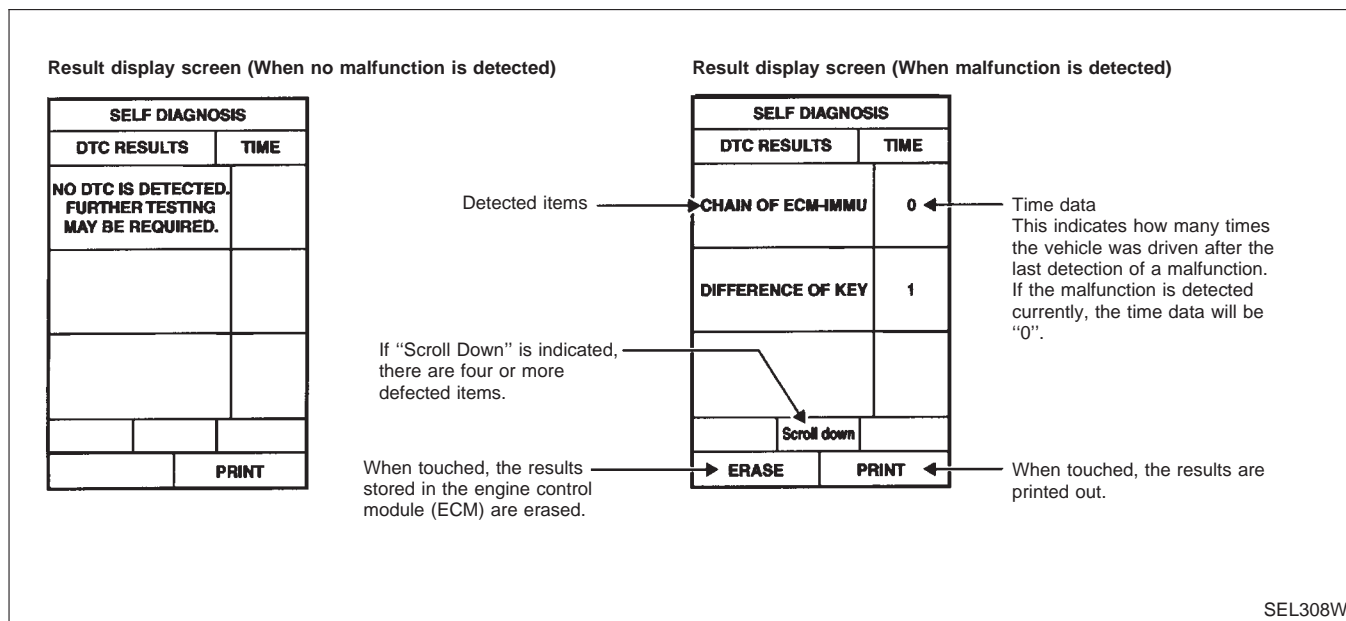
The engine cannot be started with an unregistered key. In this case, the system may show "DIFFERENCE OF KEY" or "LOCK MODE" as a self-diagnostic result on the CONSULT-II screen.

When initialisation is performed for RHD models for Europe, security indicator will flash six times to demonstrate recognition of dongle ID.

# NATS (Nissan Anti-Theft System)/Models with SR20DE and QG18DE

## CONSULT-II (Cont'd)

### HOW TO READ SELF-DIAGNOSTIC RESULTS

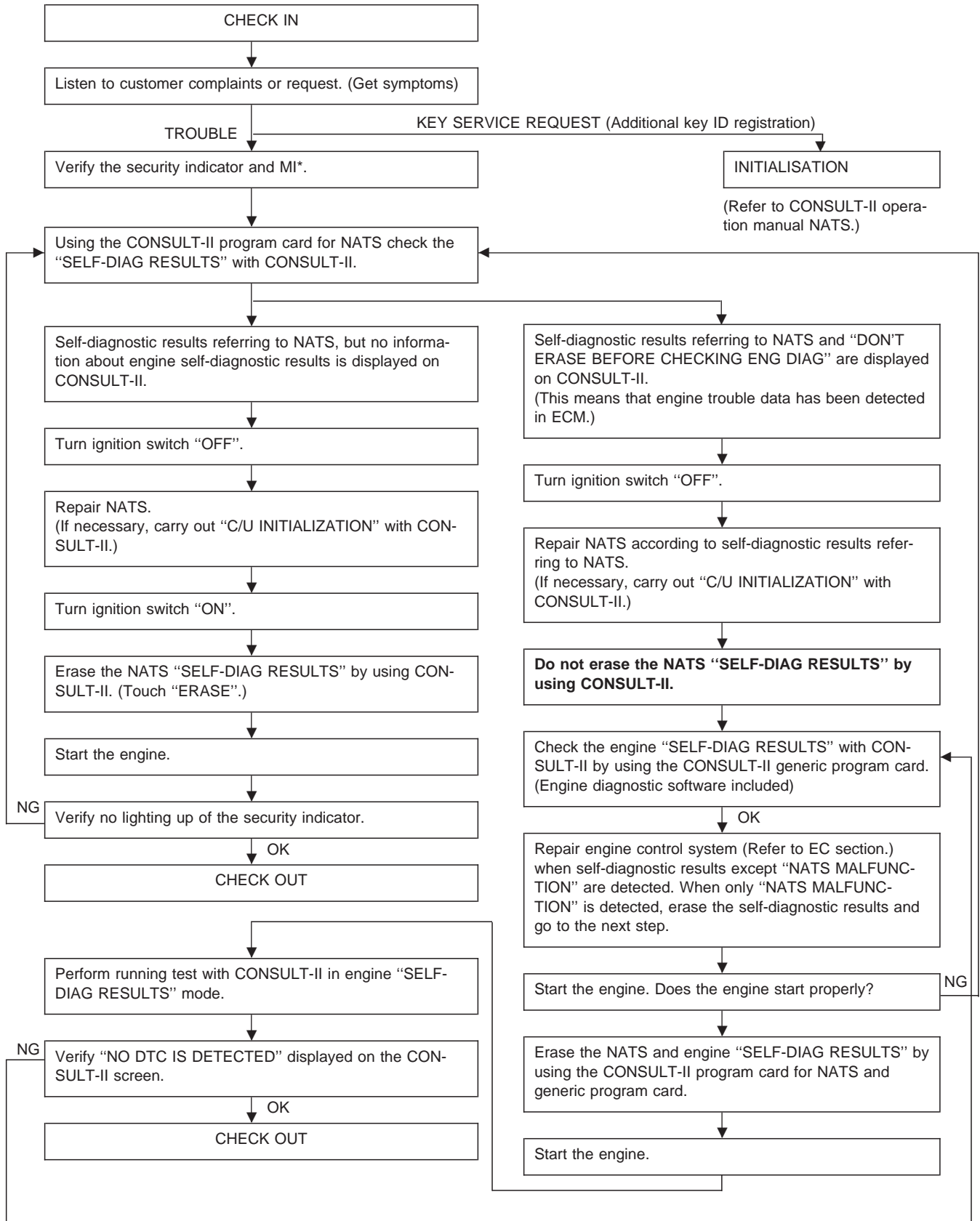


### NATS SELF-DIAGNOSTIC RESULTS ITEM CHART

Detected items (NATS program card screen terms)	P No. Code (Self-diagnostic result of "ENGINE")	Malfunction is detected when ...	Reference page
ECM INT CIRC-IMMU	NATS MAL-FUNCTION P1613	The malfunction of ECM internal circuit of IMMU communication line is detected.	EL-284
CHAIN OF ECM-IMMU	NATS MAL-FUNCTION P1612	Communication impossible between ECM and IMMU	EL-285
DIFFERENCE OF KEY	NATS MAL-FUNCTION P1615	IMMU can receive the key ID signal but the result of ID verification between key ID and IMMU is NG.	EL-287
CHAIN OF IMMU-KEY	NATS MAL-FUNCTION P1614	IMMU cannot receive the key ID signal. Or the registered ID signal from dongle unit can not be received when the IMMU request the ID.	EL-288
ID DISCORD, IMM-ECM	NATS MAL-FUNCTION P1611	The result of ID verification between IMMU and ECM is NG. System initialization is required.	EL-290
DON'T ERASE BEFORE CHECKING ENG DIAG	—	All engine trouble codes except NATS trouble code have been detected in ECM.	EL-281
LOCK MODE	NATS MAL-FUNCTION P1610	When the starting operation is carried out five or more times consecutively under the following conditions, NATS will shift the mode to one which prevents the engine from being started. ● Unregistered ignition key is used. ● IMMU or ECM is malfunctioning.	EL-292



## Trouble Diagnoses WORK FLOW



# NATS (Nissan Anti-Theft System)/Models with SR20DE and QG18DE

## Trouble Diagnoses (Cont'd)

### SYMPTOM MATRIX CHART 1

(Self-diagnosis related item)

SYMPTOM	Displayed "SELF-DIAG RESULTS" on CONSULT-II screen	DIAGNOSTIC PROCEDURE (Reference page)	SYSTEM (Malfunctioning part or mode)	REFERENCE PART NO. OF ILLUSTRATION ON NEXT PAGE
<ul style="list-style-type: none"> <li>Security indicator lighting up*</li> <li>Engine does not start</li> </ul>	ECM INT CIRC-IMMU	PROCEDURE 1 (EL-284)	ECM	B
<ul style="list-style-type: none"> <li>Security indicator lighting up*</li> <li>Engine does not start</li> </ul>	CHAIN OF ECM-IMMU	PROCEDURE 2 (EL-285)	Open circuit in battery voltage line of IMMU circuit	C1
			Open circuit in ignition line of IMMU circuit	C2
			Open circuit in ground line of IMMU circuit	C3
			Open circuit in communication line between IMMU and ECM	C4
			Short circuit between IMMU and ECM communication line and battery voltage line	C4
			Short circuit between IMMU and ECM communication line and ground line	C4
			ECM	B
			IMMU	A
	DIFFERENCE OF KEY	PROCEDURE 3 (EL-287)	Unregistered key	D
			IMMU	A
	CHAIN OF IMMU-KEY	PROCEDURE 4 (EL-288)	Malfunction of key ID chip	E
			IMMU	A
			Open circuit in ground line of dongle circuit	C6
			Open or short circuit in communication line between IMMU and dongle unit	C5
			Dongle control unit	G
	ID DISCORD, IMM-ECM	PROCEDURE 5 (EL-290)	System initialisation has not yet been completed.	F
			ECM	B
	LOCK MODE	PROCEDURE 7 (EL-292)	LOCK MODE	D
<ul style="list-style-type: none"> <li>MI staying ON</li> <li>Security indicator lighting up*</li> </ul>	DON'T ERASE BEFORE CHECKING ENG DIAG	WORK FLOW (EL-281)	Engine trouble data and NATS trouble data have been detected in ECM.	—

\*: When NATS detects trouble, the security indicator lights up while ignition key is in the "ON" position.

\*: When the vehicle is equipped with dongle unit (RHD models for Europe), the security indicator blinks 6 times just after ignition switch is turned to ON. Then the security indicator lights up while ignition key is in the "ON" position.

# NATS (Nissan Anti-Theft System)/Models with SR20DE and QG18DE

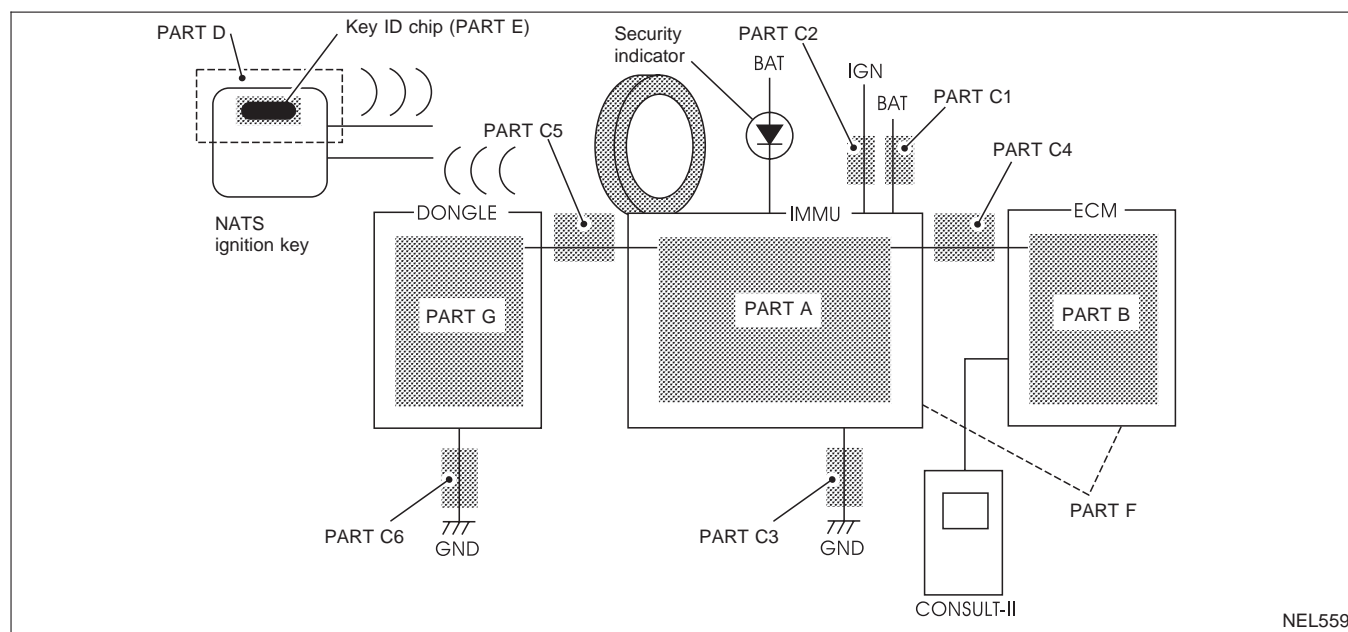
## Trouble Diagnoses (Cont'd)

### SYMPTOM MATRIX CHART 2

(Non self-diagnosis related item)

SYMPTOM	DIAGNOSTIC PROCEDURE (Reference page)	SYSTEM (Malfunctioning part or mode)	REFERENCE PART NO. OF ILLUSTRATION ON NEXT PAGE
● Security ind. does not light up.	PROCEDURE 6 (EL-291)	Security ind.	
		Open circuit between Fuse and NATS IMMU	
		Continuation of initialization mode	
		NATS IMMU	
Security ind. does not blink just after initialization even if the vehicle is equipped with dongle unit.	PROCEDURE 8 (EL-293)	NATS might be initialized without connecting dongle unit properly.	
		Open circuit in ground line of dongle circuit	C6
Security ind. does not blink just after ignition switch is turned to ON when some malfunction related to NATS is detected even if the vehicle is equipped with dongle unit.		Open or short circuit in communication line between IMMU and dongle unit	C5
		Dongle control unit	G

### DIAGNOSTIC SYSTEM DIAGRAM



NEL559

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1

Self-diagnostic results:

“ECM INT CIRC-IMMU” displayed on CONSULT-II screen

**A**



Confirm SELF-DIAGNOSTIC RESULTS “ECM INT CIRC-IMMU” displayed on CONSULT-II screen.  
Ref. part No. B.



Replace ECM.



Perform initialisation with CONSULT-II.  
For the operation of initialisation, refer to “CONSULT-II operation manual NATS”.

SELF DIAGNOSIS	
DTC RESULTS	TIME
ECM INT CIRC-IMMU	0

SEL314W

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2

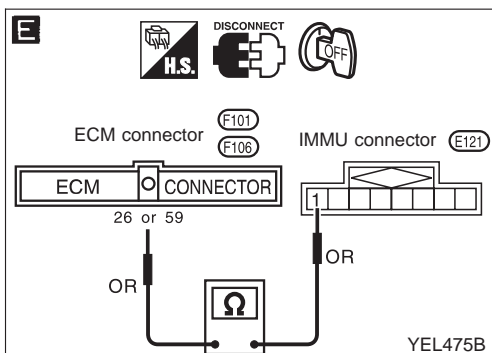
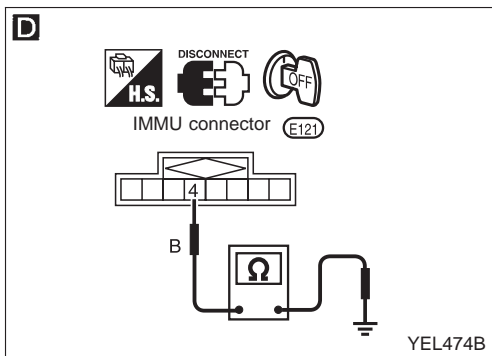
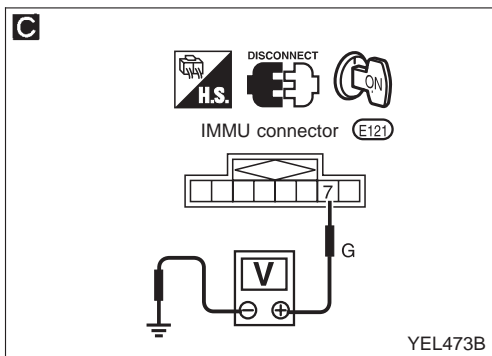
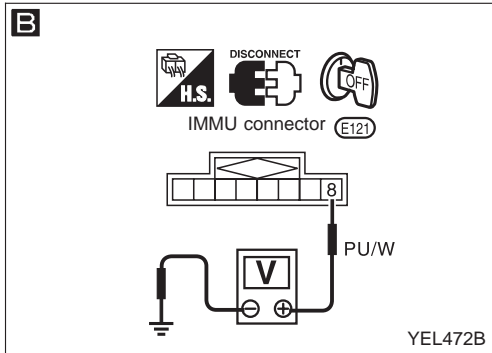
Self-diagnostic results:

“CHAIN OF ECM-IMMU” displayed on CONSULT-II screen

**A**

SELF DIAGNOSIS	
DTC RESULTS	TIME
CHAIN OF ECM-IMMU	0

YEL471B



**A**

Confirm SELF-DIAGNOSTIC RESULTS “CHAIN OF ECM-IMMU” displayed on CONSULT-II screen.

OK

**B**

**CHECK POWER SUPPLY CIRCUIT FOR IMMU.**  
Check voltage between IMMU terminal ⑧ and ground.  
**Battery voltage should exist.**

NG

Check the following.

- 10A fuse (No. 39): gasoline engine, located in the fuse and fusible link box)
- Harness for open or short between fuse and IMMU connector Ref. part No. C1

OK

**C**

**CHECK IGN SW. ON SIGNAL.**  
Check voltage between IMMU terminal ⑦ and ground while ignition switch is “ON” position.  
**Battery voltage should exist.**

NG

Check the following.

- 10A fuse [No. 12], located in the fuse block (J/B)]
- Harness for open or short between fuse and IMMU connector Ref. part No. C2

OK

**D**

**CHECK GROUND CIRCUIT FOR IMMU.**  
Check continuity between IMMU terminal ④ and ground.  
**Continuity should exist.**

NG

Repair harness.  
Ref. part No. C3

OK

**E**

**CHECK COMMUNICATION OPEN CIRCUIT.**  
Check continuity between IMMU terminal ① and ECM terminal ②⑥, ⑤⑨ or ⑪⑬.  
**Continuity should exist.**

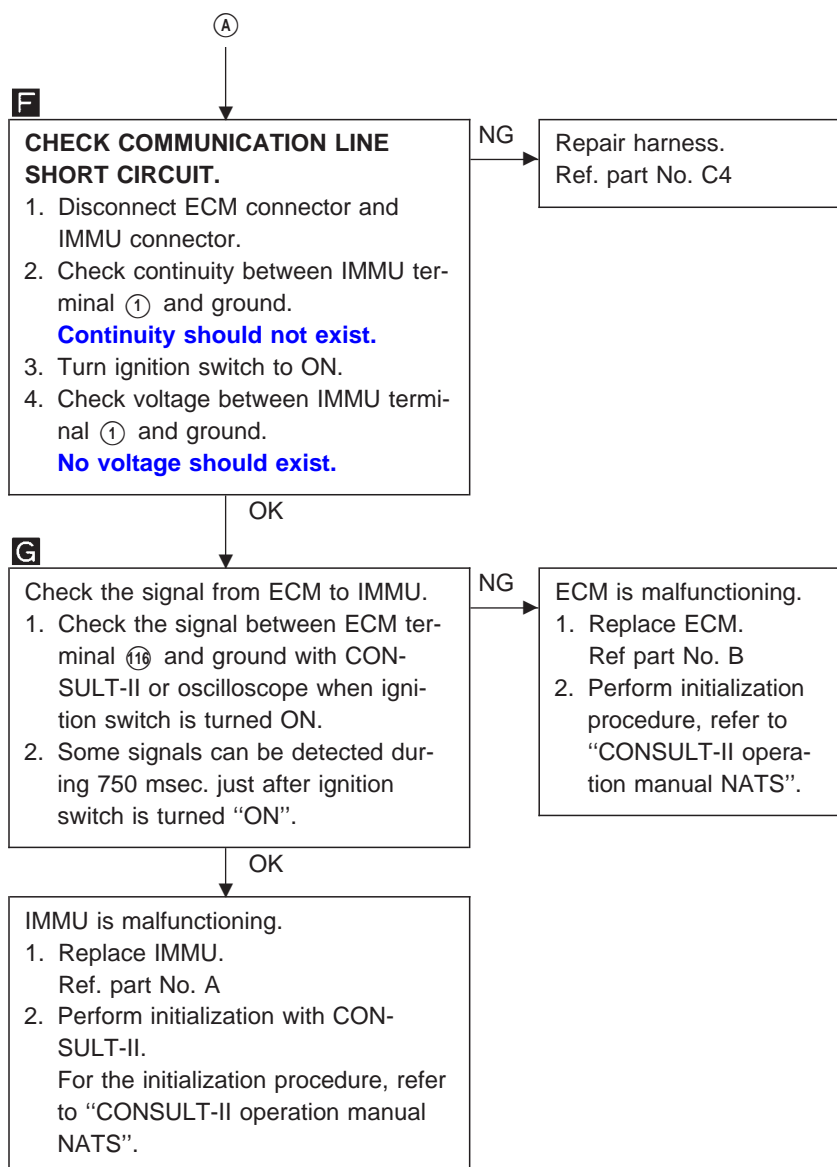
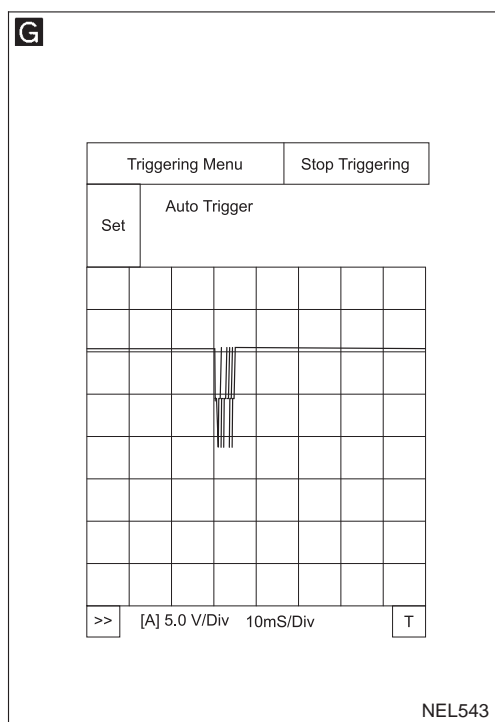
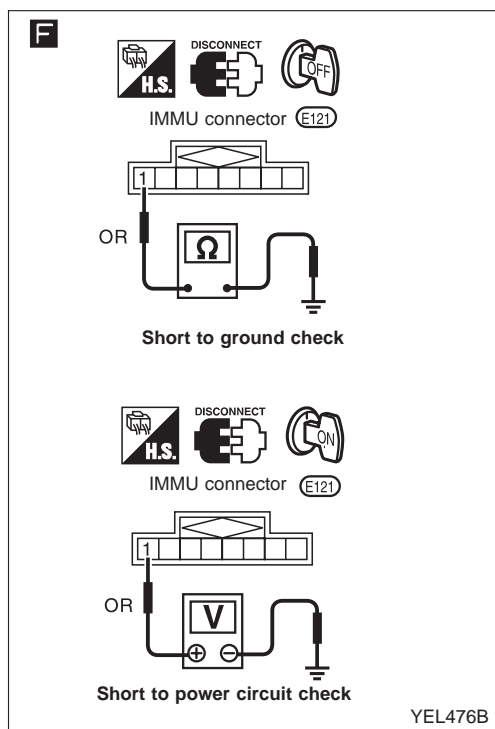
NG

Repair harness.  
Ref. part No. C4

OK

Ⓐ

## Trouble Diagnoses (Cont'd)



## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

**Self-diagnostic results:**

**“DIFFERENCE OF KEY” displayed on CONSULT-II screen**

**A**

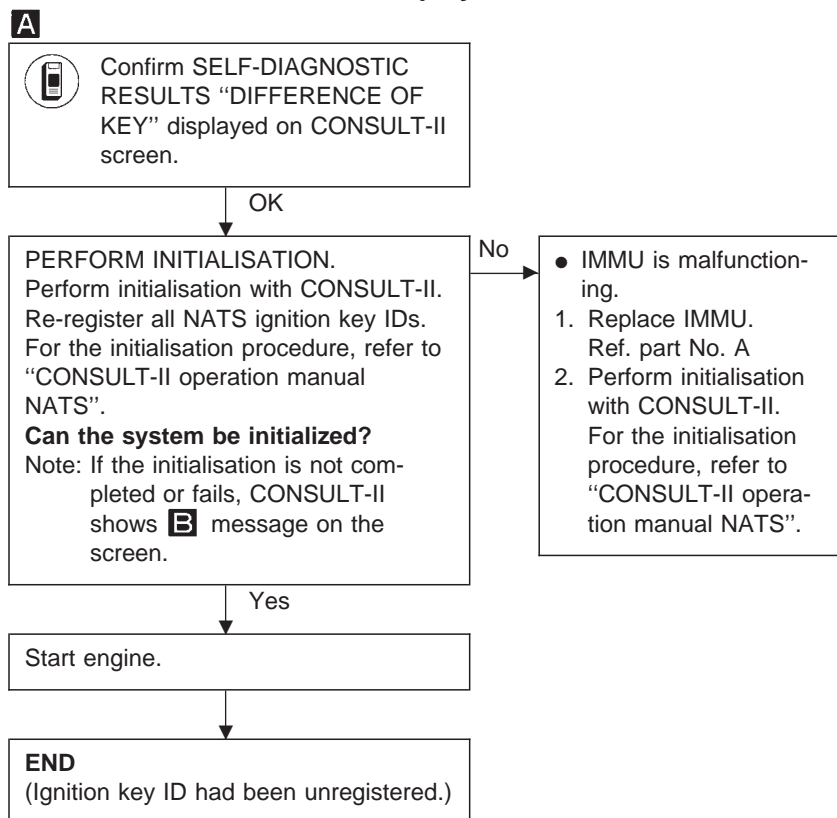
SELF DIAGNOSIS	
DTC RESULTS	TIME
DIFFERENCE OF KEY	0

YEL478B

**B**

IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

YEL479B



## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4

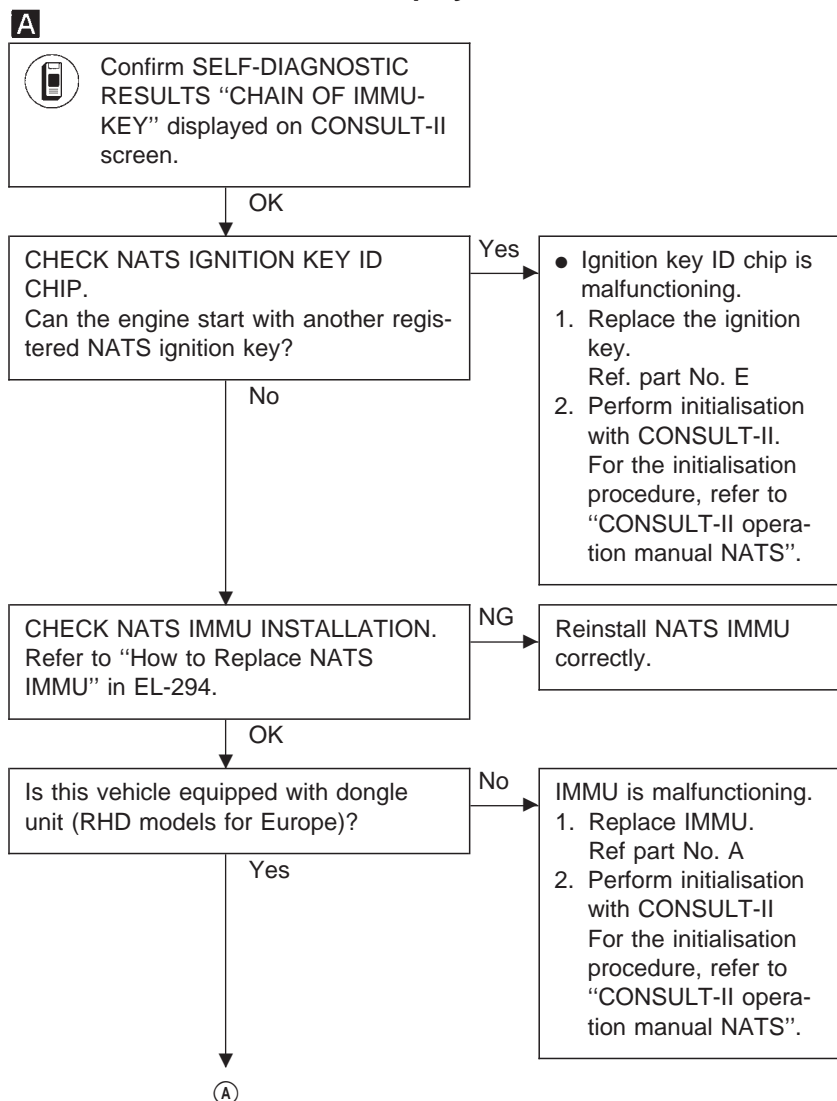
**Self-diagnostic results:**

**“CHAIN OF IMMU-KEY” displayed on CONSULT-II screen**

**A**

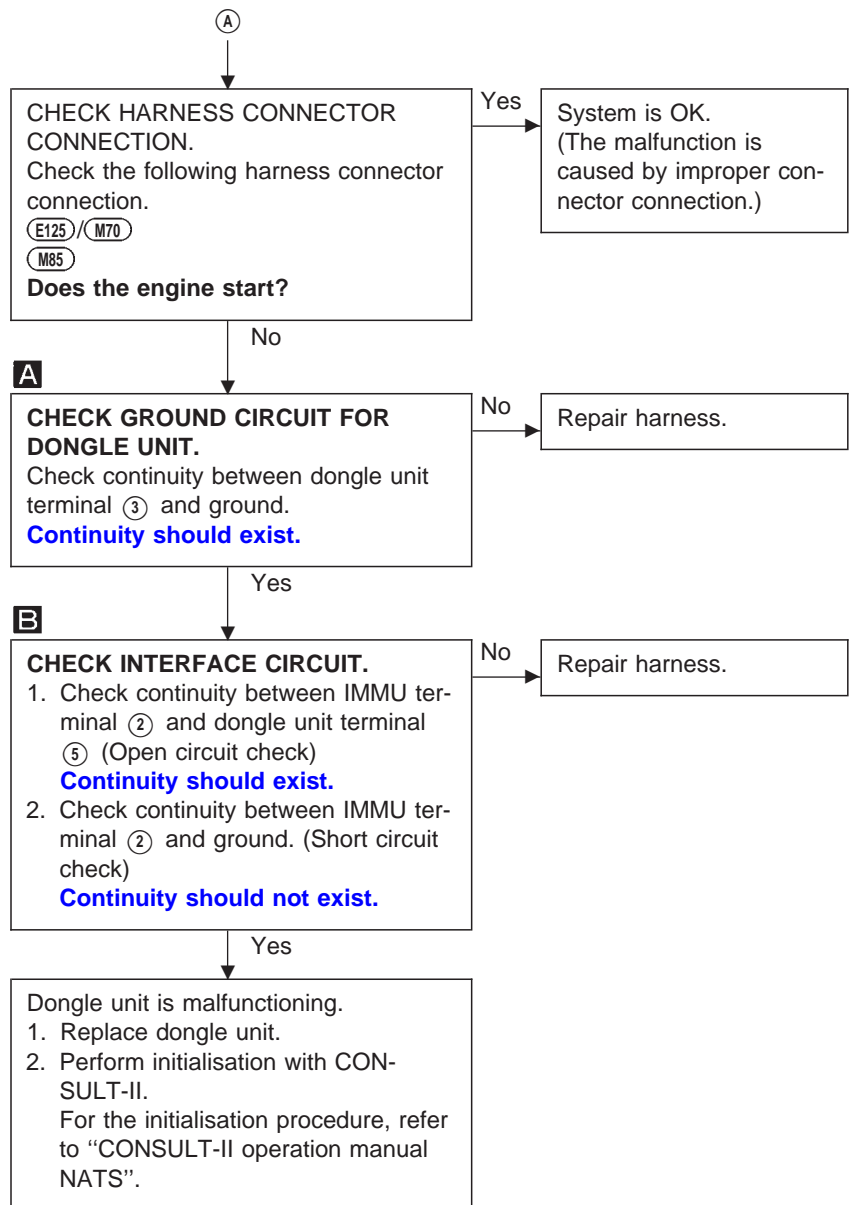
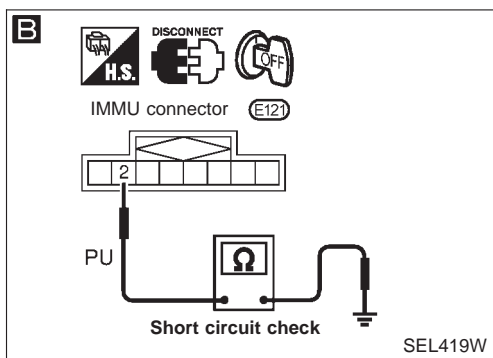
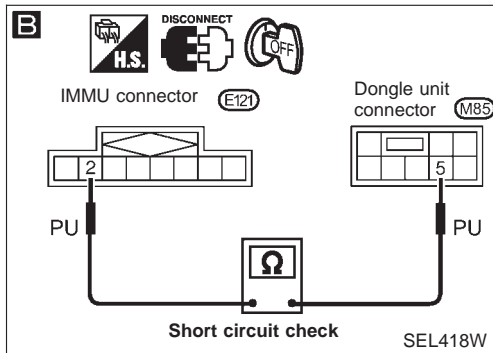
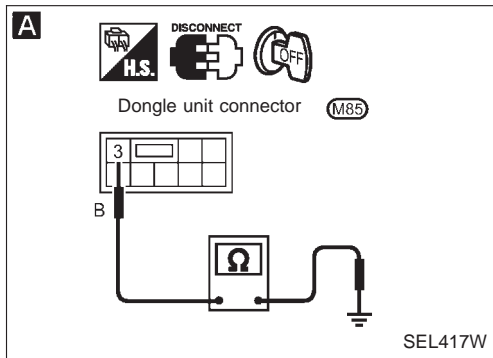
SELF DIAGNOSIS	
DTC RESULTS	TIME
CHAIN OF IMMU-KEY	0

YEL480B





## Trouble Diagnoses (Cont'd)



## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5

**Self-diagnostic results:**

**"ID DISCORD, IMM-ECM" displayed on CONSULT-II screen**

**A**

SELF DIAG RESULTS	
DTC RESULTS	TIME
ID DISCORD, IMM-ECM	0


C2SDD01

**B**

IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

YEL479B

**A**

 Confirm SELF-DIAGNOSTIC RESULTS "ID DISCORD, IMM-ECM\*" displayed on CONSULT-II screen.

\* "ID DISCORD, IMM-ECM":  
Registered ID of IMMU is in  
discord with that of ECM.

**PERFORM INITIALISATION.**  
Perform initialisation with CONSULT-II.  
Re-register all NATS ignition key IDs.  
For the initialisation procedure, refer to  
"CONSULT-II operation manual NATS".  
**Can the system be initialized?**  
Note: If the initialisation is not completed or fails, CONSULT-II shows **B** message on the screen.

No

- ECM is malfunctioning.

1. Replace ECM.  
Ref. part No. B
2. Perform initialisation with CONSULT-II.  
For the initialisation procedure, refer to "CONSULT-II operation manual NATS".

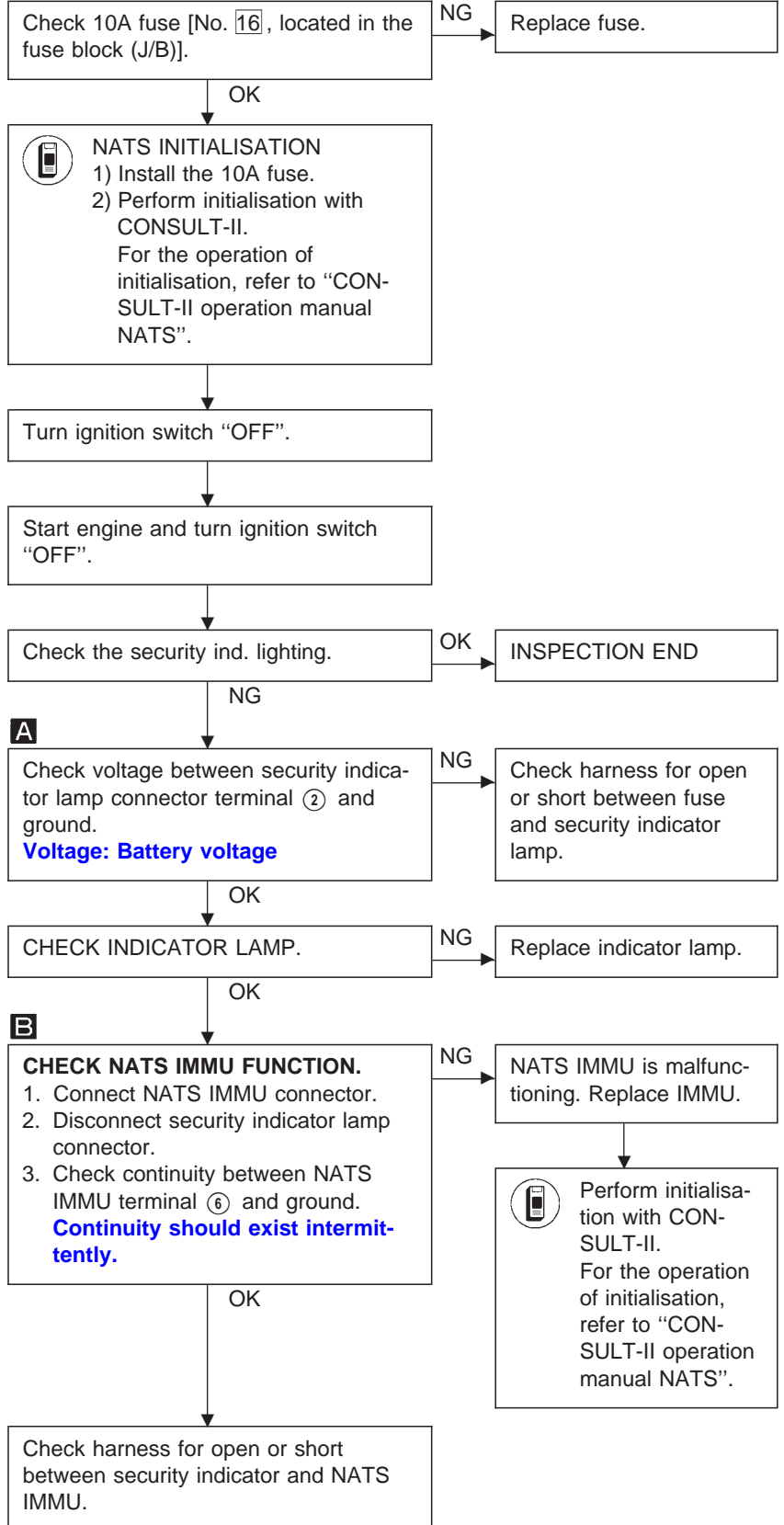
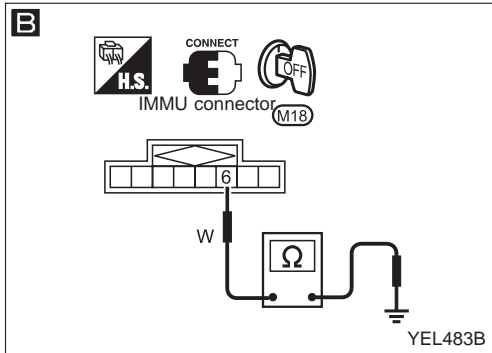
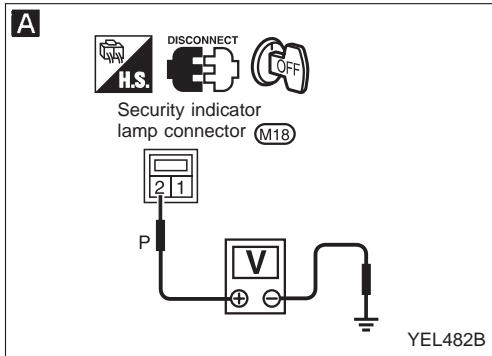
Yes

Start engine. (END)  
(System initialisation was not completed. Ref. part No. F)

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

#### “SECURITY INDICATOR LAMP DOES NOT LIGHT UP”



## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 7

**Self-diagnostic results:**

**“LOCK MODE” displayed on CONSULT-II screen**

**A**

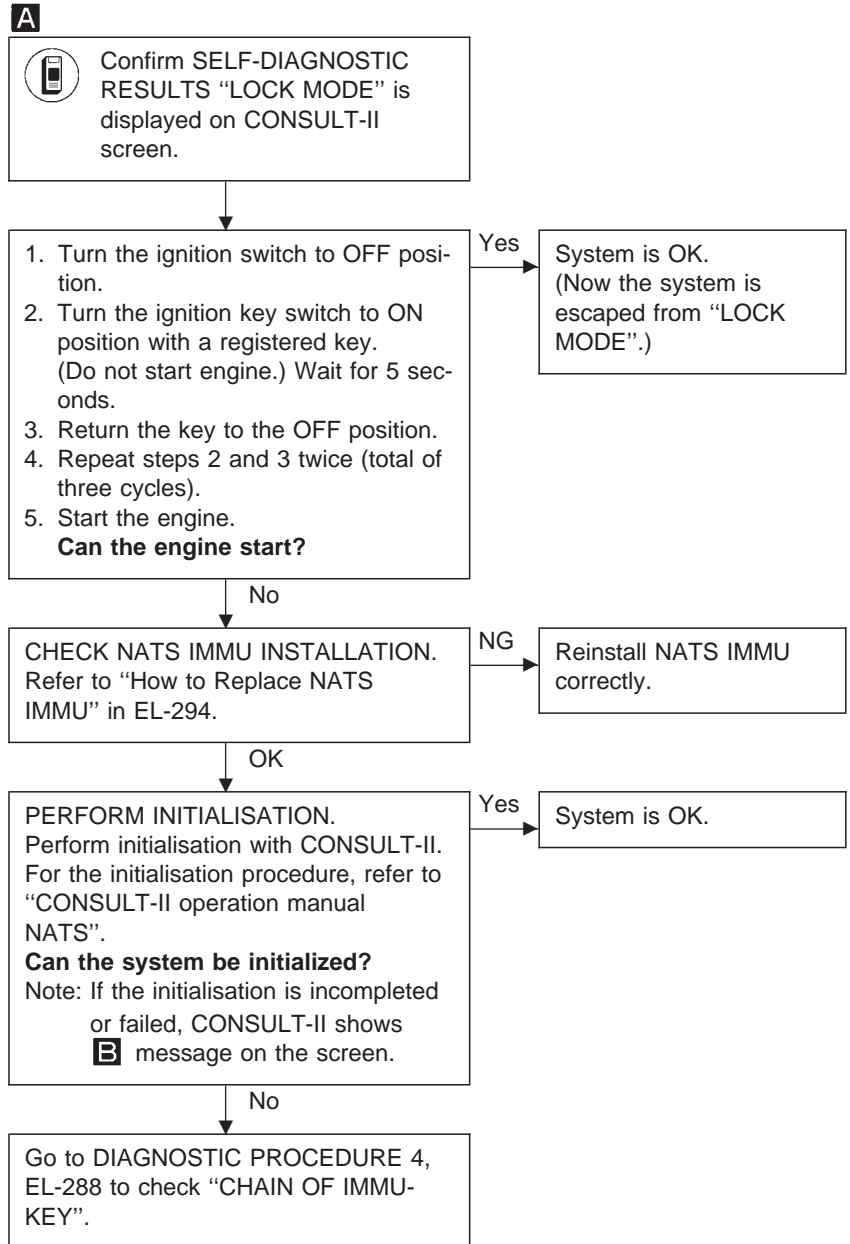
SELF DIAGNOSIS	
DTC RESULTS	TIME
LOCK MODE	0

YEL484B

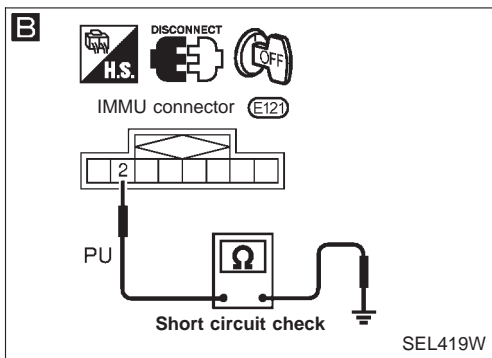
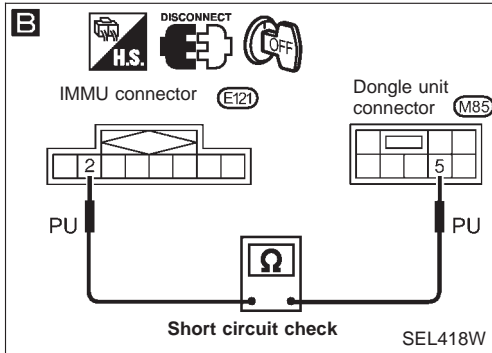
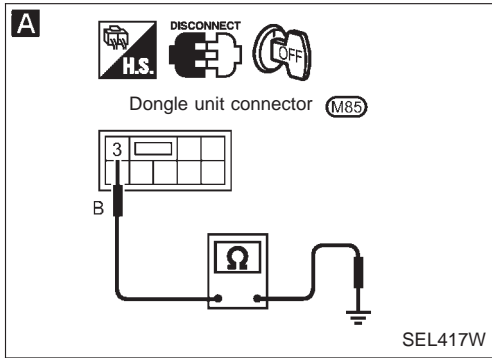
**B**

IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

YEL479B



## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 8



Perform initialization with CONSULT-II.  
Check the following harness connector connection.  
(E125)/(M70)  
(M85)

Then initialize NATS. For the operation of initialization, refer to "CONSULT-II operation manual NATS".

**Does the security indicator blink just after the initialization?**

Yes  
System is OK.  
(The malfunction is caused by improper connector connection.)

No

**A**  
**CHECK GROUND CIRCUIT FOR DONGLE UNIT.**  
Check continuity between dongle unit terminal ③ and ground.  
**Continuity should exist.**

No  
Repair harness.

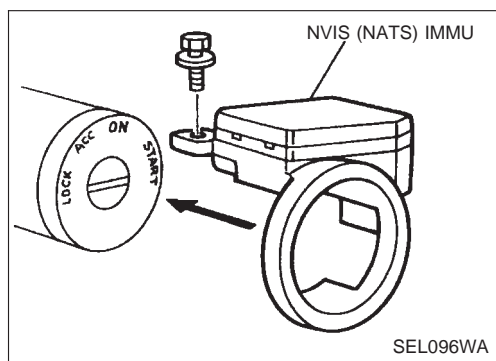
Yes

**B**  
**CHECK INTERFACE CIRCUIT.**  
1. Check continuity between IMMU terminal ② and dongle unit terminal ⑤ (Open circuit check)  
**Continuity should exist.**  
2. Check continuity between IMMU terminal ② and ground. (Short circuit check)  
**Continuity should not exist.**

No  
Repair harness.

Yes

Dongle unit is malfunctioning.  
1. Replace dongle unit.  
2. Perform initialisation with CONSULT-II.  
For the initialisation procedure, refer to "CONSULT-II operation manual NATS".



### How to Replace NATS IMMU

#### NOTE:

- If NATS IMMU is not installed correctly, NATS system will not operate properly and SELF-DIAG RESULTS on CONSULT-II screen will show "LOCK MODE" or "CHAIN OF IMMU-KEY".

### System Description

NATS has the following immobiliser functions:

- This version of NATS has dongle unit to improve its anti-theft performance (RHD models for Europe). Dongle unit has its own ID which is registered into NATS IMMU. So if dongle unit is replaced, initialization must be carried out.
- When malfunction of dongle unit is detected:
  - The malfunction indicator (MI) blinks.  
The security indicator lamp illuminates for about 15 minutes after ignition switch is turned to ON.
  - When dongle unit has a malfunction and the indicator lamp is illuminated, engine can not be started. However, engine can be started only one time when security indicator turns off in about 15 minutes after ignition switch is turned to ON.
- Since only NATS ignition keys, whose ID nos. have been registered into the ECM and IMMU of NATS, allow the engine to run, operation of a stolen vehicle without a NATS registered key is prevented by NATS.  
That is to say, NATS will immobilize the engine if someone tries to start it without the registered key of NATS.
- All of the originally supplied ignition key IDs have been NATS registered.  
If requested by the vehicle owner, a maximum of four key IDs can be registered into the NATS components.
- The NATS security indicator (NATS security ind.) blinks when the ignition switch is in “OFF” or “ACC” position. Therefore, NATS warns outsiders that the vehicle is equipped with the anti-theft system.
- When NATS detects trouble, the security indicator lamp and/or the malfunction indicator (MIL) blinks/ lights up as follows.

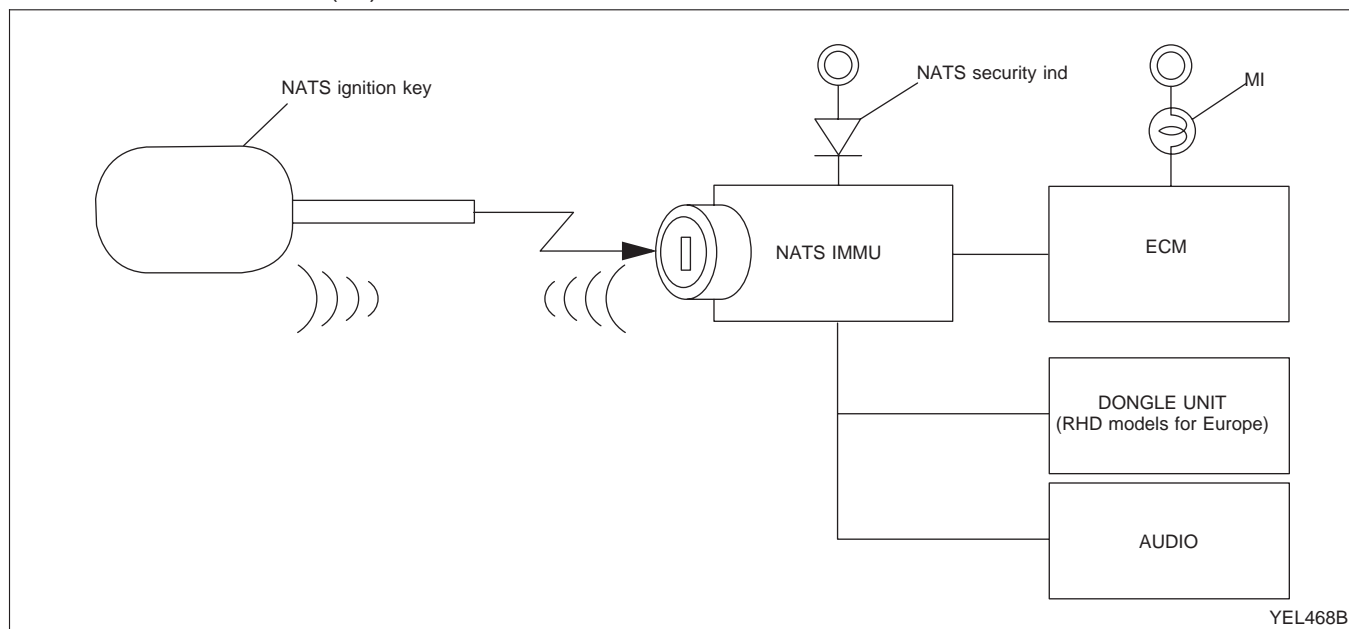
Condition IGN ON and	With Dongle		Without Dongle	
	MI	Security Indicator	MI	Security Indicator
NATS malfunction (except dongle unit) is detected	Blinking	1. 6 times blinking 2. Staying ON after ignition switch is turned ON	Blinking	Staying ON
Only malfunction of dongle unit is detected.	Blinking	Staying ON <b>for about 15 minutes</b> after ignition switch is turned ON.	—	—
Malfunction of NATS and engine related parts are detected	Staying ON	1. 6 times blinking 2. Staying On after ignition switch is turned ON	Staying ON	Staying ON
Only engine related part malfunction is detected	Staying ON	—	Staying ON	—
Just after initialization of NATS	—	6 times blinking	—	—

- NATS trouble diagnoses, system initialisation and additional registration of other NATS ignition key IDs must be carried out using CONSULT-II hardware and CONSULT-II NATS software.  
Regarding the procedures of NATS initialisation and NATS ignition key ID registration, refer to CONSULT-II operation manual, NATS.
- **When servicing a malfunction of the NATS (indicated by lighting up of security Indicator Lamp and blinking of the malfunction indicator (MI)) or registering another NATS ignition key ID no., it may be necessary to re-register original key identification. Therefore, be sure to receive all keys from vehicle owner.**

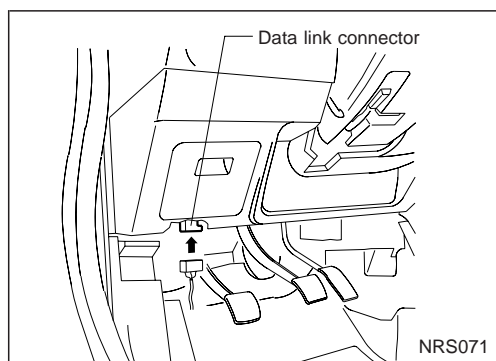
### System Composition

The immobiliser function of the NATS for Nissan model P11 consists of the following:

- NATS ignition key
- NATS immobiliser control unit (NATS IMMU), located in the ignition key cylinder
- Engine control module (ECM)
- Dongle unit (RHD models for Europe)
- NATS security indicator
- Malfunction indicator (MI)



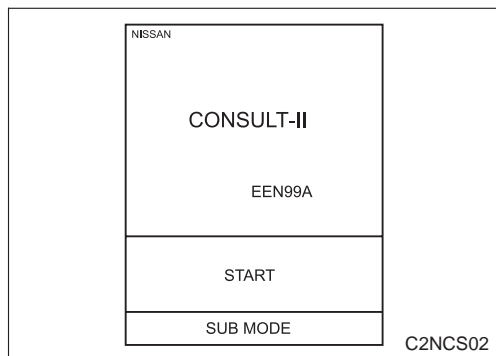




## CONSULT-II

### CONSULT-II INSPECTION PROCEDURE

1. Turn ignition switch OFF.
2. Connect "CONSULT-II" to Data link connector.



3. Insert NATS program card into CONSULT-II.

➡ : Program card  
EEN99A

4. Turn ignition switch ON.
5. Touch "START".



6. Perform each diagnostic test mode according to each service procedure.

**For further information, see the CONSULT-II Operation Manual, NATS.**

### CONSULT-II DIAGNOSTIC TEST MODE FUNCTION

CONSULT-II DIAGNOSTIC TEST MODE	Description
C/U INITIALIZATION	When replacing any of the following components, C/U initialization is necessary. [NATS ignition key/IMMU/ECM/Dongle]
SELF-DIAG RESULTS	Detected items (screen terms) are as shown in the chart below.
SELF-FUNCTION CHECK	ECM checks its own NATS communication interface by itself.

#### NOTE:

When any initialisation is performed, all ID previously registered will be erased and all NATS ignition keys must be registered again.

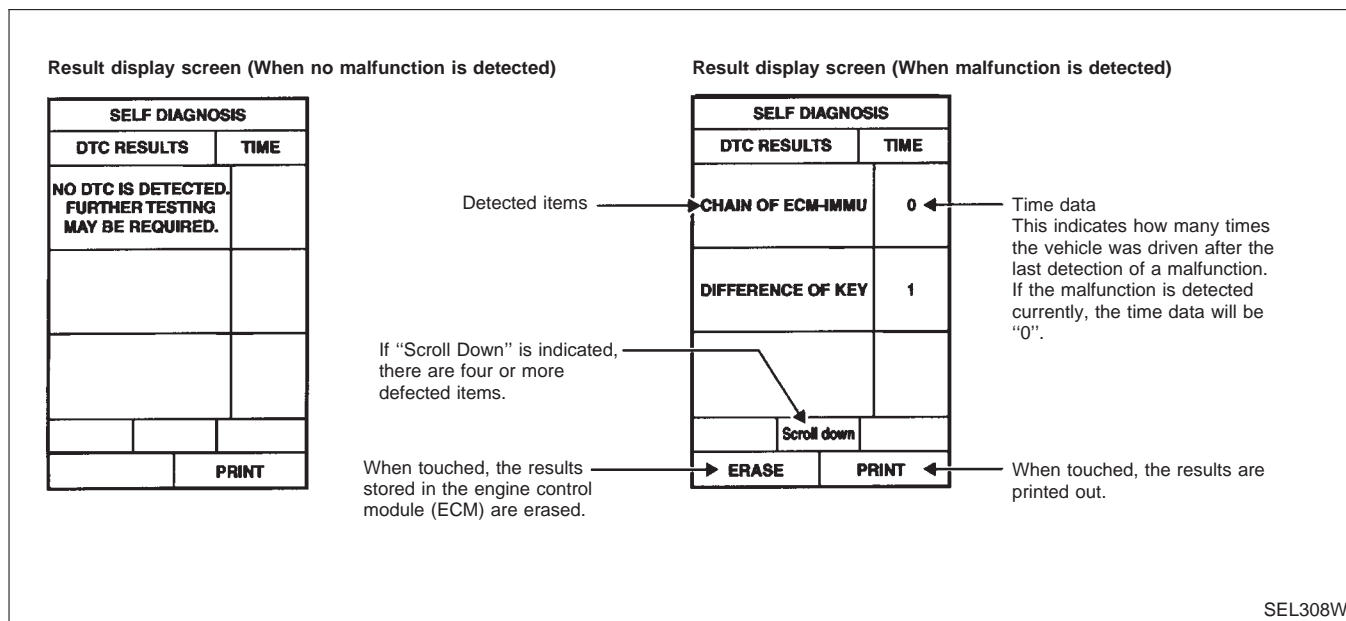
The engine cannot be started with an unregistered key. In this case, the system may show "DIFFERENCE OF KEY" or "LOCK MODE" as a self-diagnostic result on the CONSULT-II screen.

When initialisation is performed for RHD models for Europe, security indicator will flash six times to demonstrate recognition of dongle ID.

# NATS (Nissan Anti-Theft System)/Models with GA16DE and CD20T

## CONSULT-II (Cont'd)

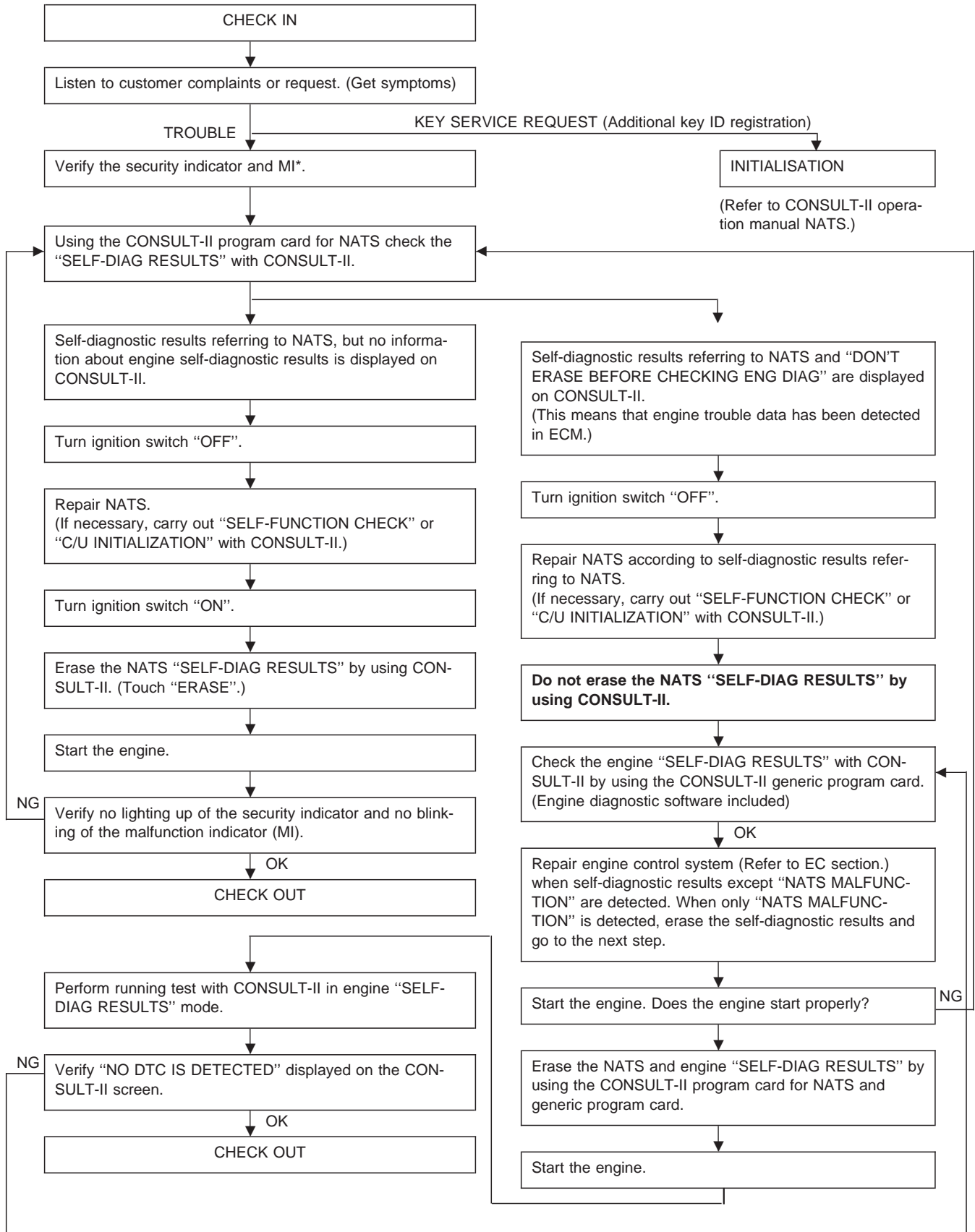
### HOW TO READ SELF-DIAGNOSTIC RESULTS



### NATS SELF-DIAGNOSTIC RESULTS ITEM CHART

Detected items (Screen terms)	Description	Reference page
CHAIN OF ECM-IMMU	Communication impossible between ECM and IMMU	EL-302
DIFFERENCE OF KEY	IMMU can receive the key ID signal but the result of ID verification between key ID and IMMU is NG.	EL-304
CHAIN OF IMMU-KEY	<ul style="list-style-type: none"> <li>IMMU cannot receive the key ID signal.</li> <li>Dongle unit is malfunctioning. (If dongle unit is equipped.)</li> </ul>	EL-305
ID DISCORD, IMM-ECM	The result of ID verification between IMMU and ECM is NG. System initialization is required.	EL-307
DON'T ERASE BEFORE CHECKING ENG DIAG	Engine trouble data and NATS trouble data have been detected in ECM.	EL-299
LOCK MODE	When an unregistered ignition key is used, or if the starting operation is carried out two or more times consecutively with the ignition key, IMMU or ECM malfunctioning, NATS will shift the mode to one which prevents the engine from being started.	EL-308

## Trouble Diagnoses WORK FLOW



# NATS (Nissan Anti-Theft System)/Models with GA16DE and CD20T

## Trouble Diagnoses (Cont'd)

### SYMPTOM MATRIX CHART 1

(Self-diagnosis related item)

SYMPTOM	Displayed "SELF-DIAG RESULTS" on CONSULT-II screen	DIAGNOSTIC PROCEDURE (Reference page)	SYSTEM (Malfunctioning part or mode)	REFERENCE PART NO. OF ILLUSTRATION ON NEXT PAGE
<ul style="list-style-type: none"> <li>Security indicator lighting up*</li> <li>MI blinking</li> <li>Engine does not start</li> </ul>	CHAIN OF ECM-IMMU	PROCEDURE 1 (EL-302)	Open circuit in battery voltage line of IMMU circuit	C1
			Open circuit in ignition line of IMMU circuit	C2
			Open circuit in ground line of IMMU circuit	C3
			Open or short circuit in communication line between IMMU and ECM	C4
			ECM	B
			IMMU	A
	DIFFERENCE OF KEY	PROCEDURE 2 (EL-304)	Unregistered key	D
			IMMU	A
	CHAIN OF IMMU-KEY	PROCEDURE 3 (EL-305)	Malfunction of key ID chip	E
			IMMU	A
			Open circuit in ground line of dongle circuit	C6
			Open or short circuit in communication line between IMMU and dongle unit	C5
			Dongle control unit	G
	ID DISCORD, IMM-ECM	PROCEDURE 4 (EL-307)	System initialisation has not yet been completed.	F
			ECM	B
			IMMU	A
	LOCK MODE	PROCEDURE 5 (EL-308)	LOCK MODE	D
<ul style="list-style-type: none"> <li>Security indicator lighting up*</li> <li>MI staying ON</li> </ul>	DON'T ERASE BEFORE CHECKING ENG DIAG	WORK FLOW (EL-299)	Engine trouble data and NATS trouble data have been detected in ECM.	—

**NOTE :**

- Lighting up mode of MI (Malfunction Indicator)
  - For single malfunction of NATS: Blinking
  - For dual malfunctions of NATS and an engine-related part: Stays ON
  - For single malfunction of an engine-related part: Stays ON
- When NATS detects trouble, the security indicator lights up and MI blinks while ignition key is in the "ON" position.
- When the vehicle is equipped with dongle unit (RHD models for Europe), the security indicator blinks 6 times just after ignition switch is turned to ON. Then the security indicator lights up while ignition key is in the "ON" position.

### NATS (Nissan Anti-Theft System)/Models with GA16DE and CD20T

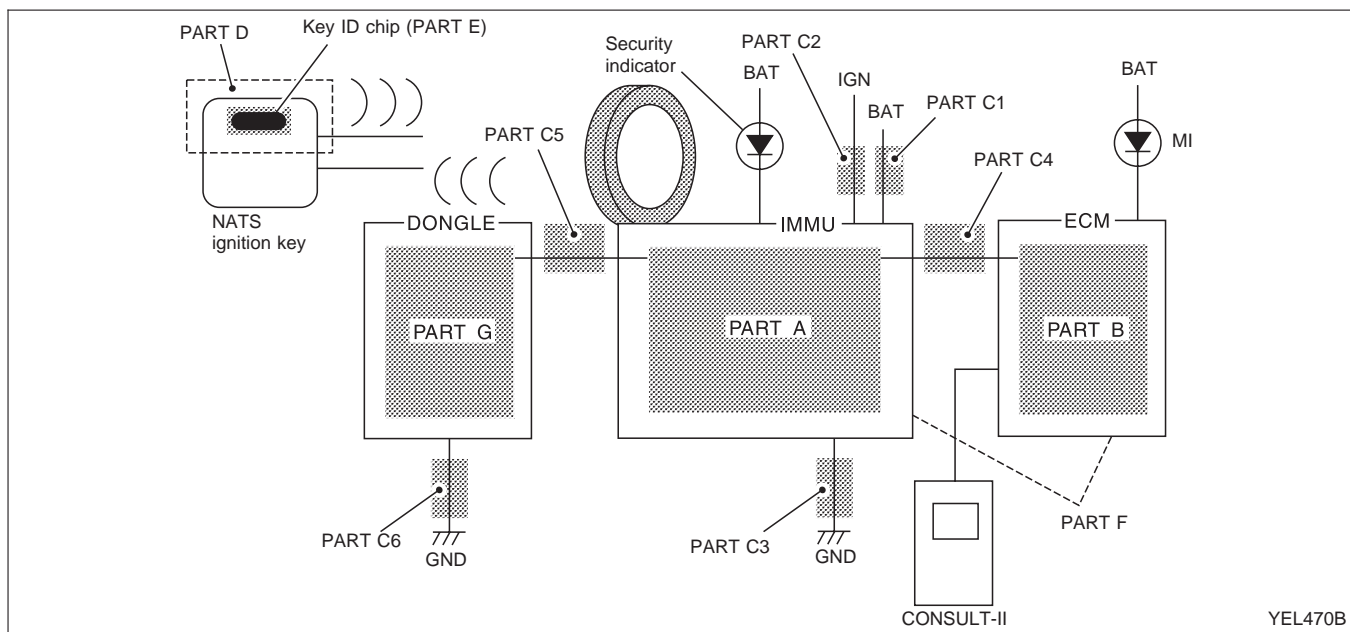
## Trouble Diagnoses (Cont'd)

## SYMPTOM MATRIX CHART 2

**(Non self-diagnosis related item)**

SYMPTOM	DIAGNOSTIC PROCEDURE (Reference page)	SYSTEM (Malfunctioning part or mode)	REFERENCE PART NO. OF ILLUSTRATION BELOW
● Security ind. does not light up.	PROCEDURE 6 (EL-309)	Security ind.	—
		Open circuit between Fuse and NATS IMMU	
		Continuation of initialization mode	
		NATS IMMU	
Security ind. does not blink just after initialization even if the vehicle is equipped with dongle unit.	PROCEDURE 7 (EL-310)	NATS might be initialized without connecting dongle unit properly.	
Open circuit in ground line of dongle circuit		C6	
Security ind. does not blink just after ignition switch is turned to ON when some malfunction related to NATS is detected even if the vehicle is equipped with dongle unit.		Open or short circuit in communication line between IMMU and dongle unit	C5
		Dongle control unit	G

## DIAGNOSTIC SYSTEM DIAGRAM



## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 1

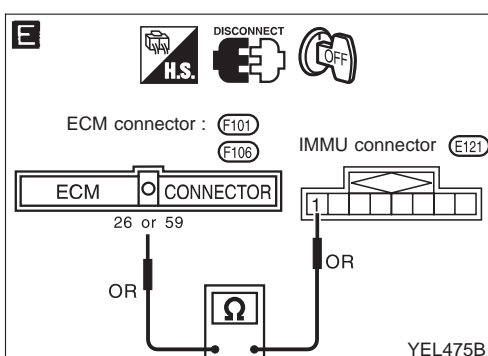
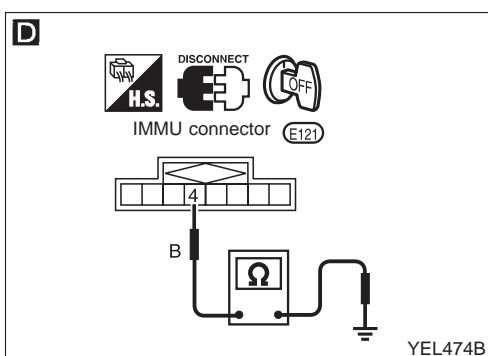
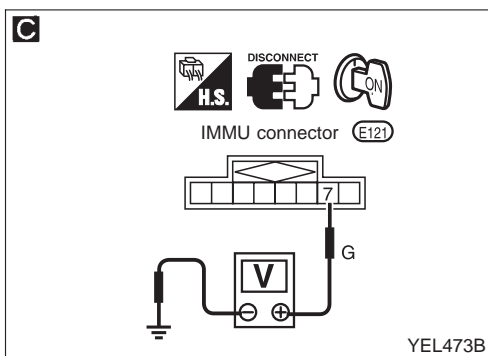
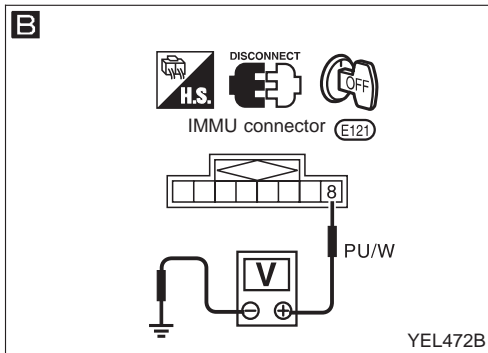
**Self-diagnostic results:**

**“CHAIN OF ECM-IMMU” displayed on CONSULT-II screen**

**A**

SELF DIAGNOSIS	
DTC RESULTS	TIME
CHAIN OF ECM-IMMU	0

YEL471B



**A**

Confirm SELF-DIAGNOSTIC RESULTS “CHAIN OF ECM-IMMU” displayed on CONSULT-II screen.

OK

**B**

**CHECK POWER SUPPLY CIRCUIT FOR IMMU.**  
Check voltage between IMMU terminal ⑧ and ground.  
**Battery voltage should exist.**

NG

Check the following.

- 10A fuse (No. 39): gasoline engine, located in the fuse and fusible link box)
- Harness for open or short between fuse and IMMU connector Ref. part No. C1

OK

**C**

**CHECK IGN SW. ON SIGNAL.**  
Check voltage between IMMU terminal ⑦ and ground while ignition switch is “ON” position.  
**Battery voltage should exist.**

NG

Check the following.

- 10A fuse [No. 12], located in the fuse block (J/B)]
- Harness for open or short between fuse and IMMU connector Ref. part No. C2

OK

**D**

**CHECK GROUND CIRCUIT FOR IMMU.**  
Check continuity between IMMU terminal ④ and ground.  
**Continuity should exist.**

NG

Repair harness. Ref. part No. C3

OK

**E**

**CHECK COMMUNICATION OPEN CIRCUIT.**  
Check continuity between IMMU terminal ① and ECM terminal ②⑥ (GA engine), ⑤⑨ (diesel engine).  
**Continuity should exist.**

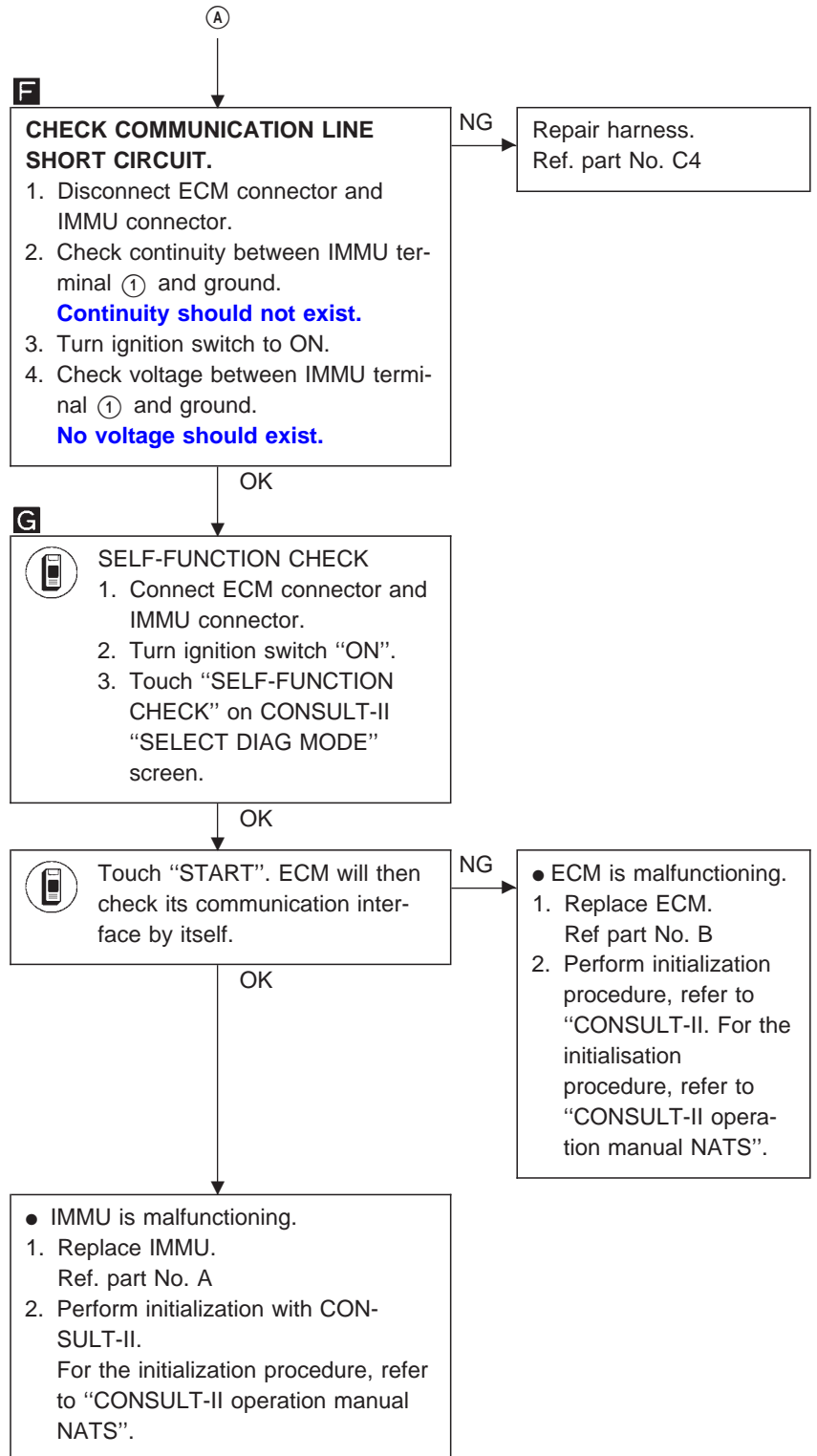
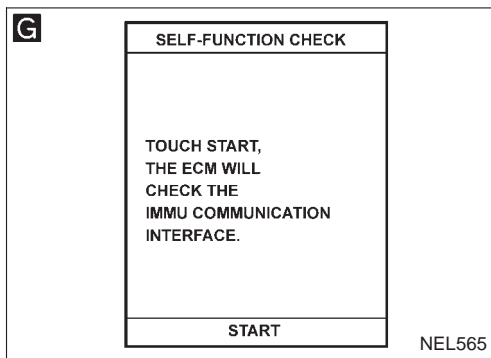
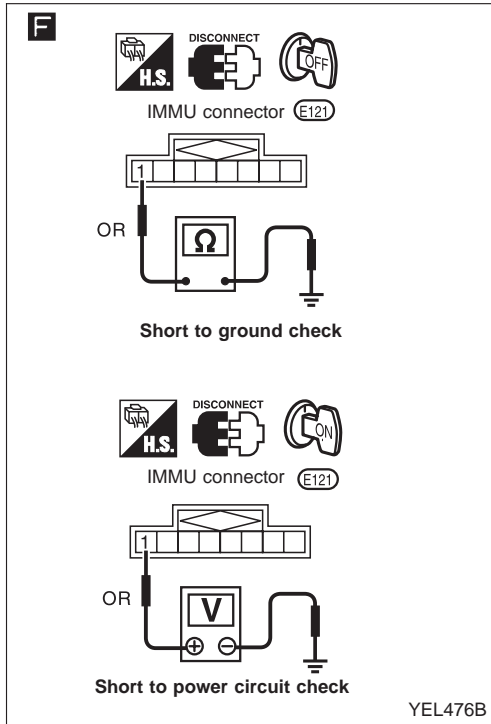
NG

Repair harness. Ref. part No. C4

OK

Ⓐ

## Trouble Diagnoses (Cont'd)



## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 2

**Self-diagnostic results:**

**“DIFFERENCE OF KEY” displayed on CONSULT-II screen**

**A**

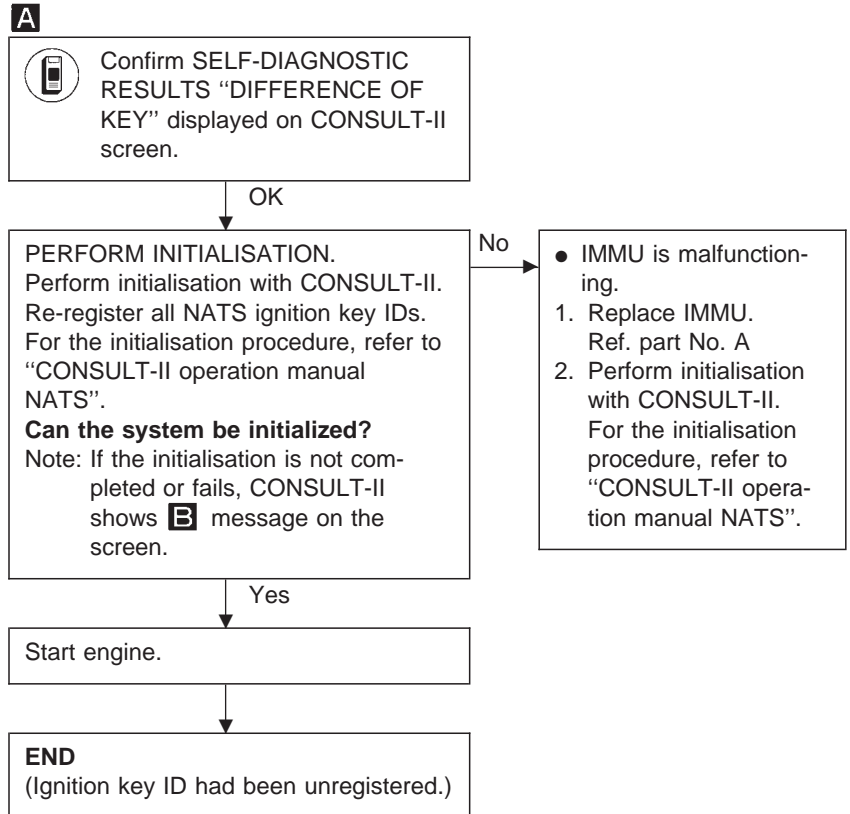
SELF DIAGNOSIS	
DTC RESULTS	TIME
DIFFERENCE OF KEY	0

YEL478B

**B**

IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

YEL479B





## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 3

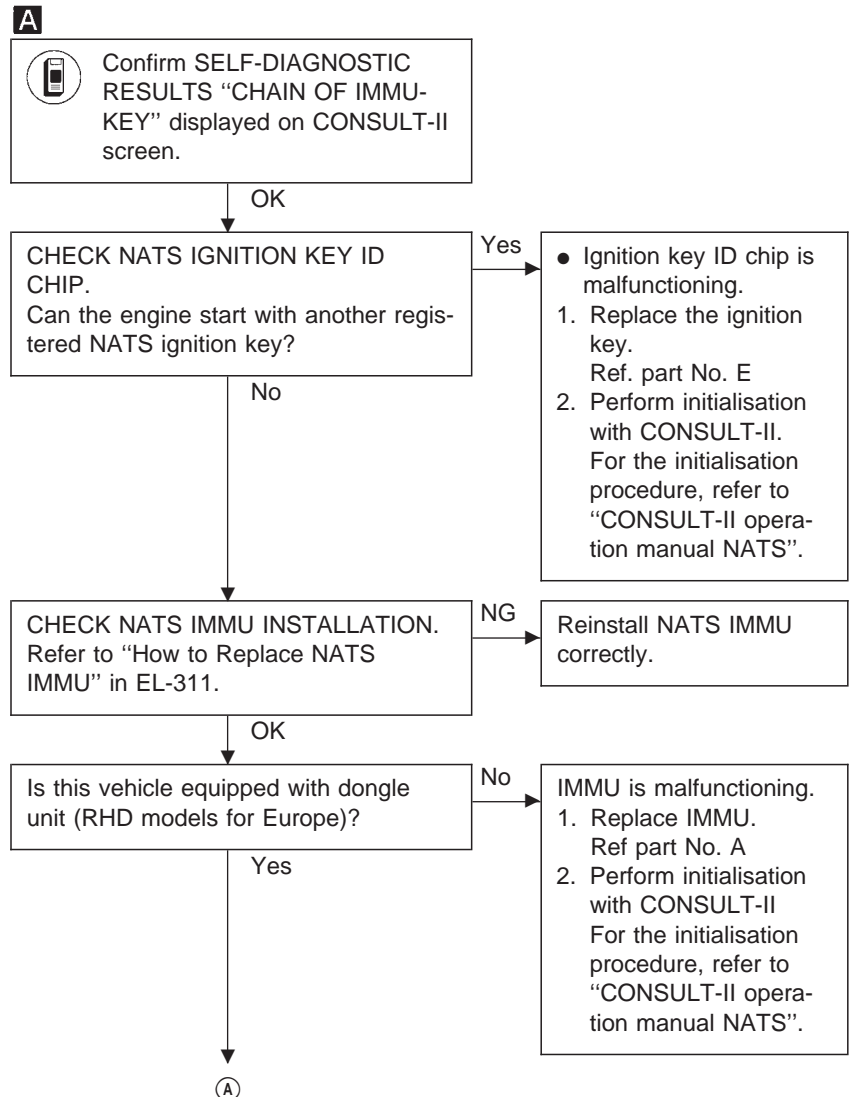
**Self-diagnostic results:**

**“CHAIN OF IMMU-KEY” displayed on CONSULT-II screen**

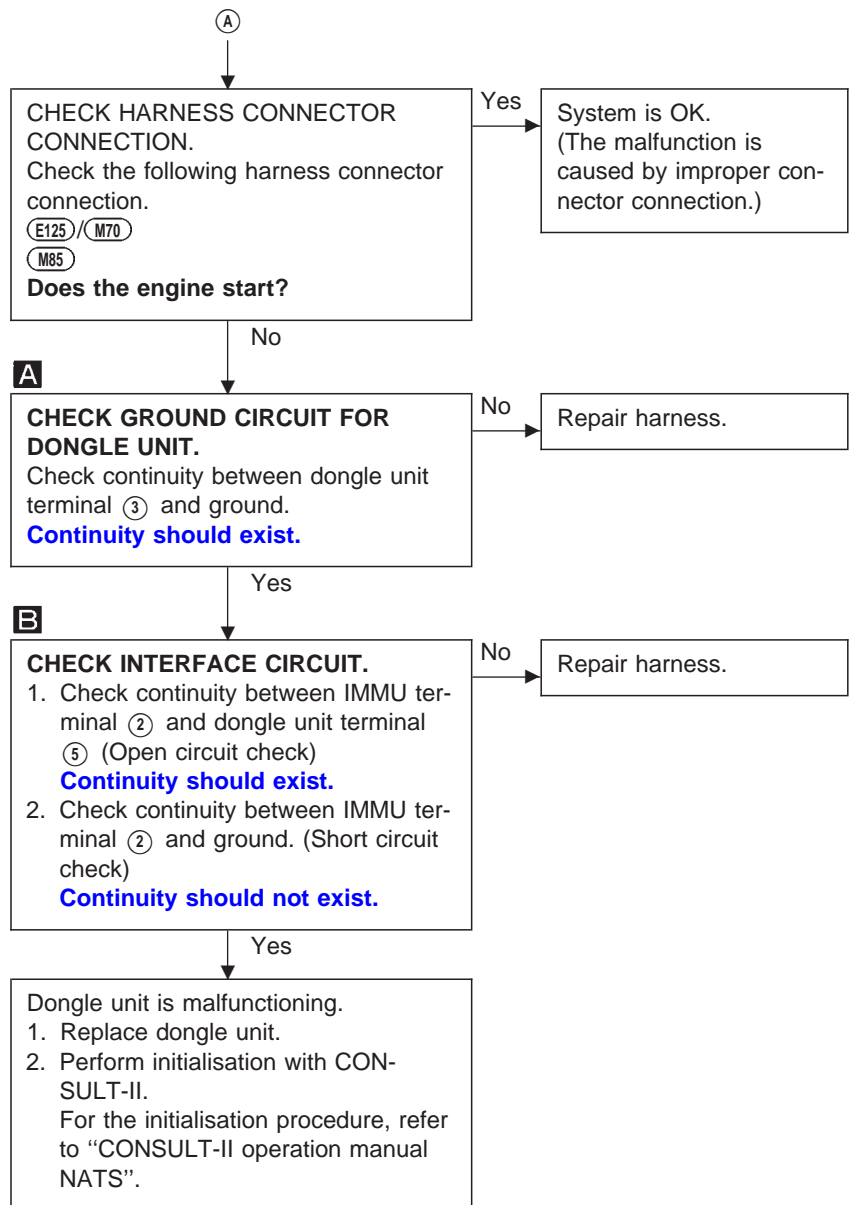
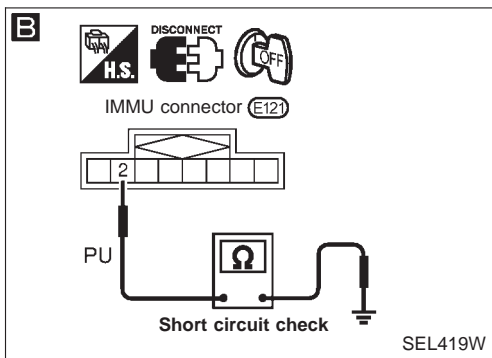
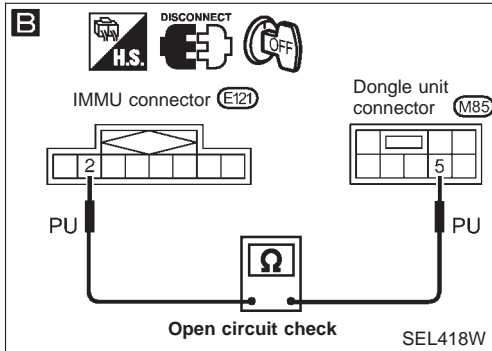
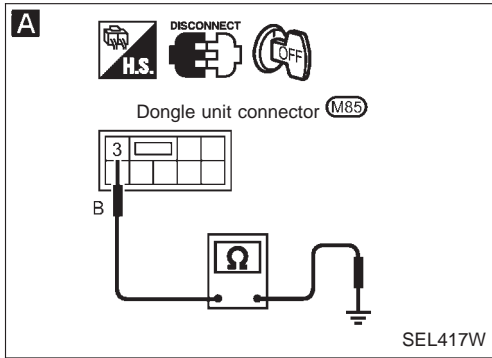
**A**

SELF DIAGNOSIS	
DTC RESULTS	TIME
CHAIN OF IMMU-KEY	0

YEL480B



## Trouble Diagnoses (Cont'd)



## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 4

**Self-diagnostic results:**

**"ID DISCORD, IMM-ECM" displayed on CONSULT-II screen**

**A**

SELF DIAG RESULTS	
DTC RESULTS	TIME
ID DISCORD, IMM-ECM	0

C2SDD01

**B**

IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

YEL479B

**A**

Confirm SELF-DIAGNOSTIC RESULTS "ID DISCORD, IMM-ECM\*" displayed on CONSULT-II screen.

\* "ID DISCORD, IMM-ECM":  
Registered ID of IMMU is in  
discord with that of ECM.

**PERFORM INITIALISATION.**  
Perform initialisation with CONSULT-II.  
Re-register all NATS ignition key IDs.  
For the initialisation procedure, refer to  
"CONSULT-II operation manual NATS".  
**Can the system be initialized?**  
Note: If the initialisation is not com-  
pleted or fails, CONSULT-II  
shows **B** message on the  
screen.

No →

- ECM is malfunctioning.
- 1. Replace ECM.  
Ref. part No. B
- 2. Perform initialisation  
with CONSULT-II.  
For the initialisation  
procedure, refer to  
"CONSULT-II opera-  
tion manual NATS".

Yes ↓

Start engine. (END)  
(System initialisation was not com-  
pleted. Ref. part No. F)

## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 5

**Self-diagnostic results:**

**“LOCK MODE” displayed on CONSULT-II screen**

**A**

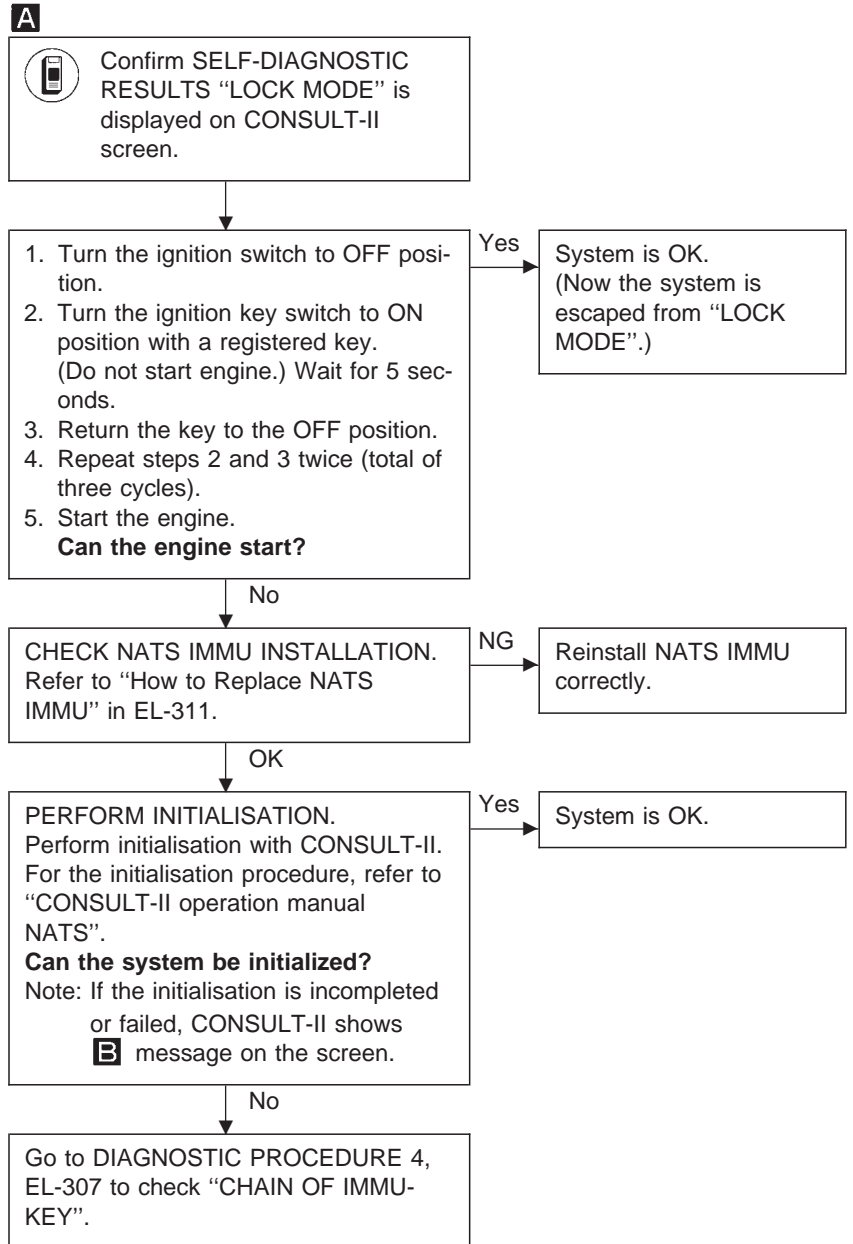
SELF DIAGNOSIS	
DTC RESULTS	TIME
LOCK MODE	0

YEL484B

**B**

IMMU INITIALIZATION
INITIALIZATION FAIL
THEN IGN KEY SW 'OFF' AND 'ON', AFTER CONFIRMING SELF-DIAG AND PASSWORD, PERFORM C/U INITIALIZATION AGAIN.

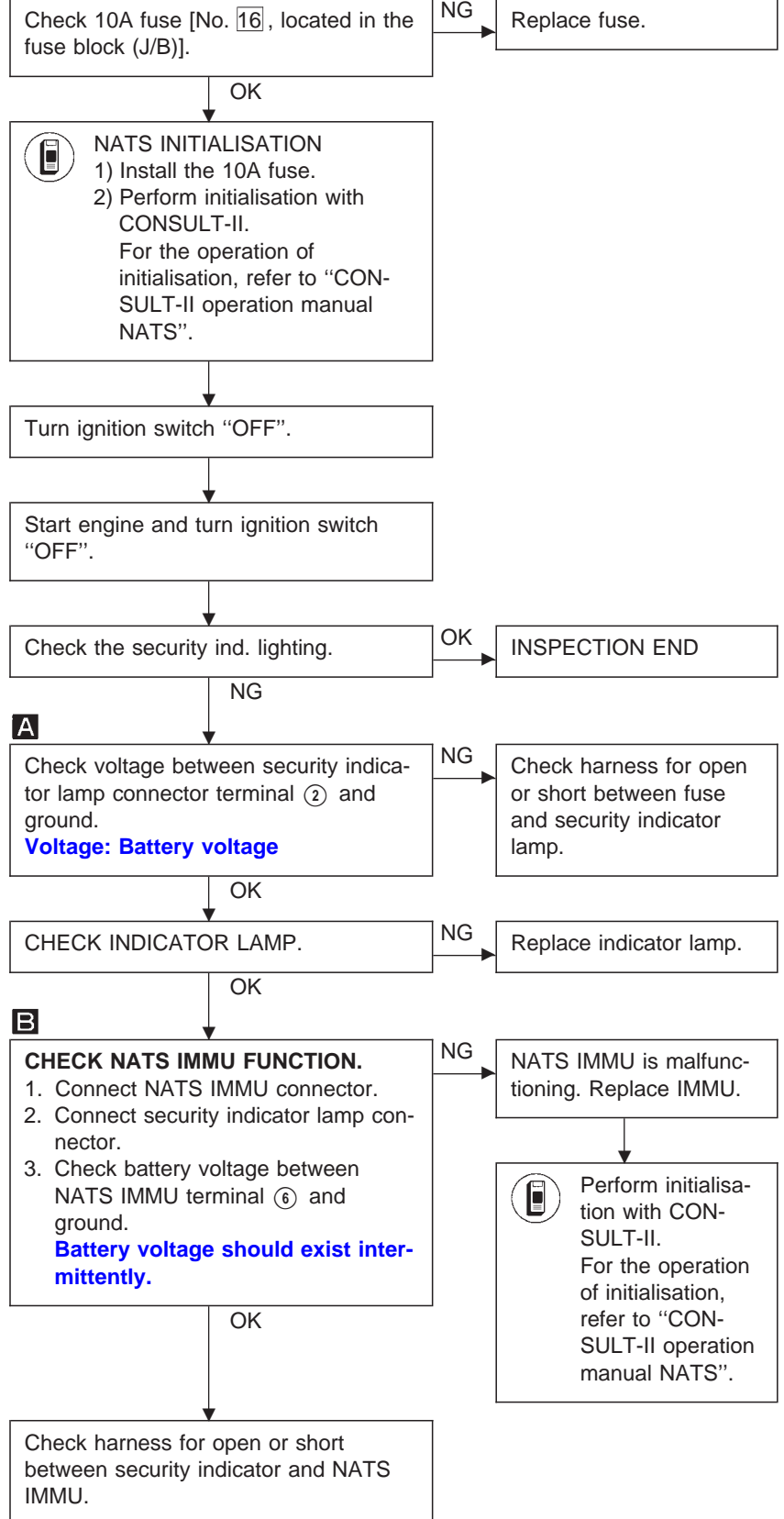
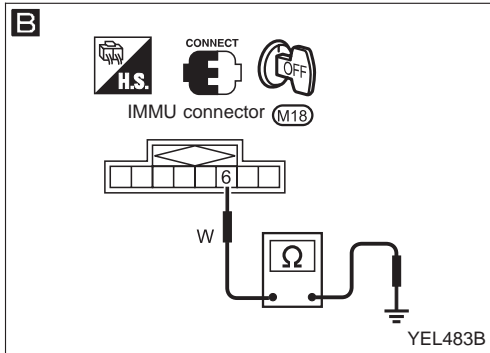
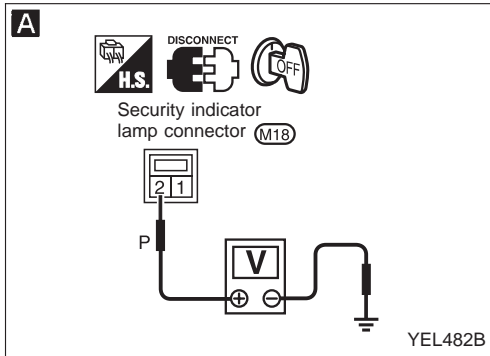
YEL479B



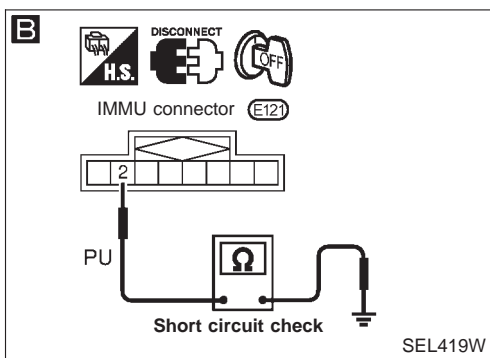
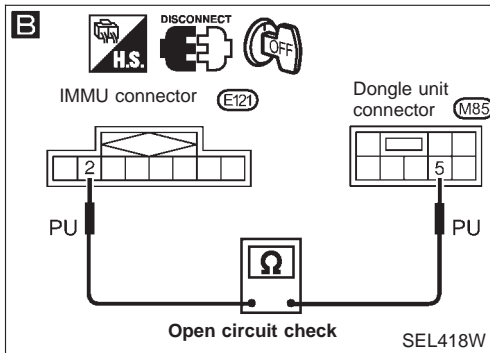
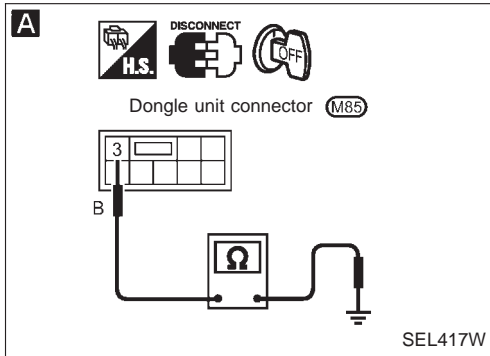
## Trouble Diagnoses (Cont'd)

### DIAGNOSTIC PROCEDURE 6

#### “SECURITY INDICATOR LAMP DOES NOT LIGHT UP”



## Trouble Diagnoses (Cont'd) DIAGNOSTIC PROCEDURE 7



Perform initialization with CONSULT-II  
Check the following harness connector connection.

(E125)/(M70)

(M85)

Then initialize NATS. For the operation of initialization, refer to "CONSULT-II operation manual NATS".

**Does the security indicator blink just after the initialization?**

Yes

System is OK.  
(The malfunction is caused by improper connector connection.)

No

**A**

### CHECK GROUND CIRCUIT FOR DONGLE UNIT.

Check continuity between dongle unit terminal ③ and ground.

**Continuity should exist.**

No

Repair harness.

Yes

**B**

### CHECK INTERFACE CIRCUIT.

1. Check continuity between IMMU terminal ② and dongle unit terminal ⑤ (Open circuit check)

**Continuity should exist.**

2. Check continuity between IMMU terminal ② and ground. (Short circuit check)

**Continuity should not exist.**

No

Repair harness.

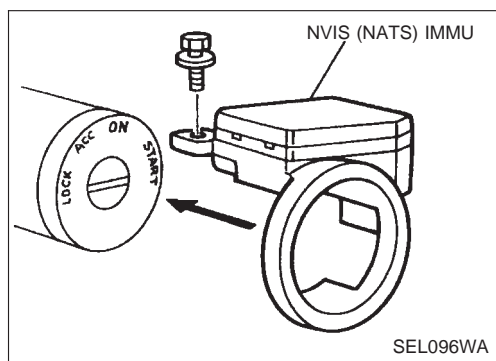
Yes

Dongle unit is malfunctioning.

1. Replace dongle unit.

2. Perform initialisation with CONSULT.

For the initialisation procedure, refer to "CONSULT-II operation manual NATS".



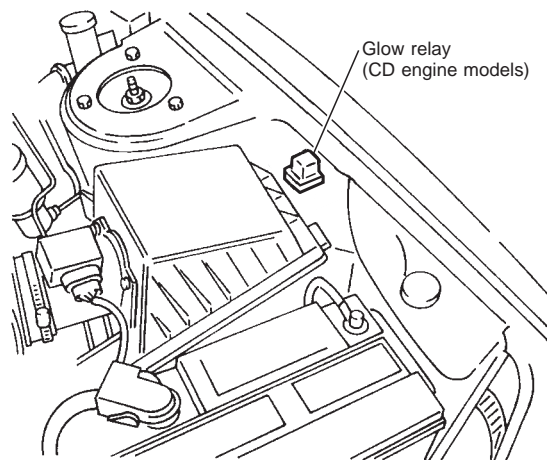
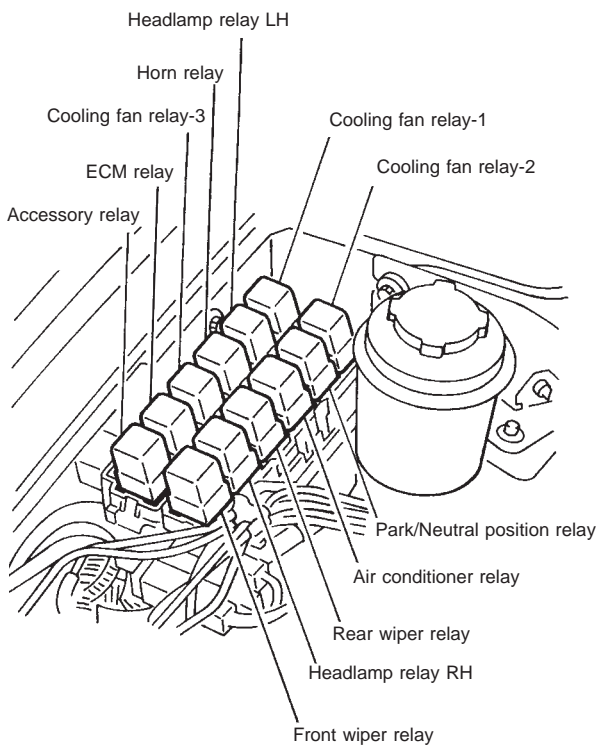
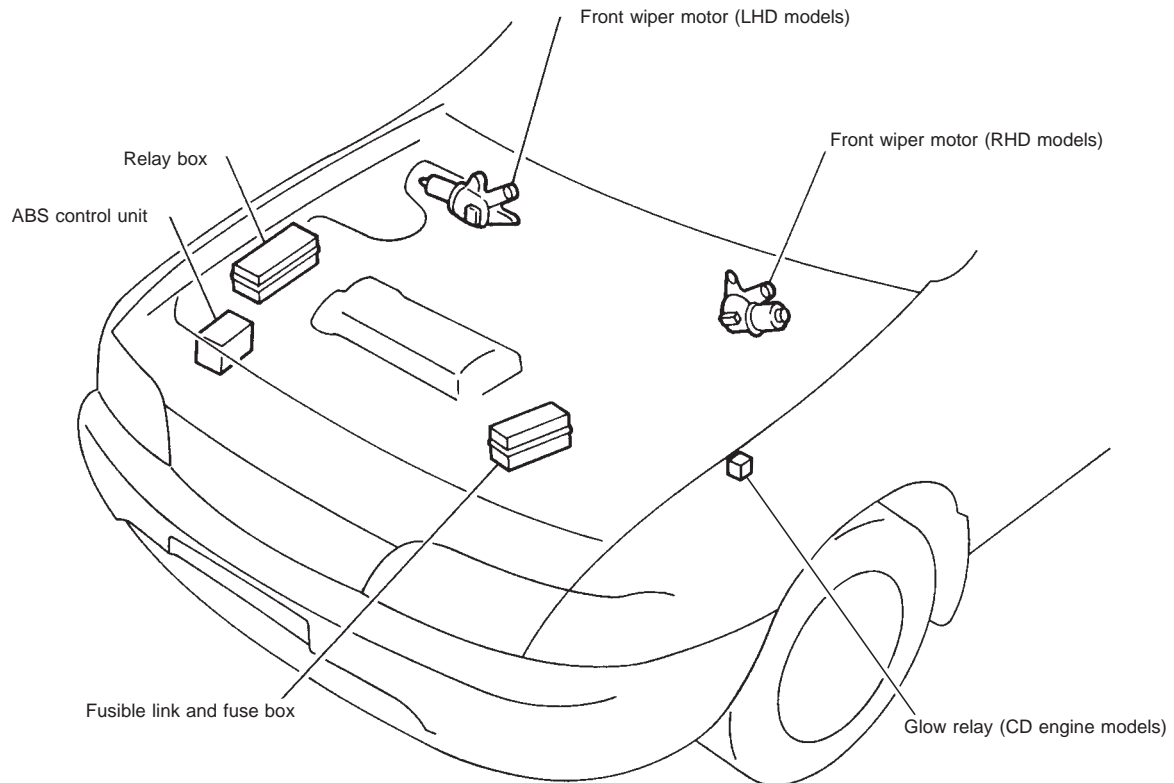
### How to Replace NATS IMMU

#### NOTE:

- If NATS IMMU is not installed correctly, NATS system will not operate properly and SELF-DIAG RESULTS on CONSULT-II screen will show "LOCK MODE" or "CHAIN OF IMMU-KEY".

# LOCATION OF ELECTRICAL UNITS

## Engine Compartment



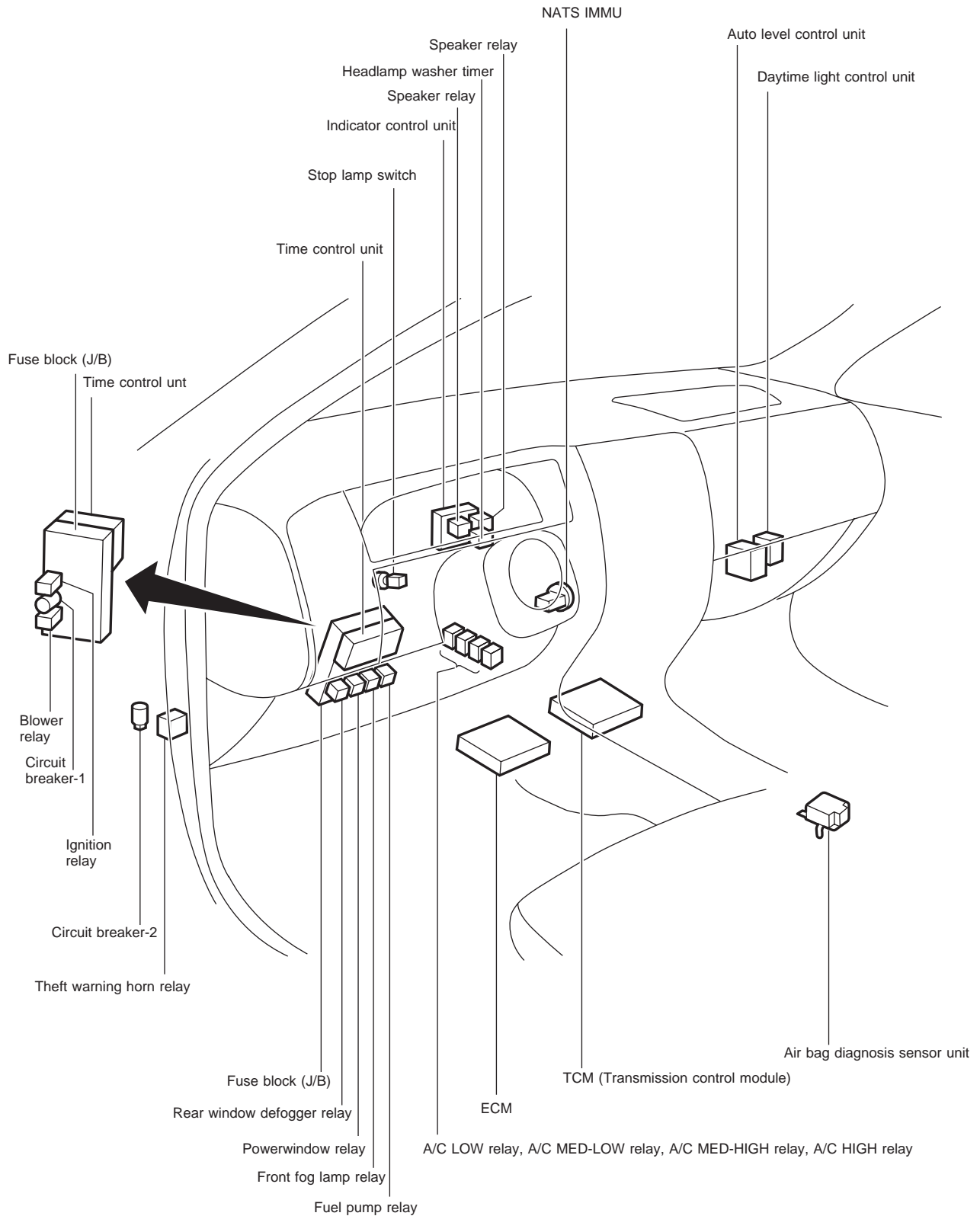
YEL414B



# LOCATION OF ELECTRICAL UNITS

## Passenger Compartment

### LHD MODELS

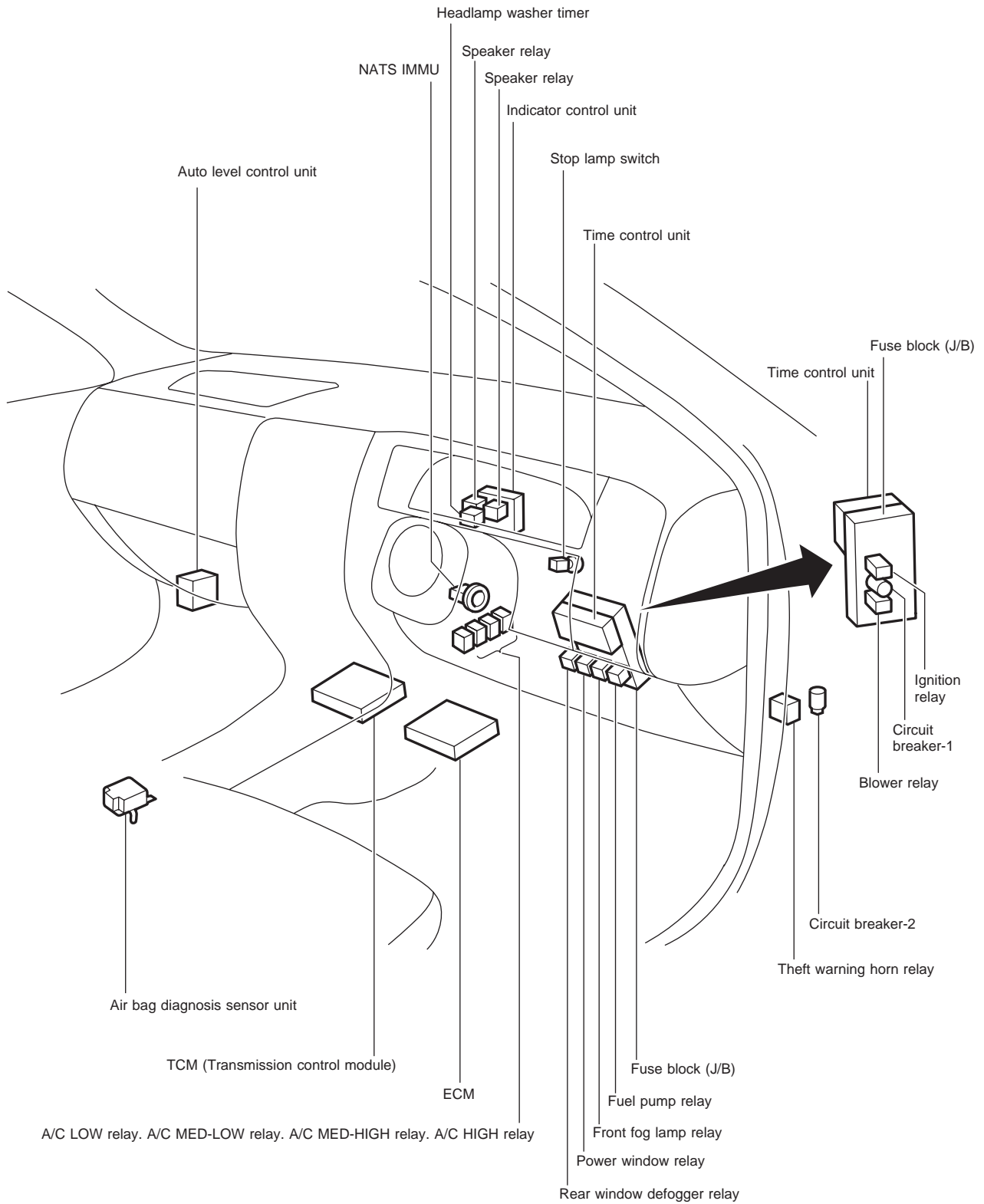


YEL415B

# LOCATION OF ELECTRICAL UNITS

## Passenger Compartment (Cont'd)

### RHD MODELS

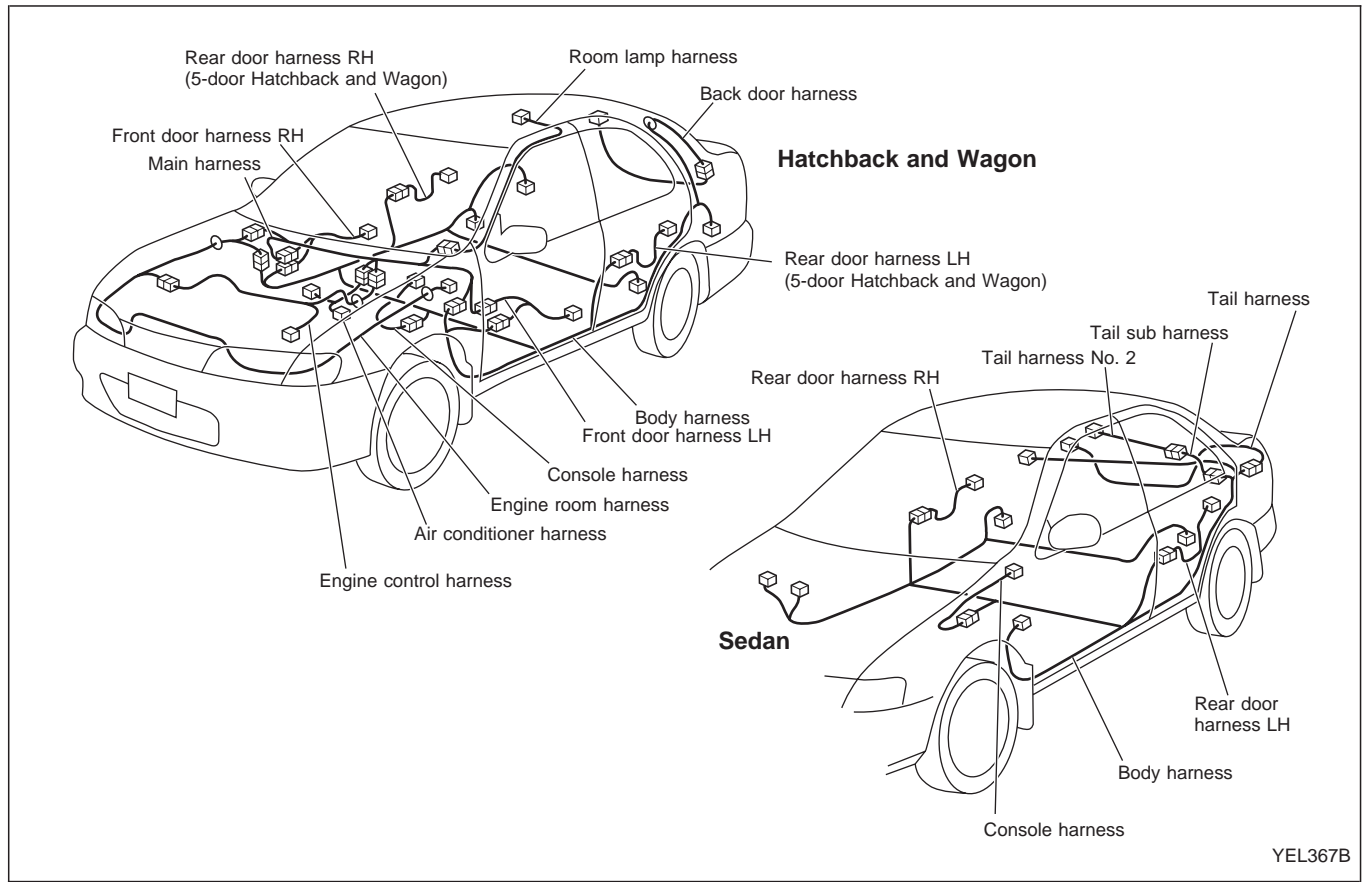


YEL416B

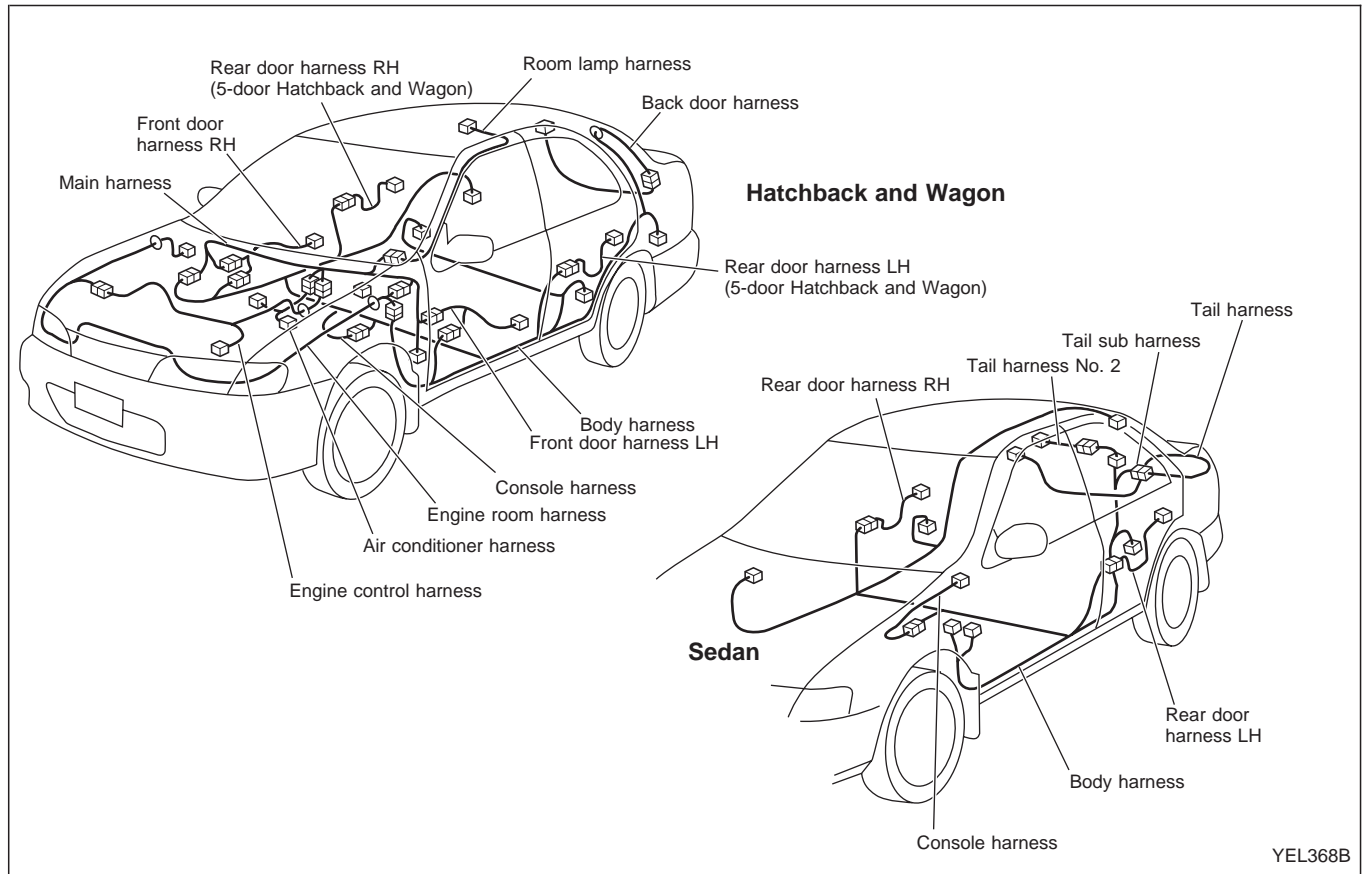
# HARNESS LAYOUT

## LHD MODELS

### Outline



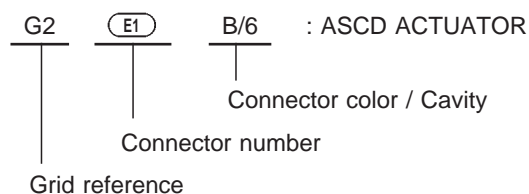
## RHD MODELS



# HARNESS LAYOUT

## How to Read Harness Layout

Example:



The following Harness Layouts use a map style grid to help locate connectors on the drawings:

- Engine Room Harness (Engine Compartment)
- Main Harness
- Body Harness

### To use the grid reference

- 1) Find the desired connector number on the connector list.
- 2) Find the grid reference.
- 3) On the drawing, find the crossing of the grid reference letter column and number row.
- 4) Find the connector number in the crossing zone.
- 5) Follow the line (if used) to the connector.

### CONNECTOR SYMBOL

Main symbols of connector (in Harness Layout) are indicated in the below.

Connector type	Water proof type		Standard type	
	Male	Female	Male	Female
● Cavity: Less than 4 ● Relay connector				
● Cavity: From 5 to 8				
● Cavity: More than 9	—	—		
● Ground terminal etc.	—			

## **HARNESS LAYOUT**

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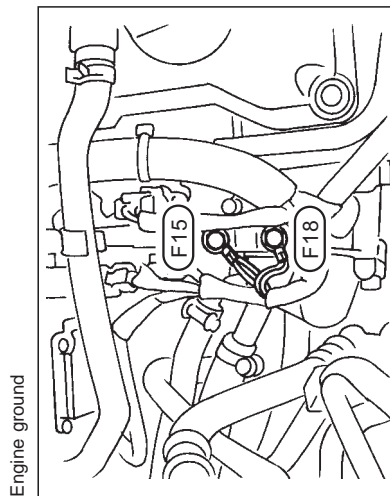
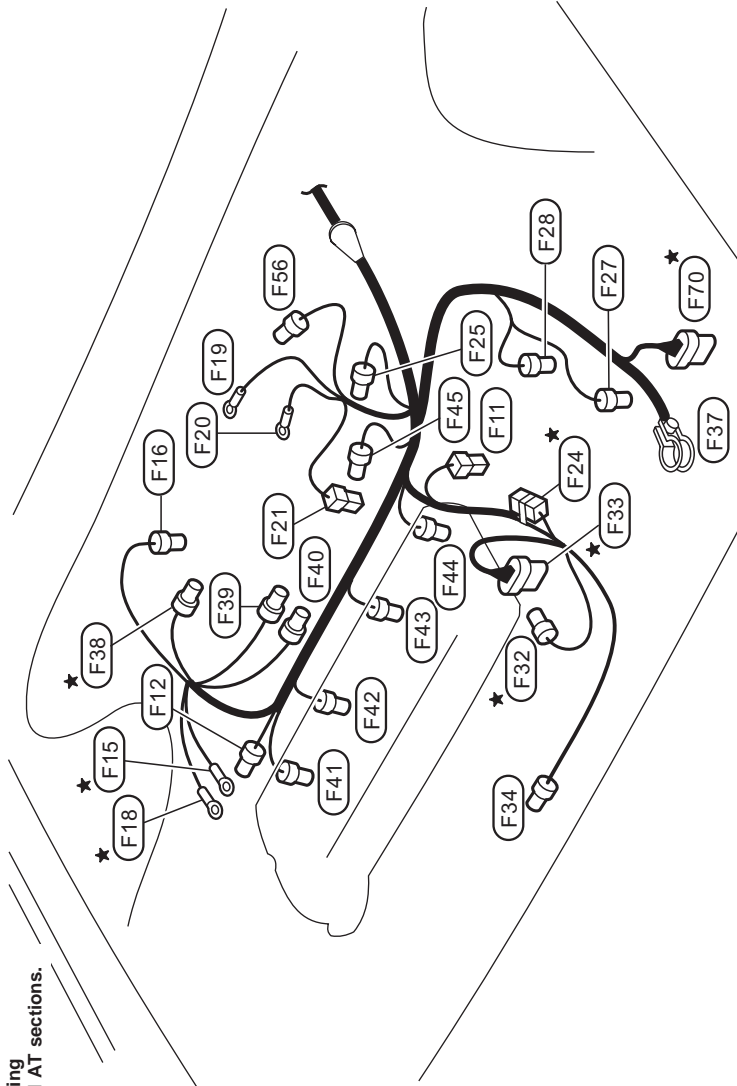
### **How to Read Harness Layout (Cont'd)**

Note

# HARNESS LAYOUT

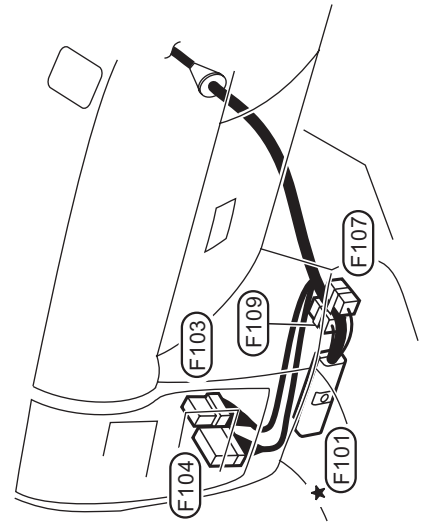
## Engine Control Harness

### GA16DE ENGINE

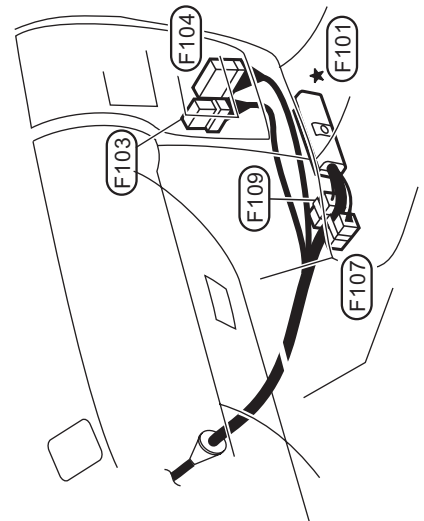


\* Be sure to connect and lock the connectors securely after repair work.  
Failure to do so may cause the ECM to have diagnostic trouble codes.  
**Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

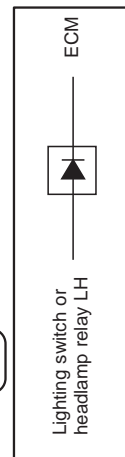
LHD models



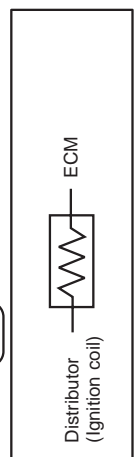
RHD models



Diode (F109)



Resistor (F24)



YEL369B

# HARNESS LAYOUT

## Engine Control Harness (Cont'd)

(F11)	B/1	: Thermal transmitter
(F12)	GY/2	: Engine coolant temperature sensor
★(F15)	—	: Engine ground
(F16)	BR/3	: Throttle position sensor
★(F18)	—	: Engine ground
(F19)	—	: Starter motor
(F20)	—	: Starter motor
(F21)	B/1	: Oil pressure switch
★(F24)	—/2	: Resistor
(F25)	BR/3	: Vehicle speed sensor
(F27)	GY/2	: Back-up lamp switch
(F28)	B/2	: Neutral position switch
★(F32)	GY/2	: Distributor (Ignition coil)
★(F33)	GY/6	: Distributor (Camshaft position sensor)
(F34)	GY/3	: Heated oxygen sensor
(F37)	—	: Battery
★(F38)	GY/3	: Mass air flow sensor
(F39)	BR/2	: IACV-AAC valve
(F40)	PU/2	: IACV-FICD solenoid valve
(F41)	B/2	: Injector No. 1
(F42)	B/2	: Injector No. 2
(F43)	B/2	: Injector No. 3
(F44)	B/2	: Injector No. 4
(F45)	G/2	: EGR valve and EVAP canister purge control solenoid valve
(F56)	GY/1	: Starter motor (Nordic)
★(F70)	GY/9	: To (E55)
★(F101)	L/64	: ECM
(F103)	W/6	: To (M52)
(F104)	W/24	: To (M50)
(F107)	GY/6	: Joint connector-1
(F109)	—/2	: Diode (With A/C)

★ Be sure to connect and lock the connectors securely after repair work.  
Failure to do so may cause the ECM to have diagnostic trouble codes.  
**Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

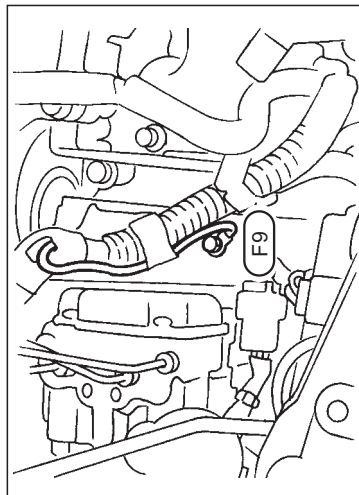
# HARNESS LAYOUT

## Engine Control Harness (Cont'd)

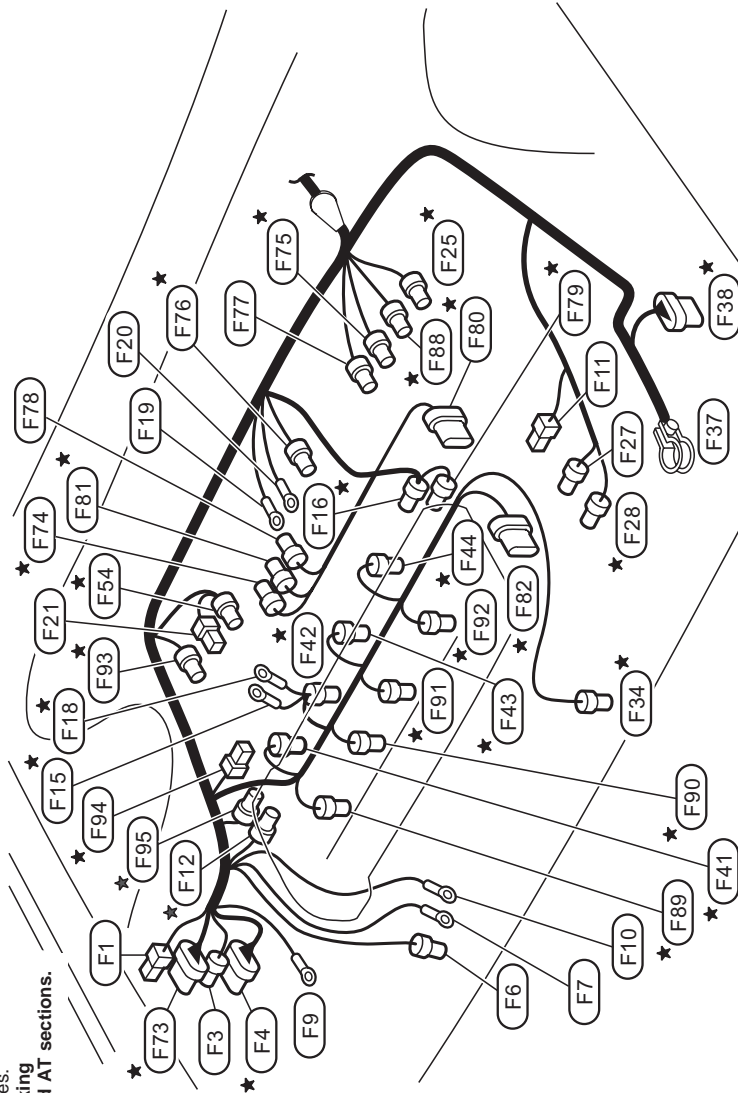
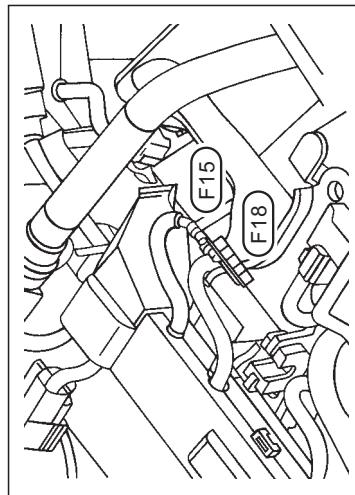
### QG18DE ENGINE

★ Be sure to connect and lock the connectors securely after repair work.  
Failure to do so may cause the ECM to have diagnostic trouble codes.  
**Do not disconnect these connectors except in the case of working**  
according to **WORK FLOW of TROUBLE DIAGNOSES** in EC and AT sections.

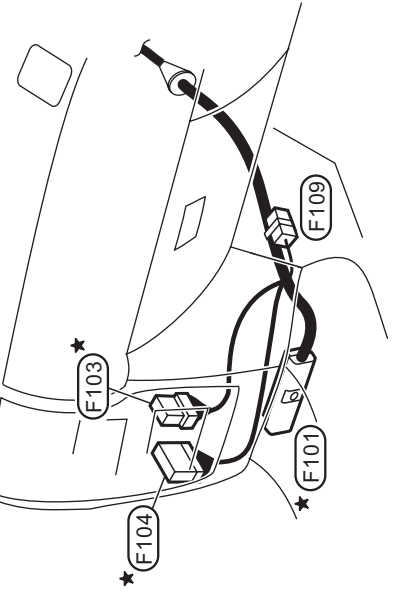
Body ground



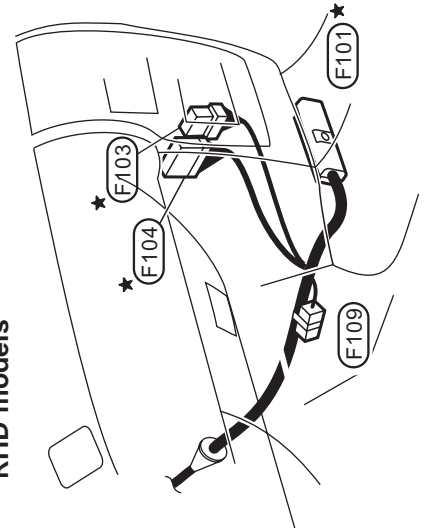
Engine ground



LHD models



RHD models



Diode (F109)

Lighting switch or  
headlamp relay LH

ECM

YEL371B



# HARNESS LAYOUT

## Engine Control Harness (Cont'd)

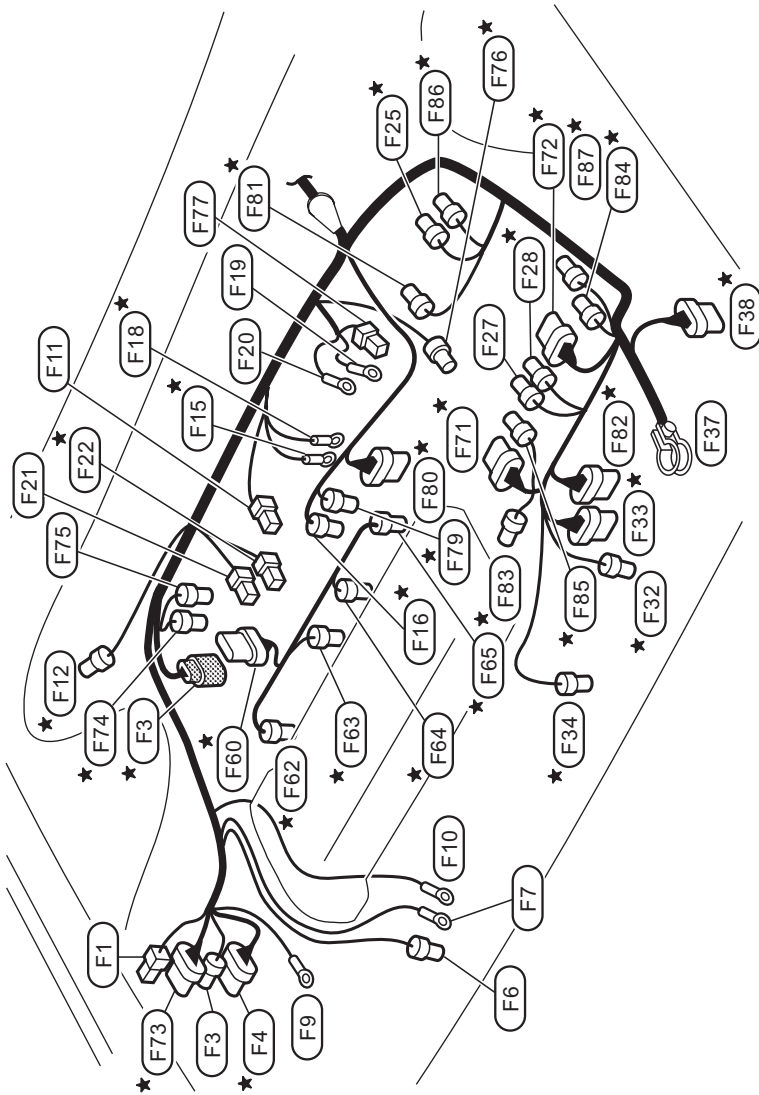
★(F1)	B/2	: To (E41)	★(F73)	B/8	: To (E90)	EVAP canister purge volume control solenoid valve
(F3)	B/2	: To (E44)	(F74)	L/2	: EVAP canister purge volume control solenoid valve	
★(F4)	GY/10	: To (E42)	★(F75)	G/2	: Swirl control valve control solenoid valve	
(F6)	GY/2	: Alternator	★(F76)	GY/4	: Rear heated oxygen sensor	
(F7)	—	: Alternator	(F77)	GY/1	: Starter motor (For Nordic)	
(F9)	—	: Body ground	(F78)	B/2	: Swirl control valve control vacuum check switch	
(F10)	—	: Alternator	★(F79)	GY/3	: Throttle position switch	
(F11)	B/1	: Thermal transmitter	★(F80)	GY/6	: IACV-AAC valve	
★(F12)	GY/2	: Engine coolant temperature sensor	★(F81)	L/2	: EGR temperature sensor	
★(F15)	—	: Engine ground	★(F82)	GY/6	: EGR volume control valve	
★(F16)	BR/3	: Throttle position sensor	★(F88)	B/3	: Crankshaft position sensor (POS)	
★(F18)	—	: Engine ground	★(F89)	GY/3	: Ignition coil No.1	
(F19)	—	: Starter motor	★(F90)	GY/3	: Ignition coil No.2	
(F20)	—	: Starter motor	★(F91)	GY/3	: Ignition coil No.3	
(F21)	B/1	: Oil pressure switch	★(F92)	GY/3	: Ignition coil No. 4	
★(F25)	BR/3	: Vehicle speed sensor	★(F93)	G/2	: Intake valve timing control solenoid valve	
(F27)	B/2	: Back-up lamp switch	★(F94)	GY/2	: Condenser	
★(F28)	B/2	: Neutral position switch	★(F95)	B/3	: Camshaft position sensor (PHASE)	
★(F34)	GY/3	: Front heated oxygen sensor	★(F101)	GY/111	: ECM	
(F37)	—	: Battery	★(F103)	W/6	: To (M52)	
★(F38)	GY/5	: Mass air flow sensor	★(F104)	W/24	: To (M50)	
★(F41)	GY/2	: Injector No. 1	(F109)	—	: Diode (With A/C)	
★(F42)	GY/2	: Injector No. 2				
★(F43)	GY/2	: Injector No. 3				
★(F44)	GY/2	: Injector No. 4				
★(F54)	GY/2	: Knock sensor				

★ Be sure to connect and lock the connectors securely after repair work.  
Failure to do so may cause the ECM to have diagnostic trouble codes.  
**Do not disconnect these connectors except in the case of working**  
according to **WORK FLOW of TROUBLE DIAGNOSES** in EC and AT sections.

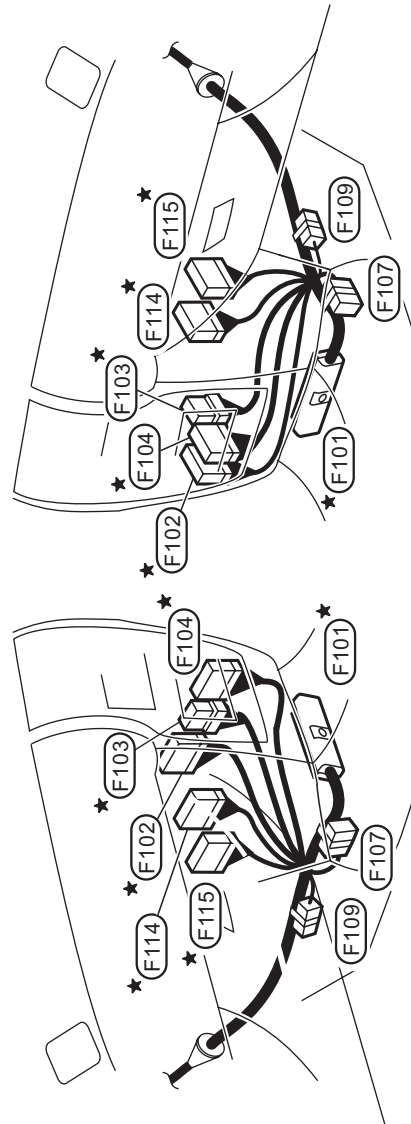
# HARNESS LAYOUT

## Engine Control Harness (Cont'd)

### SR20DE ENGINE

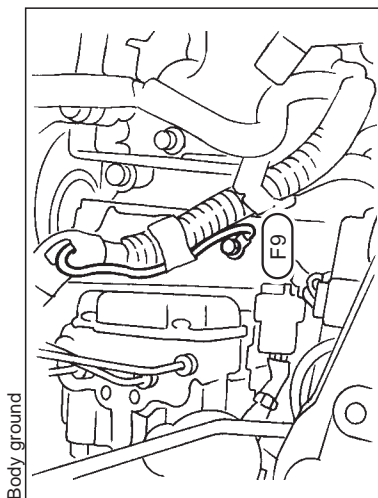


LHD models

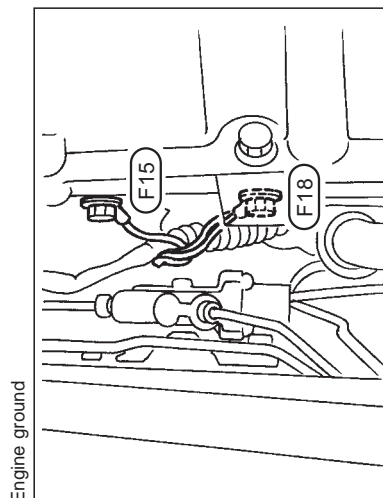


RHD models

\* Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.



Body ground



Engine ground

Resistor (F86)

Control valve (Line pressure solenoid valve)



TCM (Transmission control module)

Diode (F109)

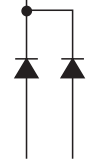
Lighting switch or headlamp relay LH



ECM

Diode (F107)

Park/Neutral position switch



TCM (Transmission control module)

YEL373B

# HARNESS LAYOUT

## Engine Control Harness (Cont'd)

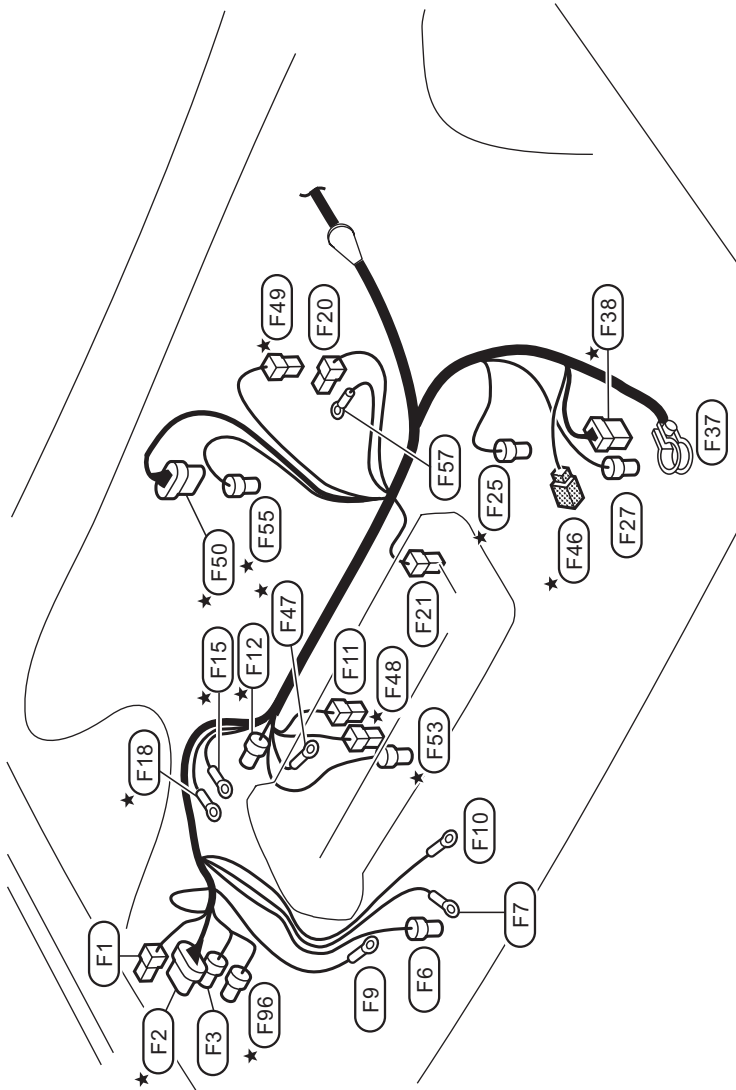
(F1)	B/2	:	To (E41)
(F3)	B/2	:	To (E44)
★(F4)	GY/10	:	To (E42)
(F6)	GY/2	:	Alternator
(F7)	—	:	Alternator
(F9)	—	:	Body ground
(F10)	—	:	Alternator
(F11)	B/1	:	Thermal transmitter
★(F12)	GY/2	:	Engine coolant temperature sensor
★(F13)	GY/6	:	To (F60)
★(F15)	—	:	Engine ground
★(F16)	BR/3	:	Throttle position sensor
★(F18)	—	:	Engine ground
(F19)	—	:	Starter motor (M/T models)
(F20)	—	:	Starter motor
(F21)	B/1	:	Oil pressure switch
★(F22)	B/2	:	Knock sensor
★(F25)	BR/3	:	Vehicle speed sensor
(F27)	B/2	:	Back-up lamp switch (M/T models)
★(F28)	B/2	:	Neutral position switch (M/T models)
(F32)	GY/2	:	Distributor
★(F33)	GY/8	:	Distributor
★(F34)	GY/3	:	Front heated oxygen sensor
(F37)	—	:	Battery
★(F38)	GY/5	:	Mass air flow sensor
★(F60)	G/6	:	To (F13)
(F62)	GY/2	:	Injector No. 1
(F63)	GY/2	:	Injector No. 2
(F64)	GY/2	:	Injector No. 3
(F65)	GY/2	:	Injector No. 4
★(F71)	B/12	:	Control valve (CVT models)
★(F72)	B/10	:	Park/Neutral position switch (CVT models)
★(F73)	B/8	:	To (E90)
★(F74)	L/2	:	EVAP canister purge volume control solenoid valve
(F75)	BR/2	:	Swirl control valve control solenoid valve
★(F76)	GY/4	:	Rear heated oxygen sensor
(F77)	B/1	:	Starter motor (CVT models)
★(F79)	GY/3	:	Throttle position switch
★(F80)	GY/6	:	IACV-AAC valve
★(F81)	L/2	:	EGR temperature sensor (M/T models)
★(F82)	GY/6	:	EGR volume control valve
★(F83)	GY/2	:	Camshaft position sensor
★(F84)	L/2	:	EGR temperature sensor (CVT models)
★(F85)	B/3	:	Primary speed sensor (CVT models)
★(F86)	GY/2	:	Dropping resistor (CVT models)
★(F87)	B/3	:	Secondary speed sensor (CVT models)
★(F101)	GY/111	:	ECM
★(F102)	W/24	:	To (M63) (CVT models)
★(F103)	W/6	:	To (M62) (M/T models)
★(F104)	W/24	:	To (M50) (M/T models)
(F107)	GY/6	:	Diode
(F109)	—	:	Diode (With A/C)
★(F114)	W/16	:	To (M80) (CVT models)
★(F115)	W/20	:	To (M81) (CVT models)

★ Be sure to connect and lock the connectors securely after repair work.  
Failure to do so may cause the ECM to have diagnostic trouble codes.  
**Do not disconnect these connectors except in the case of working**  
according to **WORK FLOW of TROUBLE DIAGNOSES** in EC and AT sections.

# HARNESS LAYOUT

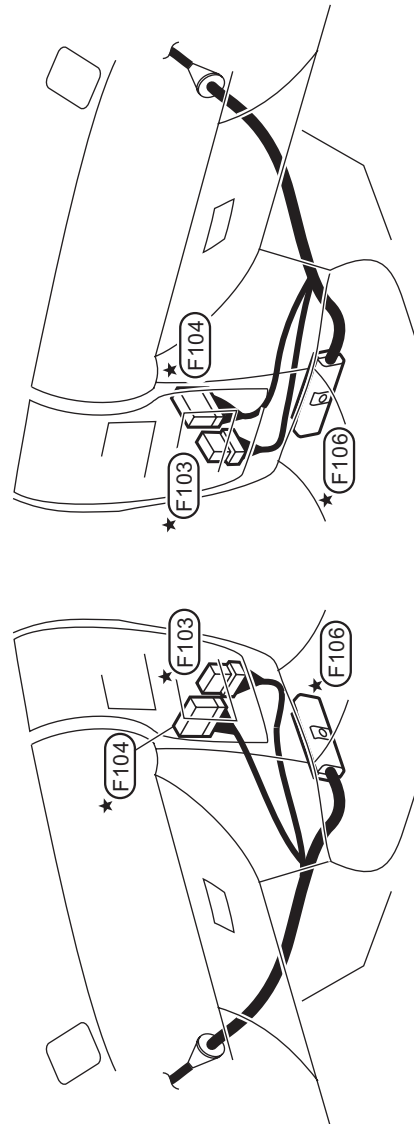
## Engine Control Harness (Cont'd)

### CD20T ENGINE



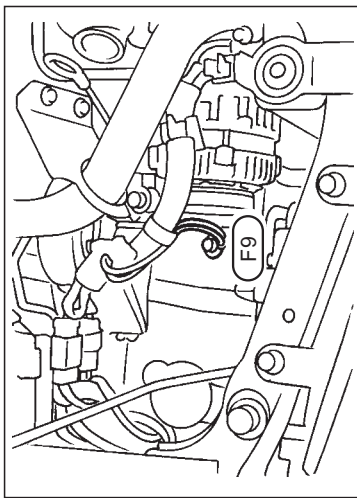
LHD models

RHD models

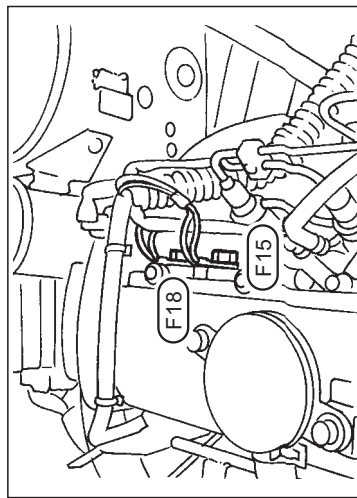


★ Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

Body ground



Engine ground



# HARNESS LAYOUT

## Engine Control Harness (Cont'd)

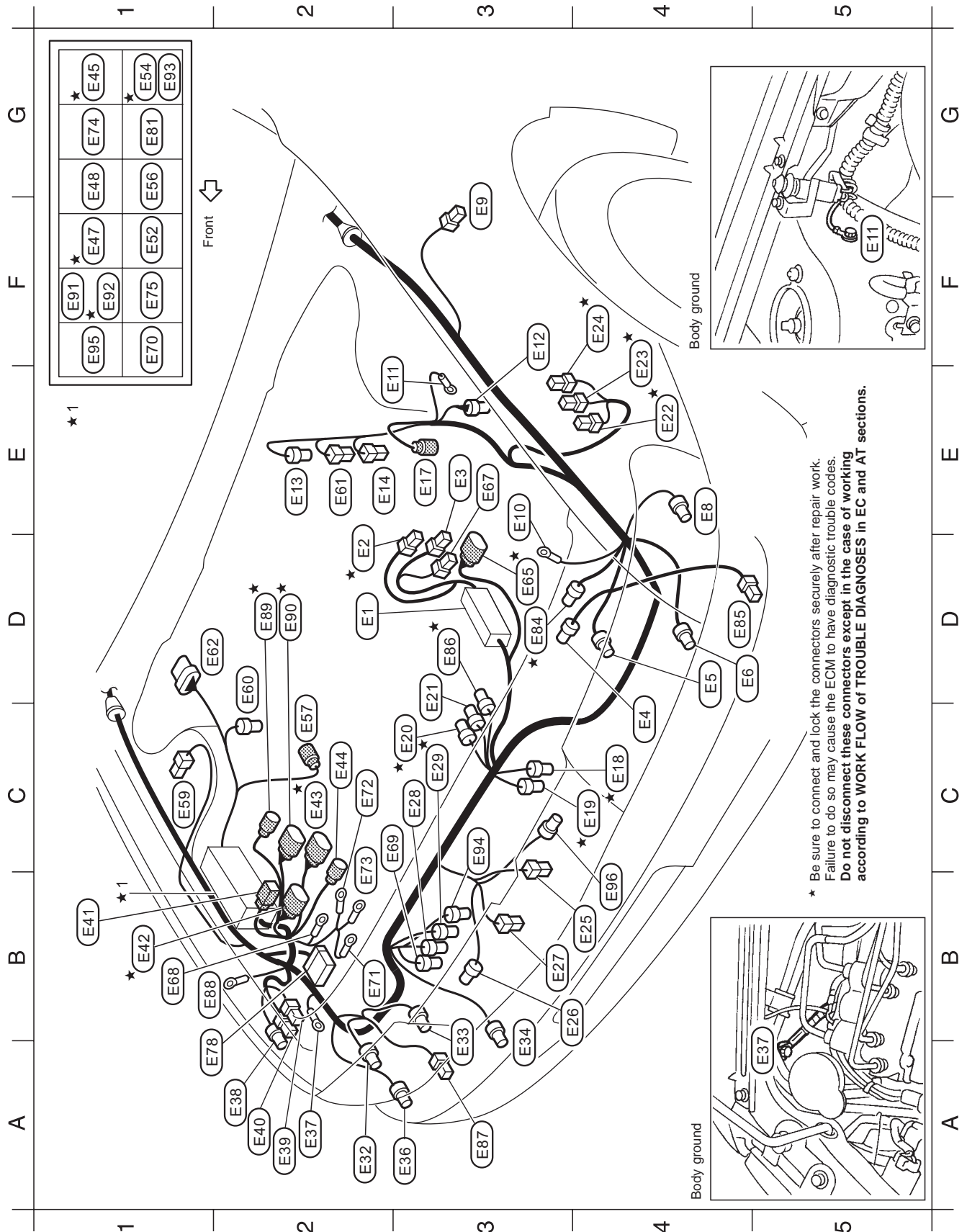
★ F1	B/2	: To E41
F2	GY/8	: To E43
F3	B/2	: To E44
F6	GY/2	: Alternator
F7	—	: Alternator
F9	—	: Body ground
F10	—	: Alternator
F11	B/1	: Thermal transmitter
★ F12	GY/2	: Engine coolant temperature sensor
★ F15	—	: Engine ground
★ F18	—	: Engine ground
F20	B/1	: Starter motor
F21	B/1	: Oil pressure switch
★ F25	BR/3	: Vehicle speed sensor
F27	GY/2	: Back-up lamp switch
F37	—	: Battery
★ F38	B/5	: Mass air flow sensor
F46	B/1	: To E2
F47	—	: Glow plug
★ F48	BR/2	: Needle lift sensor
★ F49	BR/3	: Injection pump
★ F50	B/7	: Injection pump
★ F53	B/3	: Crankshaft position sensor (TDC)
F55	B/2	: EGRC-solenoid valve
F57	—	: Starter motor
F96	B/4	: To E89
★ F103	W/6	: To M52
★ F104	W/24	: To M50
★ F106	GY/68	: ECM

★ Be sure to connect and lock the connectors securely after repair work.  
Failure to do so may cause the ECM to have diagnostic trouble codes.  
**Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.**

# HARNESS LAYOUT

## Engine Room Harness

### ENGINE COMPARTMENT — LHD models



# HARNESS LAYOUT

## Engine Room Harness (Cont'd)

D2	(E1)	—	Fusible link holder	F1*	(E47)	L/4	Cooling fan relay-3 (CD engine)
D2	(E2)	B/1	To (F46) (CD engine)	G1	(E48)	W/3	Horn relay
E3	(E3)	B/1	Battery	F1*	(E52)	B/5	Rear wiper relay
C4	(E4)	B/3	Headlamp aiming motor LH	G1	(E54)	B/5	Cooling fan relay-2 (CD engine)
D4	(E5)	GY/3	Headlamp LH	G1	(E56)	L/4	Air conditioner relay
C4	(E6)	B/2	Front fog lamp LH	C2	(E57)	GY/2	Front wheel sensor RH
E4	(E8)	GY/2	Front turn signal lamp LH	C1	(E59)	B/2	Side turn signal lamp RH
F3	(E9)	B/2	Side turn signal lamp LH		(E60)	GY/2	Power steering oil pressure switch (Gasoline engine)
E3	(E10)	—	ABS ground	E2	(E61)	W/1	Vacuum switch (CD engine)
E3	(E11)	—	Body ground		(E62)	GY/6	Wiper motor
F3	(E12)	GY/2	Hood switch	D3	(E65)	GY/9	To (F70) (GA engine)
E2	(E13)	GY/2	Sedimentor sensor (CD engine)	E3	(E67)	B/1	Battery
E2	(E14)	GY/2	Brake fluid level switch	B1	(E68)	—	Body ground (GA engine)
E3	(E17)	BR/2	Front wheel sensor LH	C2	(E69)	B/1	Compressor
C4*	(E18)	B/2	Cooling fan motor-2 (With diesel engine)	F1	(E70)	B/5	Front wiper relay
C4*	(E19)	B/2	Cooling fan motor-1 (With gasoline engine)	B2	(E71)	—	Alternator (GA engine)
C3*	(E20)	B/4	Triple-pressure switch (CD engine)	C2	(E72)	—	Alternator (GA engine)
D3	(E21)	B/2	Dual-pressure switch (GA engine)	C2	(E73)	—	Alternator (GA engine)
E4	(E22)	G/2	Glow relay (CD engine)	G1	(E74)	L/4	Headlamp relay LH (With XENON headlamp or daytime light system)
F4	(E23)	W/1	Glow relay (CD engine)		(E75)	L/4	Headlamp relay RH (With XENON headlamp or daytime light system)
F4	(E24)	W/1	Glow relay (CD engine)		(E76)	L/4	Headlamp relay RH (With XENON headlamp or daytime light system)
B4	(E25)	B/1	Horn (low)	B1	(E78)	B/31	ABS control unit
B4	(E26)	GY/2	Outside air temperature sensor		(E81)	L/4	Park/Neutral position relay (CVT models)
B3	(E27)	B/1	Horn (high)		(E84)	GY/2	Intake air temperature sensor (SR engine and QG engine)
C3	(E28)	GY/2	Cooling fan motor-2 (With SR engine and QG engine)		(E85)	B/2	Clearance lamp LH
C3	(E29)	B/2	Cooling fan motor-1 (With diesel engine)		(E86)	B/3	Refrigerant pressure sensor (SR engine and QG engine)
A2	(E32)	GY/3	Headlamp RH		(E87)	B/2	Clearance lamp RH
B3	(E33)	B/3	Headlamp aiming motor RH		(E88)	—	ABS ground
A3	(E34)	B/2	Front fog lamp RH		(E89)	B/4	To (F96) (CD engine)
A3	(E36)	GY/2	Front turn signal lamp RH		(E90)	B/8	To (F73) (SR engine and QG engine)
A2	(E37)	—	Body ground		(E91)	L/4	ECM relay (GA engine and CD engine)
A2	(E38)	G/2	Headlamp washer motor (With headlamp cleaner)		(E92)	BR/6	ECM relay (SR engine and QG engine)
A2	(E39)	B/2	Washer level switch		(E93)	—	Power fuse
A2	(E40)	W/2	Washer motor		(E94)	B/2	Cooling fan motor-2 (With GA engine)
C2	(E41)	B/2	To (F1) (Except GA engine)		(E95)	BR/6	Accessory relay
C2*	(E42)	GY/10	To (F4) (SR engine and QG engine)		(E96)	BR/2	Ambient sensor
C2	(E43)	GY/8	To (F2) (CD engine)				
C2	(E44)	B/2	To (F3) (Except GA engine)				
G1*	(E45)	L/4	Cooling fan relay-1				

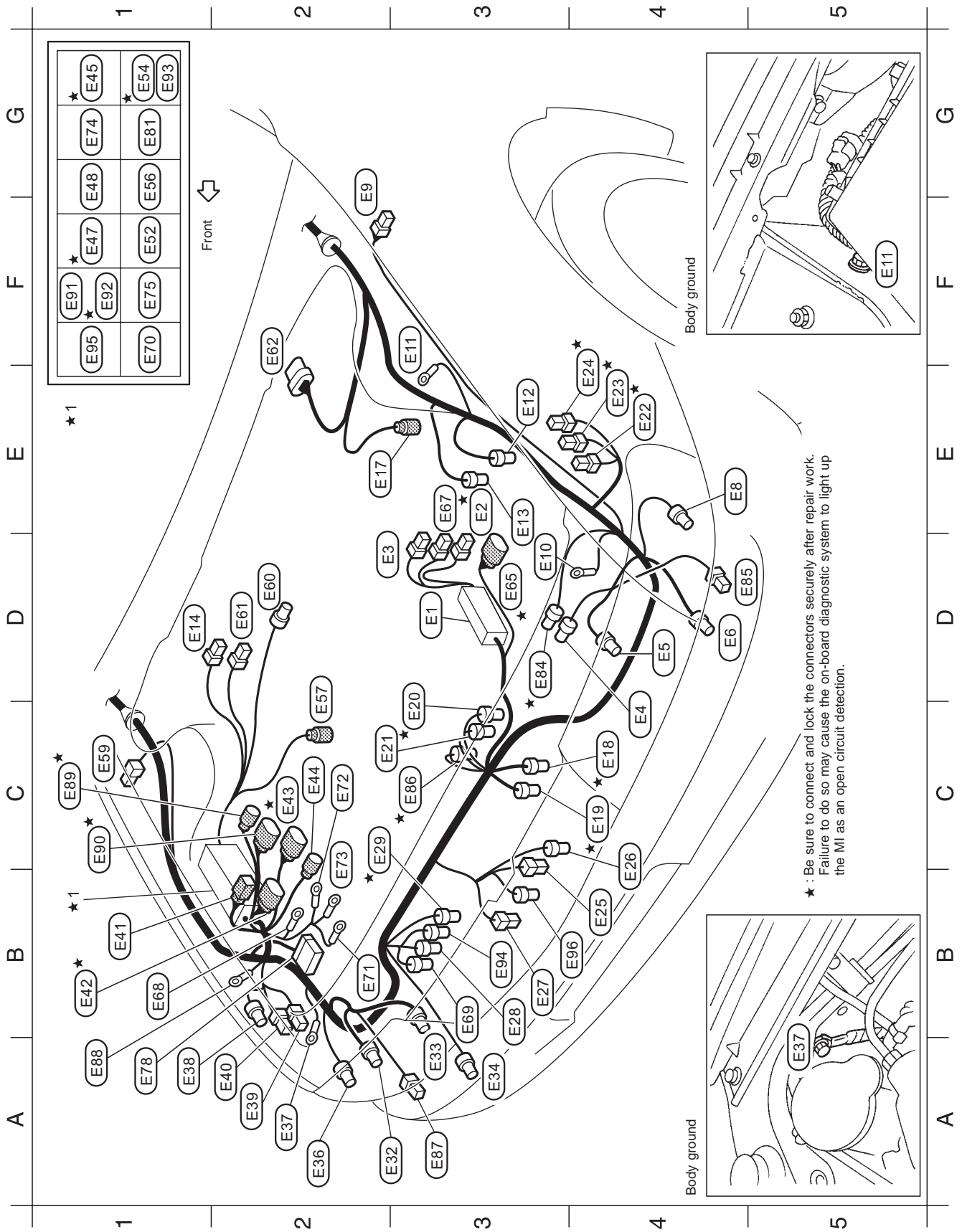
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# HARNESS LAYOUT

## Engine Room Harness (Cont'd)

### ENGINE COMPARTMENT — RHD models



YEL379B



# HARNESS LAYOUT

## Engine Room Harness (Cont'd)

D3	(E1)	—	Fusible link holder	F1*	(E47)	L/4	Cooling fan relay-3 (CD engine)
E3*	(E2)	B/1	To (F46) (CD engine)	G1	(E48)	W/3	Horn relay
D3	(E3)	B/1	Battery	F1	(E52)	B/5	Rear wiper relay
C4	(E4)	B/3	Headlamp aiming motor LH	G1*	(E54)	B/5	Cooling fan relay-2 (CD engine)
D4	(E5)	GY/3	Headlamp LH	G1	(E56)	L/4	Air conditioner relay (With A/C)
C4	(E6)	B/2	Front fog lamp LH	D2	(E57)	GY/2	Front wheel sensor RH
E4	(E8)	GY/2	Front turn signal lamp LH	C1	(E59)	B/2	Side turn signal lamp RH
G2	(E9)	B/2	Side turn signal lamp LH	D2	(E60)	GY/2	Power steering oil pressure switch (Except CD engine)
D3	(E10)	—	ABS ground	D2	(E61)	W/1	Vacuum switch (CD engine)
F3	(E11)	—	Body ground	F2	(E62)	W/6	Front wiper motor
E3	(E12)	GY/2	Hood switch	D3*	(E65)	GY/9	To (F70) (GA engine)
E3	(E13)	GY/2	Sedimentor sensor (CD engine)	E3	(E67)	B/1	Battery
D1	(E14)	GY/2	Brake fluid level switch	B1	(E68)	—	Body ground (GA engine)
E2	(E17)	BR/2	Front wheel sensor LH	B3	(E69)	B/1	Compressor (With A/C)
C4*	(E18)	B/2	Cooling fan motor-2 (With diesel engine)	F1	(E70)	B/5	Front wiper relay
C4*	(E19)	B/2	Cooling fan motor-1 (With gasoline engine)	B2	(E71)	—	Alternator (GA engine)
C3*	(E20)	B/4	Triple-pressure switch (CD engine)	C2	(E72)	—	Alternator (GA engine)
C2	(E21)	B/2	Dual-pressure switch (GA engine)	C2	(E73)	—	Alternator (GA engine)
E4*	(E22)	G/2	Glow relay (CD engine)	G1	(E74)	L/4	Headlamp relay LH (With XENON headlamp)
E4*	(E23)	W/1	Glow relay (CD engine)	F1	(E75)	L/4	Headlamp relay RH (With XENON headlamp)
E4*	(E24)	W/1	Glow relay (CD engine)	A1	(E78)	B/31	ABS control unit
B4	(E25)	B/1	Horn (low)	G1	(E81)	L/4	Park/Neutral position relay (CVT models)
C4	(E26)	GY/2	Outside air temperature sensor	D3*	(E84)	GY/2	Intake air temperature sensor (SR engine and QG engine)
B3	(E27)	B/1	Horn (high)	D4	(E85)	B/2	Clearance lamp RH
B3	(E28)	GY/2	Cooling fan motor-2 (SR engine and QG engine: With A/C)	C3*	(E86)	B/3	Refrigerant pressure sensor (SR engine and QG engine)
Cs*	(E29)	B/2	Cooling fan motor-1 (CD engine: With A/C)	A3	(E87)	B/2	Clearance lamp RH
A3	(E32)	GY/3	Headlamp RH	A1	(E88)	—	ABS ground
A3	(E33)	B/3	Headlamp aiming motor RH	C1*	(E89)	B/4	To (F86) (CD engine)
A3	(E34)	B/2	Front fog lamp RH	C1*	(E90)	B/8	To (F73) (SR engine and QG engine)
A2	(E36)	GY/2	Front turn signal lamp RH	F1*	(E91)	L/4	ECM relay (GA engine and CD engine)
A2	(E37)	—	Body ground	F1*	(E92)	BR/6	ECM relay (SR engine and QG engine)
A2	(E38)	G/2	Headlamp washer motor	G1	(E93)	—	Power fuse
A2	(E39)	B/2	Washer level switch	B3	(E94)	B/2	Cooling fan motor-2 (GA engine)
A2	(E40)	W/2	Washer motor	F1	(E95)	BR/6	Accessory relay
B1	(E41)	B/2	To (F1) (Except GA engine)	B4	(E96)	BR/2	Ambient sensor (With A/C)
B1*	(E42)	GY/10	To (F4) (SR engine and QG engine)				
C2*	(E43)	GY/8	To (F2) (CD engine)				
C2	(E44)	B/2	To (F3) (Except GA engine)				
G1*	(E45)	L/4	Cooling fan relay-1				

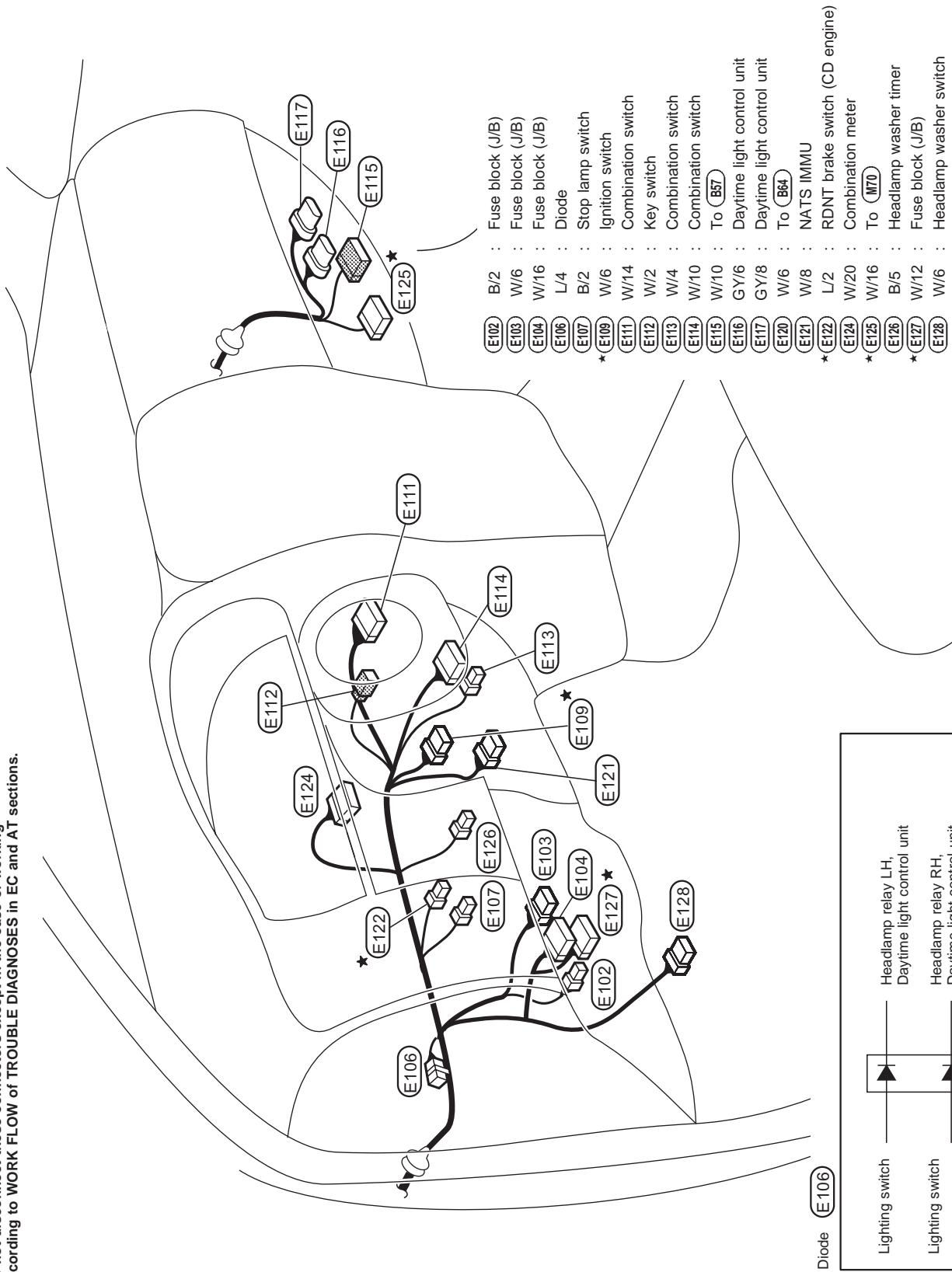
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# HARNESS LAYOUT

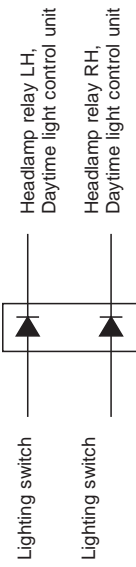
## Engine Room Harness (Cont'd)

### PASSENGER COMPARTMENT — LHD models

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Diode (E106)

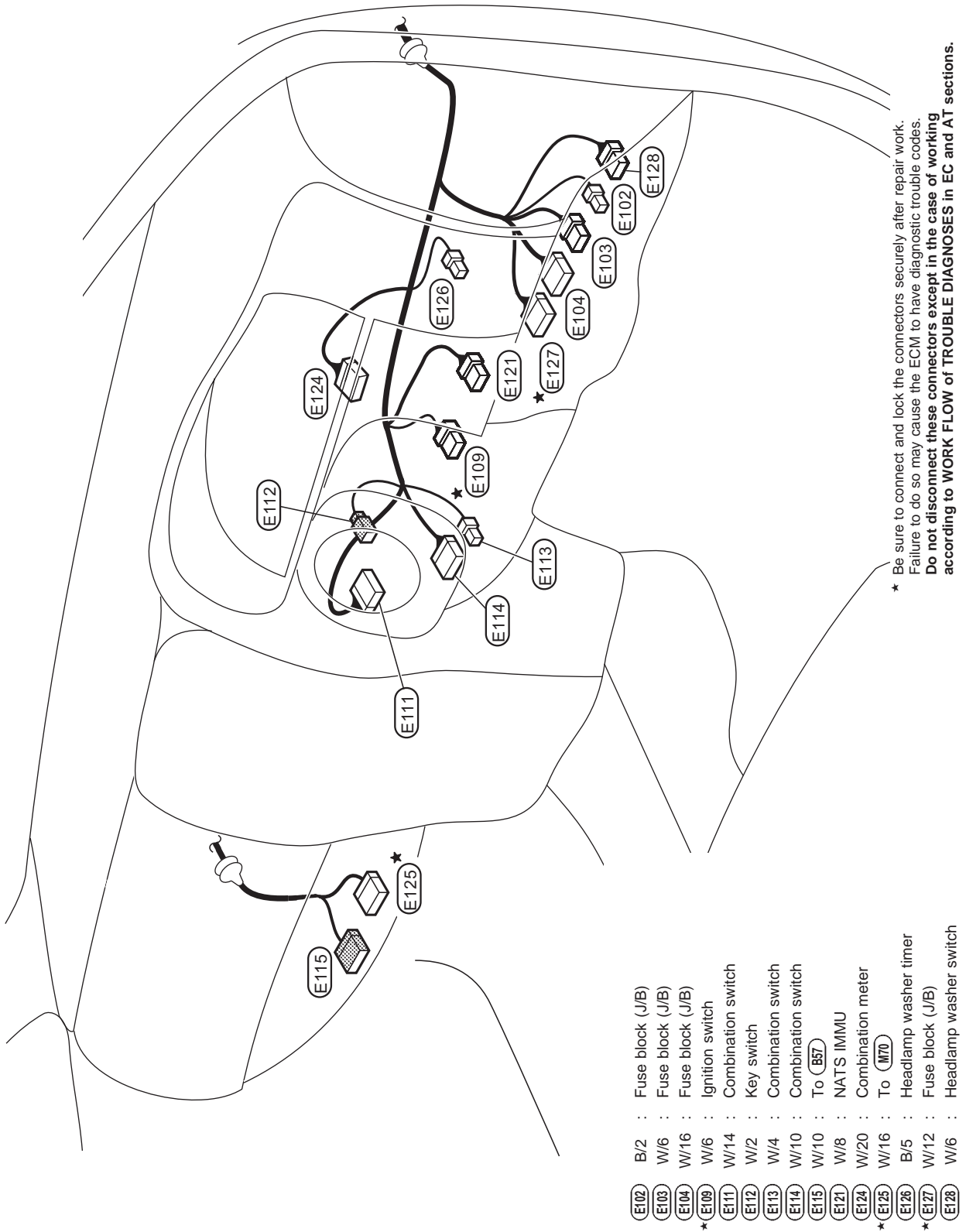


YEL381B

# HARNESS LAYOUT

## Engine Room Harness (Cont'd)

### PASSENGER COMPARTMENT — RHD models

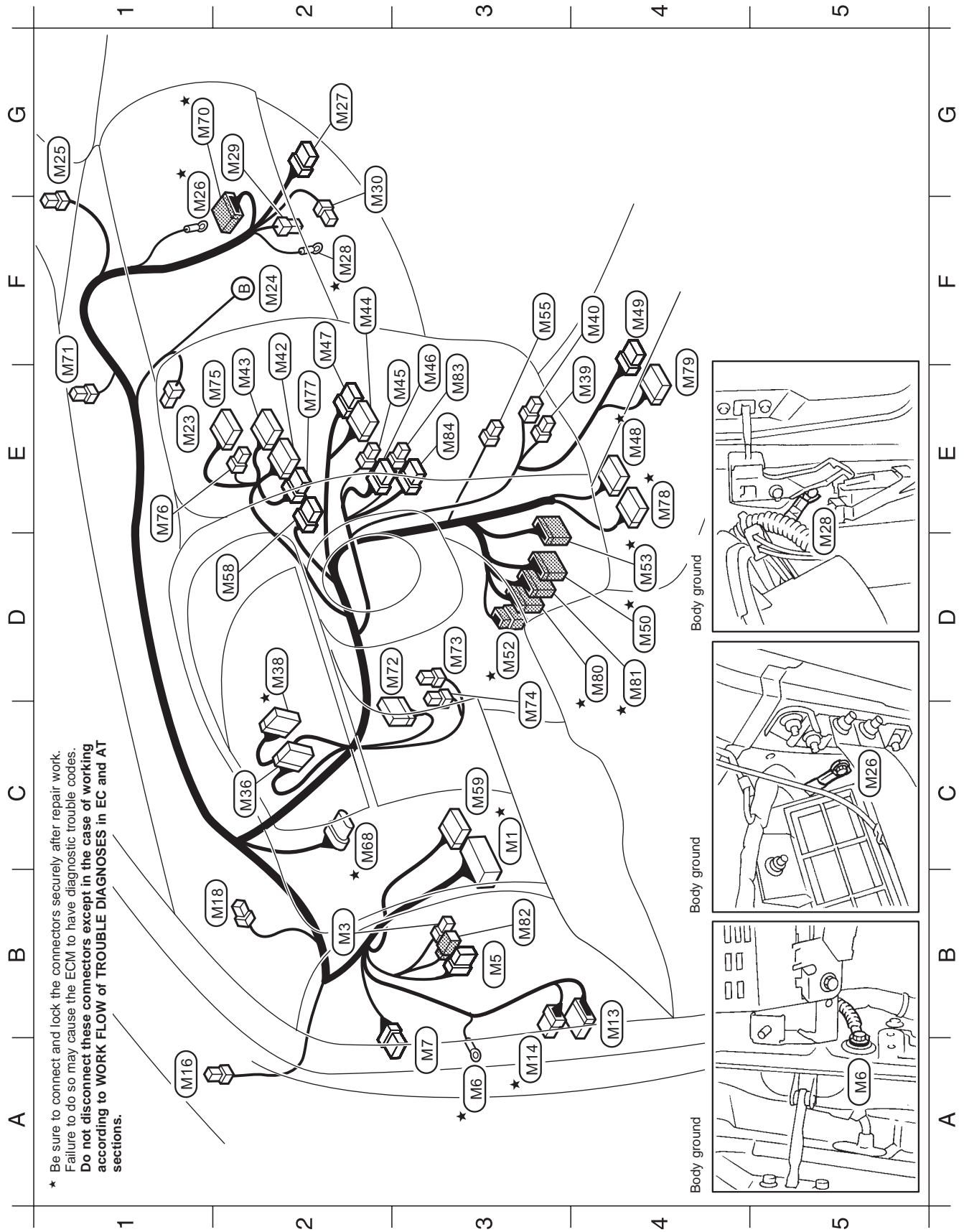


YEL382B

# HARNESS LAYOUT

## Main Harness

### LHD MODELS



# HARNESS LAYOUT

## Main Harness (Cont'd)

### Main harness

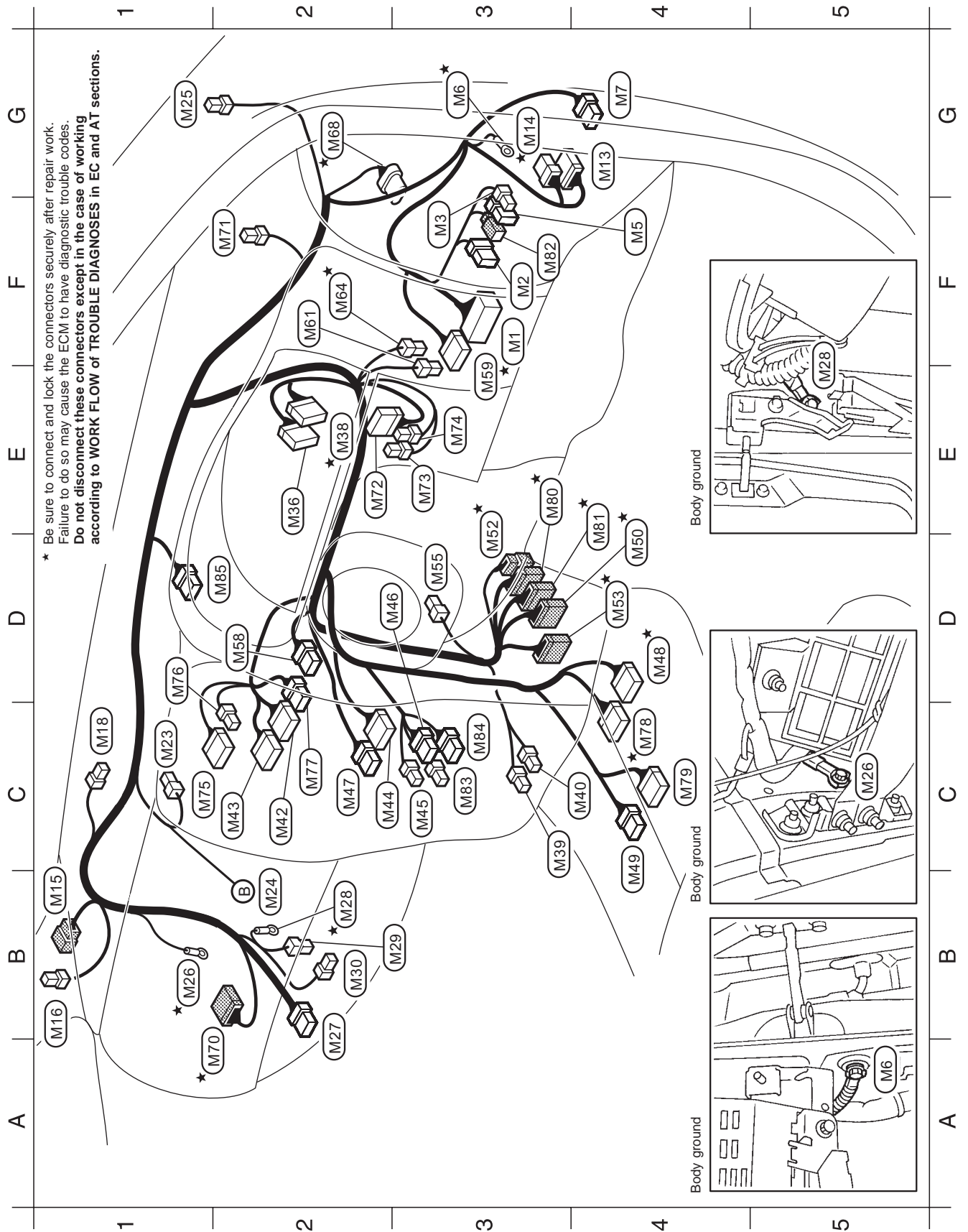
C3*	(M1)	—	Fuse block (J/B)	E3	(M46)	W/6	Fan switch
B2	(M3)	W/4	Illumination control switch (With illumination control switch)	F2	(M47)	W/8	Recirculation switch
B3	(M5)	W/8	Door mirror remote control switch (With door mirror remote control switch)	E4*	(M48)	W/24	TCM (Transmission control module) (CVT models)
A3*	(M6)	—	Body ground	F4	(M49)	W/6	Control device (H+CVT models)
A3	(M7)	W/8	To (D1)	D4*	(M50)	W/24	To (F104) (M/T models)
B4	(M13)	W/24	To (B3)	D3*	(M52)	W/6	To (F103) (M/T models)
A3*	(M14)	W/6	To (B4)	D4*	(M53)	W/24	To (F102) (CVT models)
A1	(M16)	BR/2	Tweeter LH	F3	(M55)	W/3	Thermo control amplifier (GA engine and CD engine)
B2	(M18)	B/2	NATS security indicator	D2	(M58)	BR/8	Hazard switch
E1	(M23)	W/4	Intake door motor	C3	(M59)	W/16	Data link connector
F2	(M24)	Bulb	Glove box lamp (With glove box lamp)	C2*	(M68)	B/5	Accelerator work unit (CD engine)
G1	(M25)	BR/2	Tweeter RH	G1*	(M70)	W/16	To (E125)
G1*	(M26)	—	Body ground	E1	(M71)	b/2	Sunload sensor
G2	(M27)	W/8	To (D10)	D3	(M72)	GY/20	Indicator control unit (H+CVT (M6) models)
F2*	(M28)	—	Body ground	D3	(M73)	B/5	Speaker relay
G2	(M29)	BR/4	Fan resistor	C3	(M74)	B/5	Speaker relay
G2	(M30)	W/2	Blower motor	E2	(M75)	—/18	Telephone pre-wire
C2	(M36)	W/12	Combination meter	E1	(M76)	BR/2	Microphone
D2*	(M38)	GY/20	Combination meter	E2	(M77)	W/8	Navigation pre-wire
E4	(M39)	B/2	Cigarette lighter socket	E4*	(M78)	GY/24	TCM (Transmission control module) (CVT models)
F4	(M40)	W/2	Ashtray illumination	E4	(M79)	W/12	Control device (H+CVT (M6) models)
F2	(M42)	W/10	Audio	D4*	(M80)	W/16	To (F114) (CVT models)
E2	(M43)	W/12	Audio (With CD changer)	D4*	(M81)	W/20	To (F115) (CVT models)
F2	(M44)	W/12	Rear window defogger switch	B3	(M82)	W/4	Illumination control link
E3	(M45)	W/4	Heater	E3	(M83)	W/4	To (M11) (With A/C)
				E3	(M84)	W/6	To (M12) (With A/C)

YEL384B

# HARNESS LAYOUT

## Main Harness (Cont'd)

### RHD MODELS



YEL385B

# HARNESS LAYOUT

## Main Harness (Cont'd)

F3*	(M1)	—	Fuse block (J/B)	C3	(M46)	W/6	Fan switch
F3*	(M2)	W/6	Fuse block (J/B)	C2	(M47)	W/8	Recirculation switch
F3	(M3)	W/4	Illumination control switch	D4*	(M48)	W/24	TCM (Transmission control module) (CVT models)
F4	(M5)	W/8	(With illumination control switch)	C4	(M49)	W/6	Control device (H-CVT models)
G3*	(M6)	—	Door mirror remote control switch	D4*	(M50)	W/16	To (F104) (M/T models)
G4	(M7)	W/8	(With door mirror remote control switch)	E3*	(M52)	W/6	To (F103) (M/T models)
G3*	(M13)	W/24	Body ground	D4*	(M53)	W/24	To (F102) (CVT models)
G3	(M14)	W/6	To (D1)	D3	(M55)	W/3	Thermo control amplifier (GA engine and CD engine)
B1	(M15)	W/6	To (B3)	D2	(M58)	W/8	Hazard switch
B1	(M16)	W/6	To (B4)	E3	(M59)	W/16	Data link connector
C1	(M18)	BR/2	To (R1)	F2	(M61)	B/2	Stop lamp switch
C1	(M23)	W/4	Tweeter LH	F2*	(M64)	BR/2	RDNT brake switch (CD engine)
B2	(M24)	Bulb	NATS security indicator	G2*	(M68)	B/5	Accelerator work unit (CD engine)
G1	(M25)	BR/2	Intake door motor	A1*	(M70)	W/16	To (E125)
B1*	(M26)	—	Glove box lamp (With glove box lamp)	F2	(M71)	B/2	Sunload sensor
A2	(M27)	W/8	Tweeter RH	E2	(M72)	GY/20	Indicator control unit (H-CVT (M6) models)
B2*	(M28)	—	Body ground	E3	(M73)	B/5	Speaker relay
B3	(M29)	BR/4	To (D10)	E3	(M74)	B/5	Speaker relay
B2	(M30)	W/2	Body ground	C1	(M75)	—/18	Telephone pre-wire
E2	(M36)	W/12	Fan resistor	D1	(M76)	BR/2	Microphone
E2*	(M38)	GY/20	Blower motor	C2	(M77)	W/8	Navigation pre-wire
C3	(M39)	B/2	Combination meter	C4*	(M78)	GY/24	TCM (Transmission control module) (CVT models)
C4	(M40)	W/2	Combination meter	C4	(M79)	W/12	Control device (H-CVT (M6) models)
C2	(M42)	W/10	Cigarette lighter socket	Ee*	(M80)	W/16	To (F114) (CVT models)
C2	(M43)	W/12	Ashtray illumination	E4*	(M81)	W/20	To (F115) (CVT models)
C2	(M44)	W/12	Audio	F3	(M82)	W/4	Illumination control link
C2	(M45)	W/4	Audio (With CD changer)	C3	(M83)	W/4	To (M111) (With A/C)
			Rear window defogger switch	C3	(M84)	W/6	To (M112) (With A/C)
			Heater	D2	(M85)	BR/8	Dongle control unit

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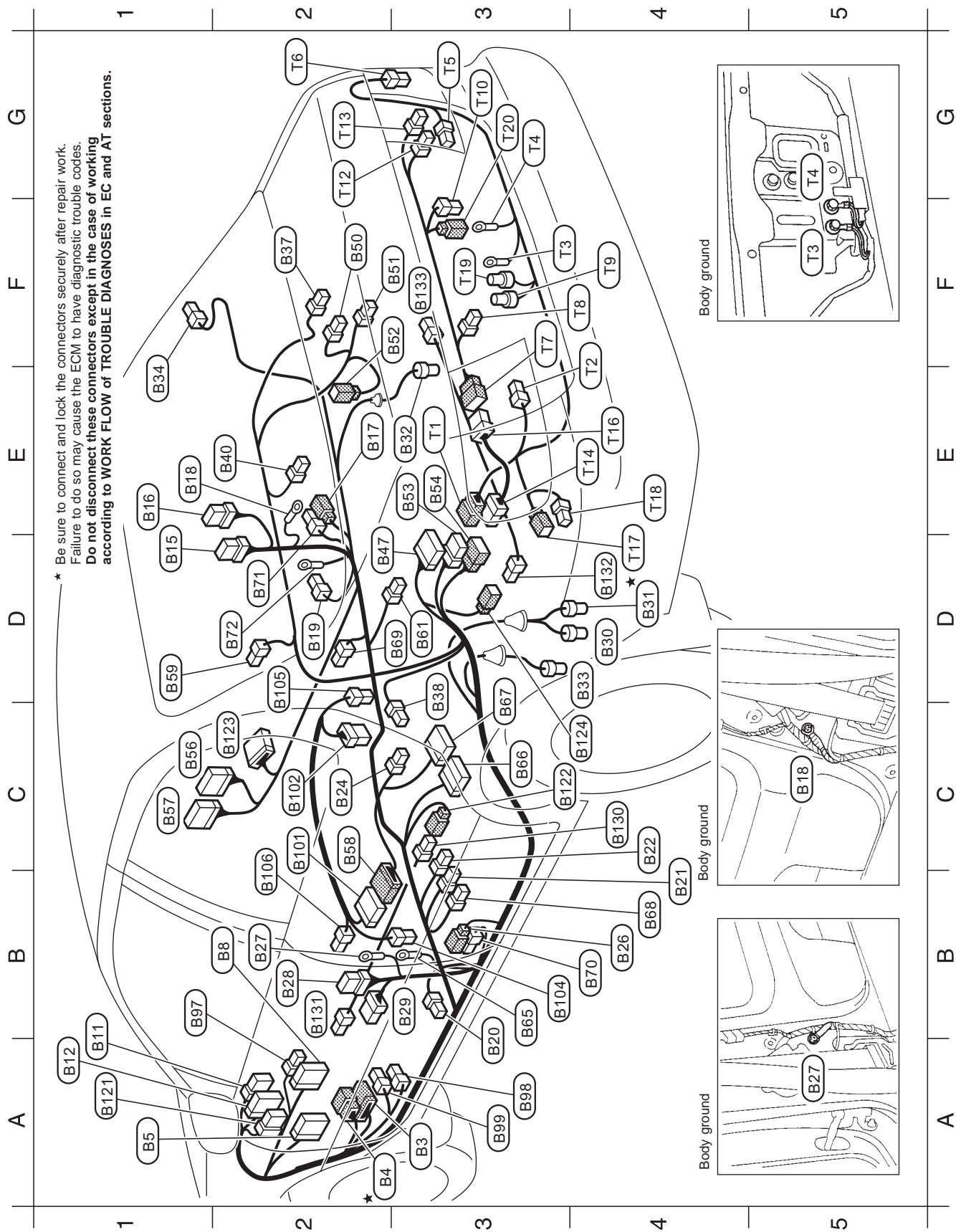
YEL386B



## HARNESS LAYOUT

## Body Harness

## SEDAN — LHD models





# HARNESS LAYOUT

## Body Harness (Cont'd)

### Body harness

B2	B3	W/24	: To (M13)
B2	B4	W/6	: To (M14)
A1	B5	W/12	: To (D2)
B3	B8	BR/16	: Fuse block (J/B)
A3	B11	W/8	: Time control unit
A3	B12	W/20	: Time control unit
D1	B15	W/6	: Ultra sonic sub-sensor
E1	B16	W/8	: To (D22)
E2	B17	W/4	: Seat belt pre-tensioner (Passenger side)
E1	B18	—	: Body ground
D2	B19	BR/1	: Front door switch (Passenger side)
B3	B20	B/3	: Front door switch (Driver's side)
C3	B21	W/3	: Heated seat LH
C3	B22	W/2	: Power seat
C3	B24	B/1	: Parking brake switch
B4	B26	W/4	: Seat belt pre-tensioner (Driver's side)
B2	B27	—	: Body ground
B2	B28	W/8	: To (D18)
B2	B29	W/8	: Ultra sonic sensor
D4	B30	GY/2	: Fuel pump
D4	B31	GY/3	: Fuel tank gauge unit
E3	B32	GY/2	: Rear wheel sensor RH
D4	B33	BR/2	: Rear wheel sensor LH
E1	B34	BR/1	: Rear door switch RH
F2	B37	B/2	: Rear speaker RH
D3	B38	BR/1	: Rear door switch LH
E2	B40	B/2	: Rear speaker LH
D2	B47	W/16	: CD auto changer
F2	B50	B/1	: High mounted stop lamp
F3	B51	W/2	: Trunk room lamp
F3	B52	W/4	: Rear wiper motor
E3	B53	W/8	: To (T1)
E3	B54	W/8	: To (T14)
C1	B56	W/10	: To (D11)
C2	B57	W/10	: To (E115)
C2	B58	W/16	: To (B101)
D1	B59	B/1	: Rear window defogger
D3	B61	W/3	: Heated seat RH
A2	B64	W/6	: To (E120)
D1	B65	—	: Body ground
C3	B66	Y/12	: Diagnosis sensor unit
C3	B67	Y/12	: Diagnosis sensor unit
C3	B68	Y/2	: Side air bag module LH
D3	B69	Y/2	: Side air bag module RH
B4	B70	OR/2	: Satellite sensor LH

D2	(B71)	Y/2	: Satellite sensor RH
D1	(B72)	—	: Body ground
	(B97)	B/2	: Fuse block (J/B)
	(B98)	W/3	: Theft warning horn relay
	(B99)	W/2	: Circuit breaker-2
	(B121)	W/6	: Central unlock/trunk release switch
	(B122)	W/3	: To (B130)
	(B123)	W/12	: Auto level control unit
	(B124)	W/3	: To (B132)
	(B130)	W/3	: To (B122)
	(B131)	—/3	: Front sensor
	(B132)	W/3	: To (B124)
	(B133)	—/3	: Rear sensor

### Console harness

C2	(B101)	W/16	: To (B58)
	(B102)	W/6	: Ultrasonic cancel switch
B3	(B104)	L/4	: Heated seat switch LH
C2	(B105)	W/4	: Heated seat switch RH
	(B106)	W/4	: Headlamp aiming switch

### Tail harness

E3	(T1)	W/8	: To (B53)
F4	(T2)	W/4	: Rear combination lamp LH
F3	(T3)	—	: Body ground
G3	(T4)	—	: Body ground
G3	(T5)	W/4	: Rear combination lamp RH
G2	(T6)	B/1	: Theft warning horn
	(T9)	BR/2	: License plate lamp LH
	(T17)	BR/4	: Not used (To trailer tow connection)
	(T18)	BR/4	: Link
	(T19)	BR/2	: License plate lamp RH

### Tail harness No. 2

F3	(T7)	W/8	: To (T16)
F4	(T8)	W/2	: Rear fog lamp
G3	(T10)	B/2	: Trunk room lamp switch
G2	(T12)	W/4	: Door unlock actuator assembly (Trunk)
G2	(T13)	W/2	: Back-up lamp
	(T20)	W/3	: External trunk release switch

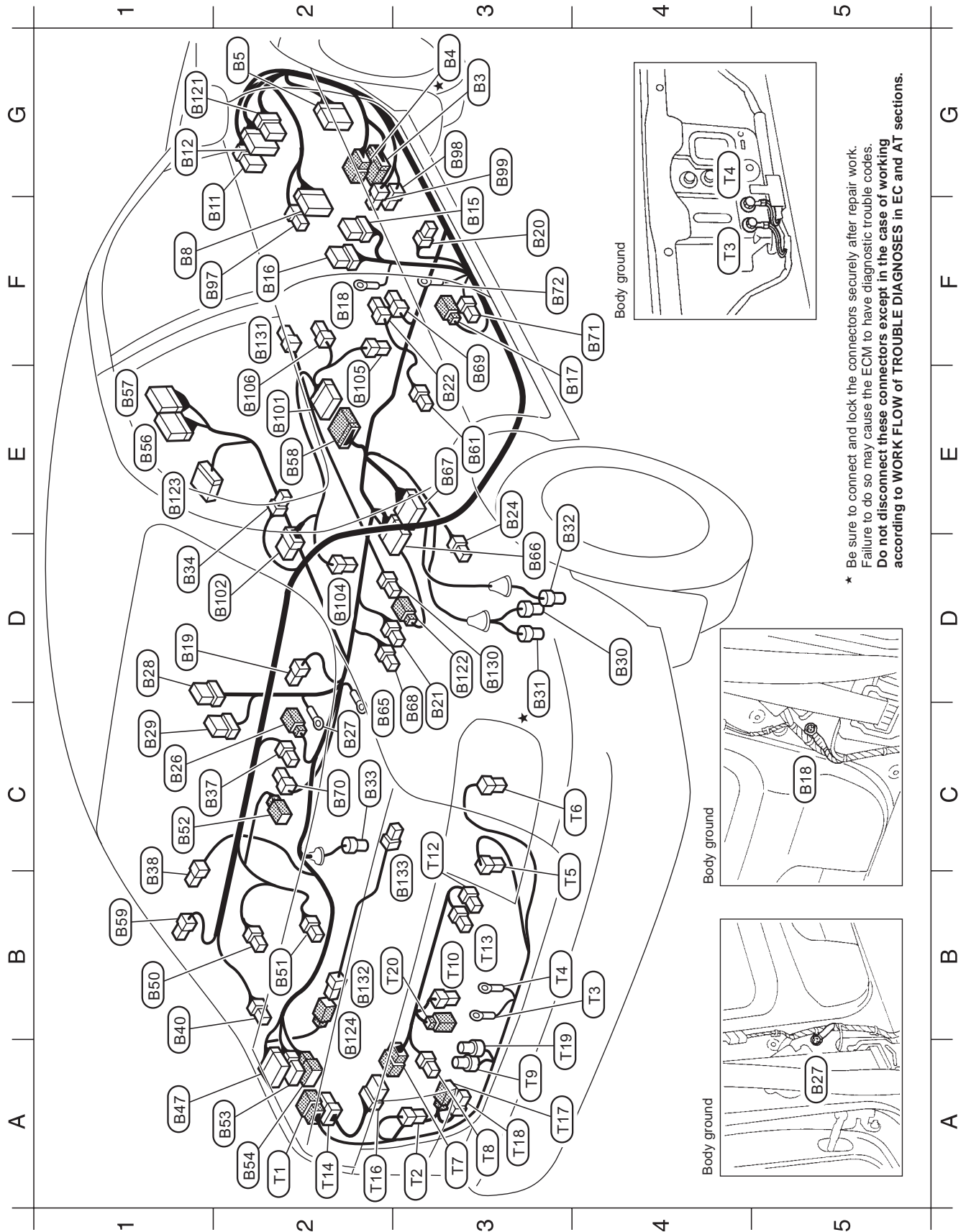
### Tail sub-harness

E4	(T14)	W/8	: To (B54)
E4	(T16)	W/8	: To (T7)

# HARNESS LAYOUT

## Body Harness (Cont'd)

SEDAN — RHD models



# HARNESS LAYOUT

## Body Harness (Cont'd)

### Body harness

B2	B3	W/24	: To (M13)
B2	B4	W/6	: To (M14)
A1	B5	W/12	: To (D2)
B3	B8	BR/16	: Fuse block (J/B)
A3	B11	W/8	: Time control unit
A3	B12	W/20	: Time control unit
D1	B15	W/6	: Ultra sonic sub-sensor
E1	B16	W/8	: To (D22)
E2	B17	W/4	: Seat belt pre-tensioner (Passenger side)
E1	B18	—	: Body ground
D2	B19	BR/1	: Front door switch (Passenger side)
B3	B20	B/3	: Front door switch (Driver's side)
C3	B21	W/3	: Heated seat LH
C3	B22	W/2	: Power seat
C3	B24	B/1	: Parking brake switch
B4	B26	W/4	: Seat belt pre-tensioner (Driver's side)
B2	B27	—	: Body ground
B2	B28	W/8	: To (D18)
B2	B29	W/8	: Ultra sonic sensor
D4	B30	GY/2	: Fuel pump
D4	B31	GY/3	: Fuel tank gauge unit
E3	B32	GY/2	: Rear wheel sensor RH
D4	B33	BR/2	: Rear wheel sensor LH
E1	B34	BR/1	: Rear door switch RH
F2	B37	B/2	: Rear speaker RH
D3	B38	BR/1	: Rear door switch LH
E2	B40	B/2	: Rear speaker LH
D2	B47	W/16	: CD auto changer
F2	B50	B/1	: High mounted stop lamp
F3	B51	W/2	: Trunk room lamp
F3	B52	W/4	: Rear wiper motor
E3	B53	W/8	: To (T1)
E3	B54	W/8	: To (T14)
C1	B56	W/10	: To (D11)
C2	B57	W/10	: To (E115)
C2	B58	W/16	: To (B101)
D1	B59	B/1	: Rear window defogger
D3	B61	W/3	: Heated seat RH
A2	B64	W/6	: To (E120)
D1	B65	—	: Body ground
C3	B66	Y/12	: Diagnosis sensor unit
C3	B67	Y/12	: Diagnosis sensor unit
C3	B68	Y/2	: Side air bag module LH
D3	B69	Y/2	: Side air bag module RH
B4	B70	OR/2	: Satellite sensor LH

D2	(B71)	Y/2	: Satellite sensor RH
D1	(B72)	—	: Body ground
	(B97)	B/2	: Fuse block (J/B)
	(B98)	W/3	: Theft warning horn relay
	(B99)	W/2	: Circuit breaker-2
	(B121)	W/6	: Central unlock/trunk release switch
	(B122)	W/3	: To (B130)
	(B123)	W/12	: Auto level control unit
	(B124)	W/3	: To (B132)
	(B130)	W/3	: To (B122)
	(B131)	—/3	: Front sensor
	(B132)	W/3	: To (B124)
	(B133)	—/3	: Rear sensor

### Console harness

C2	(B101)	W/16	: To (B58)
	(B102)	W/6	: Ultrasonic cancel switch
B3	(B104)	L/4	: Heated seat switch LH
C2	(B105)	W/4	: Heated seat switch RH
	(B106)	W/4	: Headlamp aiming switch

### Tail harness

E3	(T1)	W/8	: To (B53)
F4	(T2)	W/4	: Rear combination lamp LH
F3	(T3)	—	: Body ground
G3	(T4)	—	: Body ground
G3	(T5)	W/4	: Rear combination lamp RH
G2	(T6)	B/1	: Theft warning horn
	(T9)	BR/2	: License plate lamp LH
	(T17)	BR/4	: Not used (To trailer tow connection)
	(T18)	BR/4	: Link
	(T19)	BR/2	: License plate lamp RH

### Tail harness No. 2

F3	(T7)	W/8	: To (T16)
F4	(T8)	W/4	: Rear fog lamp
G3	(T10)	B/2	: Trunk room lamp switch
G2	(T12)	W/4	: Door unlock actuator assembly (Trunk)
G2	(T13)	W/2	: Back-up lamp
	(T20)	W/3	: External trunk release switch

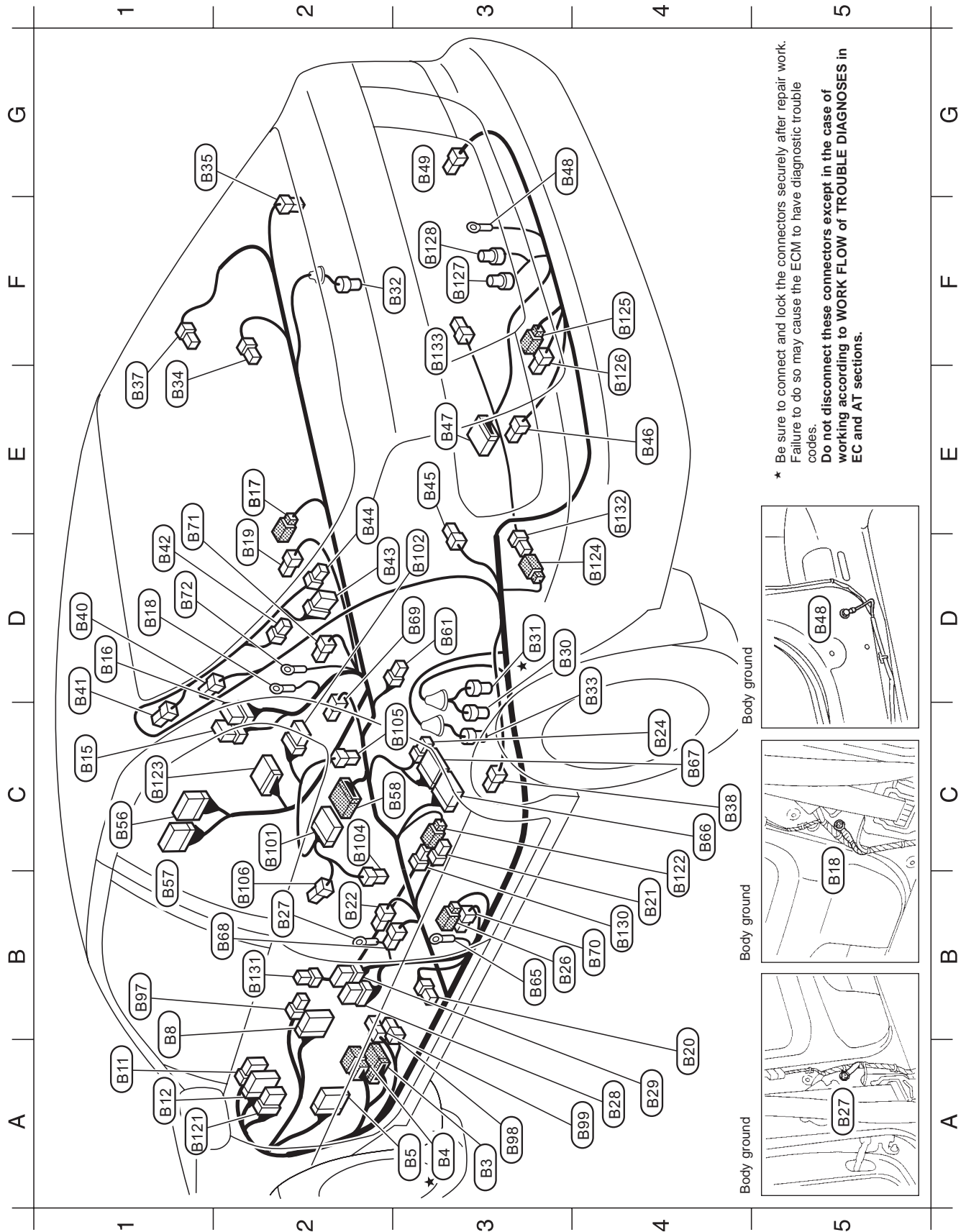
### Tail sub-harness

E4	(T14)	W/8	: To (B54)
E4	(T16)	W/8	: To (T7)

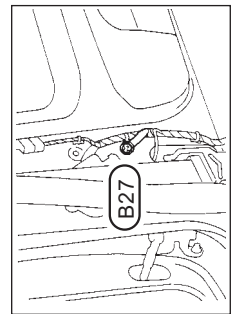
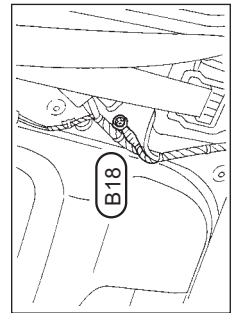
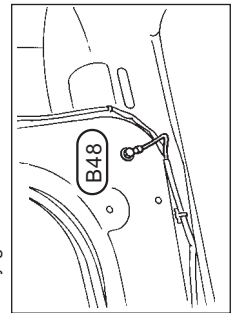
# HARNESS LAYOUT

## Body Harness (Cont'd)

### 5-DOOR HATCHBACK — LHD models



★ Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.  
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.



# HARNESS LAYOUT

## Body Harness (Cont'd)

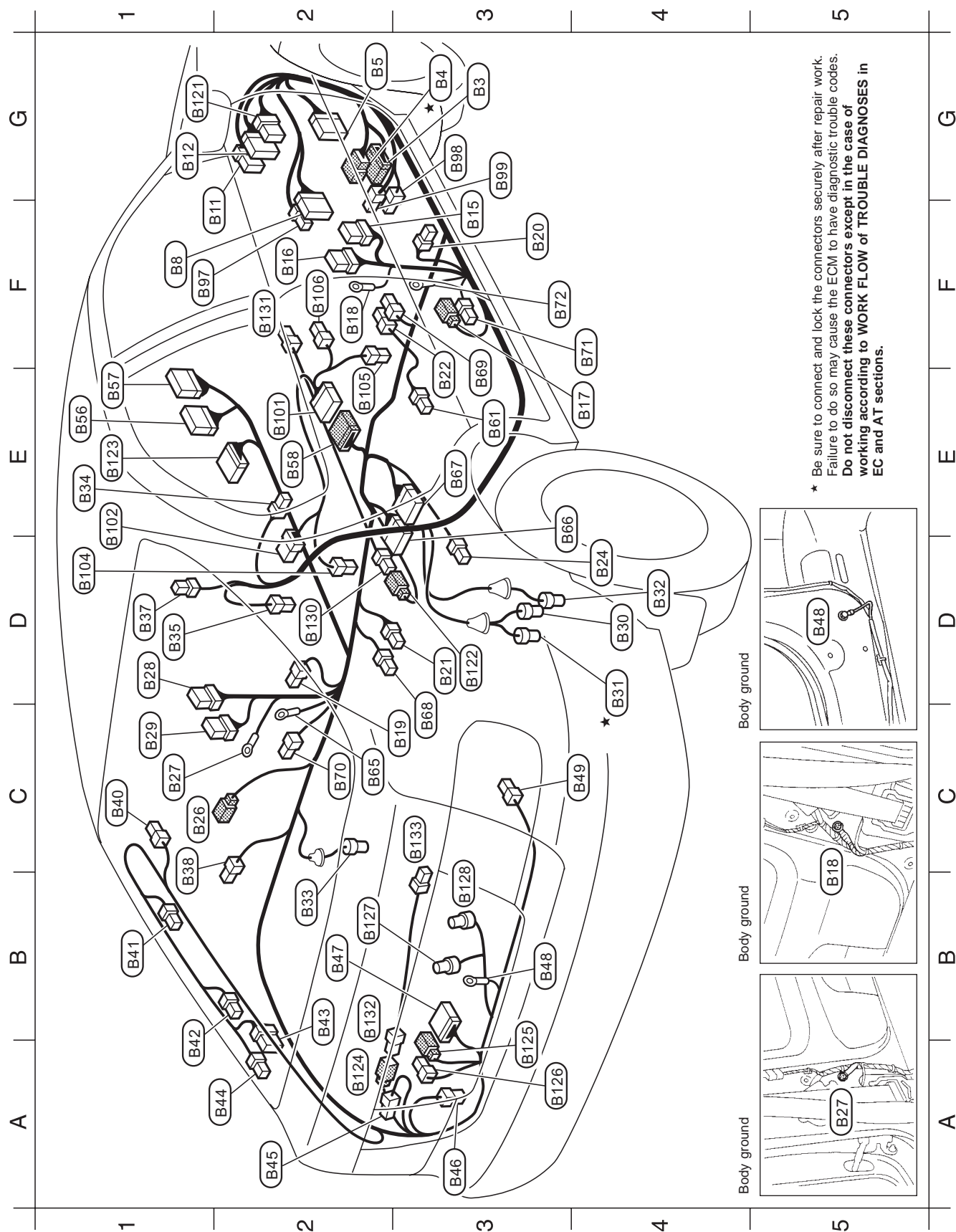
Body harness					
A3	B3	W/24	:	To (M13)	
A3*	B4	W/6	:	To (M14)	
A3	B5	W/12	:	To (D2)	
B1	B8	BR/16	:	Fuse block (J/B)	
A1	B11	W/8	:	Time control unit	
A1	B12	W/20	:	Time control unit	
C1	B15	W/6	:	Ultra sonic sub-sensor	
D1	B16	W/8	:	To (D22)	
E2	B17	W/4	:	Seat belt pre-tensioner (Passenger side)	
D1	B18	—	:	Body ground	
D2	B19	BR/1	:	Front door switch (Passenger side)	
A4	B20	B/3	:	Front door switch (Driver's side)	
B4	B21	W/3	:	Heated seat LH	
B2	B22	W/2	:	Power seat	
C4	B24	B/1	:	Parking brake switch	
B3	B26	W/4	:	Seat belt pre-tensioner (Driver's side)	
B2	B27	—	:	Body ground	
A4	B28	W/8	:	To (D18)	
A4	B29	W/8	:	Ultra sonic sensor	
D3	B30	GY/2	:	Fuel pump	
D3*	B31	GY/3	:	Fuel tank gauge unit	
F3	B32	GY/2	:	Rear wheel sensor RH	
D4	B33	BR/2	:	Rear wheel sensor LH	
E1	B34	BR/1	:	Rear door switch RH	
G1	B35	B/1	:	Theft warning horn	
E1	B37	B/2	:	Rear speaker RH	
C4	B38	BR/1	:	Rear door switch LH	
D1	B40	B/2	:	Rear speaker LH	
D1	B41	B/1	:	Rear window defogger	
D1	B42	W/4	:	To (D101)	
D3	B43	W/6	:	To (D102)	
E2	B44	W/3	:	To (D103)	
E3	B45	W/2	:	Luggage room lamp	
E4	B46	W/4	:	Rear combination lamp LH	
E3	B47	W/16	:	CD auto changer	
G3	B48	—	:	Body ground	
G3	B49	W/4	:	Rear combination lamp RH	
C1	B56	W/10	:	To (D11)	
B1	B57	W/16	:	To (E15)	
C3	B58	W/16	:	To (B101)	
D3	B61	W/3	:	To Heated seat RH	
B3	B65	—	:	Body ground	
C4	B66	Y/12	:	Diagnosis sensor unit	
C4	B67	Y/12	:	Diagnosis sensor unit	
B2	B68	Y/2	:	Side air bag module LH	
D3	B69	Y/2	:	Side air bag module RH	
B4	B70	OR/2	:	Satellite sensor LH	
E1	B71	Y/2	:	Satellite sensor RH	
D1	B72	—	:	Body ground	
B1	B97	B/2	:	Fuse block (J/B)	
A3	B98	W/3	:	Theft warning horn relay	
A4	B99	W/2	:	Circuit breaker-2	
A1	B121	W/6	:	Central unlock/back door release switch	
B4	B122	W/3	:	To (B130)	
C1	B123	W/12	:	Auto level control unit	
D4	B124	W/3	:	To (B132)	
F4	B125	BR/4	:	Not used (To trailer tow connector)	
E4	B126	BR/4	:	Link	
E3	B127	GY/2	:	Licence plate lamp LH	
F3	B128	GY/2	:	Licence plate lamp RH	
B4	B130	W/3	:	To (B122)	
B2	B131	—/3	:	Front sensor	
E4	B132	W/3	:	To (B124)	
F3	B133	—/3	:	Rear sensor	
Console harness					
C2	B101	W/16	:	To (B58)	
D3	B102	W/6	:	Ultrasonic control switch	
C2	B104	L/4	:	Heated seat switch LH	
C3	B105	W/4	:	Heated seat switch RH	
B2	B106	W/4	:	Headlamp aiming switch	

★ Be sure to connect and lock the connectors securely after repair work.  
Failure to do so may cause the ECM to have diagnostic trouble codes.  
Do not disconnect these connectors except in the case of working  
according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

## HARNESS LAYOUT

## Body Harness (Cont'd)

## 5-DOOR HARCHBACK — RHD models



**★ Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. Do not disconnect these connectors except in the case of working according to WORK FLOW OF TROUBLE DIAGNOSES in EC and AT sections.**



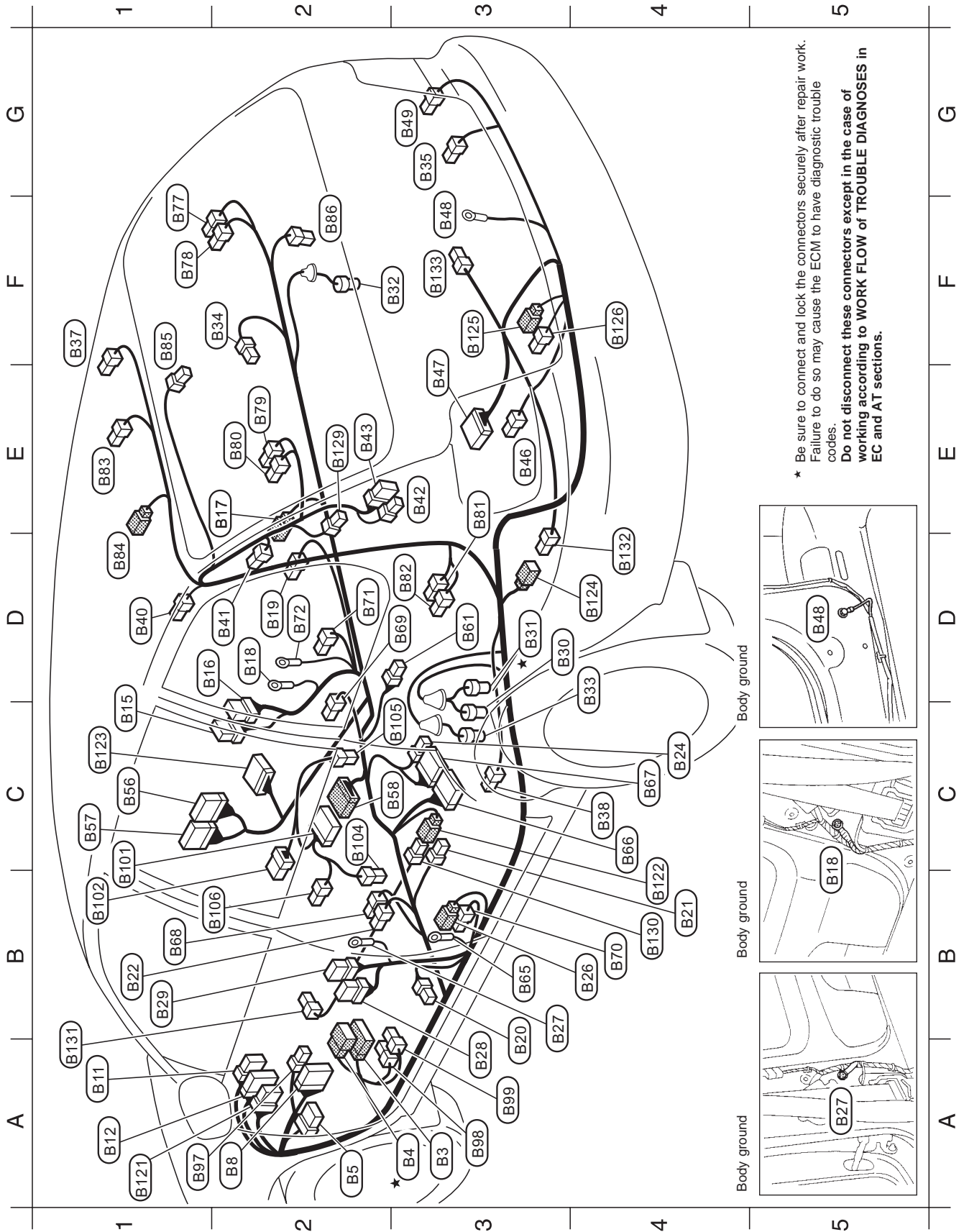
## Body Harness (Cont'd)

★ Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

# HARNESS LAYOUT

## Body Harness (Cont'd)

WAGON — LHD MODELS



\* Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes.  
Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

YEL395B



# HARNESS LAYOUT

## Body Harness (Cont'd)

### Body harness

A1	B3	W/24	To (M13)
A1	B4	W/6	To (M14)
B1	B5	W/12	To (D2)
B2	B8	BR/16	Fuse block (J/B)
A3	B11	W/8	Time control unit
A3	B11	W/20	Time control unit
C1	B15	W/6	Ultra sonic sub-sensor
D1	B16	W/8	To (D22)
E2	B17	W/4	Seat belt pre-tensioner (Passenger side)
D2	B18	—	Body ground
D2	B19	BR/1	Front door switch (Passenger side)
B3	B20	B/3	Front door switch (Driver's side)
C3	B21	W/3	Heated seat LH
B2	B22	W/2	Power seat
C3	B24	B/1	Parking brake switch
B4	B26	W/4	Seat belt pre-tensioner (Driver's side)
B3	B27	—	Body ground
B3	B28	W/8	To (D18)
B2	B29	W/8	Ultra sonic sensor
D3	B30	GY/2	Fuel pump
D3	B31	GY/3	Fuel tank gauge unit
F3	B32	GY/2	Rear wheel sensor RH
D4	B33	BR/2	Rear wheel sensor LH
E1	B34	BR/1	Rear door switch RH
G1	B35	B/1	Theft warning horn
F1	B37	BR/2	Rear speaker RH
C4	B38	BR/1	Rear door switch LH
D1	B40	BR/2	Rear speaker LH
D2	B41	B/1	Rear window defogger
E2	B42	W/4	To (D101)
E2	B43	W/6	To (D102)
E3	B46	W/4	Rear combination lamp LH
E3	B47	W/16	CD auto changer
F3	B48	—	Body ground
G3	B49	W/4	Rear combination lamp RH
C1	B56	W/10	To (D11)

C2	B57	W/10	To (E115)
C3	B58	W/16	To (B101)
D3	B61	W/3	Heated seat RH
A2	B64	W/6	To (E120)
B3	B65	—	Body ground
C3	B66	Y/12	Diagnosis sensor unit
C3	B67	Y/12	Diagnosis sensor unit
B2	B68	Y/2	Side air bag module LH
D3	B69	Y/2	Side air bag module RH
B3	B70	OR/2	Satellite sensor LH
E1	B71	Y/2	Satellite sensor RH
D2	B72	—	Body ground
F1	B77	B/1	Smash sensor RH
F1	B78	B/1	Smash sensor RH
E2	B79	B/1	Rear window defogger condenser
E2	B80	B/1	Rear window defogger condenser
D3	B81	B/1	Smash sensor LH
D3	B82	B/1	Smash sensor LH
E1	B83	W/2	Luggage room lamp
D1	B84	W/1	Roof mounted antenna
F1	B85	W/3	High mounted stop lamp
F2	B86	B/2	Power socket
	B97	B/2	Fuse block (J/B)
	B98	W/3	Theft warning horn relay
	B99	W/2	Circuit breaker-2
	B122	W/3	To (B130)
	B123	W/12	Auto level control unit
	B124	W/3	To (B132)
	B125	W/4	Not used (To trailer tow connector)
	B126	W/4	Link
	B129	B/1	Rear window smash sensor
	B130	W/3	To (B122)
	B131	—/3	Front sensor
	B132	W/3	To (B124)
	B133	—/3	Rear sensor

### Console harness

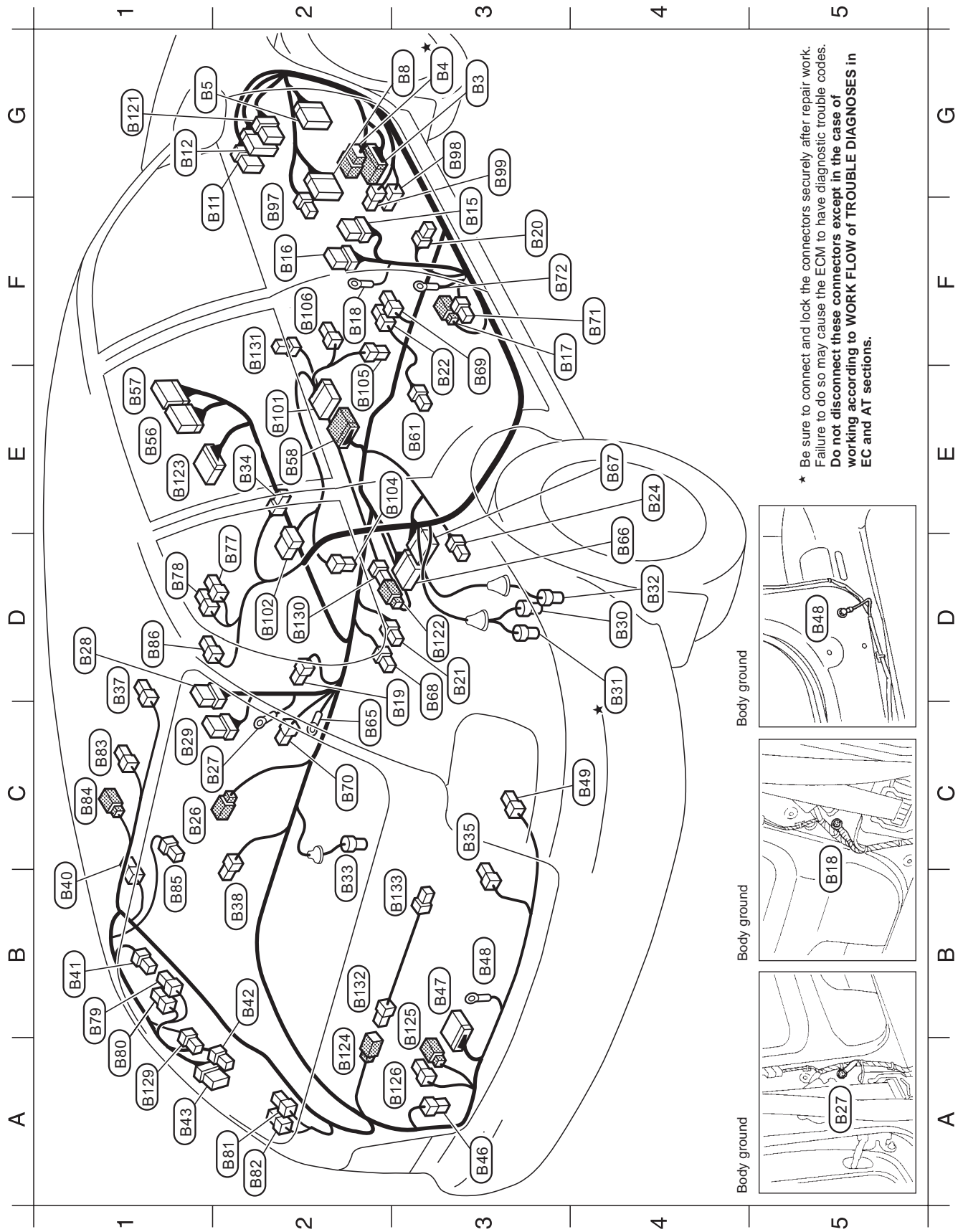
C2	B101	W/16	To (B58)
C2	B102	W/6	Ultra sonic cancel switch
C2	B104	L/4	Heated seat switch LH
C3	B105	W/4	Heated seat switch RH
	B106	W/4	Headlamp aiming switch

YEL396B

# HARNESS LAYOUT

## Body Harness (Cont'd)

WAGON — RHD models



\* Be sure to connect and lock the connectors securely after repair work. Failure to do so may cause the ECM to have diagnostic trouble codes. Do not disconnect these connectors except in the case of working according to WORK FLOW of TROUBLE DIAGNOSES in EC and AT sections.

YEL397B

# HARNESS LAYOUT

## Body Harness (Cont'd)

### Body harness

G1	B3	W/24	To (M13)
G1	B4	W/6	To (M14)
F2	B5	W/12	To (D2)
F1	B8	BR/16	Fuse block (J/B)
G3	B11	W/8	Time control unit
G3	B12	W/20	Time control unit
F3	B15	W/6	Ultra sonic sub-sensor
F2	B16	W/8	To (D22)
F3	B17	W/4	Seat belt pre-tensioner (Driver's side)
F2	B18	—	Body ground
D3	B19	BR/1	Front door switch (Passenger side)
F3	B20	B/3	Front door switch (Driver's side)
D3	B21	W/3	Heated seat LH
E3	B22	W/2	Power seat
D3	B24	B/1	Parking brake switch
C1	B26	W/4	Seat belt pre-tensioner (Passenger side)
C2	B27	—	Body ground
D1	B28	W/8	To (D18)
C1	B29	W/8	Ultra sonic sensor
D4	B30	GY/2	Fuel pump
D4	B31	GY/3	Fuel tank gauge unit
E3	B32	GY/2	Rear wheel sensor RH
B2	B33	BR/2	Rear wheel sensor LH
E2	B34	BR/1	Rear door switch RH
C2	B35	B/1	Theft warning horn
D1	B37	BR/2	Rear speaker RH
B2	B38	BR/1	Rear door switch LH
B1	B40	BR/2	Rear speaker LH
B1	B41	B/1	Rear window defogger
A1	B42	W/4	To (D101)
A1	B43	W/6	To (D102)
A3	B46	W/4	Rear combination lamp LH
B3	B47	W/16	CD auto changer
B3	B48	—	Body ground
C4	B49	W/4	Rear combination lamp RH
D1	B56	W/10	To (D11)

D2	B57	W/10	To (E115)
E2	B58	W/16	To (B101)
E3	B61	W/3	Heated seat RH
G2	B64	W/6	To (E120)
C2	B65	—	Body ground
E3	B66	Y/12	Diagnosis sensor unit
E3	B67	Y/12	Diagnosis sensor unit
D3	B68	Y/2	Side air bag module LH
E3	B69	Y/2	Side air bag module RH
B2	B70	OR/2	Satellite sensor LH
F4	B71	Y/2	Satellite sensor RH
F3	B72	—	Body ground
D2	B77	B/1	Smash sensor RH
D1	B78	B/1	Smash sensor RH
B1	B79	B/1	Rear window defogger condenser
A1	B80	B/1	Rear window defogger condenser
A2	B81	B/1	Smash sensor LH
A2	B82	B/1	Smash sensor LH
C1	B83	W/2	Luggage room lamp
C1	B84	W/1	Roof mounted antenna
B1	B85	W/3	High mounted stop lamp
D1	B86	B/2	Power socket
	B97	B/2	Fuse block (J/B)
	B98	W/3	Theft warning horn relay
	B99	W/2	Circuit breaker-2
	B122	W/3	To (B130)
	B123	W/12	Auto level control unit
	B124	W/3	To (B132)
	B125	W/4	Not used (To trailer tow connector)
	B126	W/4	Link
	B129	B/1	Rear window smash sensor
	B130	W/3	To (B122)
	B131	—/3	Front sensor
	B132	W/3	To (B124)
	B133	—/3	Rear sensor

### Console harness

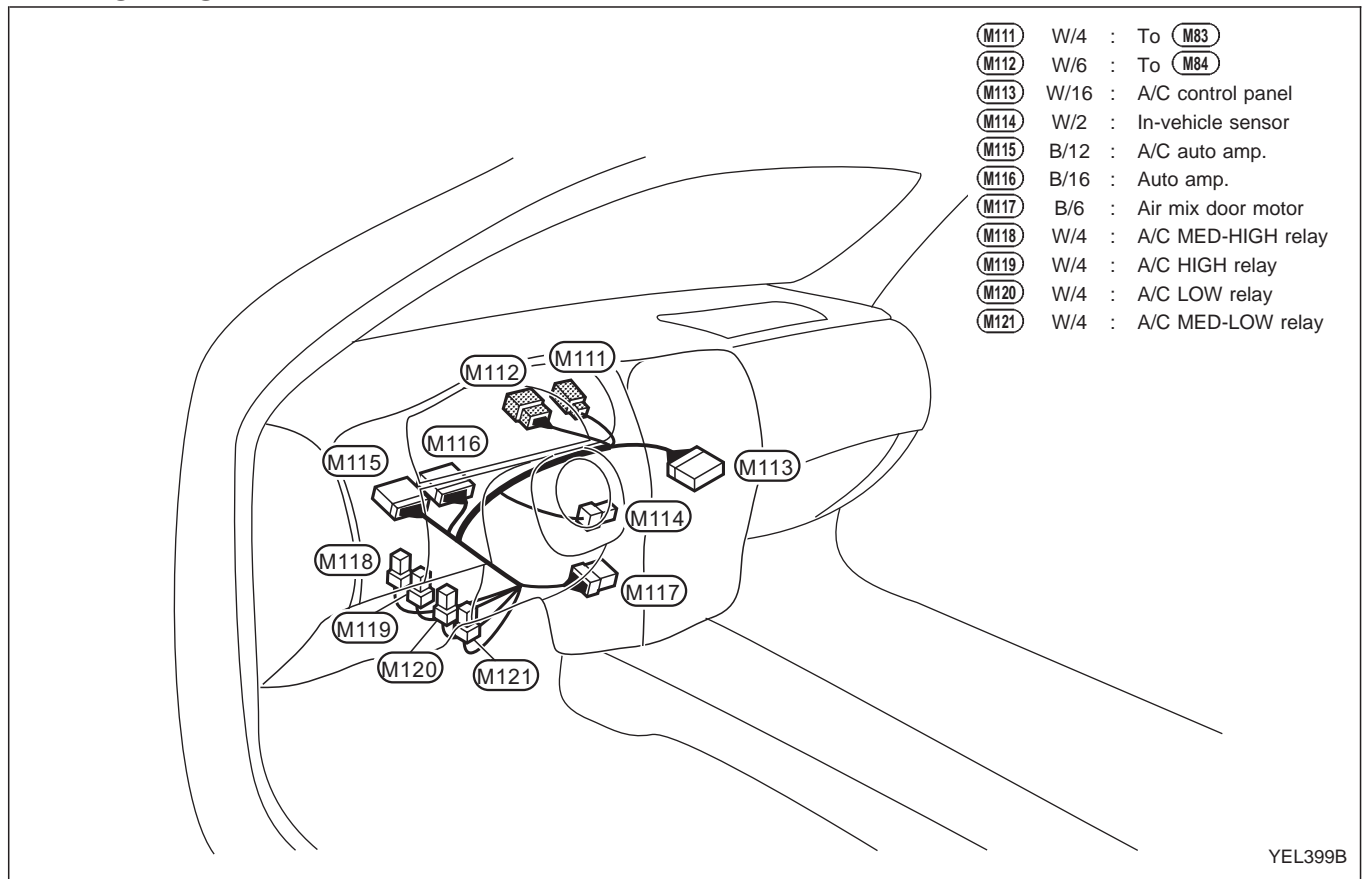
E2	B101	W/16	To (B58)
F2	B102	W/6	Ultra sonic cancel switch
E2	B104	L/4	Heated seat switch LH
E2	B105	W/4	Heated seat switch RH
	B106	W/4	Headlamp aiming switch

YEL398B

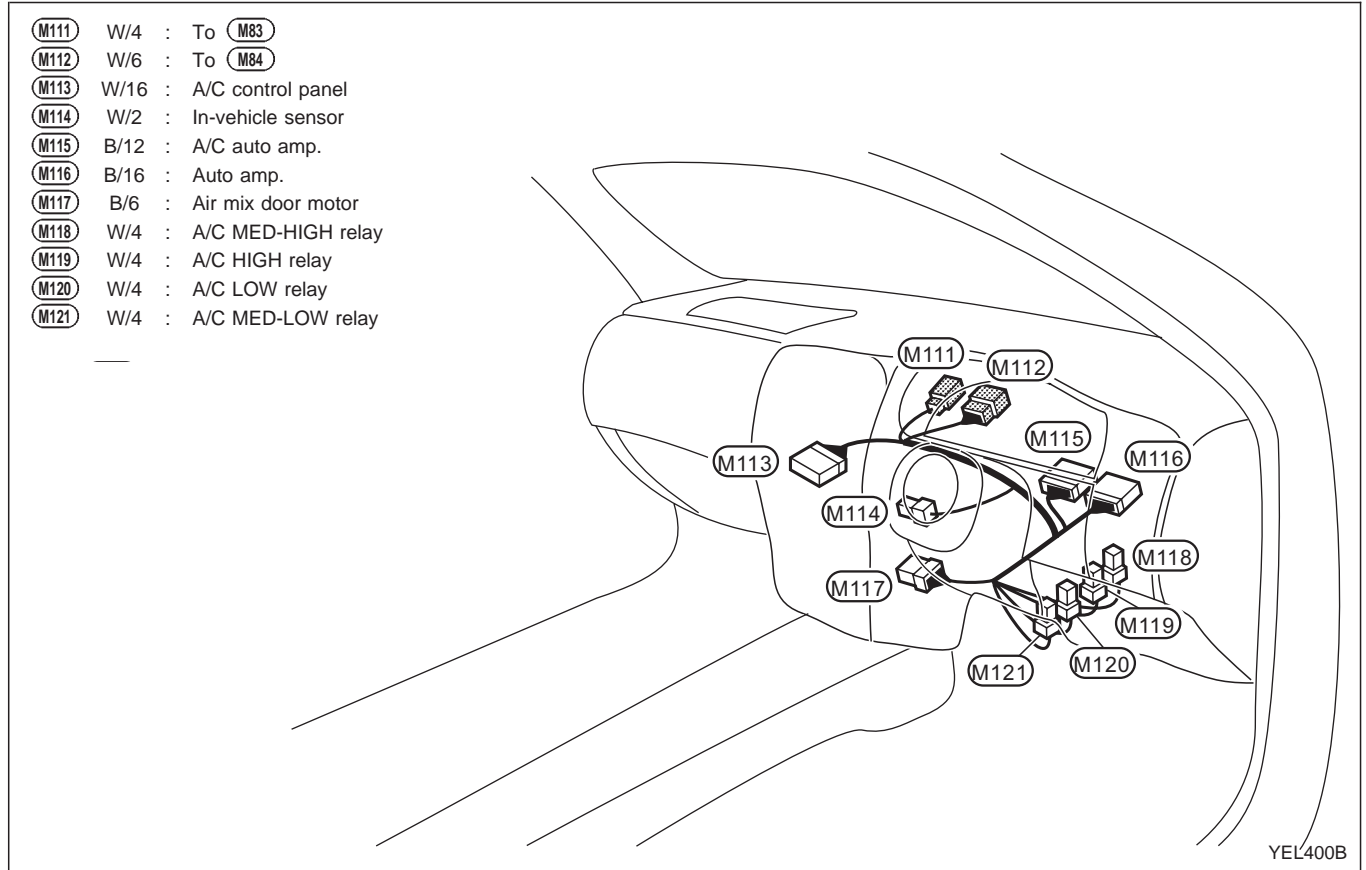
# HARNESS LAYOUT

## LHD MODELS

## Air Conditioner Harness



## RHD MODELS

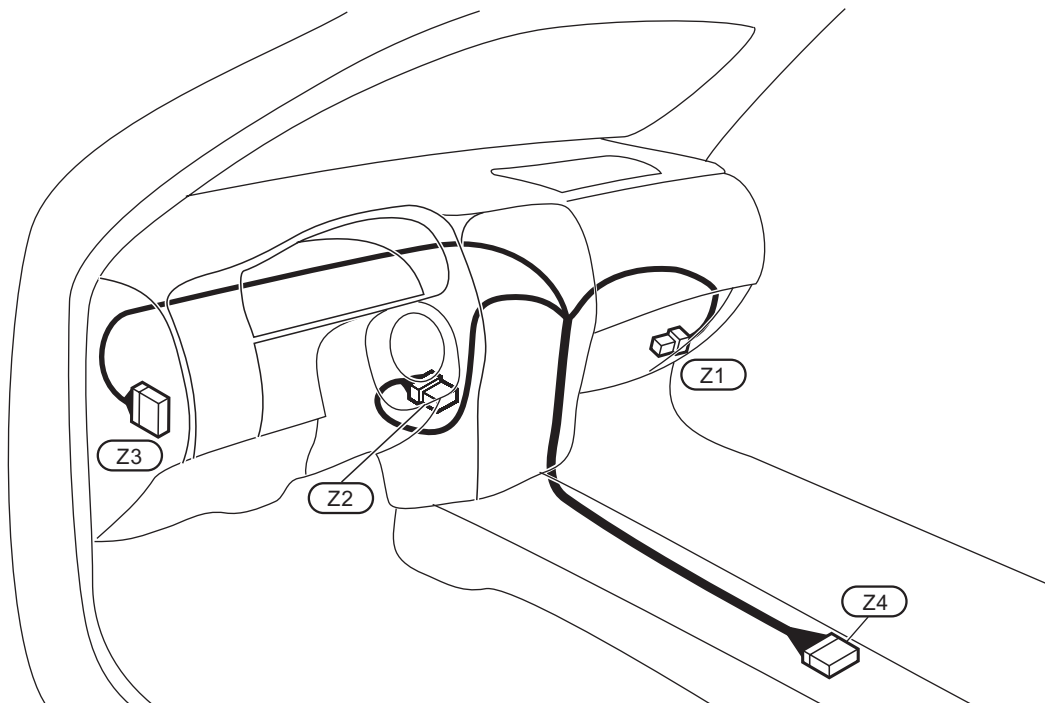


# HARNESS LAYOUT

## Air Bag Harness

### LHD MODELS

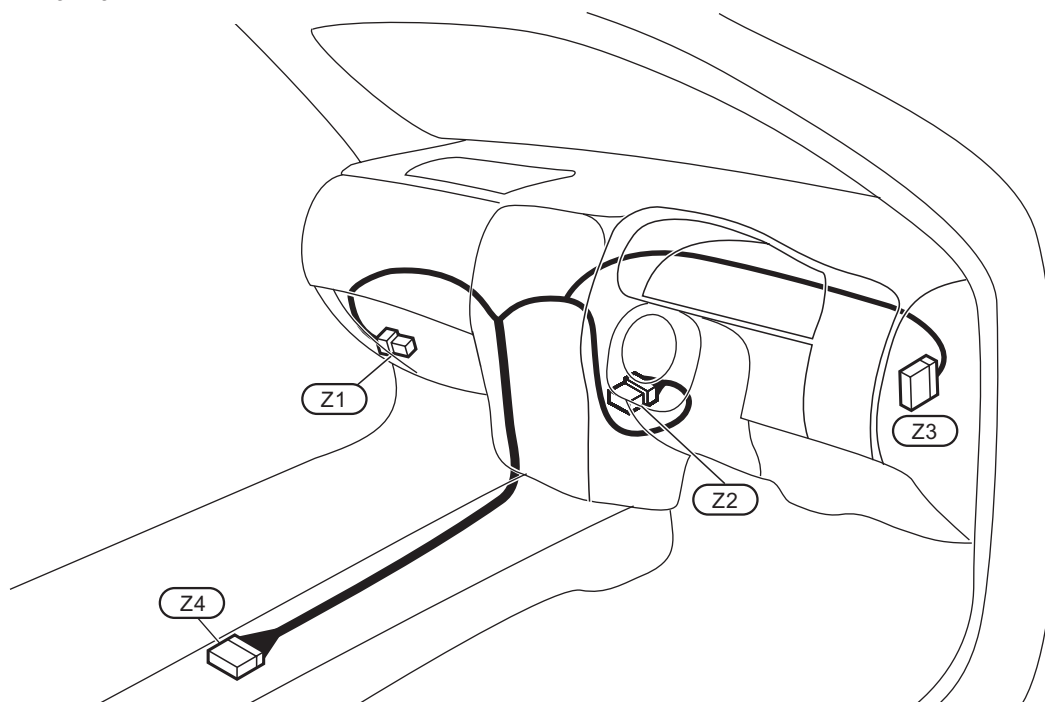
- (Z1) Y/2 : Air bag module (passenger side)
- (Z2) Y/7 : Air bag module (Driver's side)
- (Z3) W/10 : Fuse block (J/B)
- (Z4) Y/20 : Air bag diagnosis sensor unit



YEL401B

### RHD MODELS

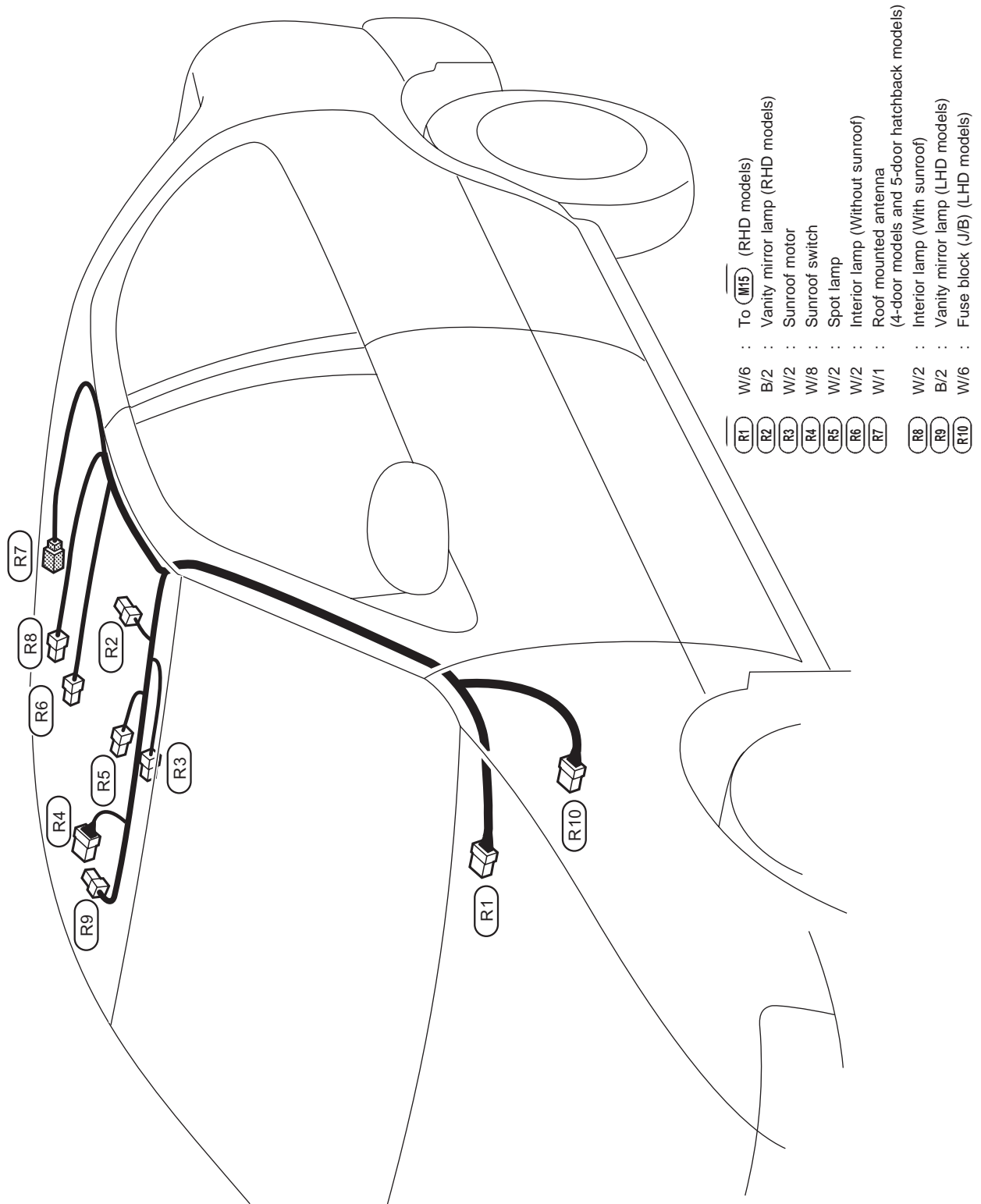
- (Z1) Y/2 : Air bag module (passenger side)
- (Z2) Y/7 : Air bag module (Driver's side)
- (Z3) W/10 : Fuse block (J/B)
- (Z4) Y/20 : Air bag diagnosis sensor unit



YEL402B

# HARNESS LAYOUT

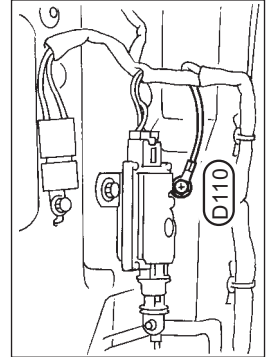
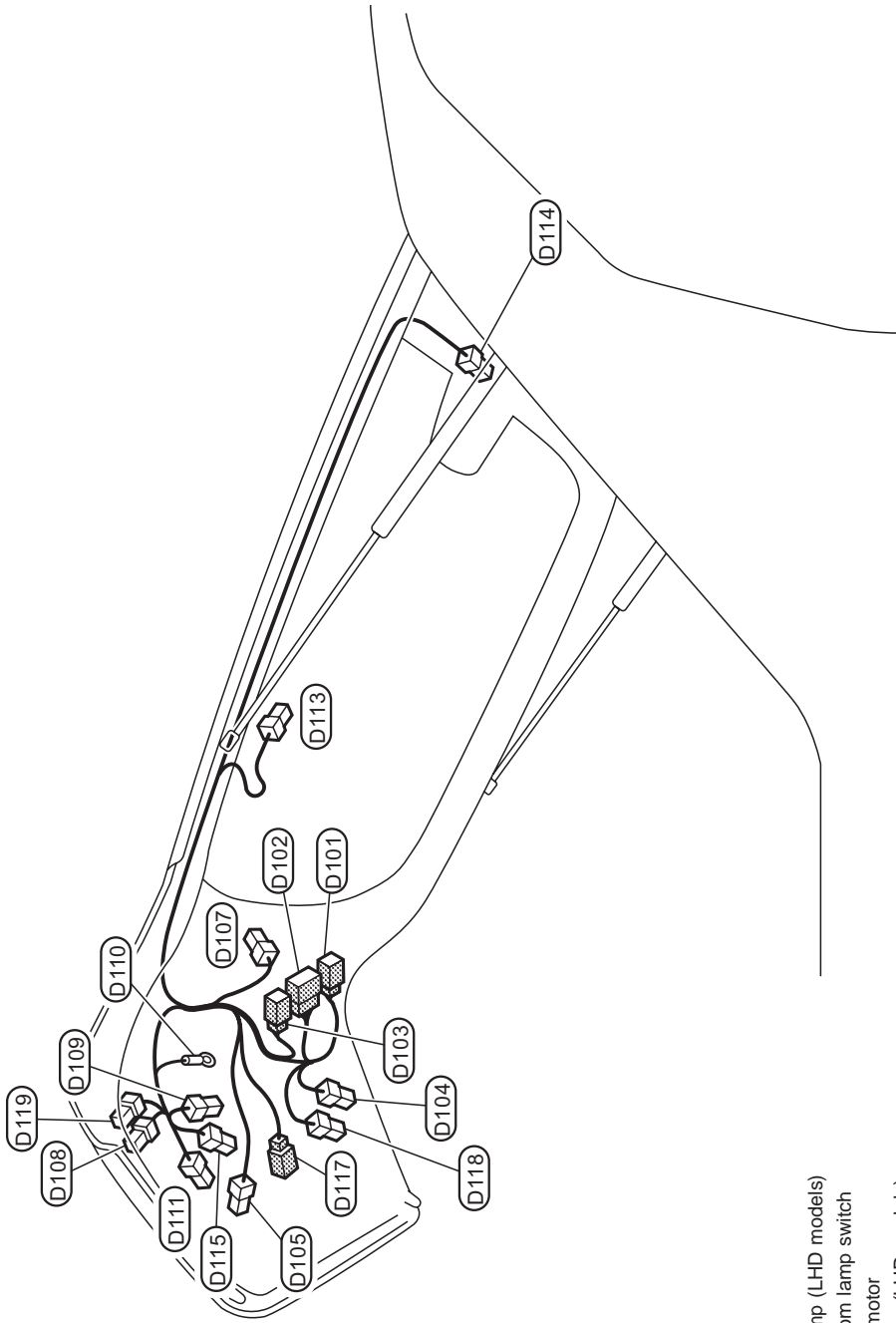
## Room Lamp Harness



# HARNESS LAYOUT

## Back Door Harness

### 5-DOOR HATCHBACK



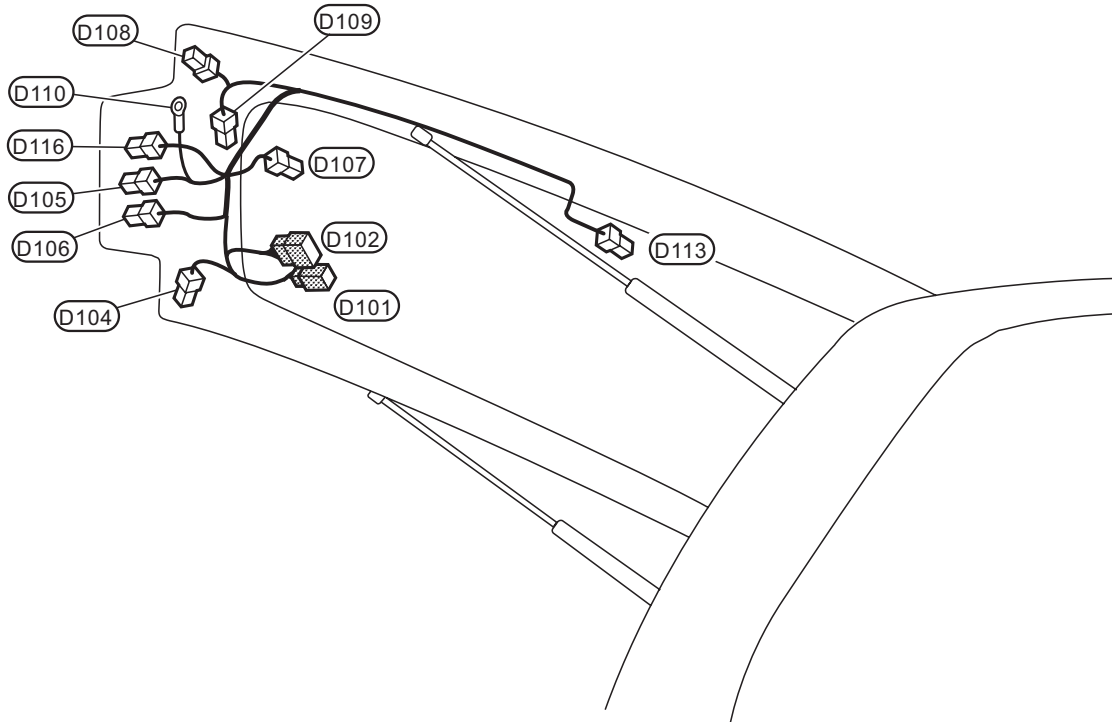
Body ground

D101	W/4	:	To	B42
D102	W/6	:	To	B43
D103	W/3	:	To	B44
D104	W/2	:	Rear fog lamp (LHD models)	
D105	B/2	:	Luggage room lamp switch	
D107	W/4	:	Rear wiper motor	
D108	W/2	:	Back-up lamp (LHD models)	
D109	W/4	:	Door unlock actuator assembly	
D110	—	:	Body ground	
D111	B/1	:	Rear window defogger condenser	
D113	B/1	:	Rear window defogger	
D114	B/2	:	High mounted stop lamp	
D115	B/1	:	Rear window defogger condenser	
D117	W/3	:	Trunk external release switch	
D118	W/2	:	Back-up lamp (RHD models)	
D119	W/2	:	Rear fog lamp (RHD models)	

# HARNESS LAYOUT

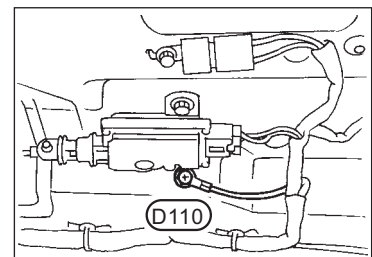
## Back Door Harness (Cont'd)

WAGON



D101	W/4	: To B42
D102	W/6	: To B43
D104	W/4	: Rear combination lamp LH
D105	W/2	: Luggage room lamp switch
D106	W/2	: Licence plate lamp LH
D107	W/4	: Rear wiper motor
D108	W/4	: Rear combination lamp RH
D109	W/4	: Door lock actuator assembly
D110	—	: Body ground
D113	B/1	: Rear window defogger
D116	W/2	: Licence plate lamp RH

Body ground



YEL405B

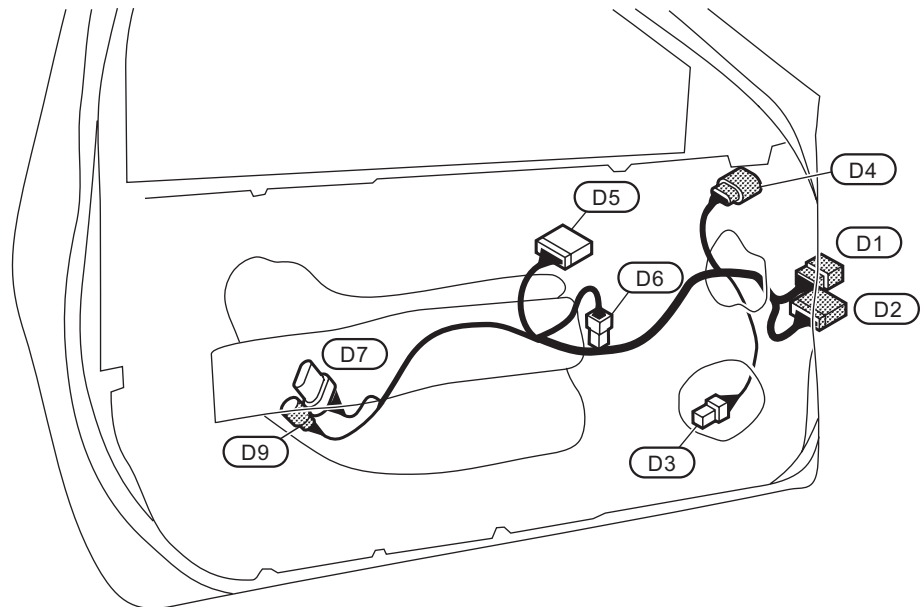


# HARNESS LAYOUT

## LHD MODELS

### Front Door Harness (LH side)

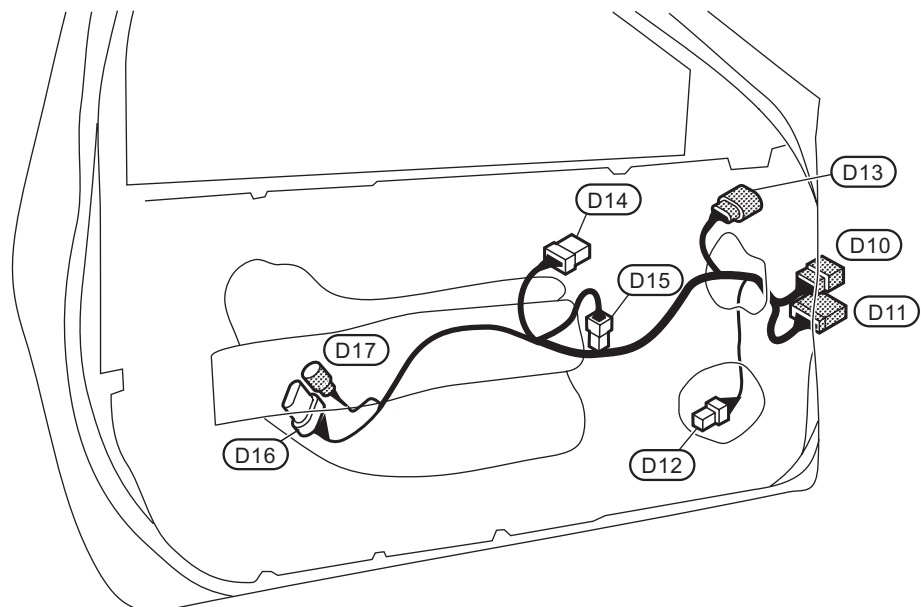
- |  |   |
|--|---|
| (D1) W/8 : To (M7)                     | (D5) W/16 : Power window main switch                    |
| (D2) W/12 : To (B5)                    | (D6) B/2 : Front power window regulator (Driver's side) |
| (D3) B/2 : Front speaker LH            | (D7) B/6 : Door lock actuator assembly (Driver's side)  |
| (D4) W/5 : Door mirror (Driver's side) | (D9) GY/2 : Key cylinder switch (Driver's side)         |



YEL406B

## RHD MODELS

- |  |   |
|--|---|
| (D10) W/8 : To (M27)                     | (D14) W/8 : Front power window sub-switch                 |
| (D11) W/10 : To (B56)                    | (D15) B/2 : Front power window regulator (Passenger side) |
| (D12) B/2 : Front speaker LH             | (D16) B/6 : Door lock actuator assembly (Passenger side)  |
| (D13) W/5 : Door mirror (Passenger side) | (D17) GY/2 : Key cylinder switch (Passenger side)         |



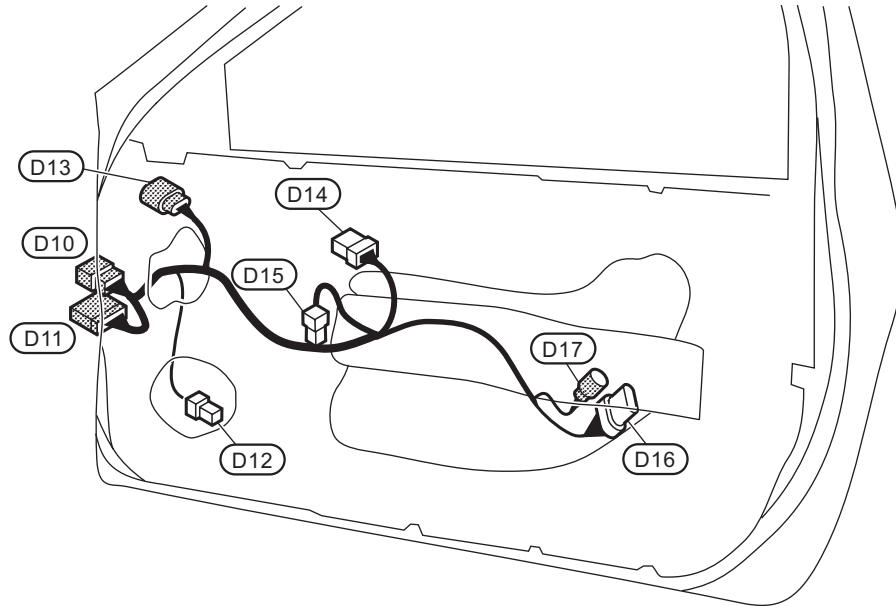
YEL407B

# HARNESS LAYOUT

## LHD MODELS

### Front Door Harness (RH side)

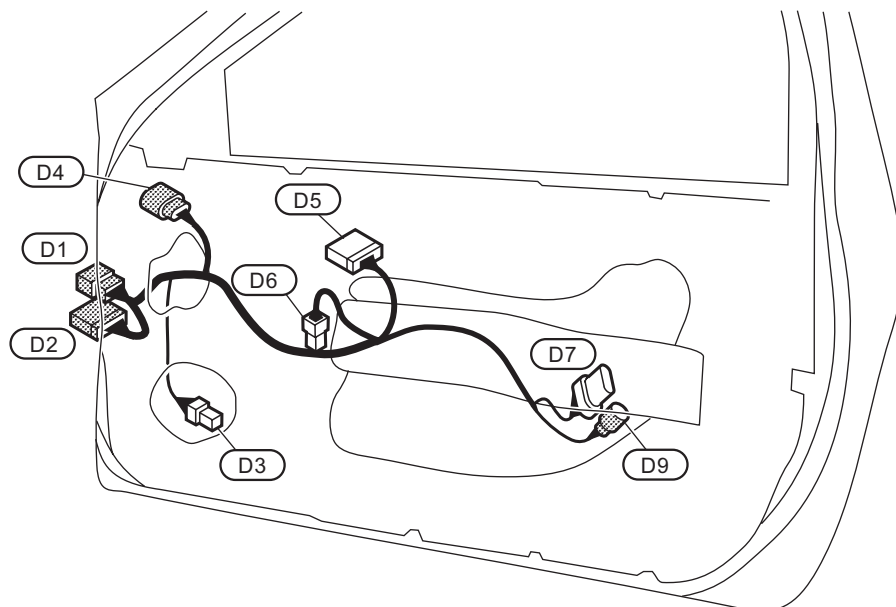
- |  |   |
|--|---|
| (D10) W/8 : To (M27)                     | (D14) W/8 : Front power window sub-switch                 |
| (D11) W/10 : To (B56)                    | (D15) B/2 : Front power window regulator (Passenger side) |
| (D12) B/2 : Front speaker RH             | (D16) B/6 : Door lock actuator assembly (Passenger side)  |
| (D13) W/5 : Door mirror (Passenger side) | (D17) GY/2 : Key cylinder switch (Passenger side)         |



YEL408B

## RHD MODELS

- |  |   |
|--|---|
| (D1) W/8 : To (M7)                     | (D5) W/16 : Power window main switch                    |
| (D2) W/12 : To (B5)                    | (D6) B/2 : Front power window regulator (Driver's side) |
| (D3) B/2 : Front speaker RH            | (D7) B/6 : Door lock actuator assembly (Driver's side)  |
| (D4) W/5 : Door mirror (Driver's side) | (D9) GY/2 : Key cylinder switch (Driver's side)         |



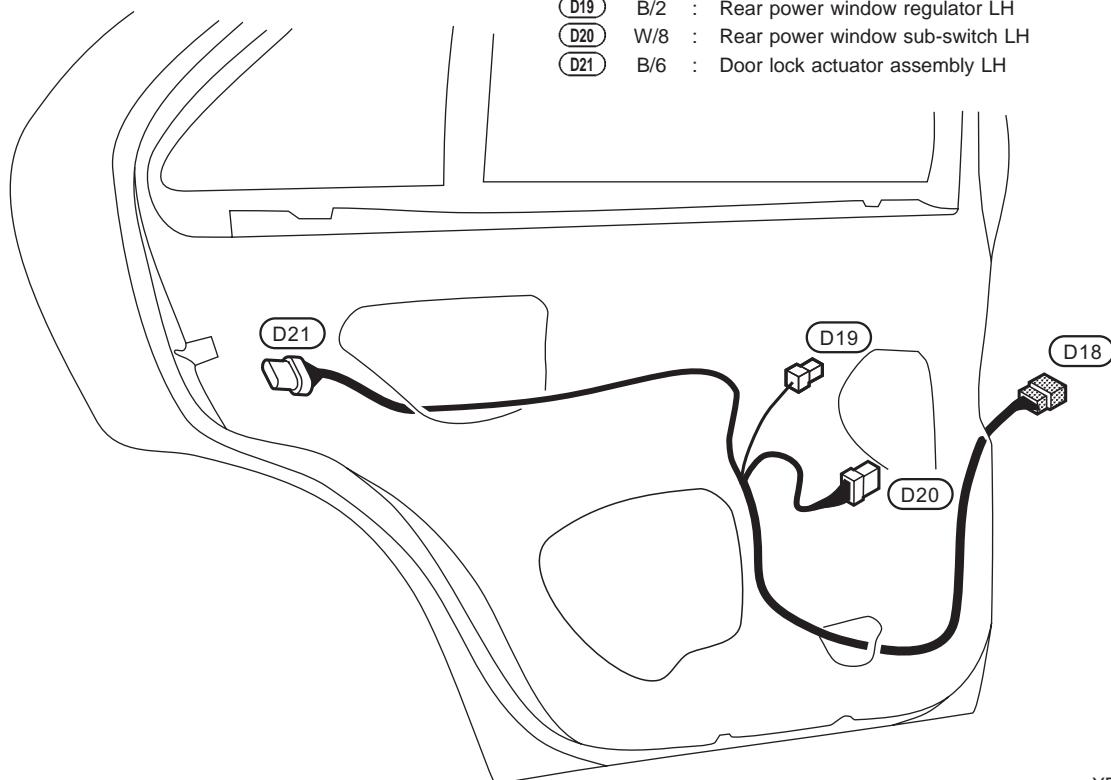
YEL409B

# HARNESS LAYOUT

## LHD SIDE

### Rear Door Harness

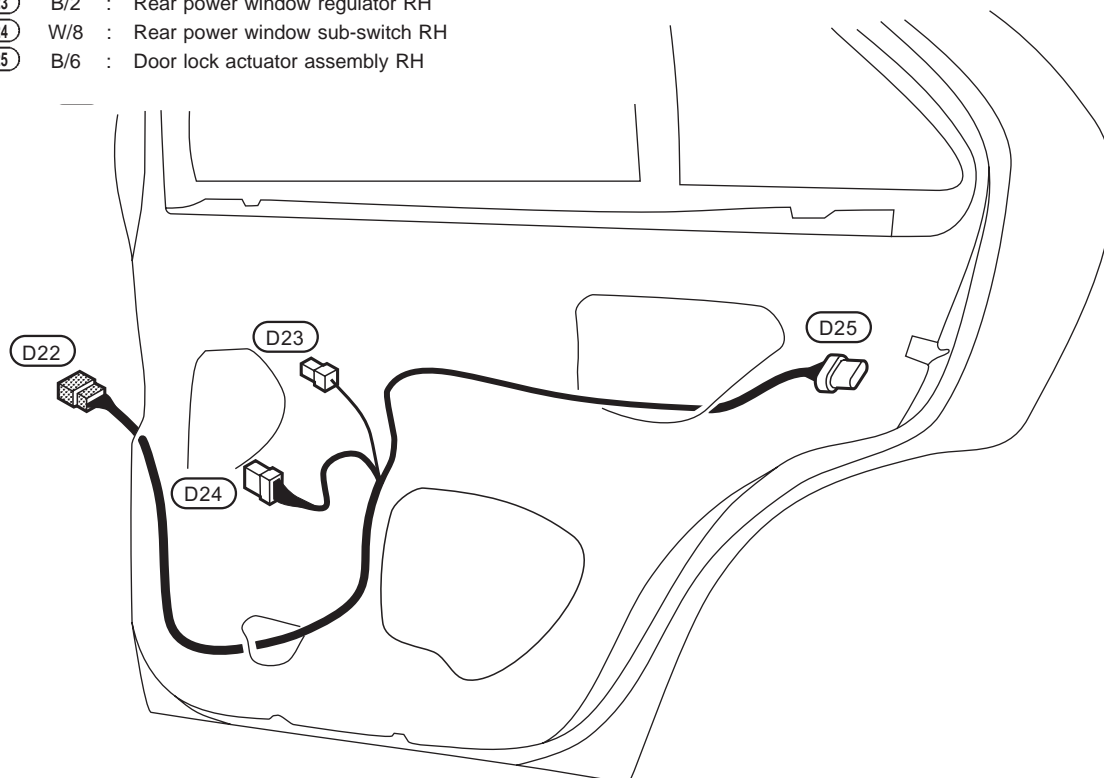
- (D18) W/8 : To (B28)
- (D19) B/2 : Rear power window regulator LH
- (D20) W/8 : Rear power window sub-switch LH
- (D21) B/6 : Door lock actuator assembly LH



YEL410B

## RHD SIDE

- (D22) W/8 : To (B16)
- (D23) B/2 : Rear power window regulator RH
- (D24) W/8 : Rear power window sub-switch RH
- (D25) B/6 : Door lock actuator assembly RH



YEL411B

## **HARNESS LAYOUT**

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### **Rear Door Harness (Cont'd)**

**NOTE**