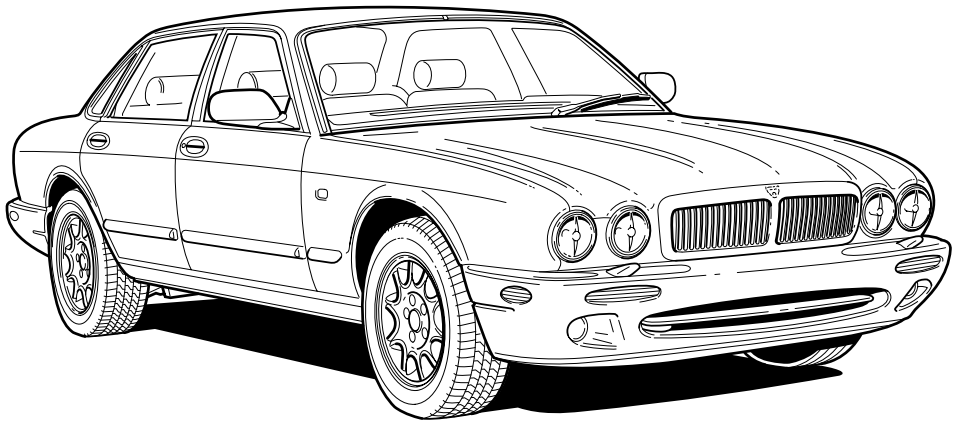
BY APPOINTMENT TO
HER MAJESTY QUEEN ELIZABETH II
MANUFACTURERS OF DAIMLER AND JAGUAR CARS
JAGUAR CARS LIMITED COVENTRY

BY APPOINTMENT TO
HER MAJESTY QUEEN ELIZABETH
THE QUEEN MOTHER
MANUFACTURERS OF DAIMLER AND JAGUAR CARS
JAGUAR CARS LIMITED COVENTRY

BY APPOINTMENT TO
HIS ROYAL HIGHNESS THE PRINCE OF WALES
MANUFACTURERS OF DAIMLER AND JAGUAR CARS
JAGUAR CARS LIMITED COVENTRY

XJ Series Sedan 1998 Electrical Guide



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Electrical Guide Format

This Electrical Guide is made up of two major sections. The first section, at the front of the book, provides general information for and about the use of the book, and information and illustrations to aid in the understanding of the XJ Series electrical / electronic systems, as well as the location and identification of components.

The second section includes the Figures, which are the basis of the book. Each Figure is identified by a Figure Number (i.e. Fig. 01.1) and Title, and is accompanied by a page of data containing information specific to that Figure.

It is recommended that the user read through the front section of the book to develop a familiarity with the layout of the book and with the system of symbols and abbreviations used. The Table of Contents on the following pages should help to guide the user.

Standard Abbreviations

The following abbreviations are used throughout this Electrical Guide:

B+	Battery Voltage
CAN	Controller Area Network
DI	Direction Indicator
LH	Left-Hand
LHD	Left-Hand Drive
LWB	Long Wheelbase
N/A	Normally Aspirated
NAS	North American Specification
RH	Right-Hand
RHD	Right-Hand Drive
ROW	Rest of World
SC	Supercharged
SCP	Standard Corporate Protocol Network
VIN	Vehicle Identification Number

Refer to the Vehicle Service Manual for a glossary of standard terms and their abbreviations.

Vehicle Identification Numbers (VIN)

VIN ranges are presented throughout the book in the following manner:

→ VIN 123456 indicates "up to VIN 123456"; VIN 123456 → indicates "from VIN 123456 on".

XJ Series Electrical System Architecture

The 1998 Model Year XJ Series uses an advanced electrical system architecture which features "multiplexing", first introduced in Jaguar vehicles with the XK8. Multiplexing allows for simplified wiring harnesses while providing greater flexibility in programming market variants. Two data networks are used in the system: a controller area network (CAN) for the engine, drive train and related systems, and a standard corporate protocol network (SCP) for the body systems. Any vehicle subsystem depicted on the figures with the CAN or SCP included uses data derived from the network, or transmits data via the network to achieve control. Messages for both networks are cataloged in the Appendix of this book. When appropriate, the user will be referred to the Appendix by a note on the Data page. In addition to the two networks, the XJ Series uses two serial data buses (ISO) for diagnostics, for the security system and for the programming of certain control modules.

The XJ Series uses both power and logic grounds; however, it does not use a common logic ground stud connection as in previous Sedan vehicles.

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SEAT HEATER TIMERS – REAR ..... Fig. 12.9
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SEAT LOWER RELAY ..... Fig. 12.3

SEAT LUMBAR PUMP – DRIVER ..... Fig. 12.1
..... Fig. 12.2

SEAT LUMBAR PUMP – PASSENGER ..... Fig. 12.4
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SEAT LUMBAR PUMPS – REAR ..... Fig. 12.8

SEAT LUMBAR SWITCHES – REAR ..... Fig. 12.8

SEAT MOTOR – DRIVER (RAISE / LOWER ONLY) ..... Fig. 12.3

SEAT MOTORS – DRIVER ..... Fig. 12.1
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SEAT MOTORS – PASSENGER ..... Fig. 12.4
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SEAT RAISE RELAY ..... Fig. 12.3

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SEAT SWITCH – PASSENGER RECLINE – REAR ..... Fig. 12.5

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SPEAKER, FRONT DOOR TWEETER ..... Fig. 16.1

SPEAKER, REAR DOOR MID-BASS ..... Fig. 16.1
..... Fig. 16.2

SPEAKER, REAR DOOR TWEETER ..... Fig. 16.1
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SWITCH PACK – DRIVER DOOR ..... Fig. 10.2

SWITCH PACK – DRIVER REAR DOOR ..... Fig. 10.2
..... Fig. 15.1
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SWITCH PACK – DRIVER SEAT ..... Fig. 12.1
..... Fig. 12.2

SWITCH PACK – PASSENGER DOOR ..... Fig. 10.2
..... Fig. 15.1
..... Fig. 15.2

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SWITCH PACK – PASSENGER SEAT ..... Fig. 12.4
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TELEPHONE ANTENNA ..... Fig. 16.3

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TRANSMISSION ELECTRICAL CONNECTOR: AJ26 N/A ..... Fig. 05.1

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TRUNK RELEASE SWITCHES ..... Fig. 13.1
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TRUNK SWITCH ..... Fig. 10.1
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WIPER FAST / SLOW RELAY ..... Fig. 14.1

WIPER MOTOR ..... Fig. 14.1

WIPER RUN / STOP RELAY ..... Fig. 14.1

Figure and Data Page Layout

Figure Pages
Each Figure represents a specific electrical system of the vehicle. The Figures are arranged numerically by system (**01 – Power Distribution, 02 – Ground Distribution**, etc.) with variations in the system identified by a numeral following a decimal point (**01.1, 01.2**, etc.). Refer to the Table of Contents for a complete list of the Figures.

The Figures **01 – Power Distribution** detail the distribution of power to each of the systems. Numbered reference symbols refer the user to a specific Figure and from a specific Figure back to the Power Distribution Figures. This method eliminates the need to include detailed Power Distribution information on each of the Figures. Similarly, the Figure **02 – Ground Distribution** details the ignition switched ground distribution. The reference symbols are defined on page 14.

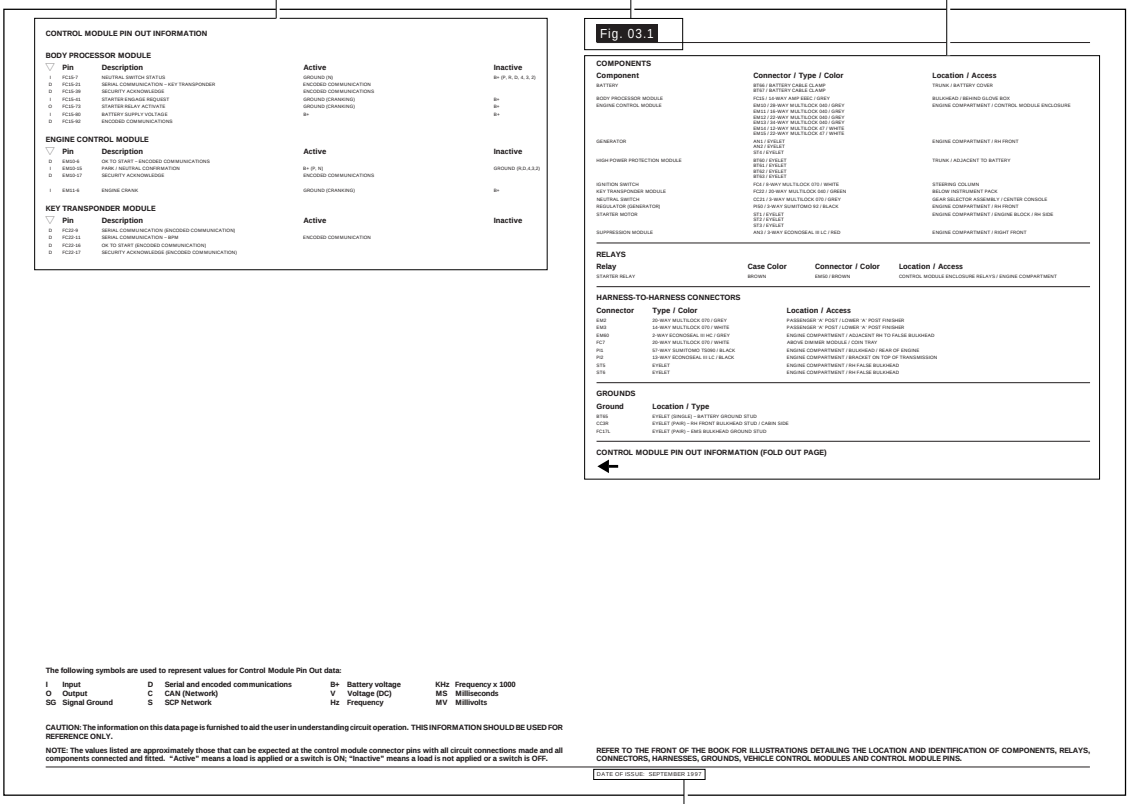
Each Figure appears on a right-hand page with a corresponding Data page to the left. The Figure and Data pages are folding pages. The user must fold out both pages in order to access all the information provided.

Data Pages
The Data page includes information to assist the user in identifying and locating components, connectors and grounds. This information is supplemented by the illustrations in this front section of the book.

When network data is required for the understanding of a particular circuit, the user is directed to the Appendix.

Where circuits include a Control Module, Pin Out information is provided with values for "active" and "inactive" states. The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "inactive" means a load is not applied or a switch is OFF. This information is provided to assist the user in understanding circuit operation and should be used FOR REFERENCE ONLY.

CONTROL MODULE PIN OUT INFORMATION | **FIGURE NUMBER** | **COMPONENT, RELAY, CONNECTOR AND GROUND INFORMATION**



CONTROL MODULE PIN OUT INFORMATION

BODY PROCESSOR MODULE

▽	Pin	Description	Active	Inactive
I	FC15-7	NEUTRAL SWITCH STATUS	GROUND (N)	B+ (P, R, D, 4, 3, 2)
D	FC15-31	SERIAL COMMUNICATION – KEY TRANSPONDER	ENCODED COMMUNICATION	
D	FC15-39	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O	FC15-73	STARTER RELAY ACTIVATE	GROUND (CRANKING)	B+
I	FC15-85	BATTERY SUPPLY VOLTAGE	B+	B+
D	FC15-92	ENCODED COMMUNICATIONS		

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
D	EM10-6	OK TO START – ENCODED COMMUNICATIONS		GROUND (K,D,4,3,2)
I	EM10-15	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	
D	EM10-17	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
I	EM11-6	ENGINE CRANK	GROUND (CRANKING)	B+

KEY TRANSPONDER MODULE

▽	Pin	Description	Active	Inactive
D	FC22-9	SERIAL COMMUNICATION (ENCODED COMMUNICATION)	ENCODED COMMUNICATION	
D	FC22-11	SERIAL COMMUNICATION – BPM		
D	FC22-16	OK TO START (ENCODED COMMUNICATION)		
D	FC22-17	SECURITY ACKNOWLEDGE (ENCODED COMMUNICATION)		

Fig. 03.1

COMPONENTS

Component	Connector / Type / Color	Location / Access
BATTERY	BT60 / BATTERY CABLE CLAMP BT67 / BATTERY CABLE CLAMP	TRUNK / BATTERY COVER
BODY PROCESSOR MODULE	FC15 / 16-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
ENGINE CONTROL MODULE	EM10 / 39-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 22-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 07 / WHITE EM15 / 22-WAY MULTILOCK 07 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
GENERATOR	AN1 / EYELET AN2 / EYELET ST2 / EYELET	ENGINE COMPARTMENT / RH FRONT
HIGH POWER PROTECTION MODULE	BT60 / EYELET BT61 / EYELET BT62 / EYELET BT63 / EYELET	TRUNK / ADJACENT TO BATTERY
IGNITION SWITCH	FC4 / 8-WAY MULTILOCK 070 / WHITE	STEERING COLUMN
KEY TRANSPONDER MODULE	FC22 / 20-WAY MULTILOCK 040 / GREEN	BELOW INSTRUMENT PACK
NEUTRAL SWITCH	CC31 / 3-WAY MULTILOCK 070 / GREY	GEAR SELECTOR ASSEMBLY / CENTER CONSOLE
REGULATOR (GENERATOR)	PI50 / 3-WAY SUMITOMO 62 / BLACK	ENGINE COMPARTMENT / RH FRONT
STARTER MOTOR	ST1 / EYELET ST2 / EYELET ST3 / EYELET	ENGINE COMPARTMENT / ENGINE BLOCK / RH SIDE
SUPPRESSION MODULE	AN3 / 3-WAY ECONOSEAL III LC / RED	ENGINE COMPARTMENT / RIGHT FRONT

RELAYS

Relay	Case Color	Connector / Color	Location / Access
STARTER RELAY	BROWN	EM50 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	16-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM50	2-WAY ECONOSEAL III HC / GREY	ENGINE COMPARTMENT / ADJACENT RH TO FALSE BULKHEAD
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / CDIN TRAY
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	12-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
ST5	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD
ST6	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD

GROUNDS

Ground	Location / Type
BT65	EYELET (SINGLE) – BATTERY GROUND STUD
CC2R	EYELET (PAIR) – RH FRONT BULKHEAD STUD / CABIN SIDE
FC17L	EYELET (PAIR) – EM15 BULKHEAD GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

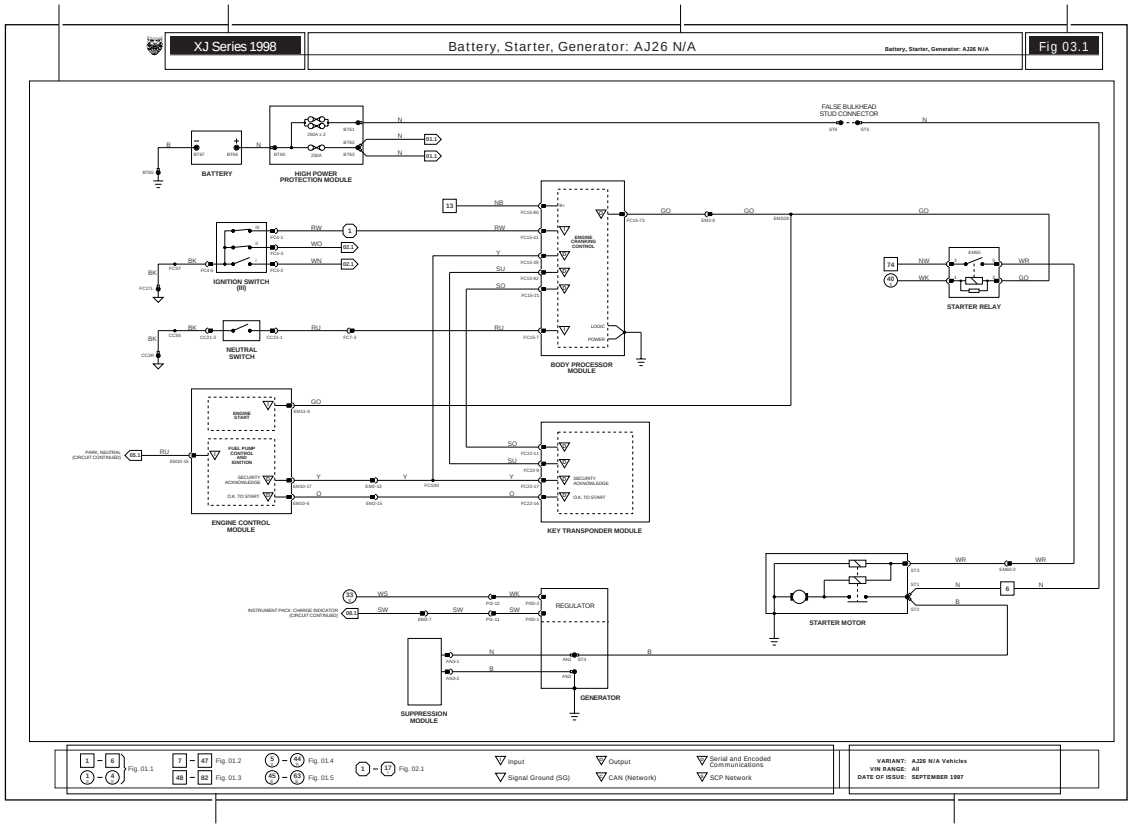
REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

DATE OF ISSUE

DATA PAGE

FIGURE | **MODEL RANGE AND YEAR** | **TITLE** | **FIGURE NUMBER**



KEY TO REFERENCE SYMBOLS | **VARIANT, VIN RANGE AND DATE OF ISSUE**

FIGURE PAGE

NOTE: In the examples shown on this page, an 'X' is used where a number would appear on an actual Figure.

Reference Symbols

Reference symbols are used for three purposes:

- to allow the user to complete the individual system circuit to power supply or ground
- to refer the user to a related circuit
- to identify control module inputs, outputs and signal grounds

X Battery Power Supply

This symbol represents a direct battery power supply and refers the user to Figure 01.1, 01.2 or 01.3.

X I X II X E Ignition Switched Power Supply

This symbol represents ignition switched power supply and refers the user to Figure 01.1, 01.4 or 01.5.

The suffix I indicates auxiliary power. Power is supplied in ignition switch key positions I (AUXILIARY) and II (IGNITION).

The suffix II indicates ignition power. Power is supplied in ignition switch key positions II (IGNITION) and III (ENGINE CRANK).

The suffix E indicates engine management switched power. Power is supplied in ignition switch key positions II (IGNITION) and III (ENGINE CRANK) under ECM control.

X XX I XX II Ignition Switched Ground

This symbol represents an ignition switched ground and refers the user to Figure 02.1.

This symbol without a suffix indicates CRANK. Ground is completed in ignition switch key position III (ENGINE CRANK).

The suffix I indicates auxiliary ground. Ground is completed in ignition switch key positions I (AUXILIARY) and II (IGNITION).

The suffix II indicates ignition ground. Ground is completed in ignition switch key positions II (IGNITION) and III (ENGINE CRANK).

XX.X BPM Figure Number Reference Flag

This symbol refers the reader to a figure number only. It does not refer to a flag with the same number on a different figure.

As used in Figures 01.1 through 02.1, the reference flag refers the user to a continuation of the circuit. In this instance, the user matches the number to a Power Supply or Ground symbol to trace the circuit.

In most other cases, it is not necessary to refer to another figure for completion of a circuit, as the reference flags are used to indicate parallel circuits and circuits that share components. Most of the circuits where this situation occurs are overlapped to avoid the necessity for cross-referencing to another figure. Exceptions to this rule are instances where signals are transmitted to or received from other system circuits. When circuits are not overlapped, they are noted by (CIRCUIT CONTINUED).

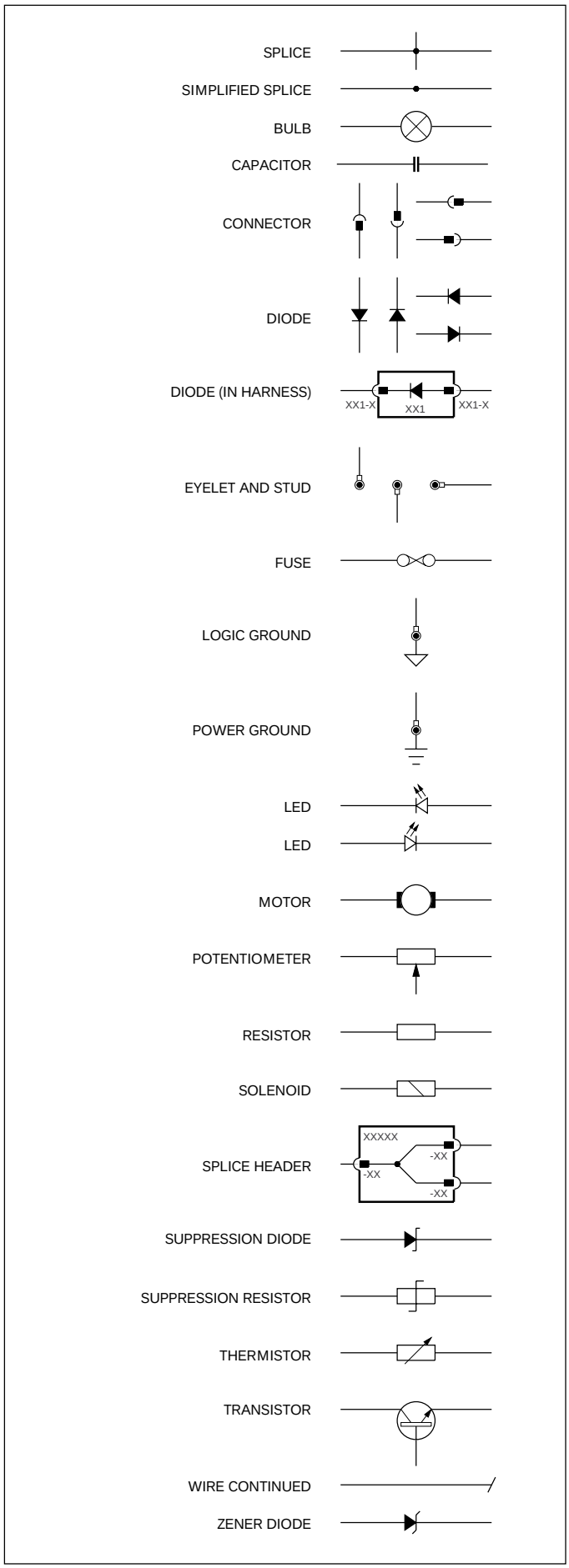
BPM Because the Body Processor Module appears numerous times, the abbreviation BPM is used in the reference flags on Figures 01.2 and 02.1 in order to conserve space.

Control Module Input, Output, Data Link, Signal Ground and Network(s)

I Input | O Output | D Serial and Encoded Communications | Signal Ground (SG) | C CAN (Network) | S SCP Network

These six symbols are employed to assist the user in visualizing the 'logic' of circuits containing control modules. The symbols identify control module input, output, data link, signal ground and network pins. These symbols are also employed on the corresponding data page.

Wiring Symbols



Wiring Color Codes

N	Brown	O	Orange
B	Black	S	Slate
W	White	L	Light
K	Pink	U	Blue
G	Green	P	Purple
R	Red	BRD	Braid
Y	Yellow		

When a wire has two or more color code letters, the first letter indicates the main color and the subsequent letter(s) indicate the tracer color(s).

Wiring Harness Codes

Code	Description
AN	Generator link harness
BB	Rear seat motors and heaters harness
BC	Rear seat center console harness
BL	Bumper harness – LH front
BR	Bumper harness – RH front
BS	Rear seat link harness
BT	Trunk harness
CA	Cabin harness
CC	Center console harness
CF	Radiator cooling fan harness
DD	Driver door harness
EM	Engine management harness
FC	Fascia harness
FL	Axle harness – LH front
FP	Fuel tank pressure sensor link harness
FR	Axle harness – RH front
GB	Transmission harness
HP	Steering wheel horn switch harness
IC	In-car entertainment harness
IJ	Fuel injector harness – supercharged
LA	Axle harness – LH rear
LL	Power steering link harness
LS	Forward harness
PD	Passenger door harness
PI	Engine harness
RA	Axle harness – RH rear
RD	Rear driver door harness
RP	Rear passenger door harness
RT	Radio telephone harness
SC	Steering column switchgear harness
SH	Windshield heater link harness
SM-D	Driver seat harness
SM-P	Passenger seat harness
SR	Sliding roof motor link harness
ST	Main power harness
SW	Steering wheel harness

Code Numbering

When numbering connectors, grounds and splices, Jaguar Engineering uses a three-position format: CA001, CA002, etc. Because space is limited in this Electrical Guide, the codes have been shortened. Thus CA001-001 becomes CA1-1, CA002-001 becomes CA2-1, etc.

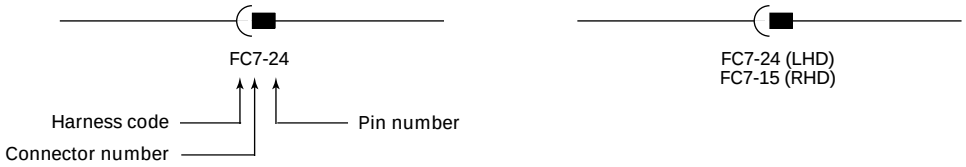
Harness Component Numbers

Connectors

HARNESS CODE + CONNECTOR NUMBER + PIN NUMBER

EXAMPLE: FC7-24 (pin number is separated by a dash)

Where the pin number differs from LHD to RHD, the connector number will be further identified by (LHD) or (RHD).

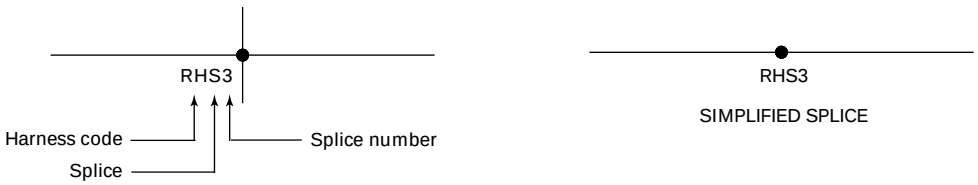


Splices

HARNESS CODE + S (SPLICE) + SPLICE NUMBER

EXAMPLE: RHS3 (no dash is used)

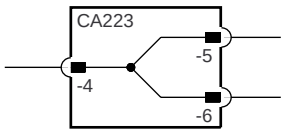
NOTE: In order to avoid unnecessary circuit complication, multiple splices (more than two wires) within components, in wires leading from input components to multiple circuits and in harness 'ground' sides, are simplified so as not to show wires from other circuits.



Splice Headers

Three non-serviceable splice headers are used in the system harness. Splice headers are depicted as components and identified by a connector number within the component. The splice header number appears at the upper left hand corner; pin numbers appear adjacent to each pin.

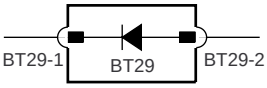
EXAMPLE:



Diodes

Harness diodes occur at connectors and are depicted as components and identified by a connector number.

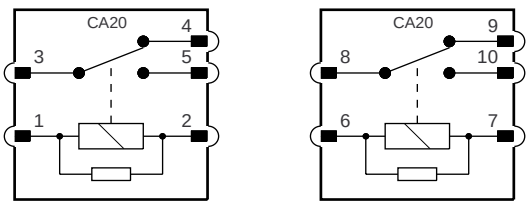
EXAMPLE:



Relay Connectors

Relay connector numbers are shown within the relay. The connector number is shown in the upper portion of the relay; the pin (terminal) number is shown adjacent to the pin. Certain relays are paired and share a modular connector. In this instance, the connector number remains the same for both relays while the pin numbers of the second relay are identified by numbers 6 – 10.

EXAMPLE:



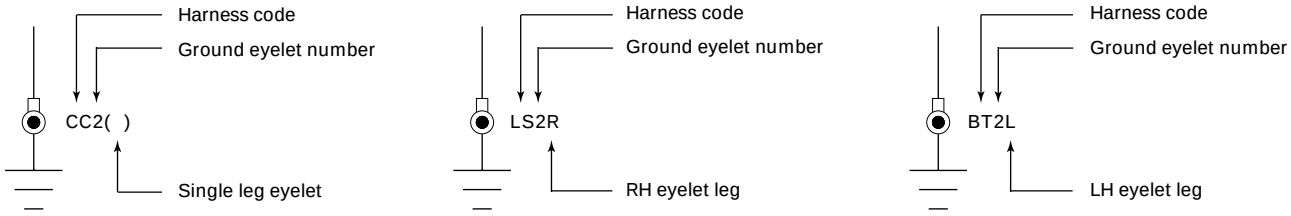
Grounds

HARNESS CODE + GROUND EYELET NUMBER + EYELET DESIGNATION (L or R where applicable)

Eyelet designation

Two eyelet variations are used: a single eyelet and an eyelet pair. The single eyelet has a single 'leg' and can be identified by the absence of a suffix. The eyelet pair has two 'legs', identified by the suffix L (left) or R (right).

EXAMPLES:



Where the ground designation differs from LHD to RHD, the RHD ground is shown in parentheses. If the ground designation is the same for LHD and RHD, only one ground designation is used.

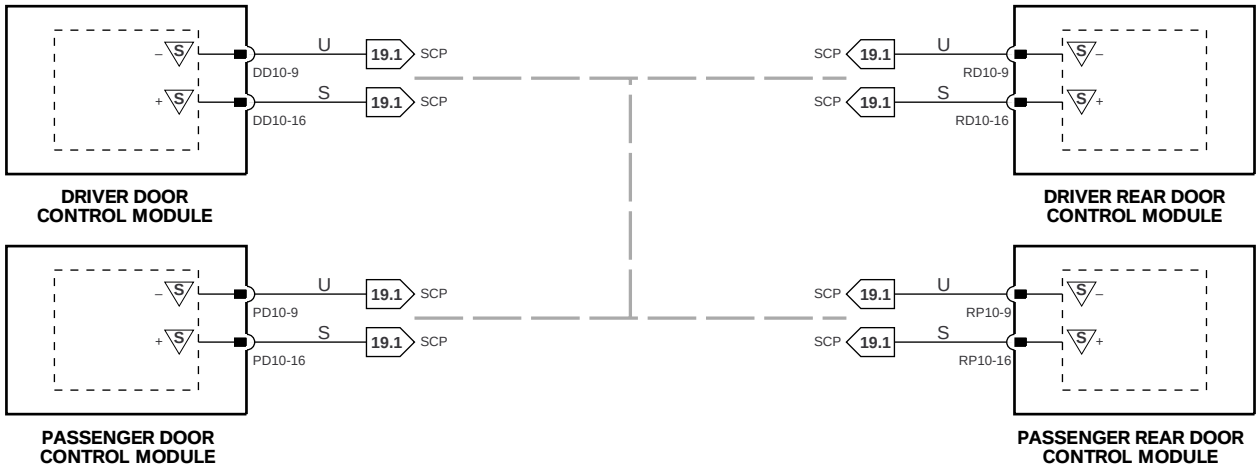
EXAMPLES:

NOTE: The XJ Series ground studs are not identified by code. Therefore, multiple eyelets with different harness codes may be connected to a ground stud.

SCP Network

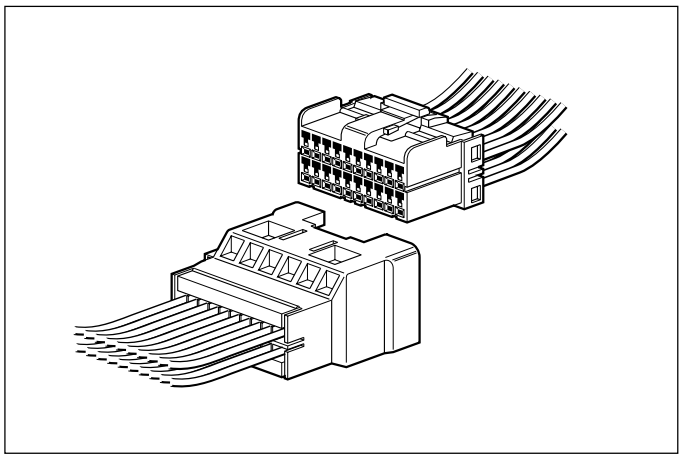
Due to circuit complexity and because space is limited, the SCP Network is, in most cases, shown as a broken grey line indicating that there is network communication between the depicted control modules. Refer to Fig. 19.1 for circuit details.

EXAMPLE:

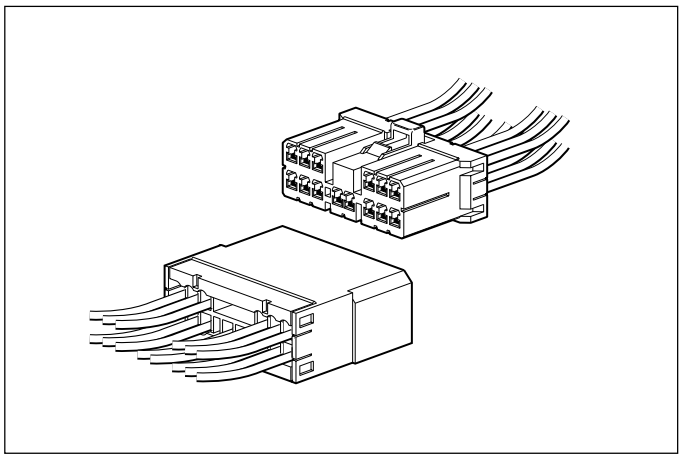


The following connectors are the common harness-to-harness connectors used throughout the vehicle.

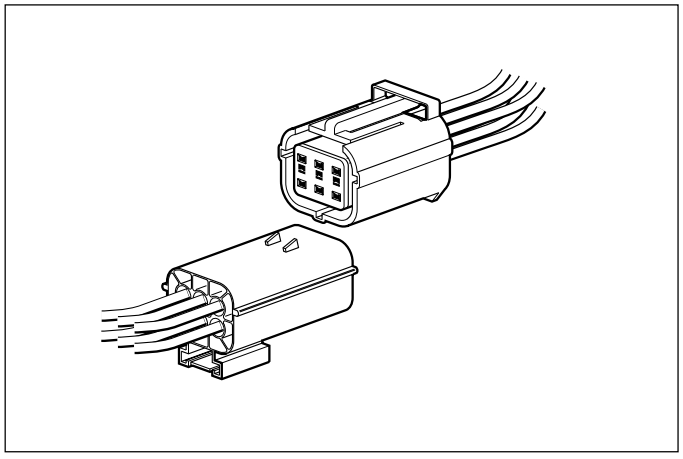
Multilock 040
Low current (harness and 'direct' connection connector).



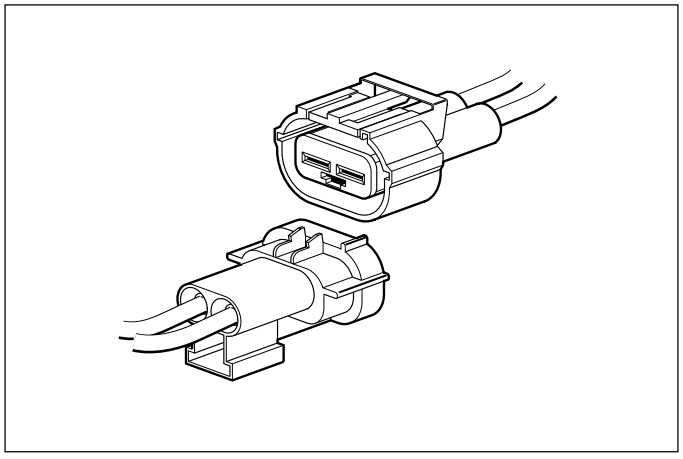
Multilock 070
High current (harness and 'direct' connection connector).



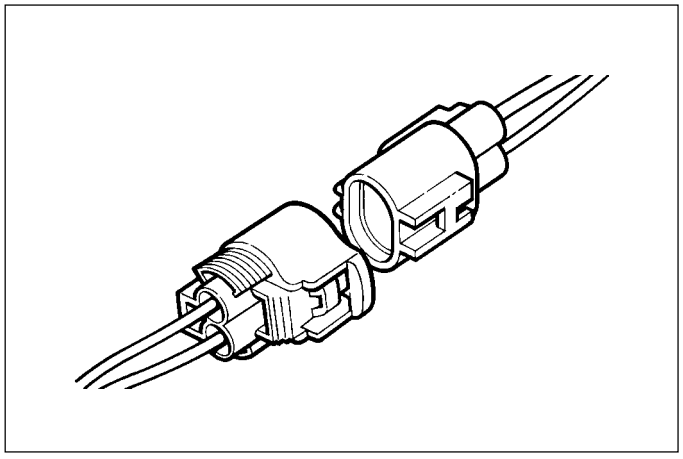
Econoseal III LC
Low current sealed connector.



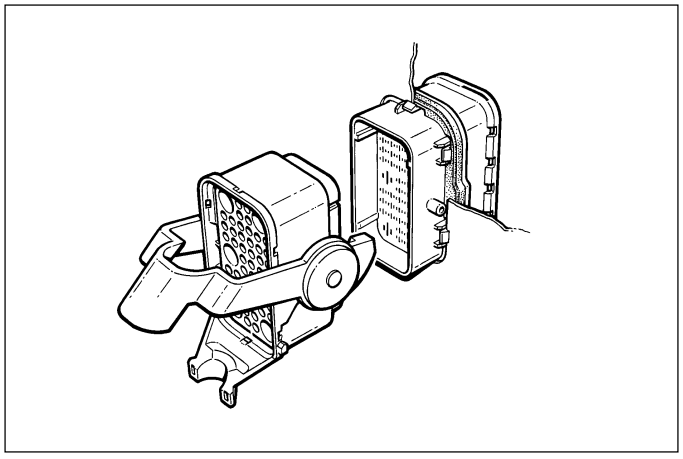
Econoseal III HC
High current sealed connector.



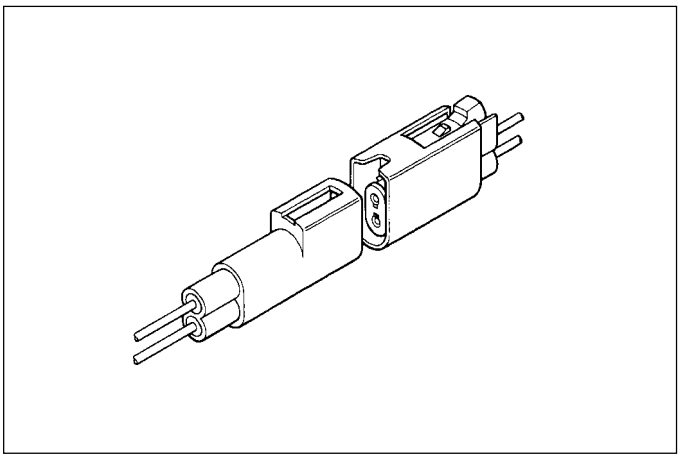
Ford Card
Used for SRS only.



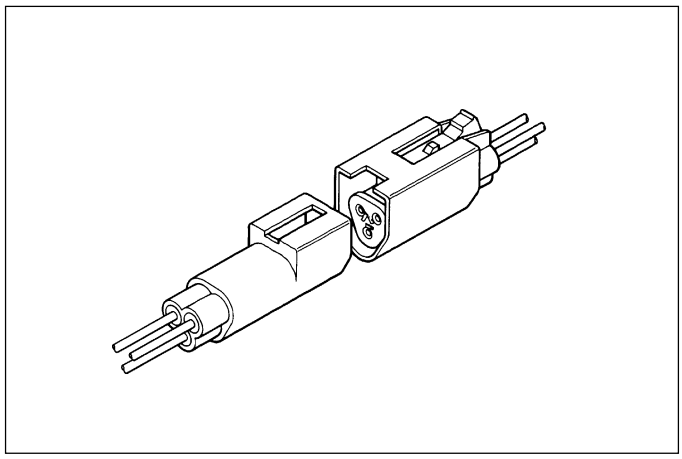
Through Panel
54-way connector.



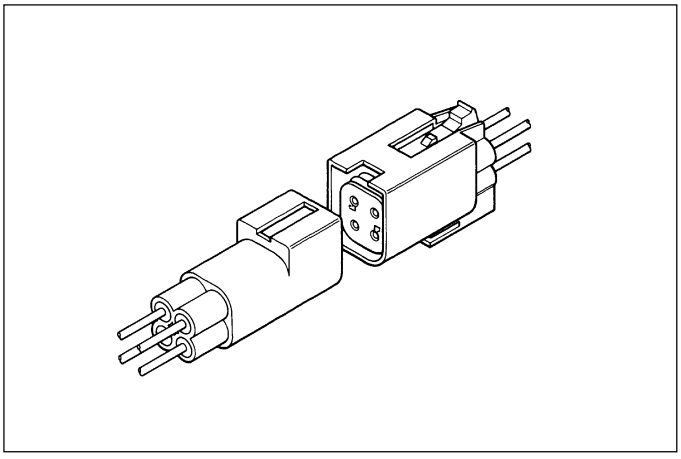
Augat 1.6
2-way connector.



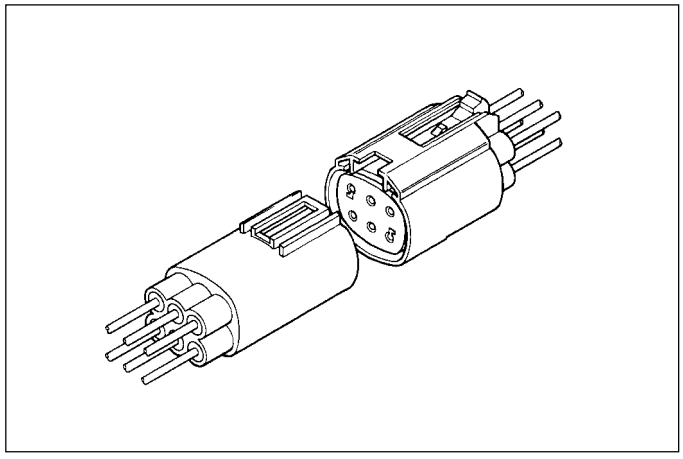
Augat 1.6
3-way connector.



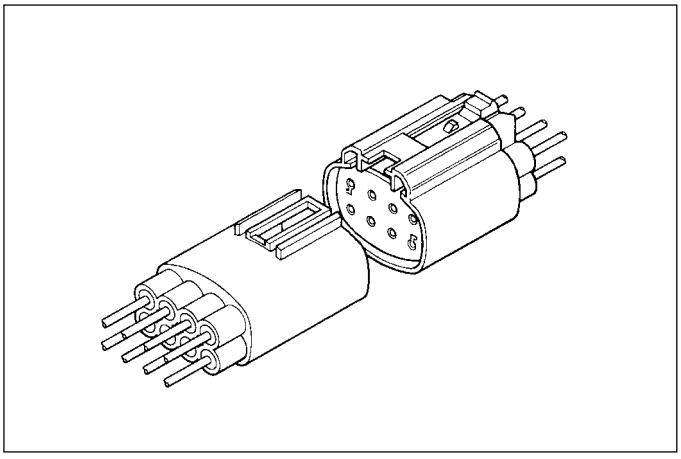
Augat 1.6
4-way connector.

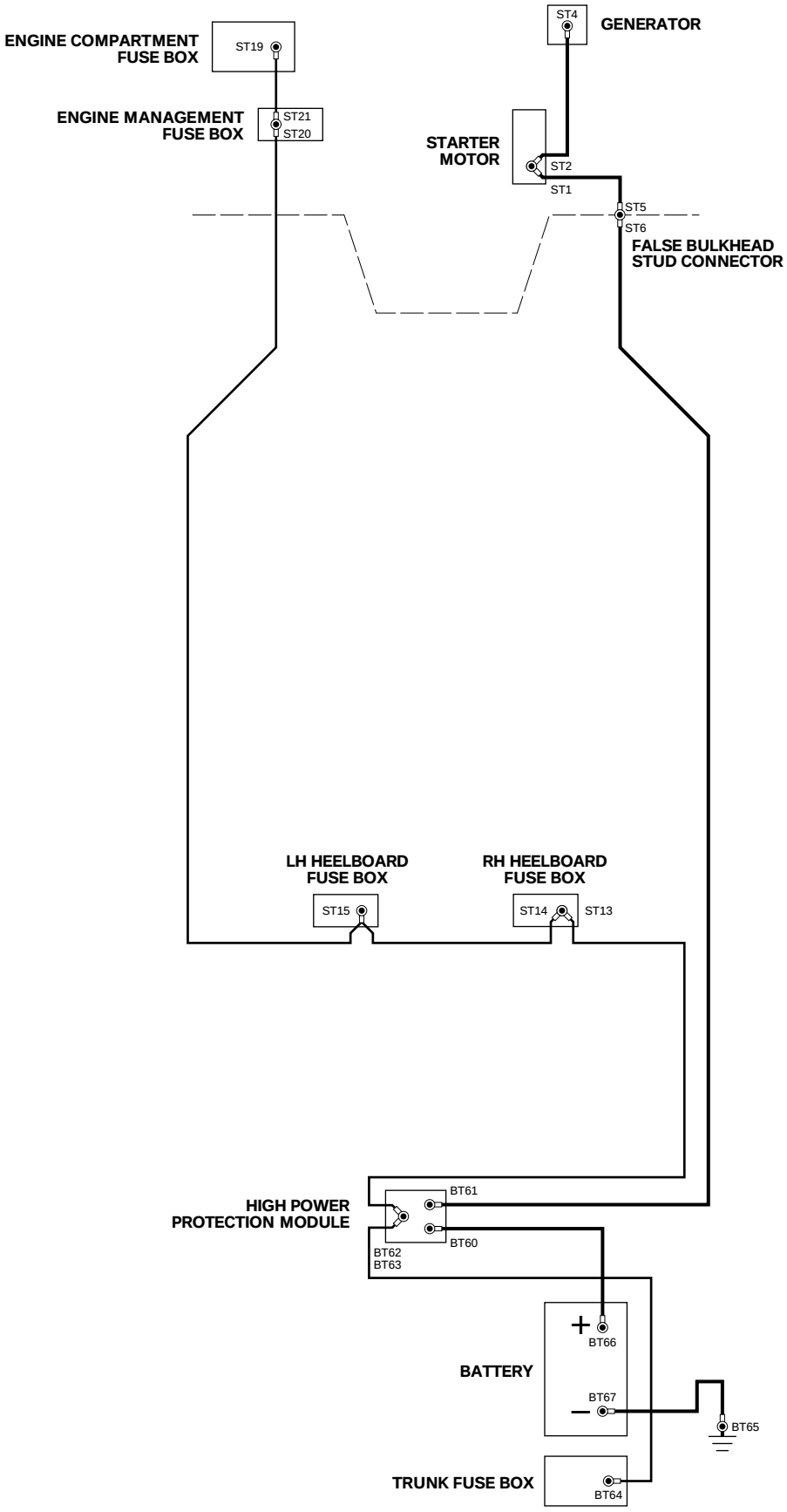


Augat 1.6
6-way connector.

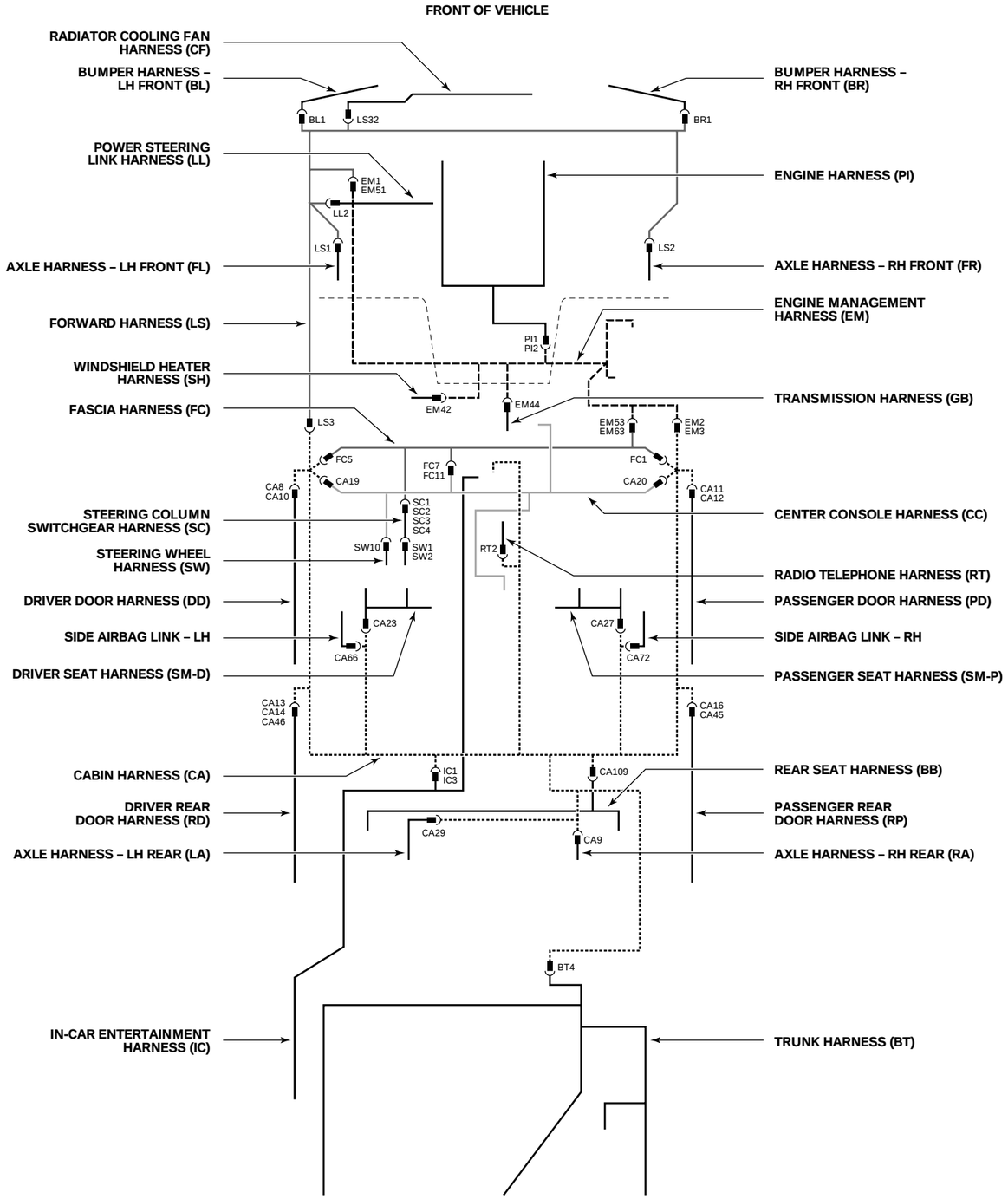


Augat 1.6
8-way connector.

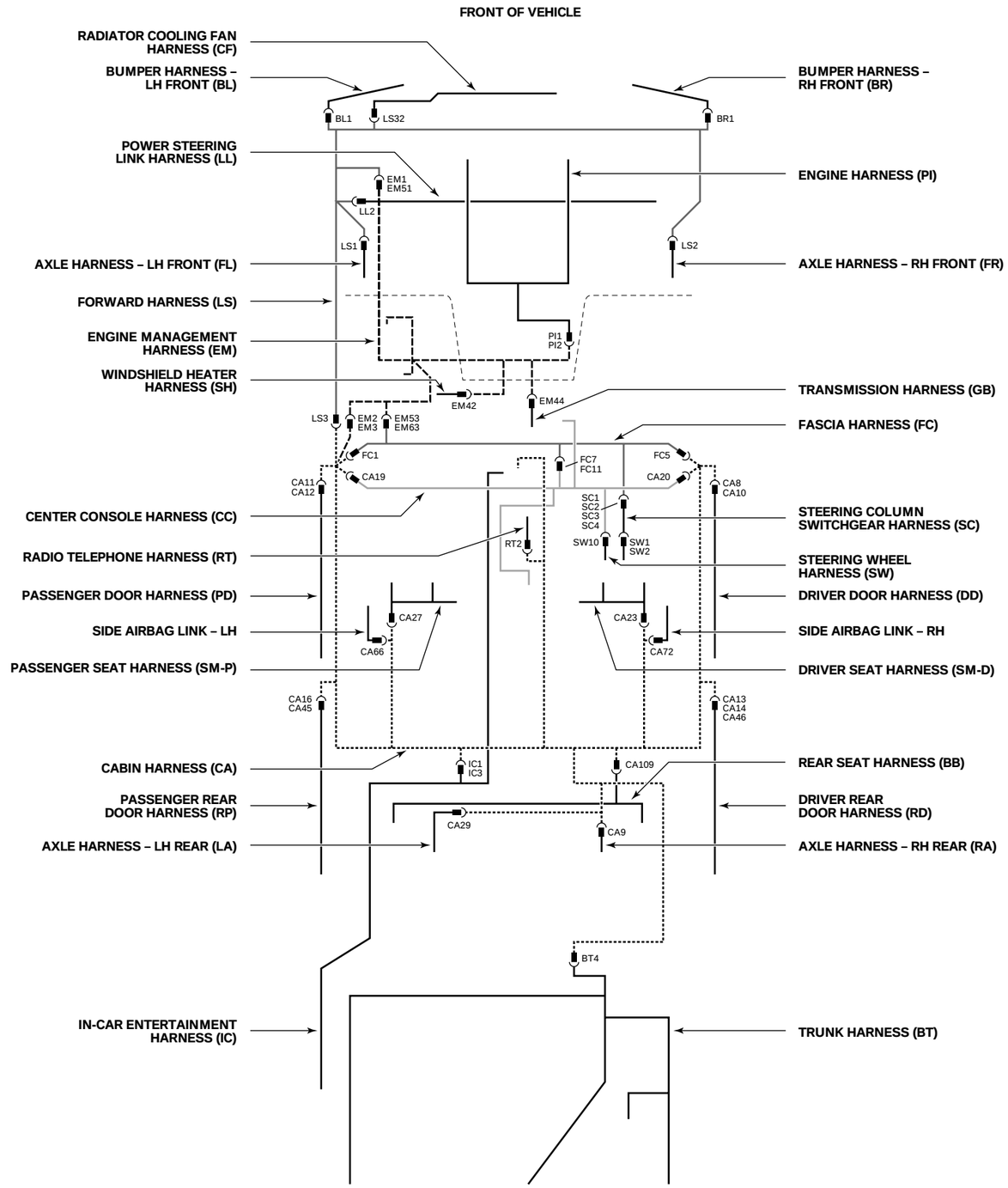


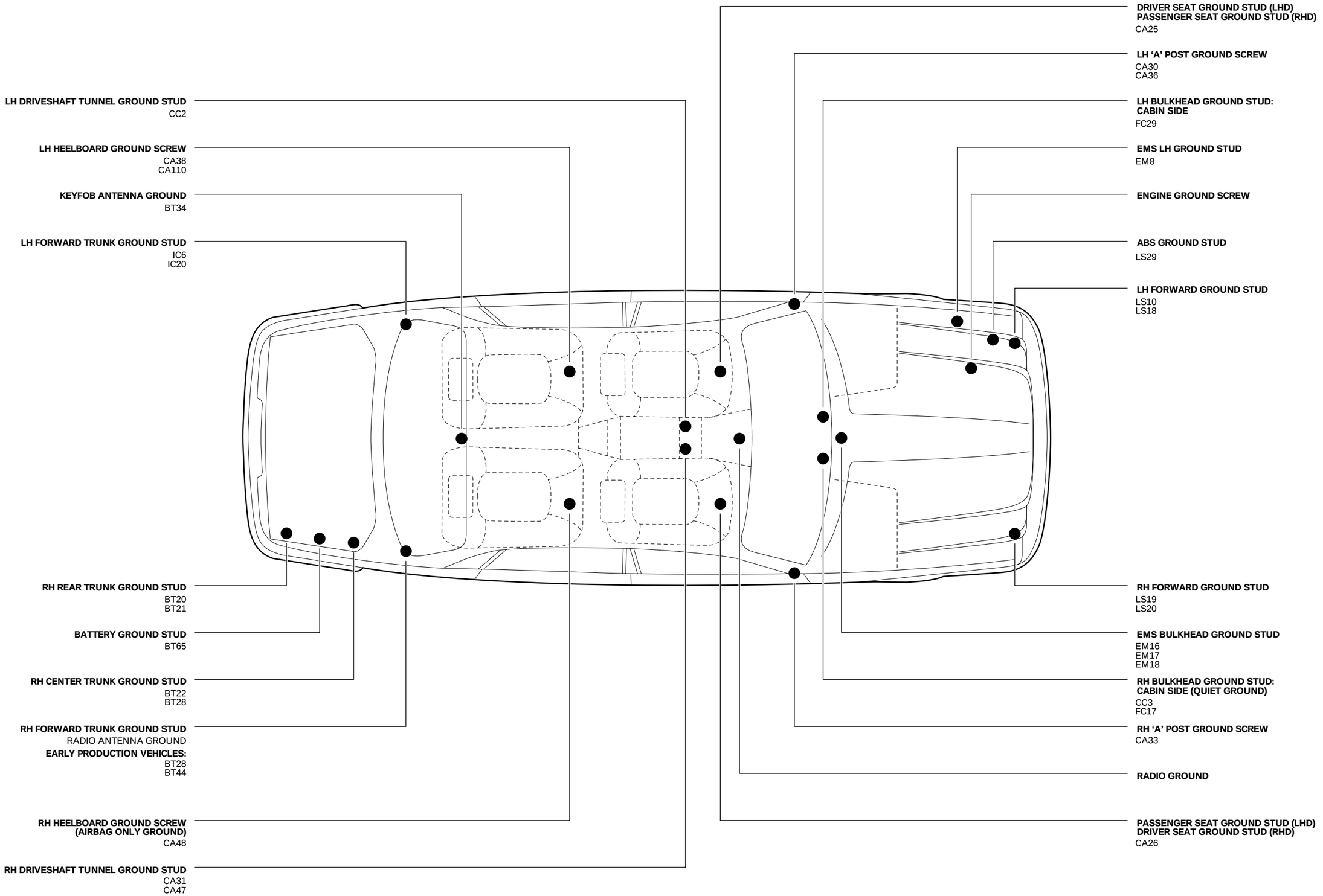

ENGINE COMPARTMENT FUSE BOX
ST19
ENGINE MANAGEMENT FUSE BOX
ST21
ST20
ST4
GENERATOR
STARTER MOTOR
ST2
ST1
ST5
ST6
FALSE BULKHEAD STUD CONNECTOR
LH HEELBOARD FUSE BOX
ST15
RH HEELBOARD FUSE BOX
ST14
ST13
HIGH POWER PROTECTION MODULE
BT61
BT60
BT62
BT63
BATTERY
+
BT66
BT67
–
BT65
TRUNK FUSE BOX
BT64

LHD

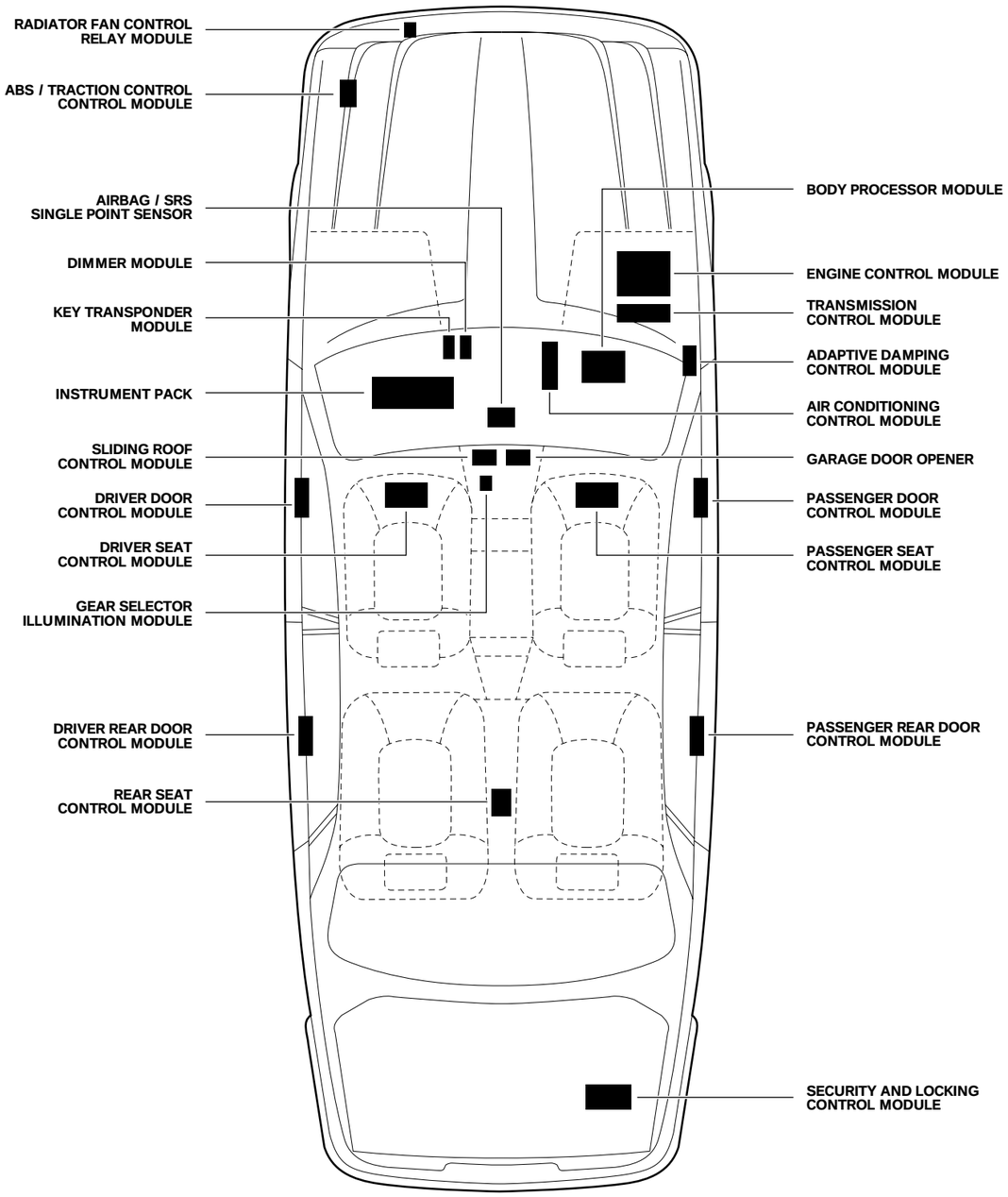

FRONT OF VEHICLE
RADIATOR COOLING FAN HARNESS (CF)
BUMPER HARNESS – LH FRONT (BL)
BUMPER HARNESS – RH FRONT (BR)
POWER STEERING LINK HARNESS (LL)
ENGINE HARNESS (PI)
AXLE HARNESS – LH FRONT (FL)
AXLE HARNESS – RH FRONT (FR)
FORWARD HARNESS (LS)
ENGINE MANAGEMENT HARNESS (EM)
WINDSHIELD HEATER HARNESS (SH)
TRANSMISSION HARNESS (GB)
FASCIA HARNESS (FC)
CENTER CONSOLE HARNESS (CC)
STEERING COLUMN SWITCHGEAR HARNESS (SC)
STEERING WHEEL HARNESS (SW)
RADIO TELEPHONE HARNESS (RT)
DRIVER DOOR HARNESS (DD)
PASSENGER DOOR HARNESS (PD)
SIDE AIRBAG LINK – LH
SIDE AIRBAG LINK – RH
DRIVER SEAT HARNESS (SM-D)
PASSENGER SEAT HARNESS (SM-P)
CABIN HARNESS (CA)
REAR SEAT HARNESS (BB)
DRIVER REAR DOOR HARNESS (RD)
PASSENGER REAR DOOR HARNESS (RP)
AXLE HARNESS – LH REAR (LA)
AXLE HARNESS – RH REAR (RA)
IN-CAR ENTERTAINMENT HARNESS (IC)
TRUNK HARNESS (BT)
BL1
LS32
BR1
EM1
EM51
LL2
LS1
LS2
PI1
PI2
EM42
EM44
LS3
EM53
EM63
EM2
EM3
FC5
CA19
FC7
FC11
FC1
CA20
CA8
CA10
CA11
CA12
SC1
SC2
SC3
SC4
SW10
SW1
SW2
RT2
CA23
CA66
CA27
CA72
CA13
CA14
CA46
CA16
CA45
IC1
IC3
CA109
CA29
CA9
BT4

RHD

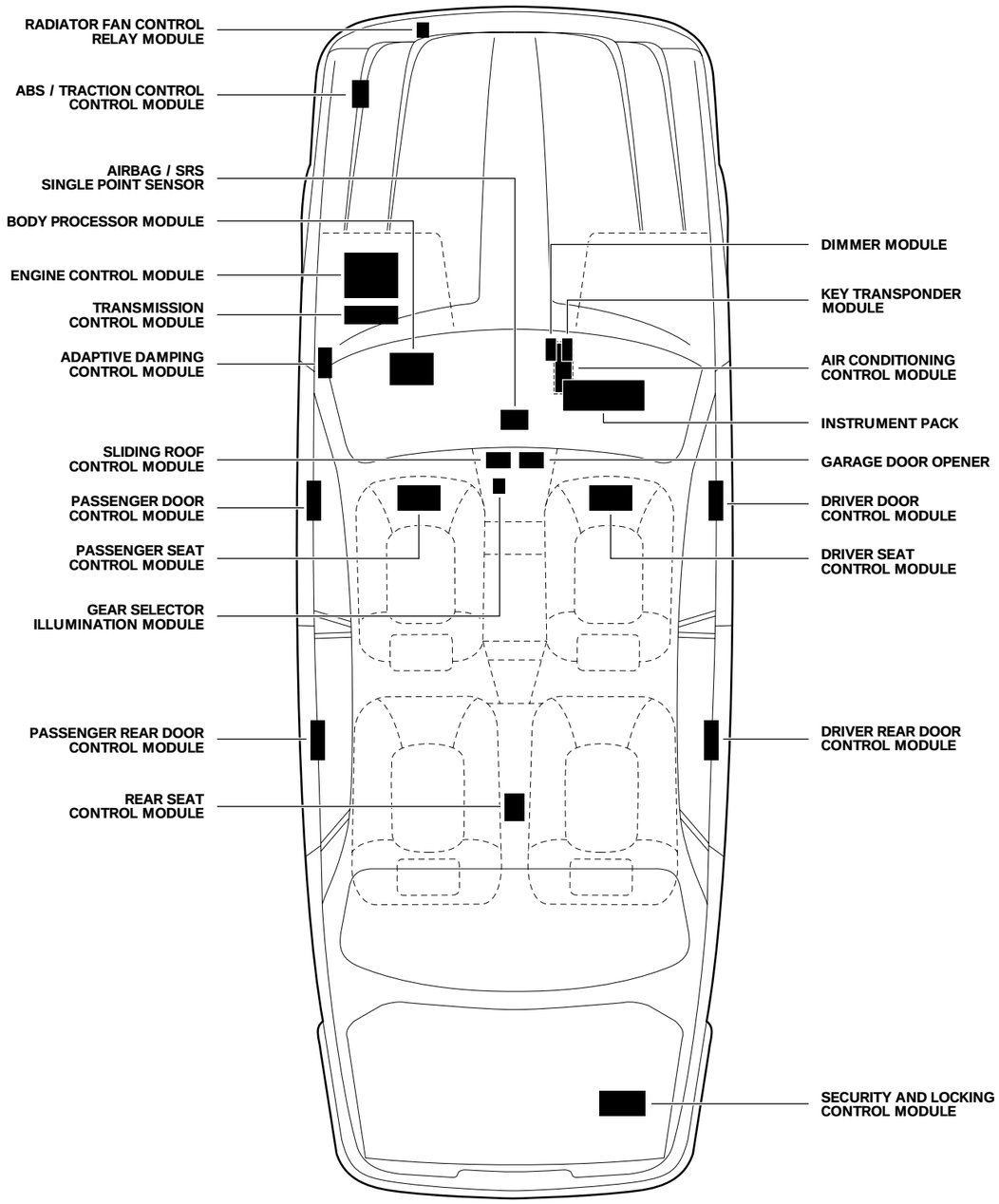

FRONT OF VEHICLE
RADIATOR COOLING FAN HARNESS (CF)
BUMPER HARNESS – LH FRONT (BL)
BUMPER HARNESS – RH FRONT (BR)
POWER STEERING LINK HARNESS (LL)
ENGINE HARNESS (PI)
AXLE HARNESS – LH FRONT (FL)
AXLE HARNESS – RH FRONT (FR)
FORWARD HARNESS (LS)
ENGINE MANAGEMENT HARNESS (EM)
WINDSHIELD HEATER HARNESS (SH)
TRANSMISSION HARNESS (GB)
FASCIA HARNESS (FC)
CENTER CONSOLE HARNESS (CC)
STEERING COLUMN SWITCHGEAR HARNESS (SC)
RADIO TELEPHONE HARNESS (RT)
STEERING WHEEL HARNESS (SW)
PASSENGER DOOR HARNESS (PD)
DRIVER DOOR HARNESS (DD)
SIDE AIRBAG LINK – LH
SIDE AIRBAG LINK – RH
PASSENGER SEAT HARNESS (SM-P)
DRIVER SEAT HARNESS (SM-D)
CABIN HARNESS (CA)
REAR SEAT HARNESS (BB)
PASSENGER REAR DOOR HARNESS (RP)
DRIVER REAR DOOR HARNESS (RD)
AXLE HARNESS – LH REAR (LA)
AXLE HARNESS – RH REAR (RA)
IN-CAR ENTERTAINMENT HARNESS (IC)
TRUNK HARNESS (BT)
BL1
LS32
BR1
EM1
EM51
LL2
LS1
LS2
PI1
PI2
EM42
EM44
LS3
EM2
EM3
EM53
EM63
FC1
CA19
FC7
FC11
FC5
CA20
CA11
CA12
CA8
CA10
SC1
SC2
SC3
SC4
SW10
SW1
SW2
RT2
CA27
CA66
CA23
CA72
CA16
CA45
CA13
CA14
CA46
IC1
IC3
CA109
CA29
CA9
BT4


DRIVER SEAT GROUND STUD (LHD)
PASSENGER SEAT GROUND STUD (RHD)
CA25
LH 'A' POST GROUND SCREW
CA30
CA36
LH BULKHEAD GROUND STUD: CABIN SIDE
FC29
EMS LH GROUND STUD
EM8
ENGINE GROUND SCREW
ABS GROUND STUD
LS29
LH FORWARD GROUND STUD
LS10
LS18
LH DRIVESHAFT TUNNEL GROUND STUD
CC2
LH HEELBOARD GROUND SCREW
CA38
CA110
KEYFOB ANTENNA GROUND
BT34
LH FORWARD TRUNK GROUND STUD
IC6
IC20
RH REAR TRUNK GROUND STUD
BT20
BT21
BATTERY GROUND STUD
BT65
RH CENTER TRUNK GROUND STUD
BT22
BT28
RH FORWARD TRUNK GROUND STUD
RADIO ANTENNA GROUND
EARLY PRODUCTION VEHICLES:
BT28
BT44
RH HEELBOARD GROUND SCREW (AIRBAG ONLY GROUND)
CA48
RH DRIVESHAFT TUNNEL GROUND STUD
CA31
CA47
RH FORWARD GROUND STUD
LS19
LS20
EMS BULKHEAD GROUND STUD
EM16
EM17
EM18
RH BULKHEAD GROUND STUD: CABIN SIDE (QUIET GROUND)
CC3
FC17
RH 'A' POST GROUND SCREW
CA33
RADIO GROUND
PASSENGER SEAT GROUND STUD (LHD)
DRIVER SEAT GROUND STUD (RHD)
CA26

LHD

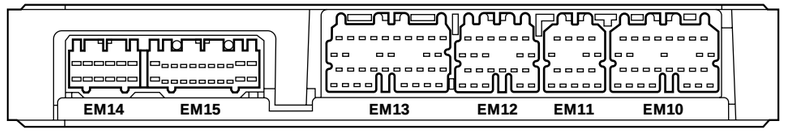

RADIATOR FAN CONTROL RELAY MODULE
ABS / TRACTION CONTROL CONTROL MODULE
AIRBAG / SRS SINGLE POINT SENSOR
DIMMER MODULE
KEY TRANSPONDER MODULE
INSTRUMENT PACK
SLIDING ROOF CONTROL MODULE
DRIVER DOOR CONTROL MODULE
DRIVER SEAT CONTROL MODULE
GEAR SELECTOR ILLUMINATION MODULE
DRIVER REAR DOOR CONTROL MODULE
REAR SEAT CONTROL MODULE
BODY PROCESSOR MODULE
ENGINE CONTROL MODULE
TRANSMISSION CONTROL MODULE
ADAPTIVE DAMPING CONTROL MODULE
AIR CONDITIONING CONTROL MODULE
GARAGE DOOR OPENER
PASSENGER DOOR CONTROL MODULE
PASSENGER SEAT CONTROL MODULE
PASSENGER REAR DOOR CONTROL MODULE
SECURITY AND LOCKING CONTROL MODULE

RHD


RADIATOR FAN CONTROL RELAY MODULE
ABS / TRACTION CONTROL CONTROL MODULE
AIRBAG / SRS SINGLE POINT SENSOR
BODY PROCESSOR MODULE
ENGINE CONTROL MODULE
TRANSMISSION CONTROL MODULE
ADAPTIVE DAMPING CONTROL MODULE
SLIDING ROOF CONTROL MODULE
PASSENGER DOOR CONTROL MODULE
PASSENGER SEAT CONTROL MODULE
GEAR SELECTOR ILLUMINATION MODULE
PASSENGER REAR DOOR CONTROL MODULE
REAR SEAT CONTROL MODULE
DIMMER MODULE
KEY TRANSPONDER MODULE
AIR CONDITIONING CONTROL MODULE
INSTRUMENT PACK
GARAGE DOOR OPENER
DRIVER DOOR CONTROL MODULE
DRIVER SEAT CONTROL MODULE
DRIVER REAR DOOR CONTROL MODULE
SECURITY AND LOCKING CONTROL MODULE

ENGINE CONTROL MODULE

*** EARLY PRODUCTION VEHICLES: EM13-12 – PY; EM13-13 – RW**



4.0 N/A NAS

EM14 / 12-WAY / WHITE

6 R	5 R	4 BK	3 WR	2 GY	1 GY
12 G	11 G	10 B	9 B	8 B	7 B

EM15 / 22-WAY / WHITE

11 B	10 —	9 RY	8 RG	7 BU	6 BW	5 BY	4 BO	3 PN	2 PU	1 PS
22 B	21 —	20 —	19 —	18 BS	17 BN	16 BG	15 BP	14 —	13 —	12 B

EM13 / 34-WAY / GREY

10 —	9 —	8 —	7 —	6 —	5 —	4 OK	3 SP	2 W	1 KN	
16 WU	15 W			14 GR	13* PY		12* RW	11 PW		
26 LGU	25 LGW	24 LGO	23 LGK	22 UB	21 —	20 B	19 Y	18 S	17 N	
34 LGP	33 LGS	32 LGR	31 LGY		30 —	29 O	28 P	27 BG		

EM12 / 22-WAY / GREY

6 RW	5 WU	4 —	3 —	2 —	1 —	
11 —	10 RY	9 SG		8 SLG	7 —	
17 U	16 N	15 R	14 G	13 GY	12 UP	
22 BP	21 —	20 —		19 BY	18 BY	

EM11 / 16-WAY / GREY

4 WU	3 P	2 —	1 SR	
7 RG		6 GO	5 SG	
11 U	10 G	9 UY	8 UW	
16 K	15 R	14 BG	13 BY	12 BG

EM10 / 28-WAY / GREY

8 —	7 —	6 O	5 WK	4 UN	3 ULG	2 UG	1 WR	
13 O	12 K		11 PG			10 US	9 NO	
21 UW	20 BG	19 —	18 —	17 Y	16 PK	15 RU	14 OU	
28 Y	27 G	26 Y	25 G		24 —	23 BK	22 —	

4.0 N/A ROW; 3.2

EM14 / 12-WAY / WHITE

6 R	5 R	4 BK	3 WR	2 GY	1 GY
12 G	11 G	10 B	9 B	8 B	7 B

EM15 / 22-WAY / WHITE

11 B	10 —	9 —	8 —	7 BU	6 BW	5 BY	4 BO	3 PN	2 PU	1 PS
22 B	21 —	20 —	19 —	18 BS	17 BN	16 BG	15 BP	14 —	13 —	12 B

EM13 / 34-WAY / GREY

10 —	9 —	8 —	7 —	6 —	5 —	4 OK	3 SP	2 W	1 KN	
16 WU	15 W			14 GR	13* PY		12* RW	11 PW		
26 LGU	25 LGW	24 LGO	23 LGK	22 UB	21 —	20 B	19 Y	18 S	17 N	
34 LGP	33 LGS	32 LGR	31 LGY		30 —	29 O	28 P	27 BG		

EM12 / 22-WAY / GREY

6 RW	5 WU	4 —	3 —	2 —	1 —	
11 —	10 RY	9 SG		8 SLG	7 —	
17 —	16 —	15 R	14 G	13 GY	12 UP	
22 BP	21 —	20 —		19 BY	18 BY	

EM11 / 16-WAY / GREY

4 WU	3 P	2 —	1 SR	
7 RG		6 GO	5 SG	
11 U	10 G	9 UY	8 UW	
16 K	15 R	14 BG	13 BY	12 BG

EM10 / 28-WAY / GREY

8 —	7 —	6 O	5 WK	4 UN	3 ULG	2 UG	1 WR	
13 O	12 K		11 PG			10 US	9 NO	
21 UW	20 BG	19 —	18 —	17 Y	16 PK	15 RS	14 OU	
28 Y	27 G	26 Y	25 G		24 —	23 BK	22 B	

4.0 SC NAS

EM14 / 12-WAY / WHITE

6 R	5 R	4 BK	3 WR	2 GY	1 GY
12 G	11 G	10 B	9 B	8 B	7 B

EM15 / 22-WAY / WHITE

11 B	10 —	9 —	8 —	7 BU	6 BW	5 BY	4 BO	3 PN	2 PU	1 PS
22 B	21 —	20 —	19 —	18 BS	17 BN	16 BG	15 BP	14 —	13 —	12 B

EM13 / 34-WAY / GREY

10 RY	9 KB	8 —	7 —	6 —	5 —	4 OK	3 SP	2 W	1 KN	
16 WU	15 W			14 GR	13* PY		12* RW	11 PW		
26 LGU	25 LGW	24 LGO	23 LGK	22 UB	21 —	20 B	19 Y	18 S	17 N	
34 LGP	33 LGS	32 LGR	31 LGY		30 —	29 O	28 P	27 BG		

EM12 / 22-WAY / GREY

6 RW	5 WU	4 YR	3 YN	2 YG	1 YU	
11 —	10 RY	9 SG		8 SLG	7 UP	
17 U	16 N	15 R	14 G	13 GY	12 UP	
22 BP	21 —	20 —		19 BY	18 BY	

EM11 / 16-WAY / GREY

4 WU	3 P	2 —	1 SR	
7 RG		6 GO	5 SG	
11 U	10 G	9 UY	8 UW	
16 K	15 R	14 BG	13 BY	12 BG

EM10 / 28-WAY / GREY

8 —	7 —	6 O	5 WK	4 UN	3 ULG	2 UG	1 WR	
13 O	12 K		11 PG			10 US	9 NO	
21 UW	20 BG	19 —	18 —	17 Y	16 PK	15 RS	14 OU	
28 Y	27 G	26 Y	25 G		24 —	23 BK	22 B	

4.0 SC ROW

EM14 / 12-WAY / WHITE

6 R	5 R	4 BK	3 WR	2 GY	1 GY
12 G	11 G	10 B	9 B	8 B	7 B

EM15 / 22-WAY / WHITE

11 B	10 —	9 —	8 —	7 BU	6 BW	5 BY	4 BO	3 PN	2 PU	1 PS
22 B	21 —	20 —	19 —	18 BS	17 BN	16 BG	15 BP	14 —	13 —	12 B

EM13 / 34-WAY / GREY

10 RY	9 KB	8 —	7 —	6 —	5 —	4 OK	3 SP	2 W	1 KN	
16 WU	15 W			14 GR	13* PY		12* RW	11 PW		
26 LGU	25 LGW	24 LGO	23 LGK	22 UB	21 —	20 B	19 Y	18 S	17 N	
34 LGP	33 LGS	32 LGR	31 LGY		30 —	29 O	28 P	27 BG		

EM12 / 22-WAY / GREY

6 RW	5 WU	4 YR	3 YN	2 YG	1 YU	
11 —	10 RY	9 SG		8 SLG	7 UP	
17 —	16 —	15 R	14 G	13 GY	12 UP	
22 BP	21 —	20 —		19 BY	18 BY	

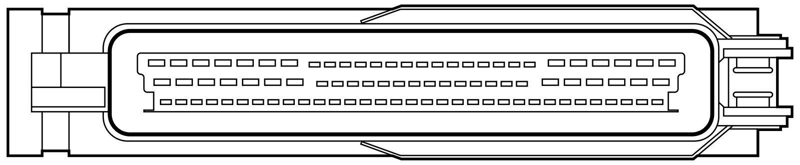
EM11 / 16-WAY / GREY

4 WU	3 P	2 —	1 SR	
7 RG		6 GO	5 SG	
11 U	10 G	9 UY	8 UW	
16 K	15 R	14 BG	13 BY	12 BG

EM10 / 28-WAY / GREY

8 —	7 —	6 O	5 WK	4 UN	3 ULG	2 UG	1 WR	
13 O	12 K		11 PG			10 US	9 NO	
21 UW	20 BG	19 —	18 —	17 Y	16 PK	15 RS	14 OU	
28 Y	27 G	26 Y	25 G		24 —	23 BK	22 B	

TRANSMISSION CONTROL MODULE: AJ26 N/A



EM7

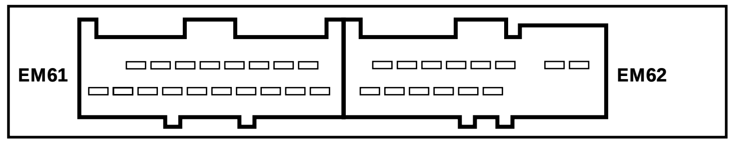
EM7 / 88-WAY / BLACK

28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
BY	—	NR	—	—	BRD	UY	BU	—	—	BS	—	U	BRD	N	US	RP	—	—	W	RB	—	B	OG	OK	—	RS	OU

55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29
WB	WB	RU	RY	OB	—	—	—	—	—	RG	R	—	G	—	—	—	—	Y	S	—	B	YP	YU	—	YB	OR

88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57	56
—	—	Y	G	—	Y	G	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

TRANSMISSION CONTROL MODULE: AJ26 SC



EM61 / 18-WAY / BLACK

23	24	25	26	27	28	29	30
—	—	LGB	LGU	LGP	LGN	WB	B

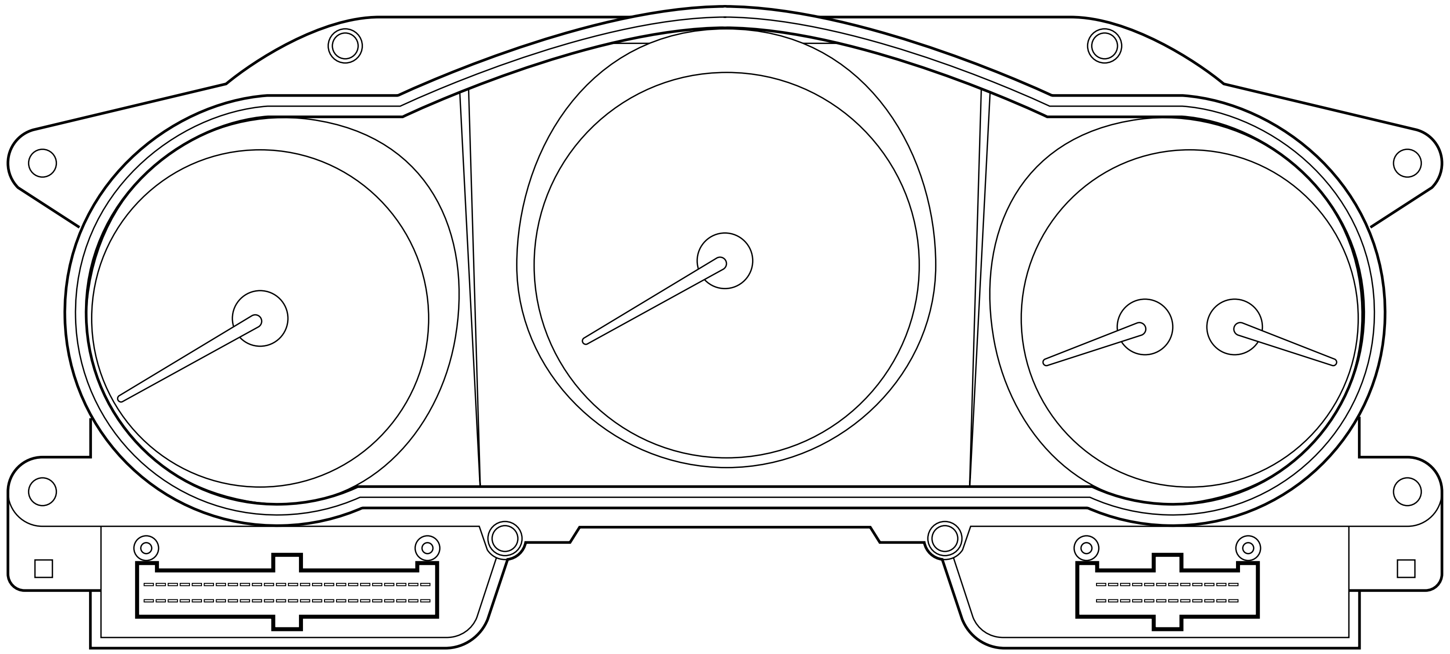
1	2	3	4	5	6	7	8	9	10
YU	BS	P	—	—	—	—	—	—	—

EM62 / 14-WAY / BLACK

33	34	35	36	37	38	L	H
B	BY	BU	BO	BN	BR	G	Y

12	13	14	15	16	17
BG	BW	BK	BLG	BP	BS

INSTRUMENT PACK



FC24 FC25

FC24 / 48-WAY / BLACK

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
BK	WG	—	—	—	SO	—	—	—	SU	—	—	UY	R	—	—	—	—	S	U	—	—	Y	Y

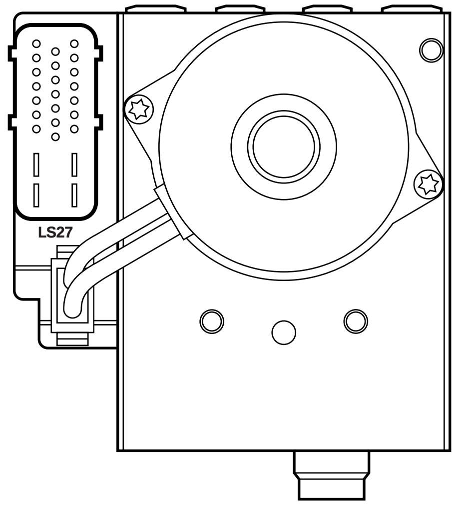
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
—	B	RO	—	—	—	—	—	BR	—	Y	O	—	—	—	—	—	—	—	—	—	—	G	G

FC25 / 24-WAY / BLACK

1	2	3	4	5	6	7	8	9	10	11	12
—	—	PY	SG	OU	UB	OB	—	—	—	—	—

13	14	15	16	17	18	19	20	21	22	23	24
BW	RW	—	YW	—	—	OS	UW	RLG	SW	OP	—

ABS / TRACTION CONTROL CONTROL MODULE



LS27 / 25-WAY / BLACK

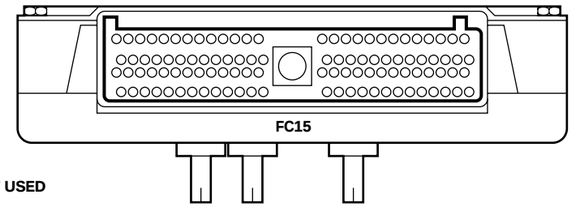
TOP

17	18	19	20	21	22	23	24	25
W	R	UP	WU	P	U	—	B	NY

10	11	12	13	14	15	16
—	—	—	UB	R	G	RY

1	2	3	4	5	6	7	8	9
UO	US	S	G	Y	Y	O	B	NR

BODY PROCESSOR MODULE



*** NAS VEHICLES: FC15-56 NOT USED**

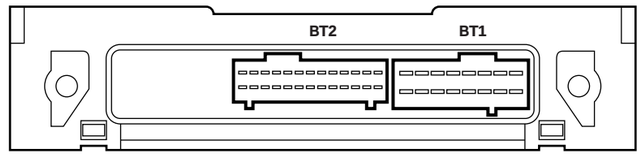
FC15 / 104-WAY / GREY (LHD)

79 NG	80 NB	81 GR	82 GR	83 GB	84 U	85 S	86 OP	87 SK	88 YG	89 YW	90 BK	91 BK	92 SU	93 YK	94 LGO	95 RS	96 PW	97 —	98 —	99 PN	100 BR	101 PW	102 NB	103 —	104 NY
53 RK	54 RB	55 SP	56* UM	57 GR	58 SB	59 PY	60 RY	61 KG	62 —	63 SG	64 —	65 —	66 PU	67 UR	68 US	69 OK	70 GS	71 SR	72 YU	73 —	74 RW	75 GR	76 GK	77 RG	78 PG
27 YK	28 RW	29 —	30 U	31 GB	32 WN	33 WY	34 LGK	35 OU	36 —	37 LGR	38 OR	39 Y	40 WU	41 RW	42 UY	43 WLG	44 OY	45 UG	46 YB	47 YLG	48 OG	49 GO	50 GY	51 RW	52 BS
1 RY	2 GY	3 GK	4 GU	5 SO	6 YW	7 —	8 —	9 LGU	10 RW	11 YB	12 OP	13 —	14 UB	15 WO	16 RY	17 OY	18 YS	19 BLG	20 OG	21 SO	22 —	23 —	24 NW	25 B	26 YG

FC15 / 104-WAY / GREY (RHD)

79 NG	80 NB	81 GR	82 GR	83 GB	84 U	85 S	86 OP	87 SK	88 YG	89 YR	90 BK	91 BK	92 SU	93 YK	94 LGO	95 RS	96 PW	97 —	98 —	99 PN	100 BR	101 PW	102 NB	103 —	104 NY
53 RK	54 RB	55 SP	56 UW	57 GR	58 SB	59 PY	60 RY	61 KG	62 —	63 SG	64 —	65 —	66 PU	67 UR	68 US	69 OK	70 GS	71 SR	72 YU	73 —	74 RW	75 GR	76 GK	77 RG	78 PG
27 YK	28 RW	29 —	30 U	31 GB	32 WN	33 WY	34 LGK	35 OU	36 —	37 LGR	38 OR	39 Y	40 WU	41 RW	42 UY	43 WLG	44 OY	45 UG	46 YB	47 YLG	48 OG	49 GO	50 GY	51 RW	52 BS
1 RY	2 GY	3 GK	4 GU	5 SO	6 YW	7 —	8 —	9 LGU	10 RW	11 YB	12 OP	13 —	14 UB	15 WO	16 RY	17 OY	18 YS	19 BLG	20 OG	21 SO	22 —	23 —	24 NW	25 B	26 YG

SECURITY AND LOCKING CONTROL MODULE



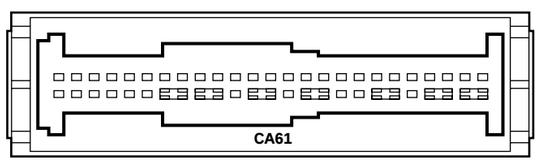
BT2 / 26-WAY / BLACK

13 —	12 —	11 —	10 —	9 —	8 LGS	7 —	6 GW	5 RY	4 —	3 —	2 —	1 US
26 YO	25 —	24 —	23 —	22 —	21 —	20 —	19 —	18 —	17 —	16 —	15 —	14 —

BT1 / 16-WAY / BLACK

8 S	7 RO	6 NK	5 YW	4 OG	3 UW	2 —	1 —
16 U	15 NY	14 BK	13 BK	12 —	11 —	10 —	9 UB

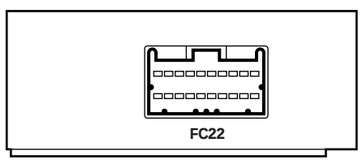
AIRBAG / SRS SINGLE POINT SENSOR



CA61 / 50-WAY / YELLOW

25 R	24 R	23 S	22 S	21 P	20 P	19 YR	18 Y	17 YU	16 Y	15 —	14 YR	13 Y	12 —	11 YU	10 Y	SO 6	8 —	7 YR	6 BK	5 WK	4 N	3 U	2 N	1 U
50 —	49 —	48 —	47 —	46 —	45 —	44 —	43 —	42 —	41 —	40 Y	39 —	38 —	37 —	36 —	35 —	34 —	33 —	32 —	31 —	30 —	29 —	28 —	27 —	26 —

KEY TRANSPONDER MODULE



FC22 / 20-WAY / GREEN

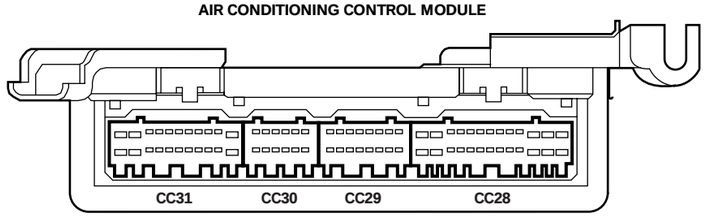
10 R	9 SU	8 OG	7 OR	6 O	5 U	4 NR	3 BRD	2 BRD	1 —
20 RB	19 RW	18 UW	17 Y	16 O	15 UB	14 WO	13 WN	12 BK	11 SO

ADAPTIVE DAMPING CONTROL MODULE

EM68 / 35-WAY / BLACK

19 —	20 PB	21 UB	22 RB	23 —	24 OB	25 U	26 US	27 NS	28 K	29 —	30 OS	31 OW	32 OW	33 OY	34 OY	35 —		
1 SO	2 —	3 UW	4 —	5 —	6 —	7 —	8 —	9 —	10 O	11 WK	12 —	13 OB	14 OG	15 OP	16 —	17 —	18 B	

AIR CONDITIONING CONTROL MODULE



CC31 / 22-WAY / GREY

12 WR	13 B	14 B	15 GW	16 OU	17 PG	18 LGW	19 BW	20 BK	21 O	22 —
1 WP	2 GY	3 WN	4 WU	5 NY	6 PY	7 UG	8 P	9 UN	10 K	11 —

CC30 / 12-WAY / GREY

7 SY	8 SR	9 —	10 —	11 UB	12 KU
1 ULG	2 S	3 SG	4 —	5 OY	6 UG

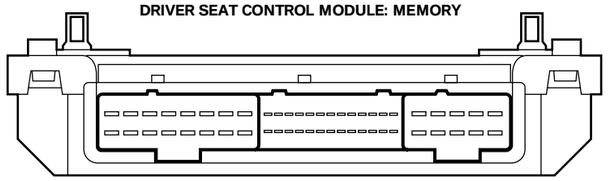
CC29 / 16-WAY / GREY

9 —	10 OR	11 YG	12 —	13 UY	14 —	15 UK	16 GP
1 OP	2 RG	3 YW	4 —	5 SU	6 SG	7 US	8 GO

CC28 / 26-WAY / GREY

14 —	15 —	16 LGN	17 RW	18 LGP	19 RU	20 SR	21 Y	22 NR	23 —	24 —	25 UR	26 GU
1 RLG	2 U	3 UY	4 PS	5 KW	6 RY	7 PR	8 PY	9 RB	10 —	11 —	12 UW	13 UO

DRIVER SEAT CONTROL MODULE: MEMORY



SM1-D / 16-WAY / BLACK

9 PY	10 PW	11 KY	12 KW	13 UW	14 UY	15 RY	16 RW
1 RO	2 RS	3 US	4 UO	5 GS	6 GO	7 PS	8 PO

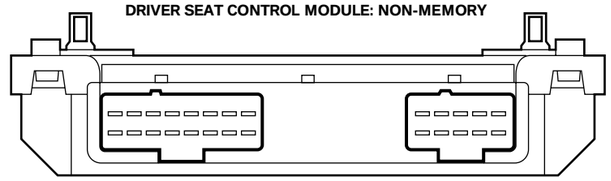
SM2-D / 26-WAY / BLACK

14 WB	15 WB	16 —	17 —	18 W	19 W	20 —	21 —	22 —	23 —	24 —	25 —	26 —
1 WB	2 WB	3 —	4 —	5 W	6 W	7 —	8 WP	9 WU	10 WO	11 WR	12 WY	13 —

SM3-D / 10-WAY / BLACK

6 GW	7 —	8 GY	9 S	10 U
1 BK	2 B	3 KS	4 KO	5 NK

DRIVER SEAT CONTROL MODULE: NON-MEMORY



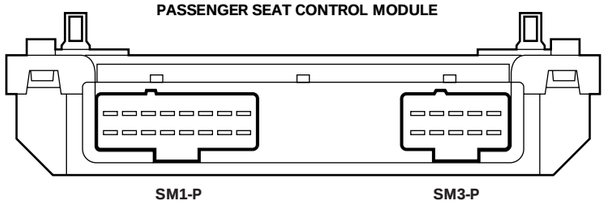
SM1-D / 16-WAY / BLACK

9 PY	10 PW	11 KY	12 KW	13 UW	14 UY	15 RY	16 RW
1 RO	2 RS	3 US	4 UO	5 GS	6 GO	7 PS	8 PO

SM3-D / 10-WAY / BLACK

6 GW	7 —	8 GY	9 S	10 U
1 BK	2 B	3 KS	4 KO	5 NK

PASSENGER SEAT CONTROL MODULE



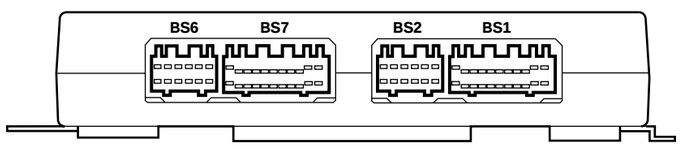
SM1-P / 16-WAY / BLACK

9 PY	10 PW	11 KY	12 KW	13 UW	14 UY	15 RY	16 RW
1 RO	2 RS	3 US	4 UO	5 GS	6 GO	7 PS	8 PO

SM3-P / 10-WAY / BLACK

6 GW	7 —	8 GY	9 S	10 U
1 —	2 B	3 KS	4 KO	5 NK

REAR SEAT CONTROL MODULE



BS6 / 12-WAY / WHITE

6 GO	5 GS	4 PO	3 PS	2 OU	1 OS
12 GR	11 GW	10 OW	9 B	8 PW	7 PR

BS7 / 22-WAY / WHITE

11 —	10 PW	9 PY	8 RY	7 —	6 —	5 —	4 —	3 —	2 —	1 —
22 —	21 —	20 RW	19 UW	18 UY	17 YW	16 YG	15 GW	14 GY	13 —	12 —

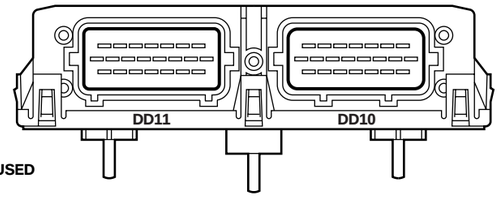
BS2 / 12-WAY / BLUE

6 NW	5 B	4 NK	3 B	2 —	1 —
12 NW	11 —	10 —	9 —	8 —	7 —

BS1 / 22-WAY / BLUE

11 SY	10 B	9 —	8 —	7 —	6 —	5 —	4 —	3 —	2 —	1 —
22 B	21 —	20 —	19 —	18 —	17 —	16 —	15 —	14 —	13 —	12 B

DRIVER DOOR CONTROL MODULE



*** ROW NON-MEMORY: DD11-2 NOT USED**

DD11 / 22-WAY / BLACK (NAS)

7 BP	6 BY	5 OB	4 OU	3 OR	2 UG	1 BK
15 BW	14 —	13 OU	12 OY	11 —	10 YN	9 YR	8 —
22 BN	21 BS	20 G	19 —	18 BO	17 SN	16 —

DD10 / 22-WAY / BLUE (NAS)

7 UW	6 —	5 SY	4 ON	3 OG	2 Y	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 BG	9 U	8 BK
22 OK	21 OU	20 WU	19 BR	18 B	17 B	16 S

DD11 / 22-WAY / BLACK (ROW LHD)

7 BP	6 BY	5 OB	4 OU	3 OR	2* UG	1 BK
15 BW	14 —	13 OU	12 OY	11 —	10 YN	9 YR	8 —
22 BN	21 BS	20 G	19 —	18 —	17 SN	16 —

DD10 / 22-WAY / BLUE (ROW LHD)

7 UW	6 SU	5 SY	4 ON	3 OG	2 Y	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 BG	9 U	8 BK
22 OK	21 OU	20 WU	19 BR	18 BO	17 B	16 S

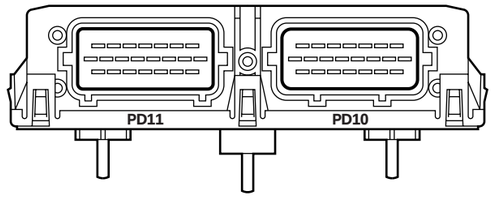
DD11 / 22-WAY / BLACK (ROW RHD)

7 BG	6 BN	5 OU	4 OU	3 OR	2* UG	1 BK
15 BS	14 —	13 OB	12 OY	11 —	10 YN	9 YR	8 —
22 BY	21 BW	20 G	19 —	18 —	17 SN	16 —

DD10 / 22-WAY / BLUE (ROW RHD)

7 UW	6 SU	5 SY	4 ON	3 OG	2 Y	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 BP	9 U	8 BK
22 OK	21 OU	20 WU	19 BO	18 BR	17 B	16 S

PASSENGER DOOR CONTROL MODULE



PD11 / 22-WAY / BLACK (NAS)

7 —	6 BO	5 —	4 —	3 —	2 —	1 —
15 —	14 —	13 —	12 —	11 —	10 —	9 —	8 —
22 —	21 BG	20 G	19 —	18 —	17 —	16 —

PD10 / 22-WAY / BLUE (NAS)

7 UW	6 —	5 SY	4 —	3 —	2 —	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 —	9 U	8 BK
22 —	21 —	20 —	19 —	18 —	17 B	16 S

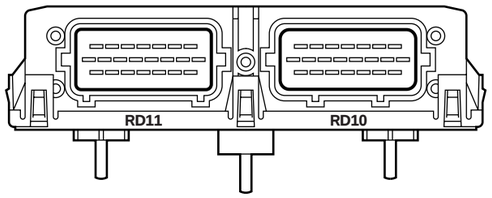
PD11 / 22-WAY / BLACK (ROW)

7 —	6 BO	5 —	4 —	3 —	2 —	1 —
15 —	14 —	13 —	12 —	11 —	10 —	9 —	8 —
22 —	21 BG	20 G	19 —	18 —	17 —	16 —

PD10 / 22-WAY / BLUE (ROW)

7 UW	6 SU	5 SY	4 —	3 —	2 —	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 —	9 U	8 BK
22 —	21 —	20 —	19 —	18 —	17 B	16 S

DRIVER REAR DOOR CONTROL MODULE



RD11 / 22-WAY / BLACK (NAS)

7 BK	6 BO	5 UP	4 —	3 —	2 —	1 —
15 US	14 —	13 KS	12 —	11 —	10 —	9 —	8 —
22 UN	21 BG	20 G	19 —	18 —	17 —	16 —

RD10 / 22-WAY / BLUE (NAS)

7 UW	6 —	5 —	4 PN	3 PG	2 Y	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 —	9 U	8 BK
22 YK	21 PU	20 WU	19 BK	18 —	17 B	16 S

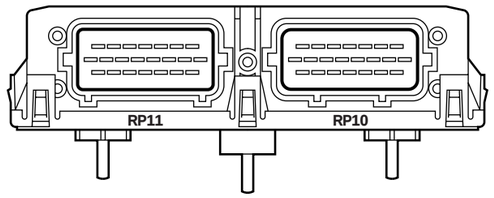
RD11 / 22-WAY / BLACK (ROW)

7 BK	6 BO	5 UP	4 —	3 —	2 —	1 —
15 US	14 —	13 KS	12 —	11 —	10 —	9 —	8 —
22 UN	21 BG	20 G	19 —	18 —	17 —	16 —

RD10 / 22-WAY / BLUE (ROW)

7 UW	6 —	5 —	4 PN	3 PG	2 Y	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 —	9 U	8 BK
22 YK	21 PU	20 WU	19 BK	18 —	17 B	16 S

PASSENGER REAR DOOR CONTROL MODULE



RP11 / 22-WAY / BLACK (NAS)

7 —	6 BO	5 —	4 —	3 —	2 —	1 —
15 U	14 —	13 —	12 —	11 —	10 —	9 —	8 U
22 —	21 BG	20 G	19 —	18 —	17 —	16 —

RP10 / 22-WAY / BLUE (NAS)

7 UW	6 —	5 —	4 —	3 —	2 —	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 —	9 U	8 BK
22 —	21 —	20 —	19 —	18 —	17 B	16 S

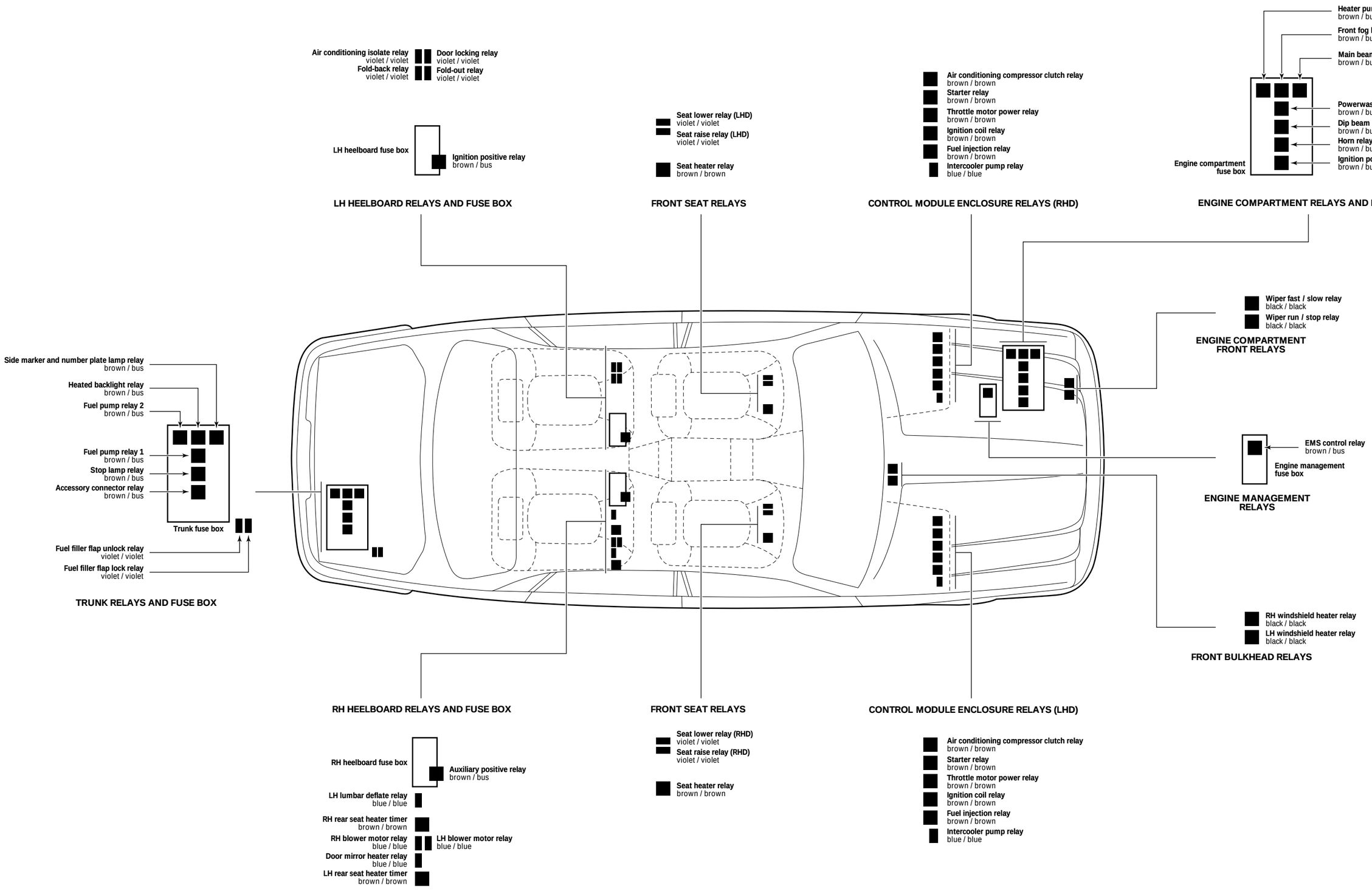
RP11 / 22-WAY / BLACK (ROW)

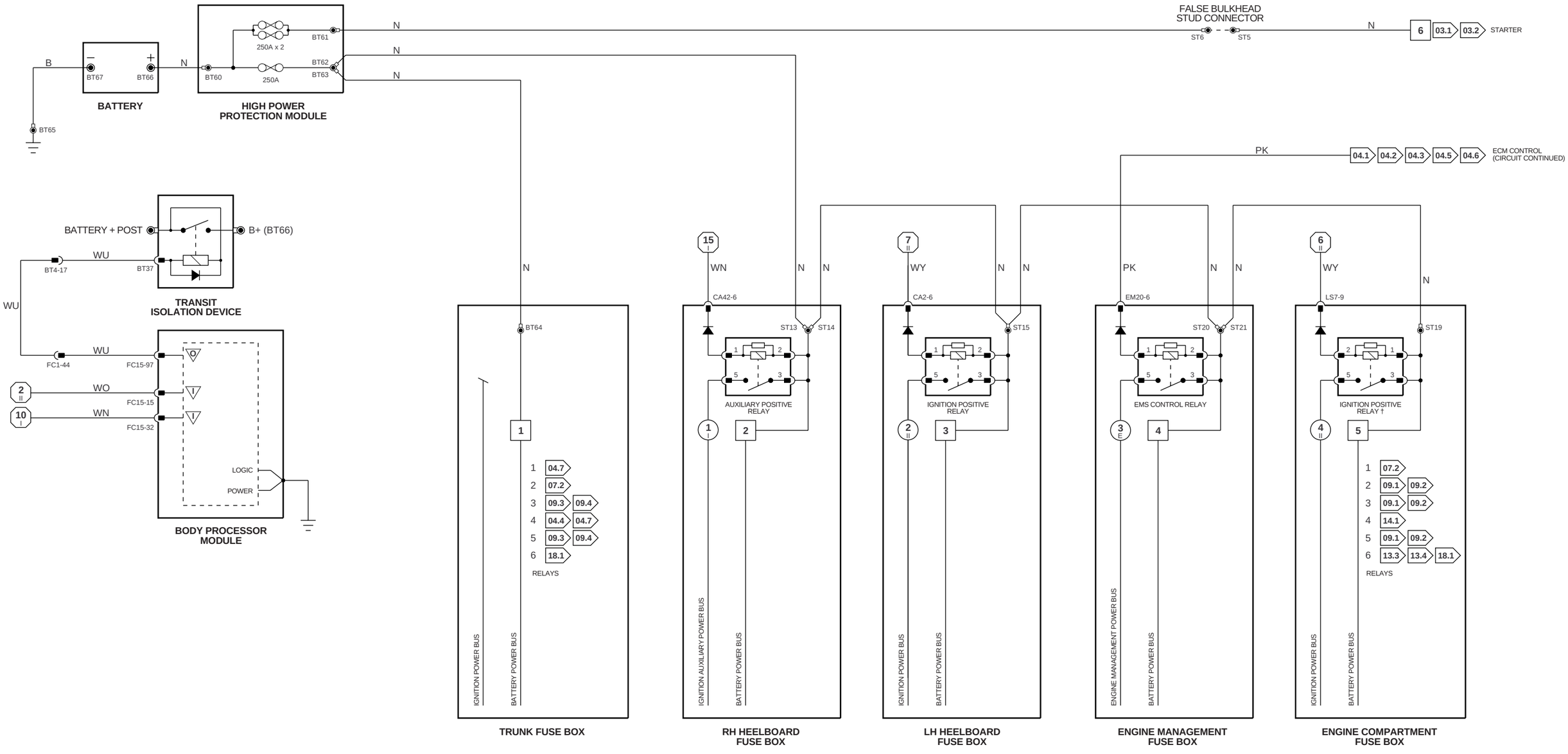
7 —	6 BO	5 —	4 —	3 —	2 —	1 —
15 U	14 —	13 —	12 —	11 —	10 —	9 —	8 U
22 —	21 BG	20 G	19 —	18 —	17 —	16 —

RP10 / 22-WAY / BLUE (ROW)

7 UW	6 —	5 —	4 —	3 —	2 —	1 NO
15 OW	14 GW	13 —	12 —	11 —	10 —	9 U	8 BK
22 —	21 —	20 —	19 —	18 —	17 B	16 S

NOTE: RELAY COLORS ARE WRITTEN AS CASE COLOR / CONNECTOR COLOR. FOR EXAMPLE, BLACK / BLACK INDICATES A RELAY HAVING A BLACK CASE WITH A BLACK CONNECTOR. SOME RELAYS CONNECT DIRECTLY TO A FUSE BOX BUS; THE CONNECTOR COLOR FOR THESE RELAYS IS IDENTIFIED AS "BUS".



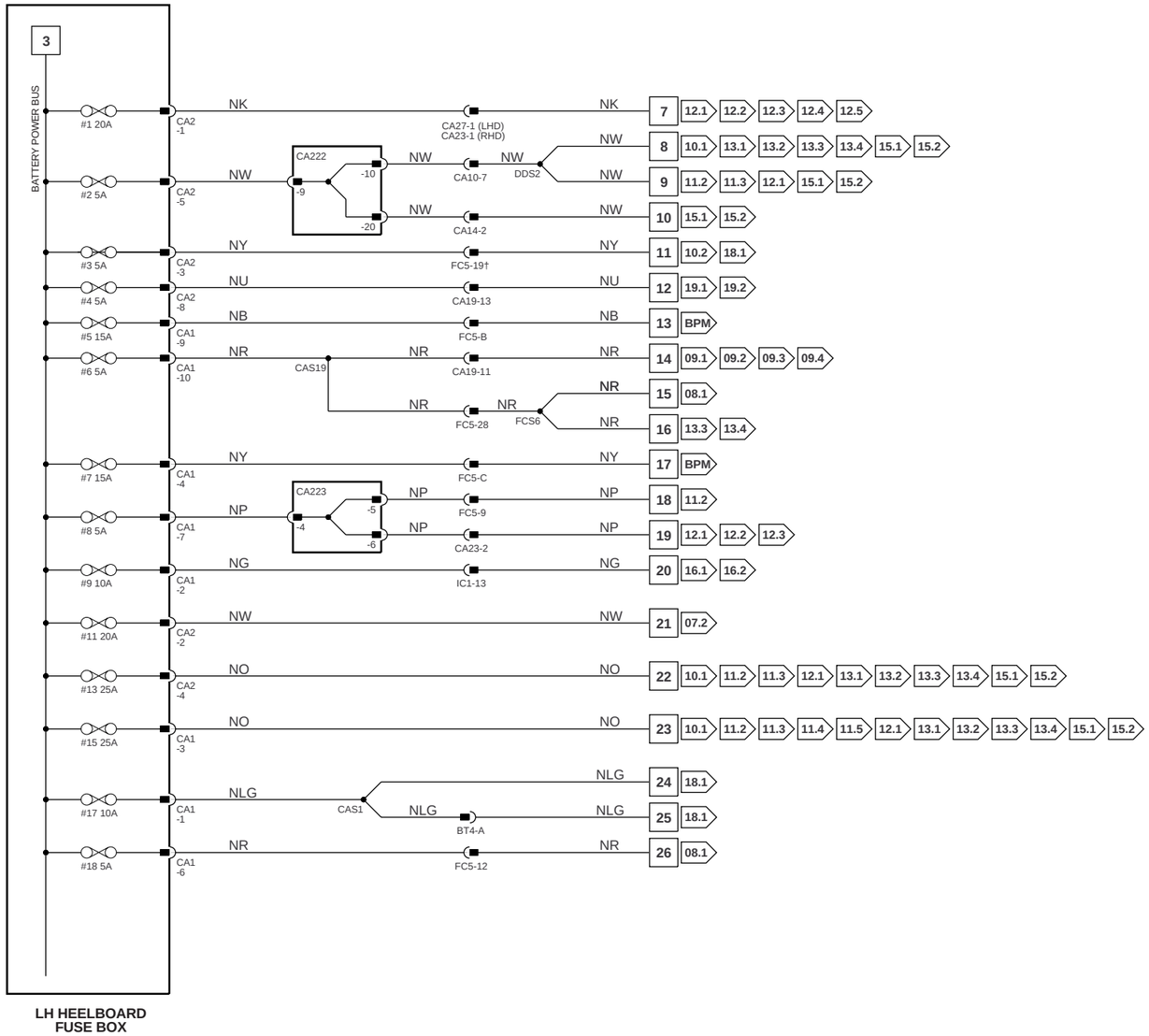


† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

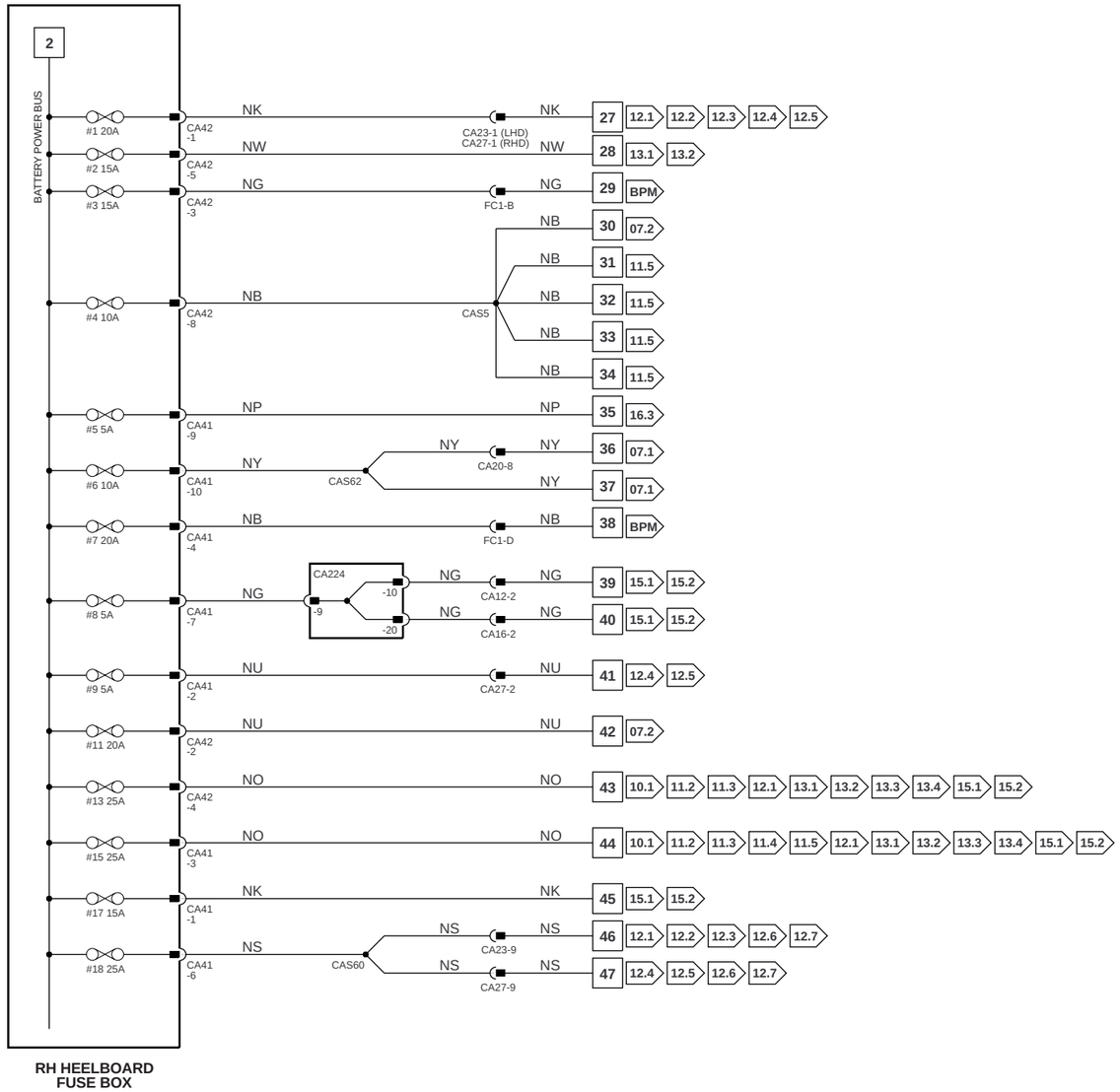
1 – 6, 1 II – 4 II: Fig. 01.1
7 – 47: Fig. 01.2
48 – 82: Fig. 01.3
5 II – 44 II: Fig. 01.4
45 E – 63 E: Fig. 01.5
1 – 17 I: Fig. 02.1

I Input
O Output
D Serial and Encoded Communications
Signal Ground (SG)
C CAN (Network)
S SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



LH HEELBOARD FUSE BOX



RH HEELBOARD FUSE BOX

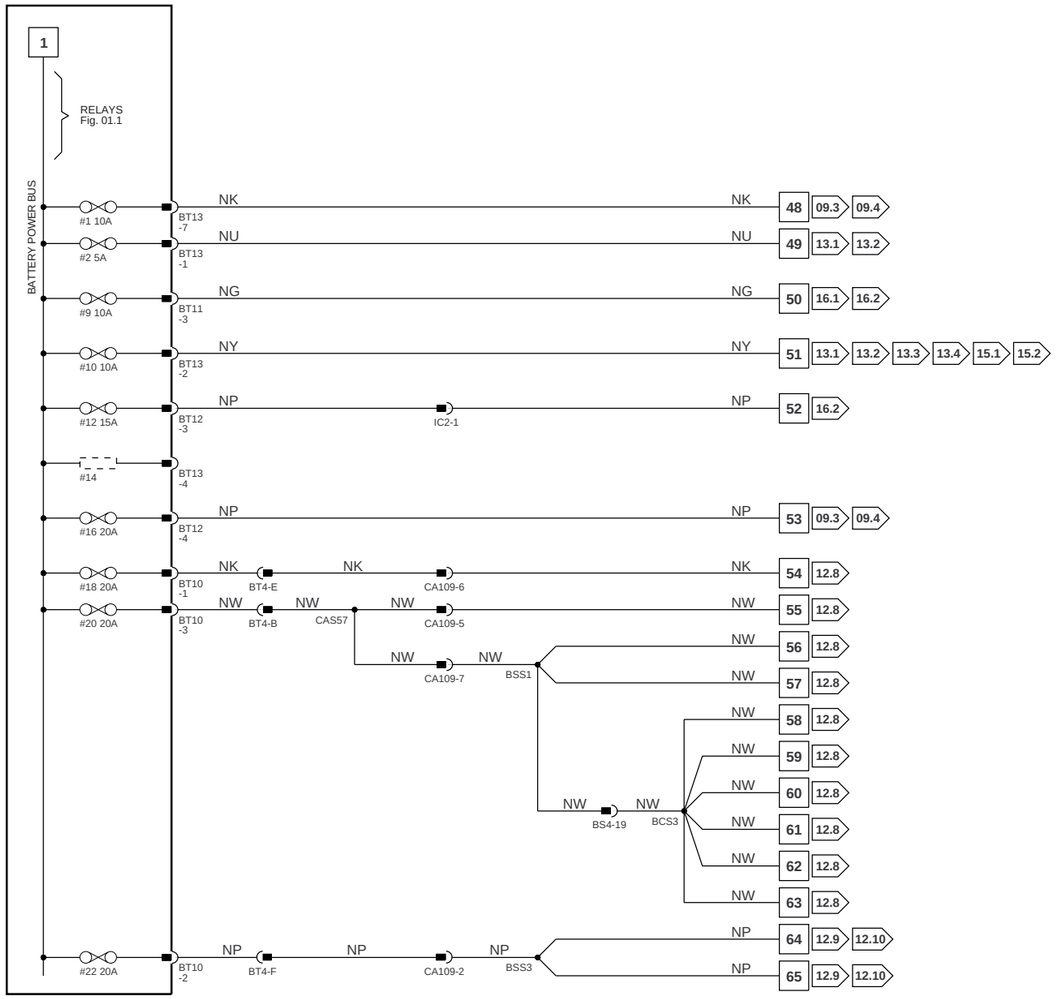
BPM **NOTE:** Body Processor Module appears in numerous figures.

† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

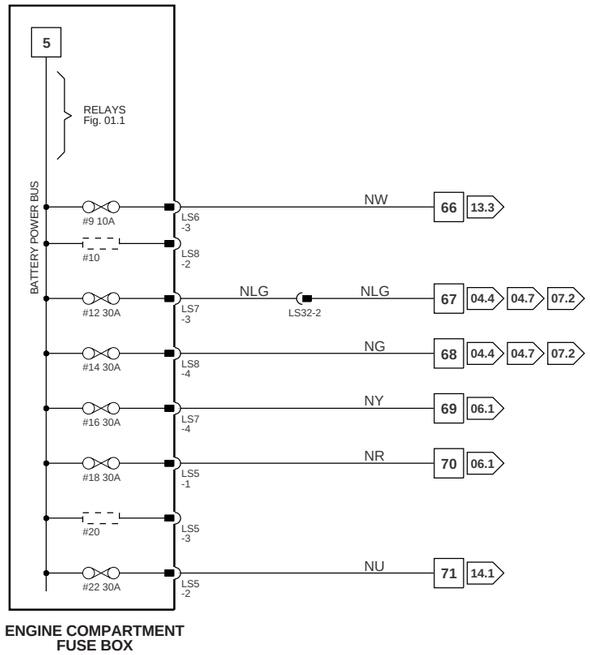
1 – 6, 1 II – 4 II Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

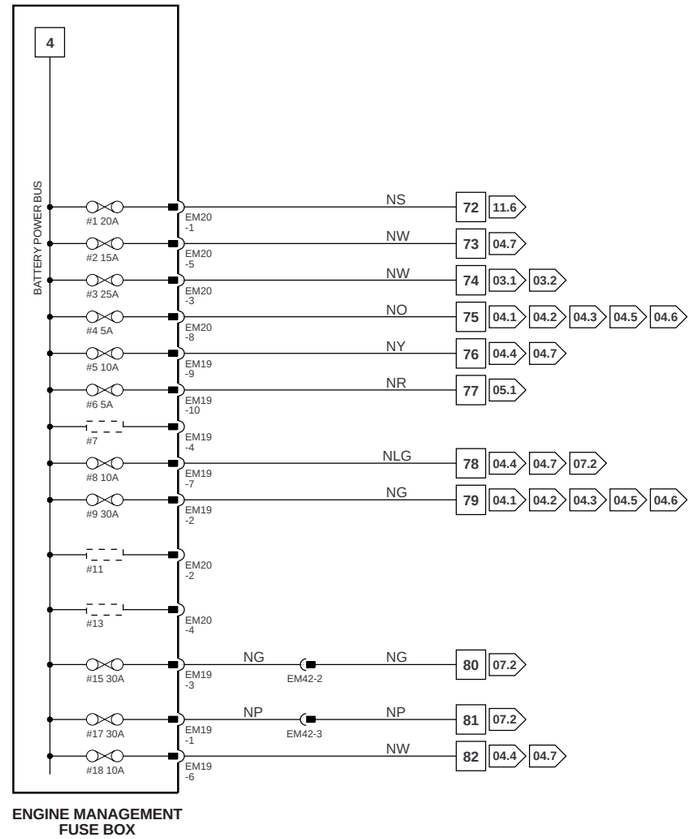
VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



TRUNK FUSE BOX



ENGINE COMPARTMENT FUSE BOX

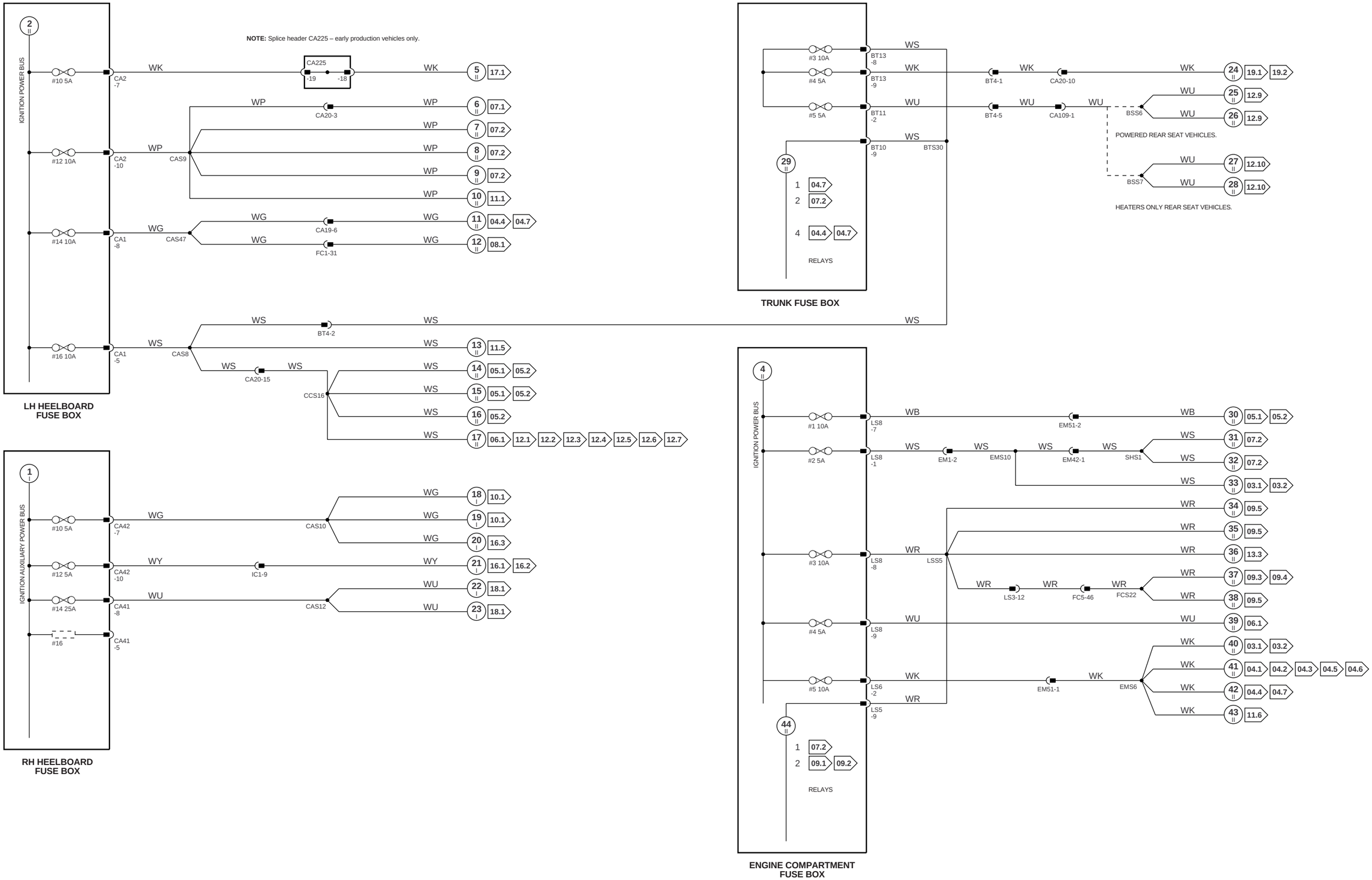


ENGINE MANAGEMENT FUSE BOX

1 – 6, 1 II – 4 II Fig. 01.1
7 – 47, 48 – 82 Fig. 01.3
5 II – 44 II, 45 E – 63 E Fig. 01.4
1 – 17 I Fig. 02.1

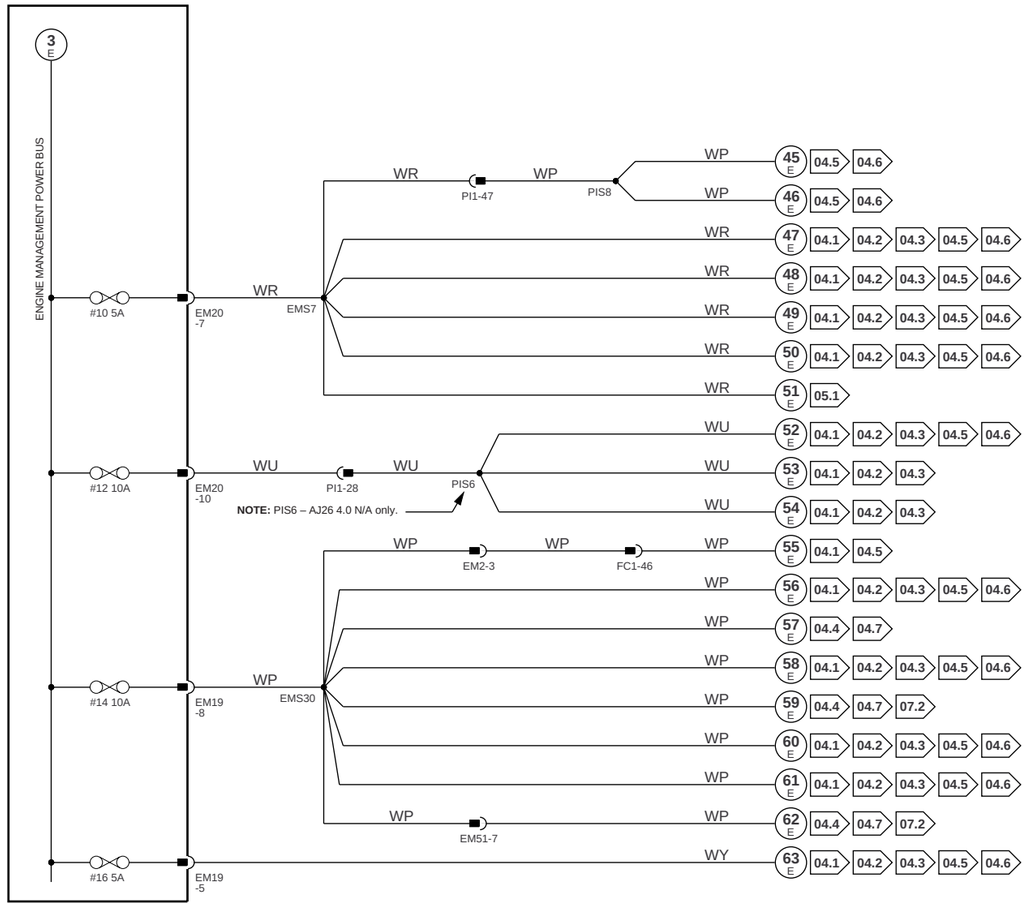
I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 – 4 (II) Fig. 01.1	7 – 47 Fig. 01.2	5 (II) – 44 (II) Fig. 01.4	1 – 17 (I) Fig. 02.1	Input	Output	Serial and Encoded Communications
	48 – 82 Fig. 01.3	45 (E) – 63 (E) Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network

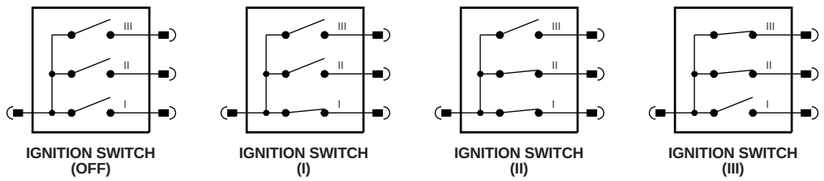
VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

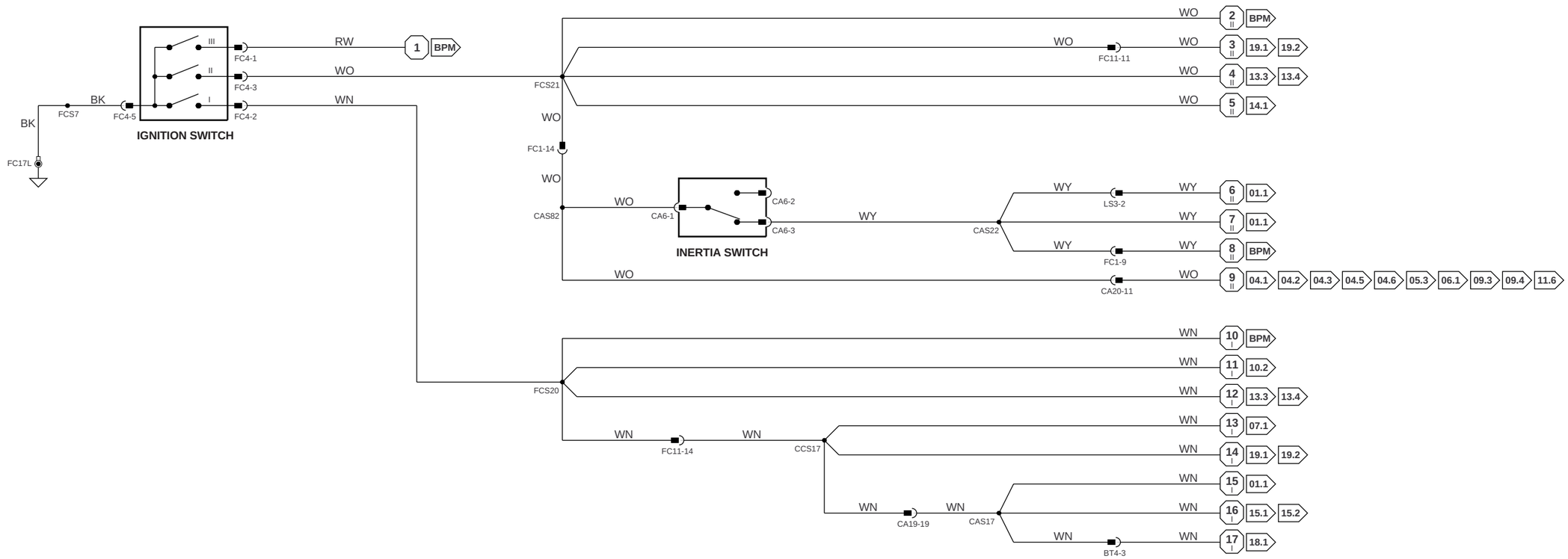


1 – 6, 1 II – 4 II Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



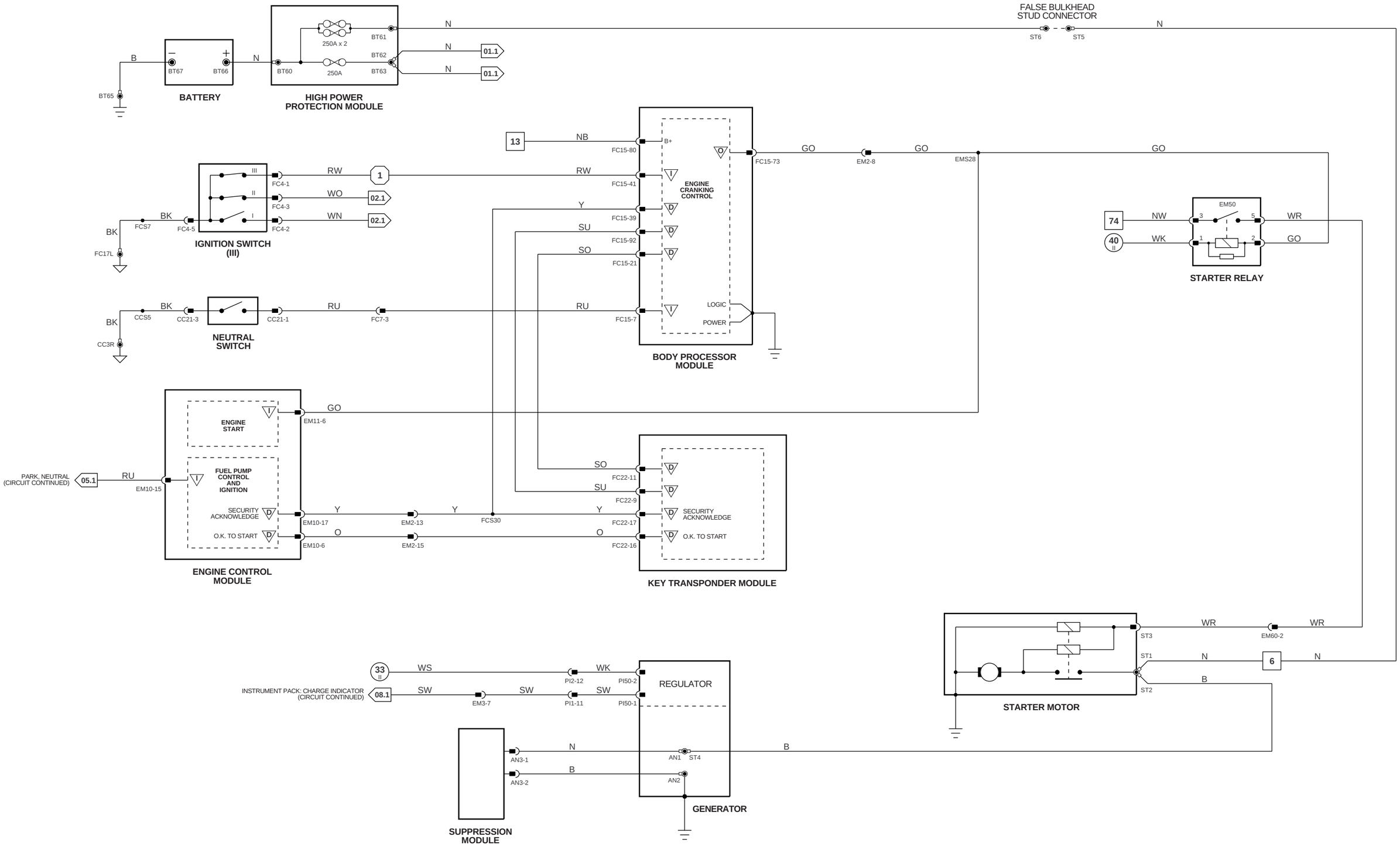


BPM **NOTE:** Body Processor Module appears in numerous figures.

1 II – 6 / 1 II – 4 II Fig. 01.1
7 – 47 / 48 – 82 Fig. 01.2 Fig. 01.3
5 II – 44 II / 45 E – 63 E Fig. 01.4 Fig. 01.5
1 – 17 I Fig. 02.1

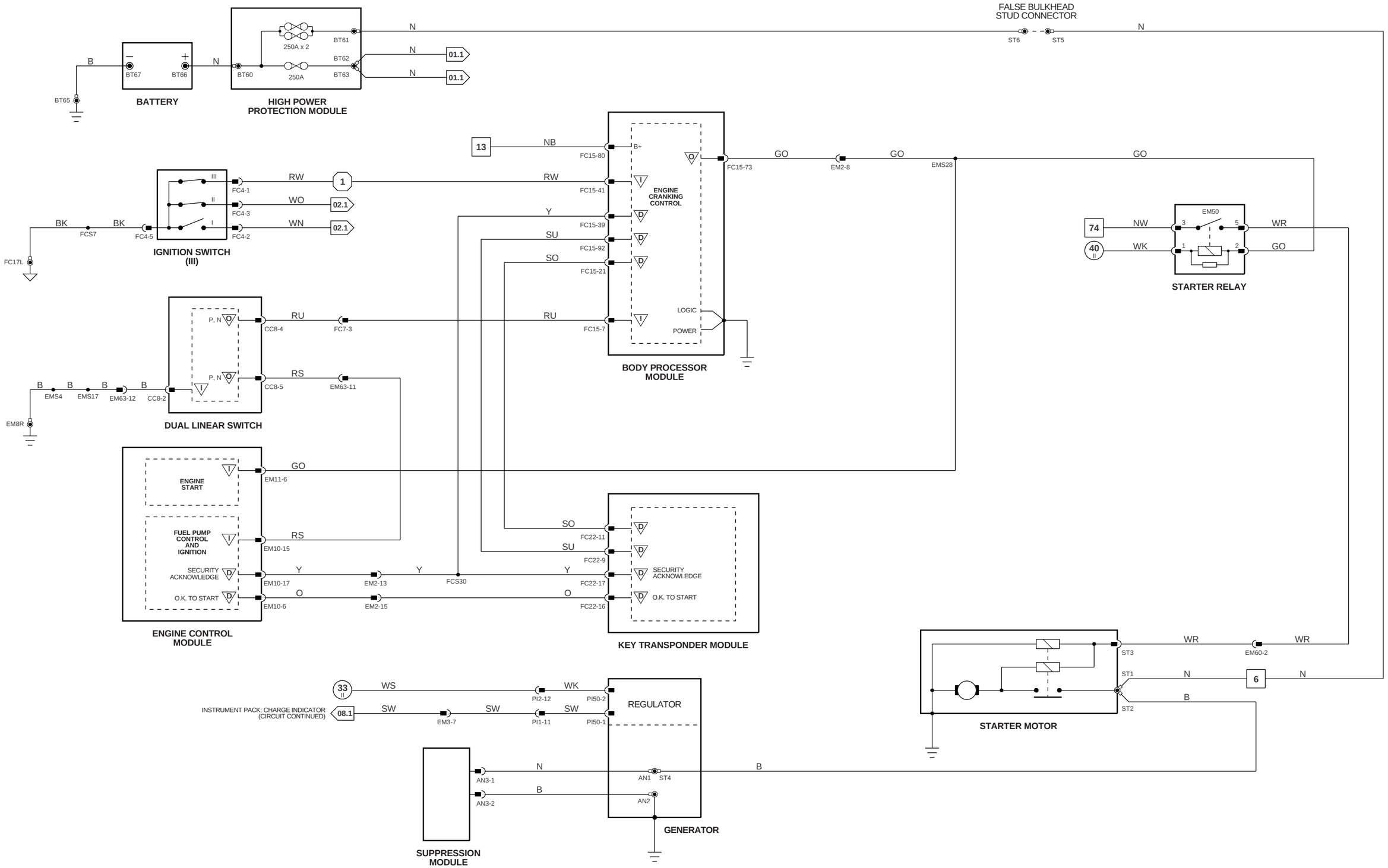
I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



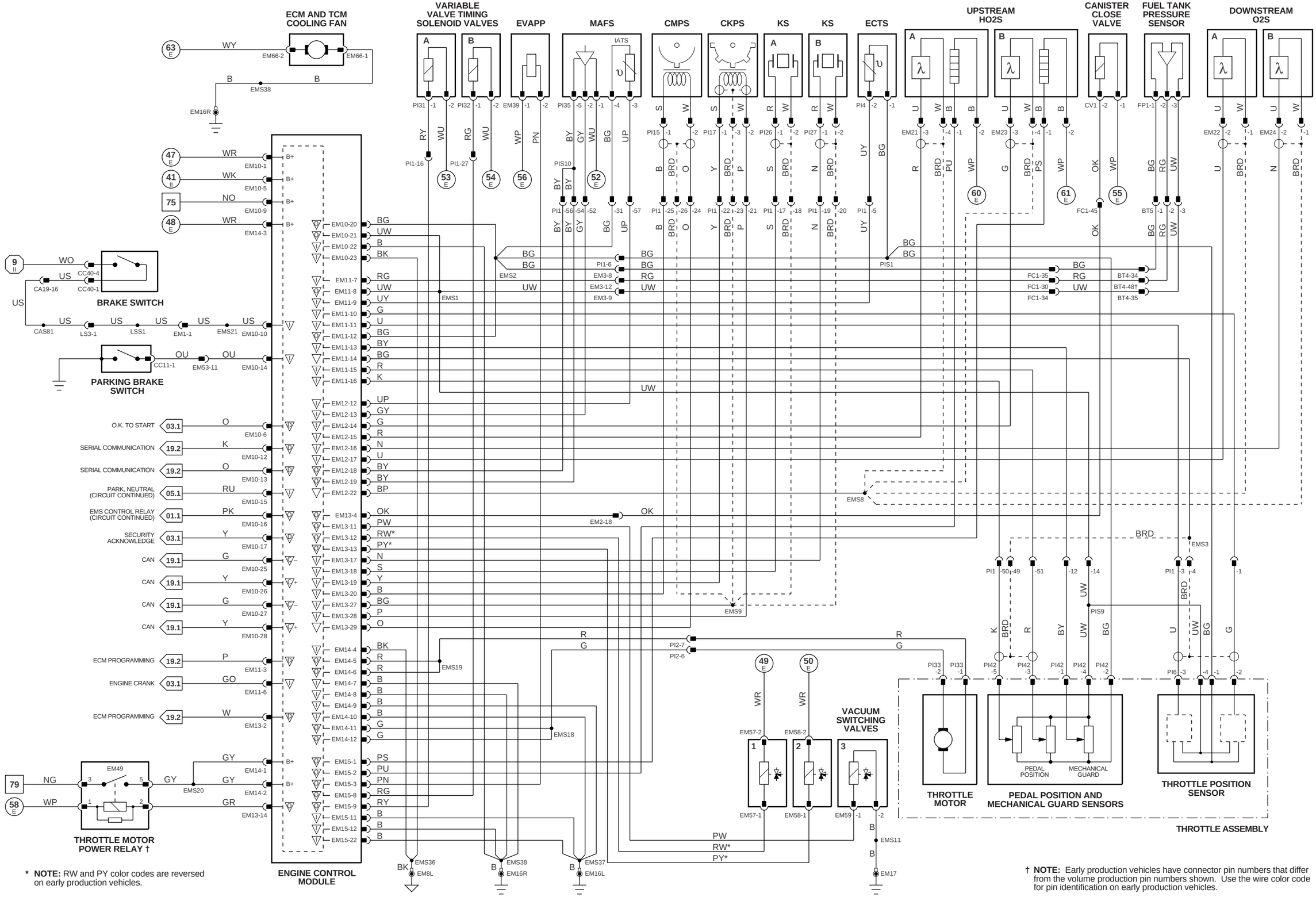
1 – 6 / 1 II – 4 II } Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	Input	Output	Serial and Encoded Communications
						Signal Ground (SG)	CAN (Network)	SCP Network

VARIANT: AJ26 N/A Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6; 1 II – 4 II } Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	I Input; Signal Ground (SG)	O Output; C CAN (Network)	D Serial and Encoded Communications; S SCP Network

VARIANT: AJ26 SC Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



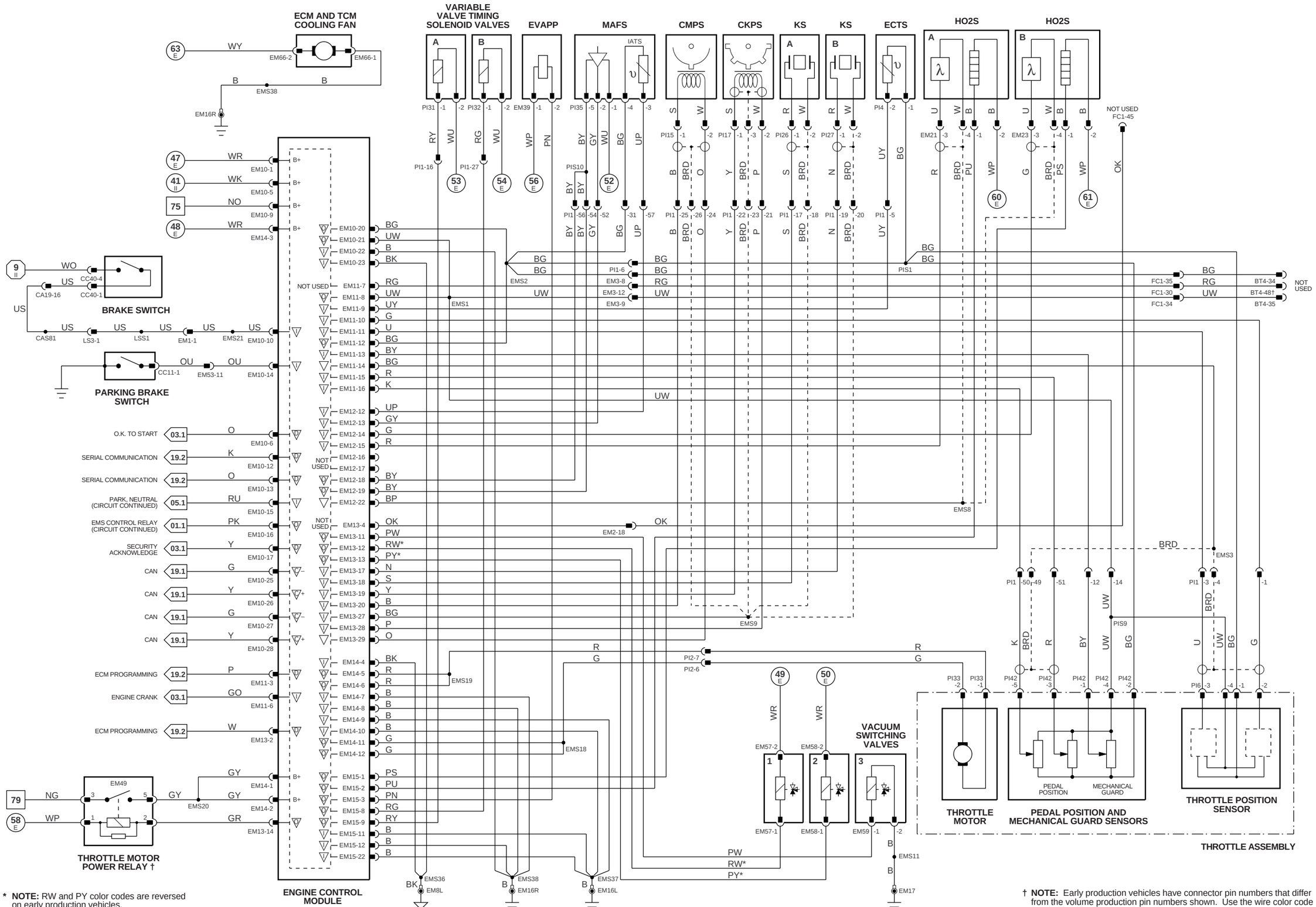
* **NOTE:** RW and PY color codes are reversed on early production vehicles.

† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 – 4 (II)	Fig. 01.1	7 – 47	Fig. 01.2	5 – 44 (II)	Fig. 01.4	1 – 17 (I)	Fig. 02.1
		48 – 82	Fig. 01.3	45 – 63 (E)	Fig. 01.5		

Input	Output	Serial and Encoded Communications	
Signal Ground (SG)	CAN (Network)	SCP Network	

VARIANT: AJ26 4.0 N/A NAS Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



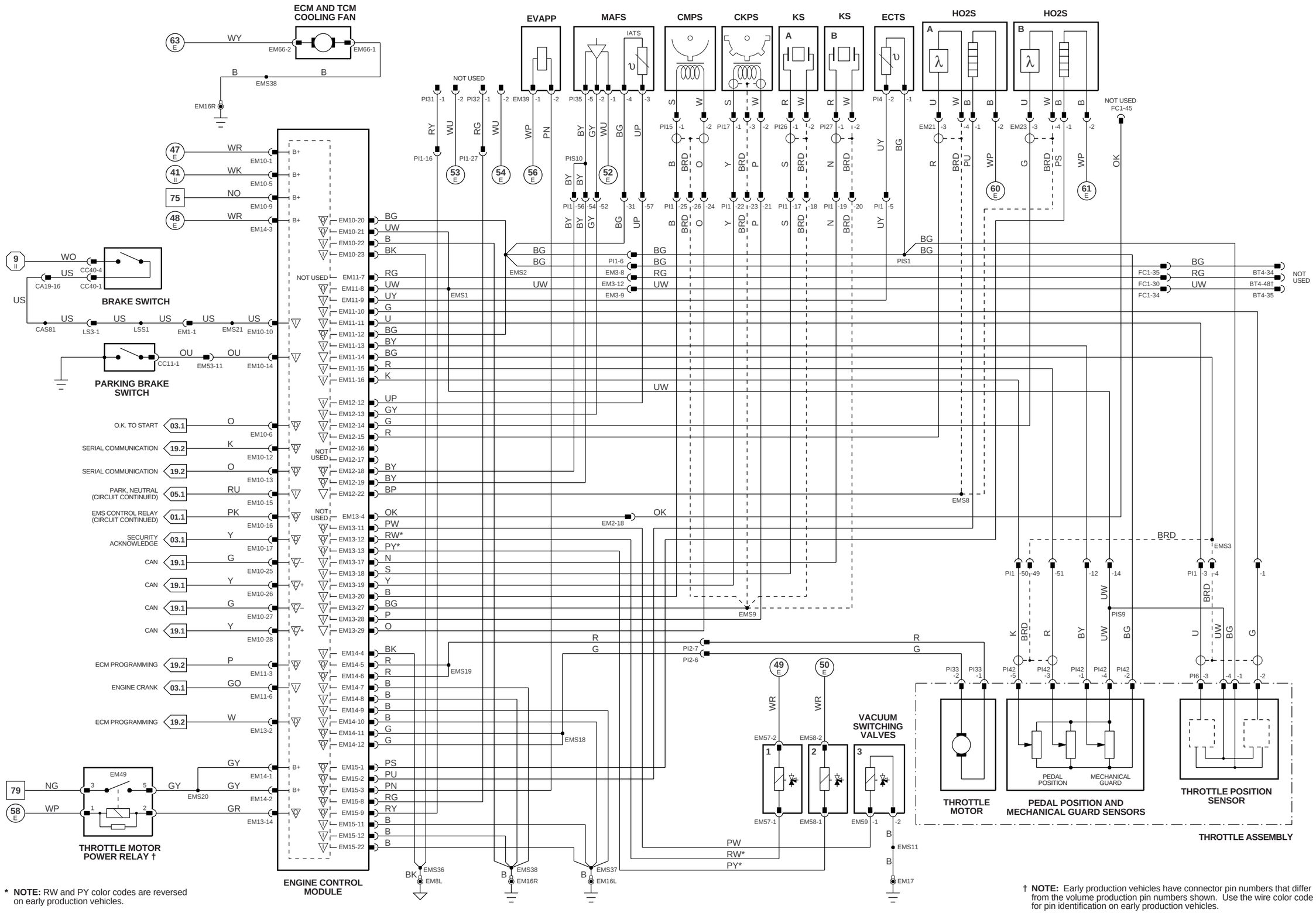
* **NOTE:** RW and PY color codes are reversed on early production vehicles.

† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6 1 II – 4 II	Fig. 01.1	7 – 47	Fig. 01.2	5 II – 44 II	Fig. 01.4	1 – 17 I	Fig. 02.1
		48 – 82	Fig. 01.3	45 E – 63 E	Fig. 01.5		

I Input	O Output	D Serial and Encoded Communications	
Signal Ground (SG)	C CAN (Network)	S SCP Network	

VARIANT: AJ26 4.0 N/A ROW Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



* **NOTE:** RW and PY color codes are reversed on early production vehicles.

† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 II – 4 II Fig. 01.1 | 7 – 47 Fig. 01.2 | 48 – 82 Fig. 01.3 | 5 II – 44 II Fig. 01.4 | 45 E – 63 E Fig. 01.5 | 1 – 17 I Fig. 02.1

Input | Output | Serial and Encoded Communications

Signal Ground (SG) | CAN (Network) | SCP Network

VARIANT: AJ26 3.2 Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

TRUNK FUSE BOX
FUEL PUMP RELAY (#4) †
#7 20A
BT11-1
BT11-10
BT4 -19
FC1 -42
EM3 -5

NOTE: ECM power supplies, grounds and references shown on Fig. 04.1, Fig 04.2 and Fig 04.3.

BRAKE CANCEL SWITCH
CC40-3
CC40-2

CRUISE CONTROL SWITCH
DIMMER OVERRIDE
CC20 -10
CC20 -7
CC20 -9
CC20 -8
CCS21
270 Ω
510 Ω
ON / OFF
CASSETTE
680 Ω
430 Ω
CANCEL
RESUME
SW1 -4
SW1 -3
SW1 -6
SW2-4
SW3-3
SW3-4
SW2-3
SW3-1
SW3-2
SW2-6
SWS1
EM3-11
EM3-10
SC3-4
SC3-3
SC3-12
EM53 -17
EM53 -16
EM53 -14
FCS28
FC17R
CRUISE CONTROL SWITCHES
STEERING WHEEL

CAUTION: The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

IGNITION COILS
PI18-2
PI23-2
PI24-2
PI21-2
PI22-2
PI19-2
PI20-2
PI25-2
PI1-40
PI1-42
PI1-41
PI1-39
PI1-46
PI1-45
PI1-44
PI1-43
EM27 -8
EM27 -7
EM27 -12
EM27 -11
EM27 -10
EM29 -8
EM29 -11
EM29 -7
EM29 -12
EM27 -1
EM27 -2
EM27 -3
EM27 -6
EM27 -5
EM27 -9
EM29 -9
EM29 -1
EM29 -2
EM29 -5
EM29 -3
EM29 -6
IGNITION MODULE 1
IGNITION MODULE 2
EMS22
PI1-53
PIS5
EM26
IGNITION COIL RELAY

ENGINE CONTROL MODULE
EM10-2 UG
EM10-3 ULG
EM10-4 UN
EM10-11 PG
EM11-1 SR
EM11-4 WU
EM11-5 SG
EM12-5 WU
EM12-6 RW
EM12-8 SLG
EM12-9 SG
EM12-10 RY
EM13-1 KN
EM13-3 SP
EM13-15 W
EM13-16 WU
EM13-22 UB
EM13-23 LGK
EM13-24 LGO
EM13-25 LGW
EM13-26 LGU
EM13-31 LGY
EM13-32 LGR
EM13-33 LGS
EM13-34 LGP
EM15-4 BO
EM15-5 BY
EM15-6 BW
EM15-7 BU
EM15-15 BP
EM15-16 BG
EM15-17 BN
EM15-18 BS
EM1-11
EM1-12
EMS4
EM8R

FUEL TANK
FUEL PUMP
BT9-2
BT9-1
BTS21
BT20

FUEL INJECTION RELAY
EM52
EM17
PIS2
PI2-5
EMS11

FUEL INJECTORS
PI1-30 PI1-32 PI1-33 PI1-34 PI1-35 PI1-36 PI1-37 PI1-38
PI7-2 PI8-2 PI9-2 PI10-2 PI11-2 PI12-2 PI13-2 PI14-2
1A 2A 3A 4A 1B 2B 3B 4B

RADIATOR FAN CONTROL RELAY MODULE
LS31-2
LS31-9
LS31-5
LS31-7
LS31-1
LS31-8
LS31-3
LS10R
LH RADIATOR FAN
LS32-1
CF1-1
CF1-2
RH RADIATOR FAN
LS32-4
CF2-2
CF2-1
LS32-3
LS10L

AIR CONDITIONING CONTROL MODULE
EM53-8 UG
EM53-3 UN
EM53-9 PG
EM53-12 RLG
EM53-10
CC31-7
CC30-1
CC31-9
CC31-17
CC28-1
NOTE: Refer to Fig. 07.1 and Fig. 07.2 for complete A/C circuits.

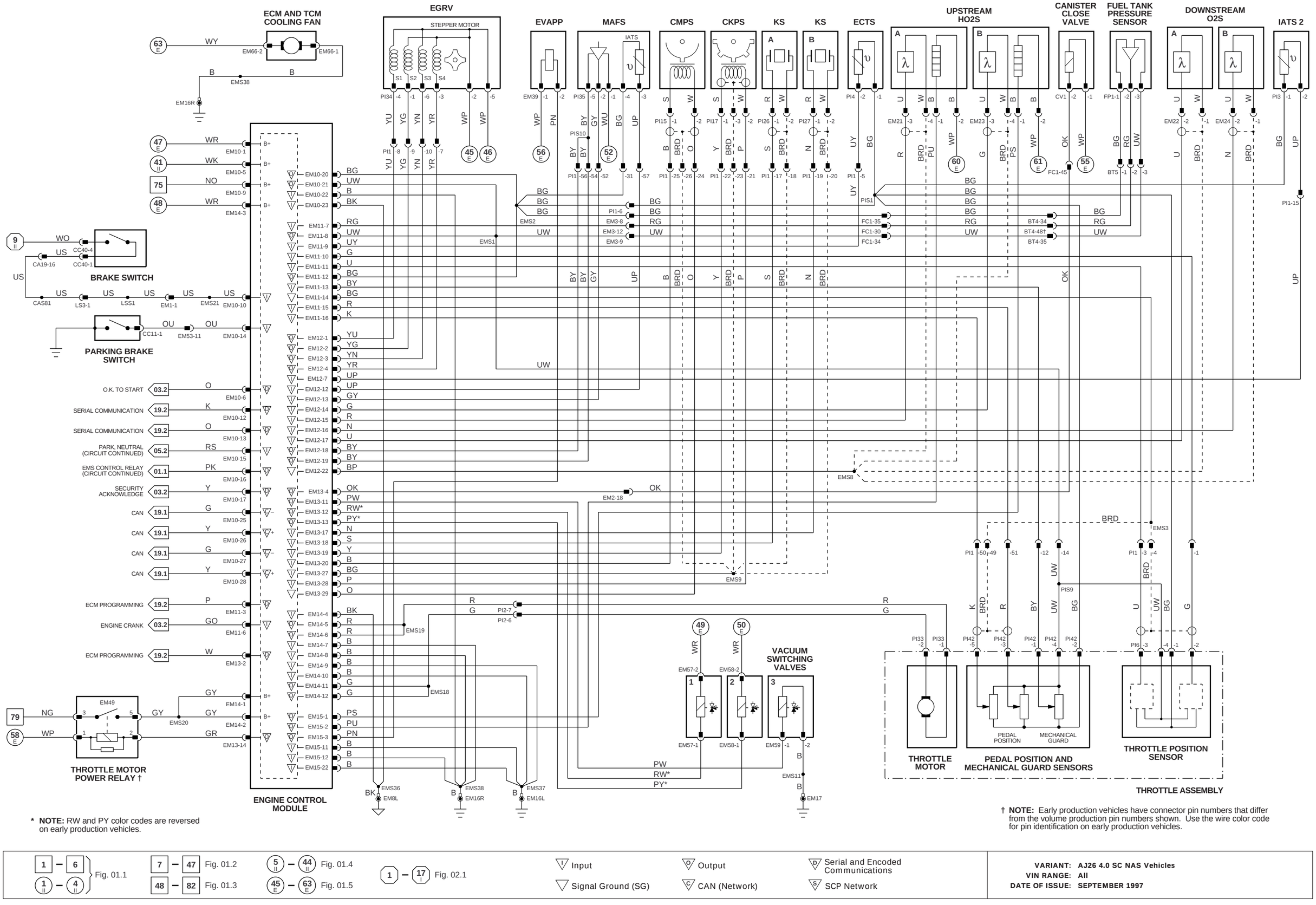
AIR CONDITIONING COMPRESSOR CLUTCH RELAY
EM25
EMS26
AIR CONDITIONING COMPRESSOR CLUTCH
PI1-13
PI36-1

REFRIGERANT 4-WAY PRESSURE SWITCH
2–30 BAR
20 BAR
12 BAR
EM51-6
EM51-5
EM51-10
LS26-5
LS26-1
LS26-3
LS26-2
LS26-4
LS17
LS20L

† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

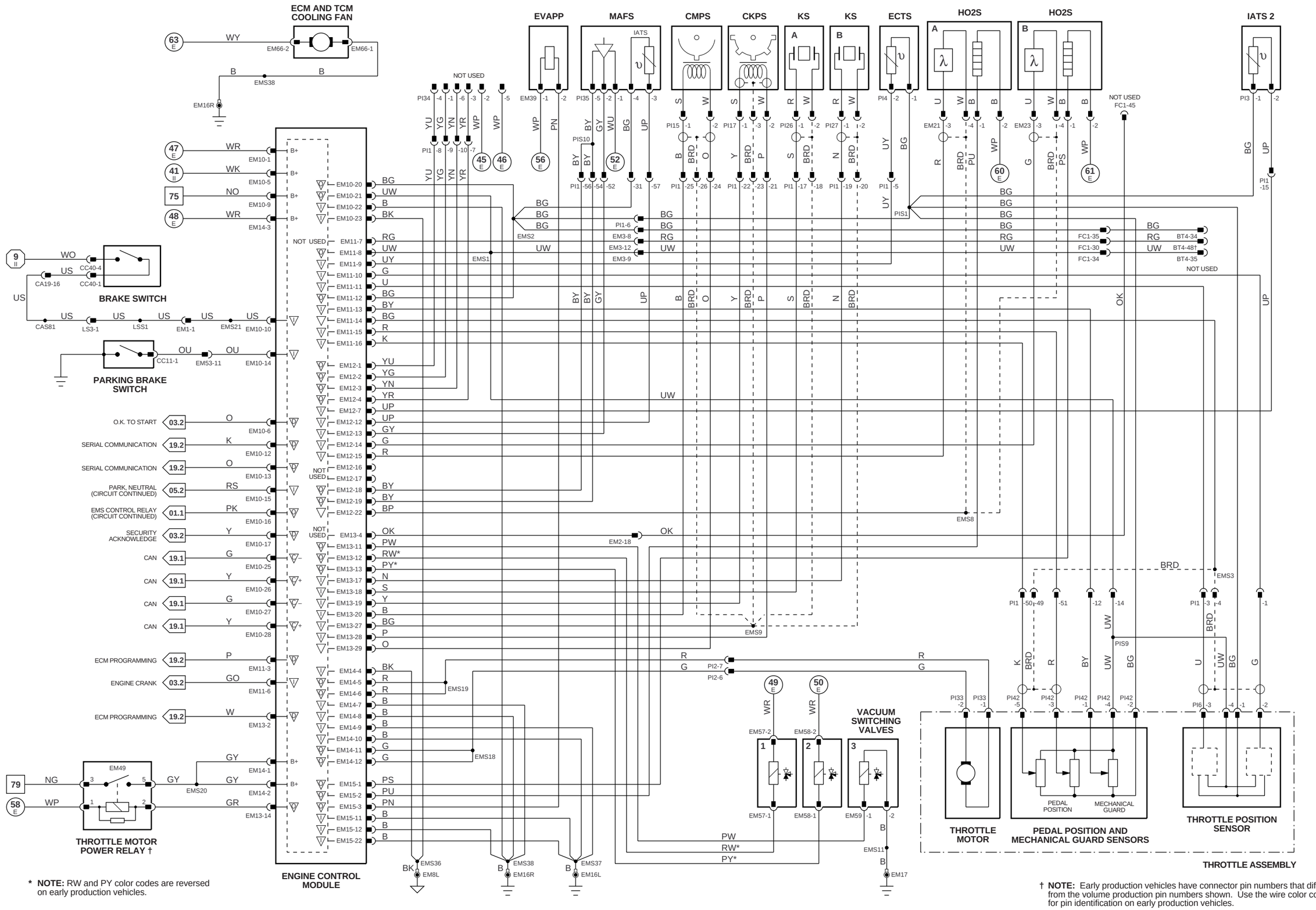
1 – 6 / 1 – 4 Fig. 01.1
7 – 47 / 48 – 82 Fig. 01.3
5 – 44 Fig. 01.4
45 – 63 Fig. 01.5
1 – 17 Fig. 02.1
Fig. 01.2
Input
Output
Serial and Encoded Communications
Signal Ground (SG)
CAN (Network)
SCP Network

VARIANT: AJ26 4.0 and 3.2 N/A Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 – 4 Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 – 44 Fig. 04.4	45 – 63 Fig. 01.5	1 – 17 Fig. 02.1	Input / Signal Ground (SG)	Output / CAN (Network)	Serial and Encoded Communications / SCP Network

VARIANT: AJ26 4.0 SC NAS Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

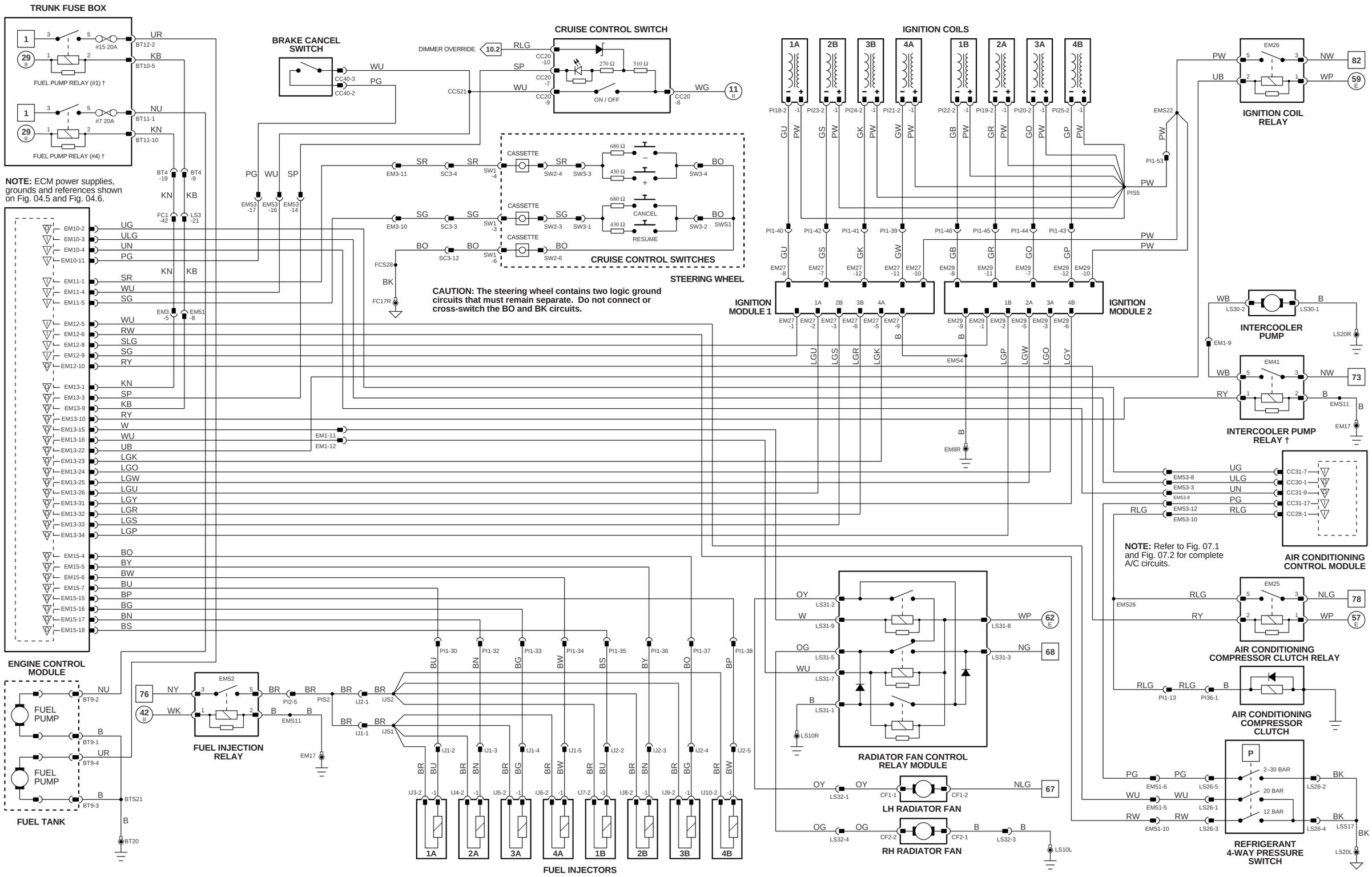


* **NOTE:** RW and PY color codes are reversed on early production vehicles.

† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6; 1 II – 4 II } Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	Input	Output	Serial and Encoded Communications
						Signal Ground (SG)	CAN (Network)	SCP Network

VARIANT: AJ26 4.0 SC ROW Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



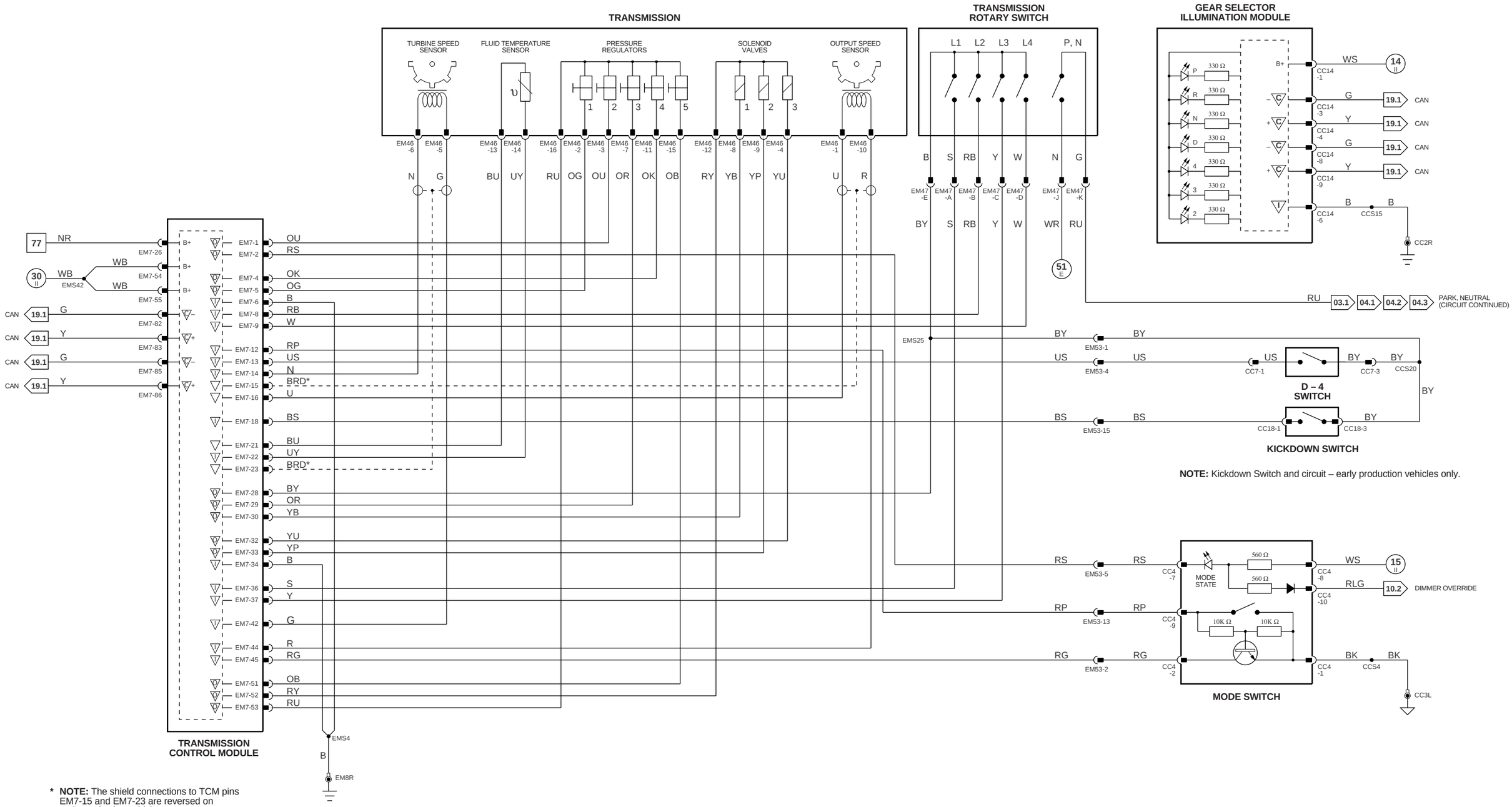
† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 II – 4 II	Fig. 01.1	7 – 47	Fig. 01.2	5 II – 44 II	Fig. 01.4	1 – 17 I	Fig. 02.1
		48 – 82	Fig. 01.3	45 E – 63 E	Fig. 01.5		

Input · Output · Serial and Encoded Communications · Signal Ground (SG) · CAN (Network) · SCP Network

VARIANT: AJ26 4.0 SC Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

NOTE: Gear Selector Illumination Module – CAN "listen only" node for gear selector position indicators.



* **NOTE:** The shield connections to TCM pins EM7-15 and EM7-23 are reversed on early production vehicles.

NOTE: Kickdown Switch and circuit – early production vehicles only.

1 – 6 / 1 II – 4 II Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

I Input
O Output
D Serial and Encoded Communications
Signal Ground (SG)
C CAN (Network)
S SCP Network

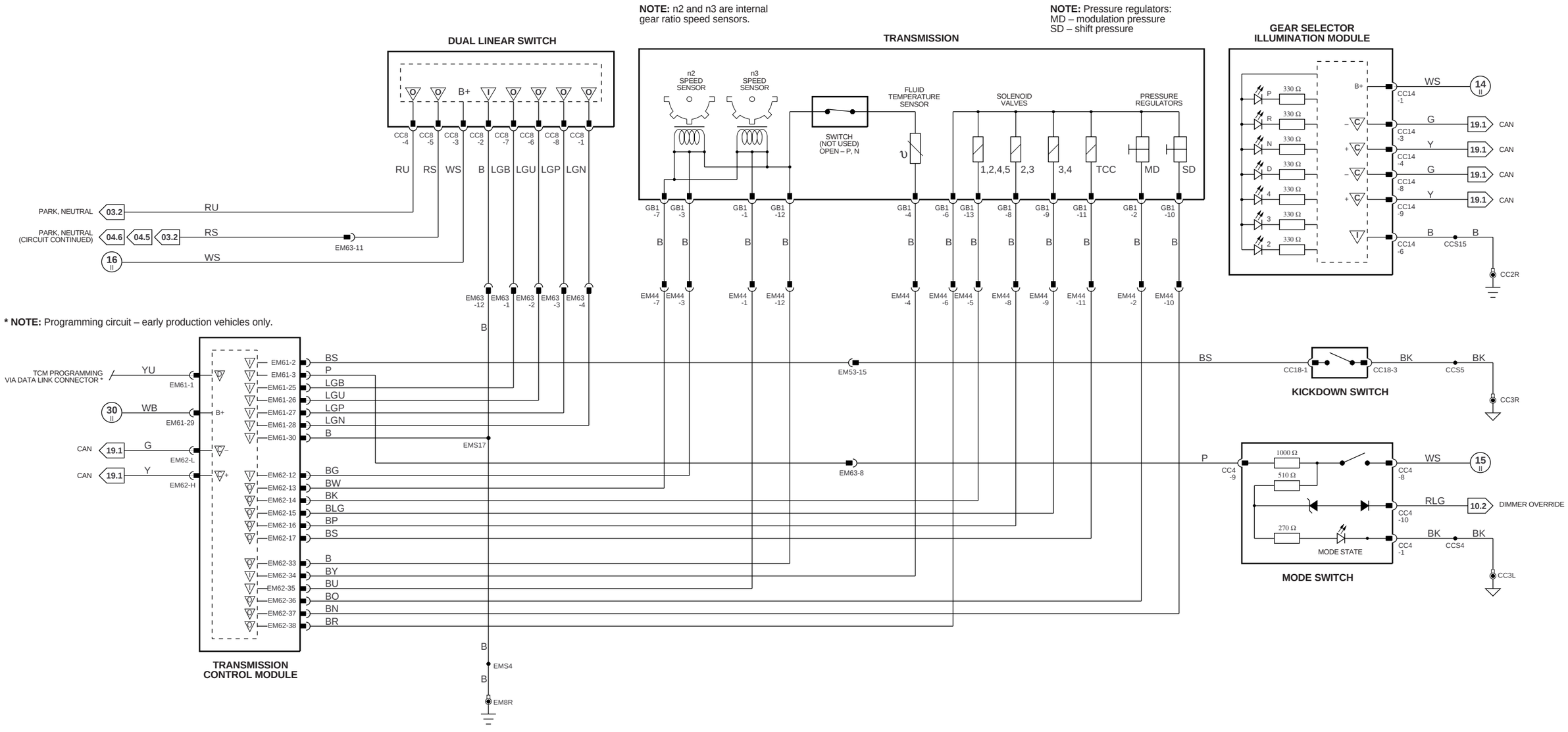
VARIANT: AJ26 N/A Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

NOTE: Gear Selector Illumination Module – CAN "listen only" node for gear selector position indicators.

NOTE: n2 and n3 are internal gear ratio speed sensors.

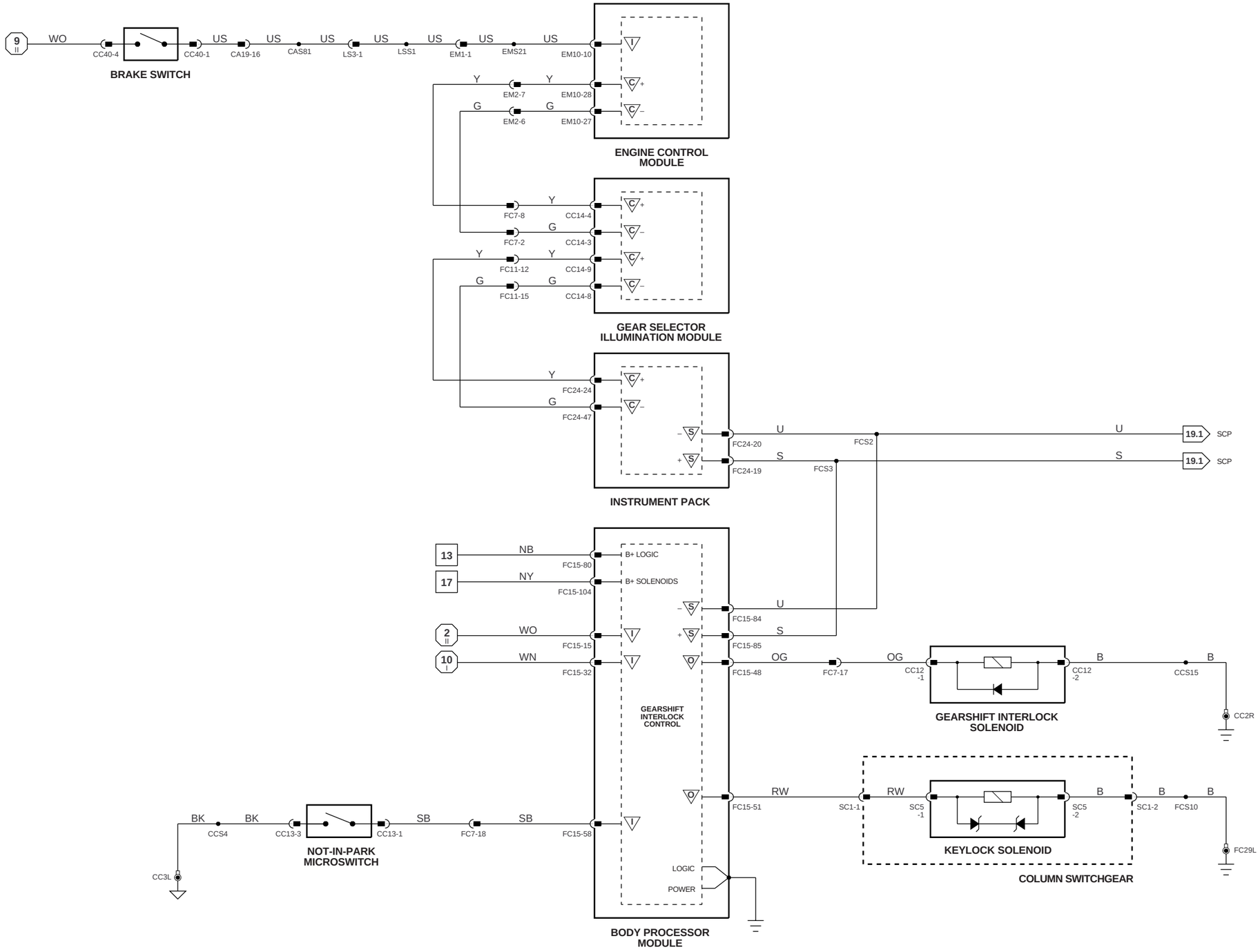
NOTE: Pressure regulators: MD – modulation pressure SD – shift pressure

*** NOTE:** Programming circuit – early production vehicles only.



1 – 6 / 1 II – 4 II Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	Input / Signal Ground (SG)	Output / CAN (Network)	Serial and Encoded Communications / SCP Network

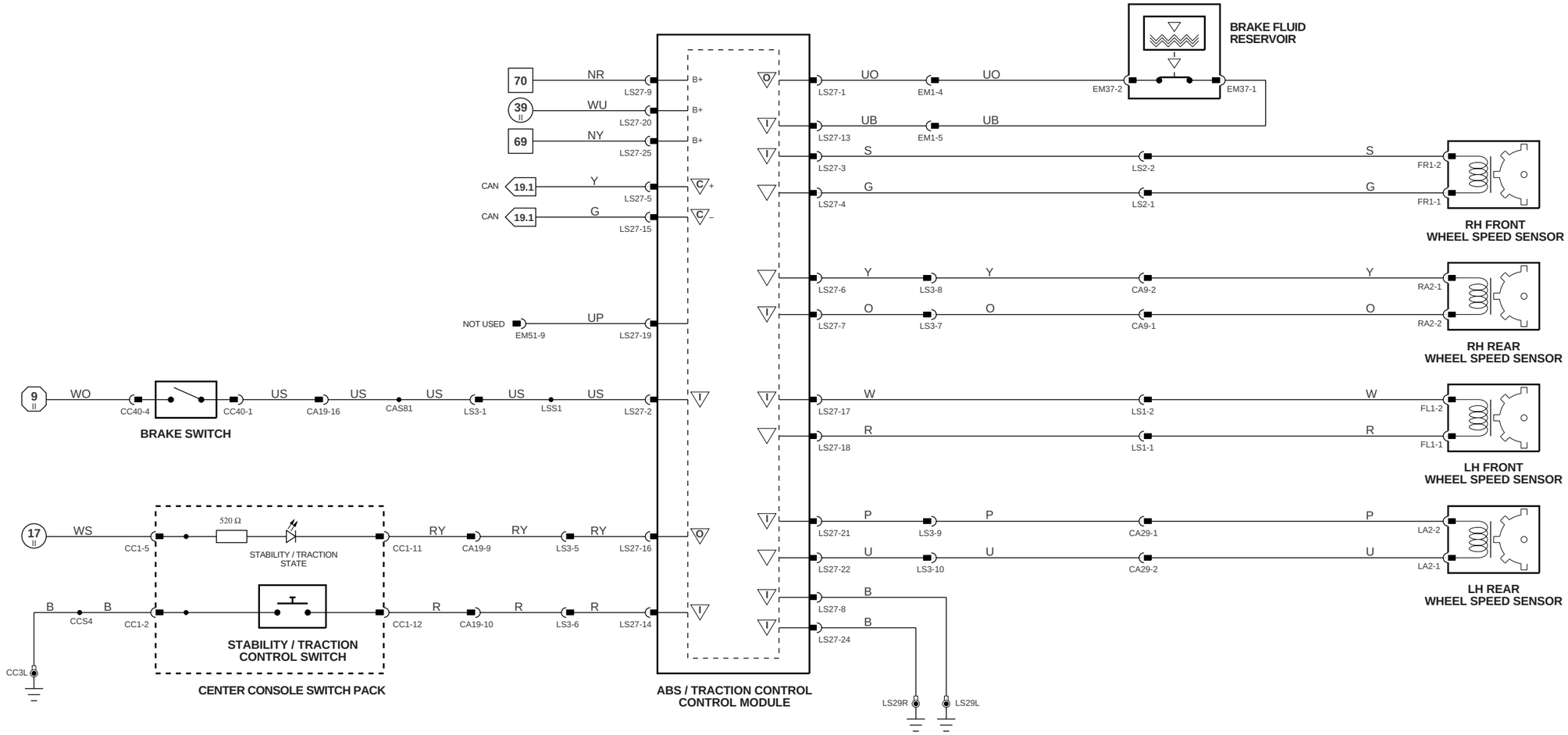
VARIANT: AJ26 SC Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6 (I) / 1 (II) – 4 (II) Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 (II) – 44 (II) Fig. 01.4
45 (E) – 63 (E) Fig. 01.5
1 – 17 (I) Fig. 02.1

Input
Output
Serial and Encoded Communications
Signal Ground (SG)
CAN (Network)
SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



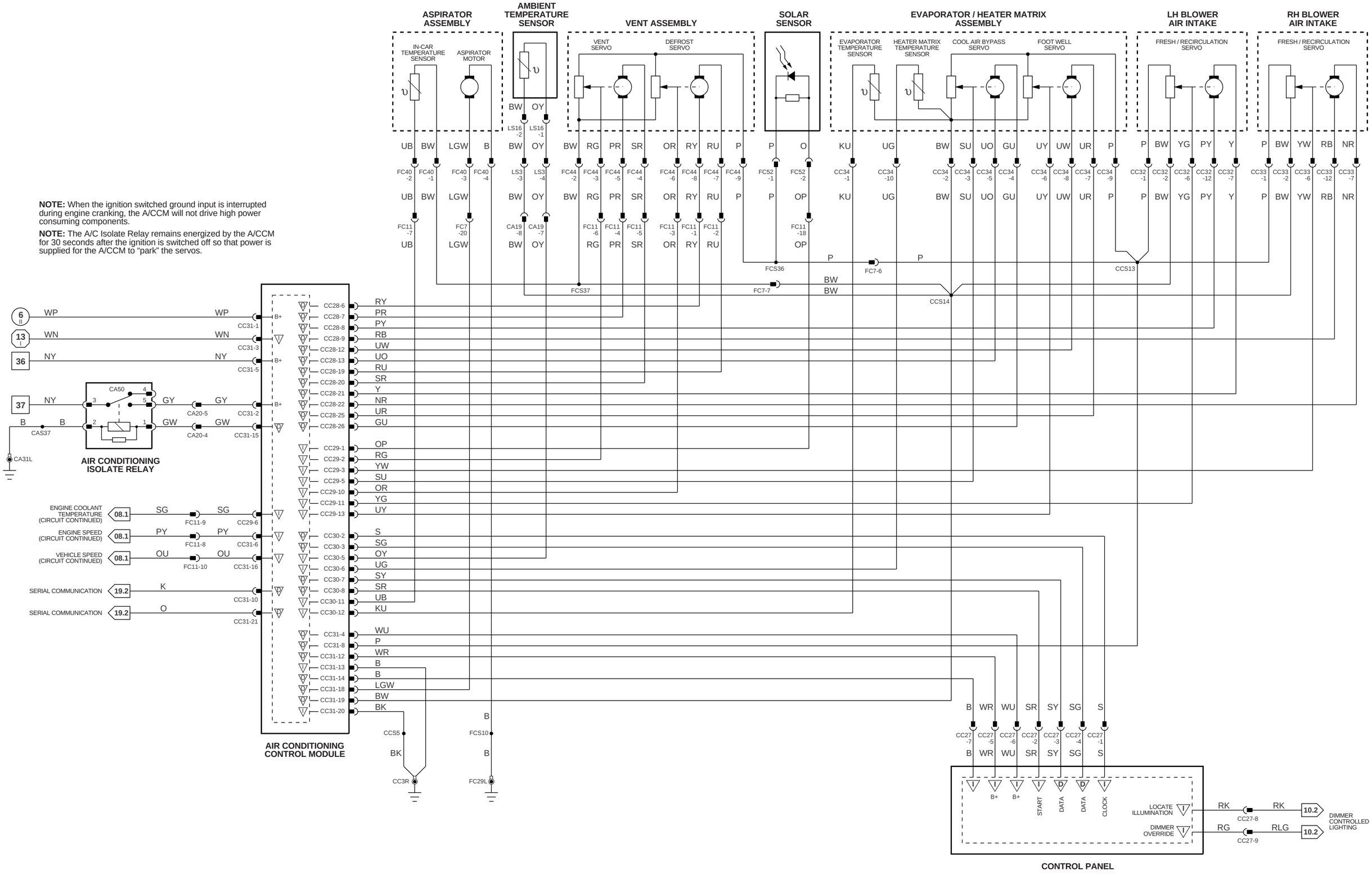
1 – 6, 1 II – 4 II Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

Input
Output
Serial and Encoded Communications
Signal Ground (SG)
CAN (Network)
SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

NOTE: When the ignition switched ground input is interrupted during engine cranking, the A/CCM will not drive high power consuming components.

NOTE: The A/C Isolate Relay remains energized by the A/CCM for 30 seconds after the ignition is switched off so that power is supplied for the A/CCM to "park" the servos.



1 – 6, 1 (II) – 4 (II) Fig. 01.1	7 – 47 Fig. 01.2	5 (II) – 44 (II) Fig. 01.4	1 – 17 (I) Fig. 02.1	Input	Output	Serial and Encoded Communications	**VARIANT:** All Vehicles
	48 – 82 Fig. 01.3	45 (E) – 63 (E) Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network	**VIN RANGE:** All
							DATE OF ISSUE: SEPTEMBER 1997

NOTE: Radiator cooling and air conditioning compressor circuits are duplicated here for clarity. Refer to Fig. 04.4 and Fig. 04.7.

67 NLG CF1-2 CF1-1 OY LS32-1 OY LSS14 OY LS31-2
LH RADIATOR FAN
B LS32-3 B CF2-1 CF2-2 OG LS32-4 OG LS31-5
RH RADIATOR FAN
LS10L
W EM1-11 W LS31-9 WP LS31-8 62 E
WU EM1-12 WU LS31-7 NG LS31-3 68
B LS31-1
LS10R
RADIATOR FAN CONTROL RELAY MODULE

RLG EM25 5 3 NLG 78
RY 2 1 WP 59 E
AIR CONDITIONING COMPRESSOR CLUTCH RELAY

RLG EMS26 PI1-13 RLG PI36-1 B
AIR CONDITIONING COMPRESSOR CLUTCH

EM10-2 UG
EM10-3 ULG
EM10-4 UN
EM12-5 WU
EM12-6 RW
EM12-10 RY
EM13-15 W
EM13-16 WU
ENGINE CONTROL MODULE

RLG EM53-10
PG EM53-12 PG EM51-6 LS26-5 P 2–30 BAR LS26-2 BK
WU EM51-5 LS26-1 20 BAR
RW EM51-10 LS26-3 12 BAR LS26-4 BK LSS17 BK LS20L
REFRIGERANT 4-WAY PRESSURE SWITCH

CC28-1 RLG
CC28-2 U
CC28-3 UY
CC28-4 PS
CC28-5 KW
CC28-16 LGN
CC28-17 RW
CC28-18 LGP
CC29-7 US
CC29-8 GO
CC29-15 UK
CC29-16 GP
CC30-1 ULG
CC31-7 UG
CC31-9 UN
CC31-17 PG
EM53-3 EM53-8 EM53-9 EM53-6 U
AIR CONDITIONING CONTROL MODULE

CA19-15 RW LS3-32
U EM40-2 B EM40-1 B EMS4 B EM36-2 HEATER VALVE HEATER PUMP EM36-1 YW EM1-8 YW RW LS7-2 LS5-5 #15 10A 5 3 5 2 1 44 II HEATER PUMP RELAY (#1) †
B EM8R
ENGINE COMPARTMENT FUSE BOX

81 NP PS SH3 3 5 2 1 GK WS 31 II
RH WINDSHIELD HEATER RELAY
SH4-1 B SH4-2 EM18R
RH WINDSHIELD HEATER

80 NG PS SH2 3 5 2 1 GS WS 32 II
LH WINDSHIELD HEATER RELAY
SH5-1 B SH5-2 EM18L
LH WINDSHIELD HEATER

SHS2 PS EM42-4 PS EM53-7
30 NB KW CA18 3 5 2 1 NR WP 7 II
CA19-14
DOOR MIRROR HEATER RELAY
DRIVER MIRROR
NR CAS34 NR CA10-4 NR DD8-9 B DD8-11 B DDS1 B CA10-3 B CAS40 (RHD) B CA30R (CA33R)
PASSENGER MIRROR
NR CA12-4 NR PD8-9 B PD8-11 B PDS1 B CA12-3 B CAS40 (LHD) B CA33R (CA30R)

1 3 5 #17 25A BT13-10 UY BT13-3 LGP BT10-8
29 II 1 2 HEATED BACKLIGHT RELAY(#2) †
TRUNK FUSE BOX
UY BT4-D UY CA21 B IC18 B IC6
HEATED BACKLIGHT
LGP CA20-1 LGP BT4-31

42 NU UY CA58 3 5 2 1 UW WP CA20-2 9 II CA20-6
RH BLOWER MOTOR RELAY
UW CC33-5 UW
US CC33-13 U
B CC33-8 B
GO CC33-10 G
RH BLOWER MOTOR

21 NW LGN CA58 8 10 7 6 UR WP CA19-12 8 II CA20-7
LH BLOWER MOTOR RELAY
UR CC32-5 UW
UK CC32-13 U
B CC32-8 B
GP CC32-10 G
CC2L
LH BLOWER MOTOR

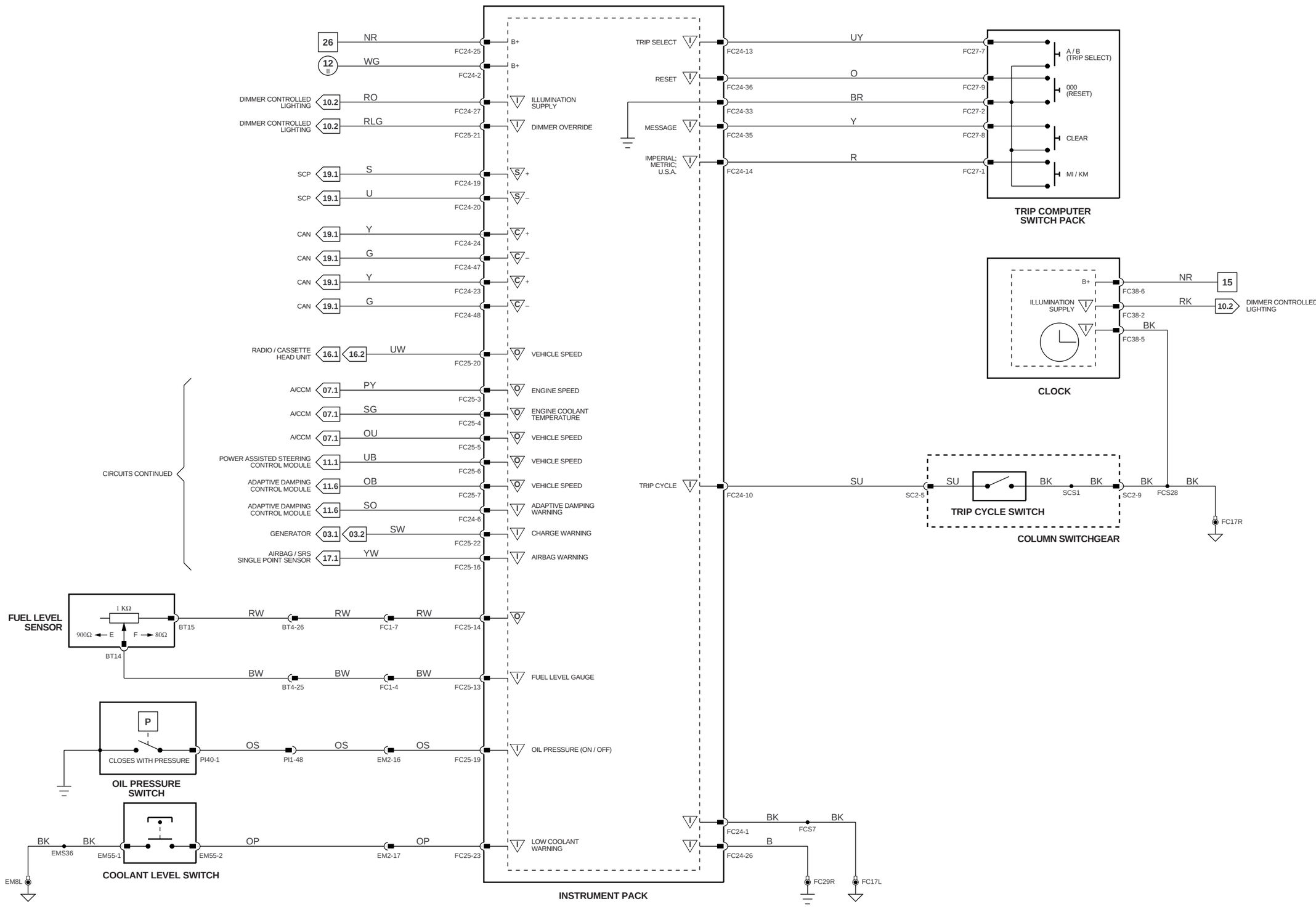
† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

NOTE: A/CCM power supplies and grounds are shown on Fig. 07.1; ECM power supplies and grounds are shown on Fig. 04.1 – Fig. 04.6.

1 – 6, 1 II – 4 II Fig. 01.1 | 7 – 47 Fig. 01.2 | 48 – 82 Fig. 01.3 | 5 II – 44 II Fig. 01.4 | 45 E – 63 E Fig. 01.5 | 1 – 17 I Fig. 02.1

I Input | O Output | D Serial and Encoded Communications
Signal Ground (SG) | C CAN (Network) | S SCP Network

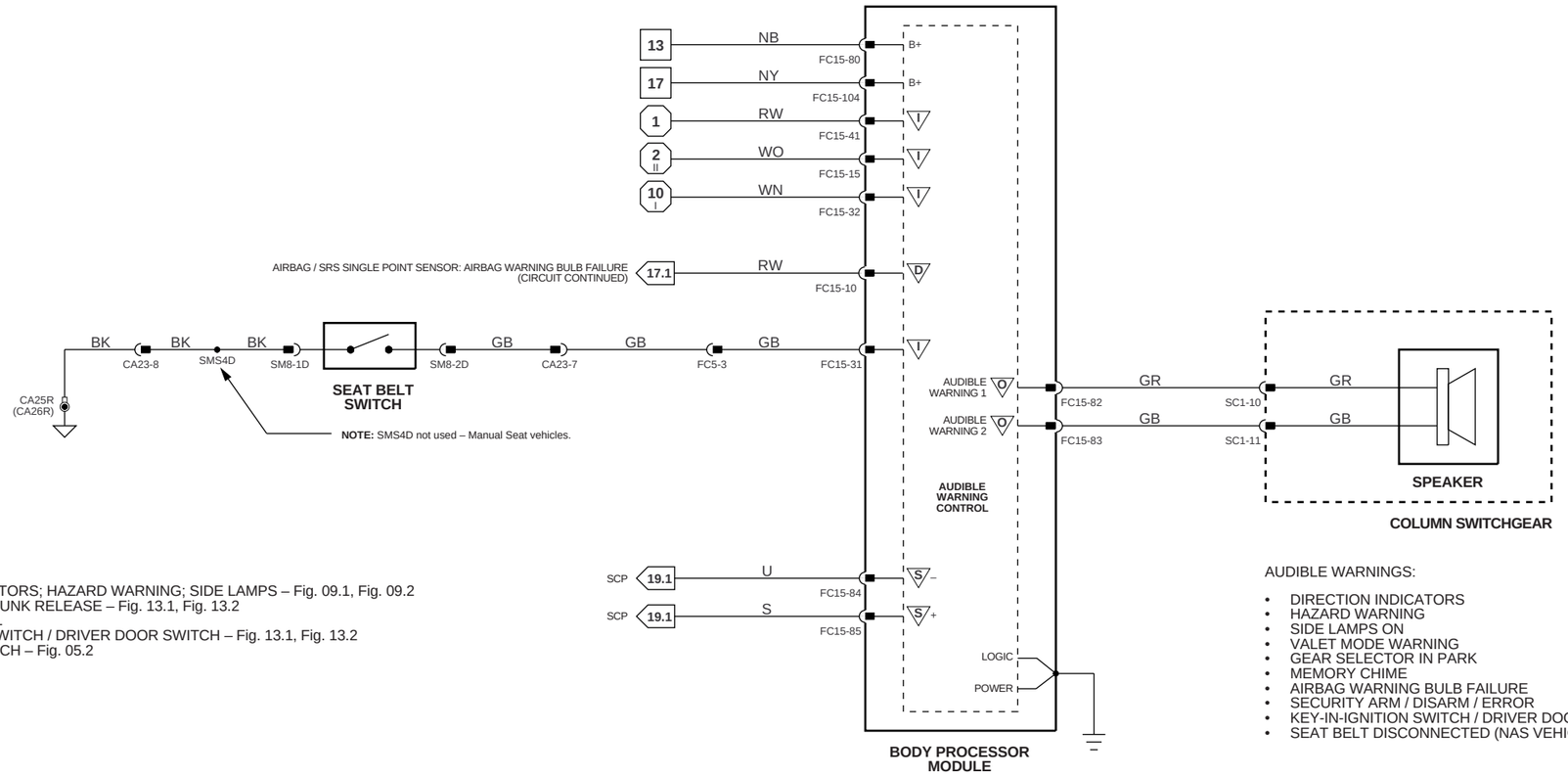
VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6; 1 II – 4 II	Fig. 01.1	7 – 47	Fig. 01.2	5 II – 44 II	Fig. 01.4	1 – 17 I	Fig. 02.1
		48 – 82	Fig. 01.3	45 E – 63 E	Fig. 01.5		

Input	Output	Serial and Encoded Communications
Signal Ground (SG)	CAN (Network)	SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



SCP SOURCES:

- DIRECTION INDICATORS; HAZARD WARNING; SIDE LAMPS – Fig. 09.1, Fig. 09.2
- VALET SWITCH; TRUNK RELEASE – Fig. 13.1, Fig. 13.2
- MEMORY – Fig. 12.1
- KEY-IN IGNITION SWITCH / DRIVER DOOR SWITCH – Fig. 13.1, Fig. 13.2
- NOT-IN-PARK SWITCH – Fig. 05.2

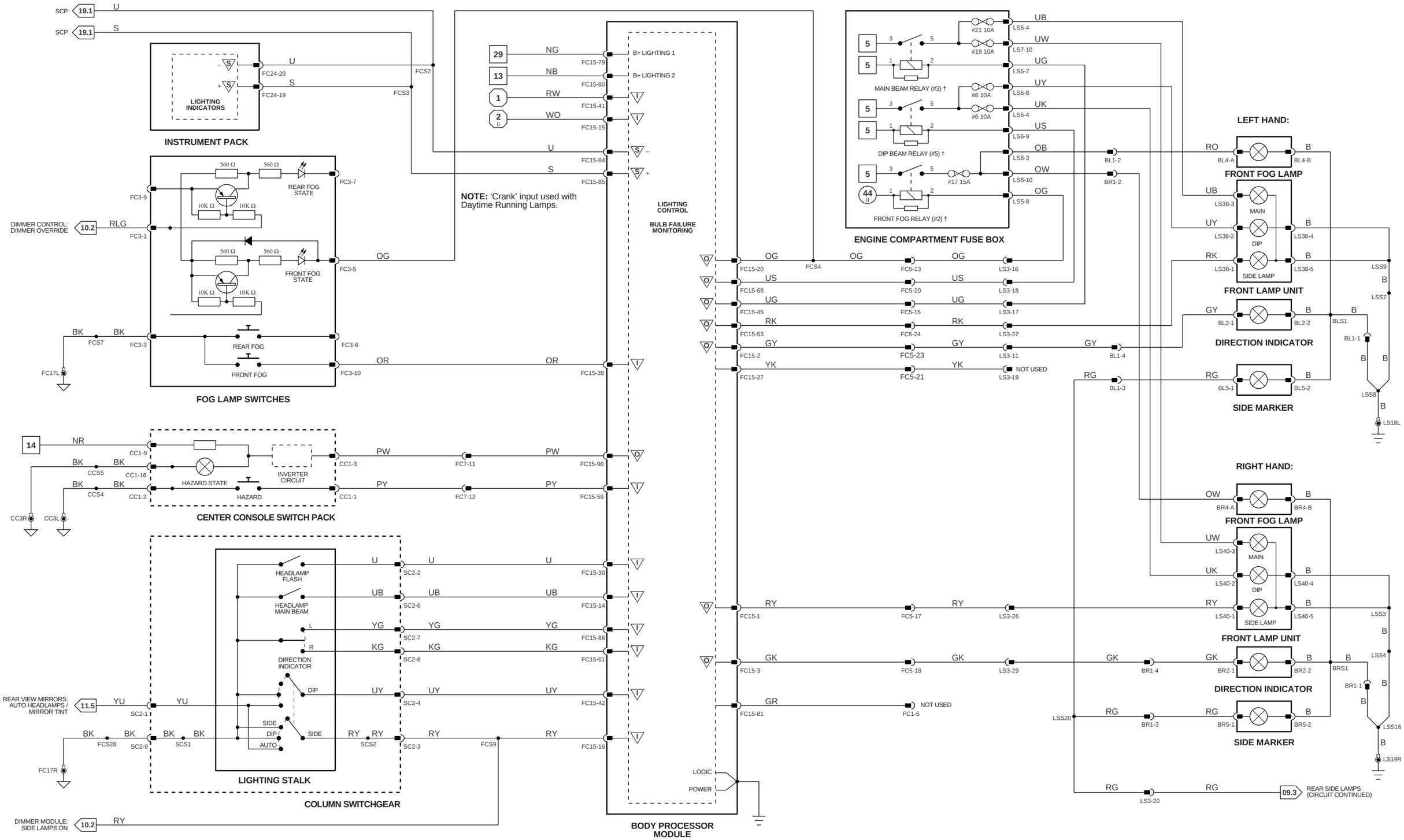
AUDIBLE WARNINGS:

- DIRECTION INDICATORS
- HAZARD WARNING
- SIDE LAMPS ON
- VALET MODE WARNING
- GEAR SELECTOR IN PARK
- MEMORY CHIME
- AIRBAG WARNING BULB FAILURE
- SECURITY ARM / DISARM / ERROR
- KEY-IN-IGNITION SWITCH / DRIVER DOOR AJAR (NAS VEHICLES ONLY)
- SEAT BELT DISCONNECTED (NAS VEHICLES ONLY)

1 – 6, 1 II – 4 II Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

Input
Signal Ground (SG)
Output
CAN (Network)
Serial and Encoded Communications
SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

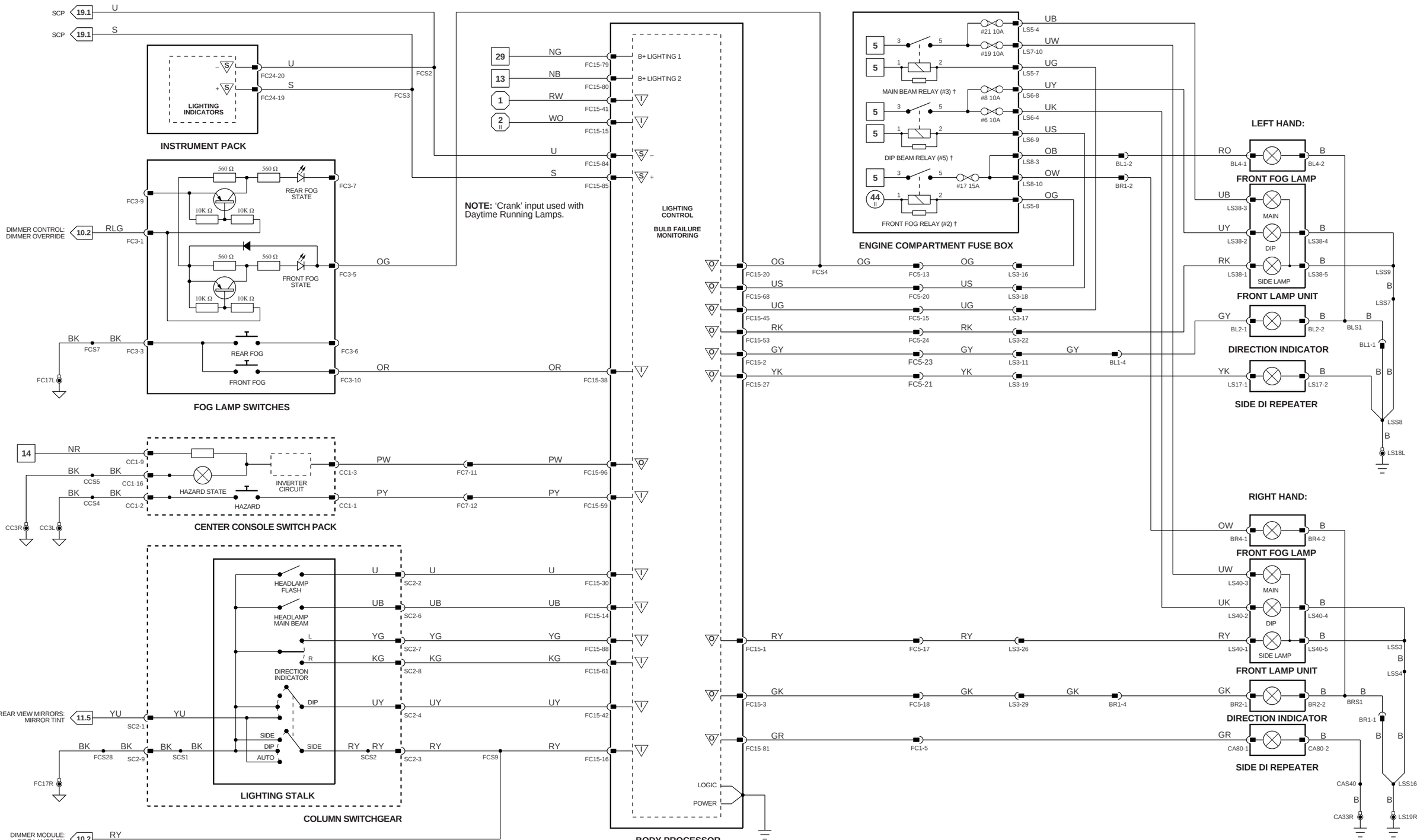


NOTES:
DI bulb failure – BPM internal function.
Daytime running lamps – BPM programmed function.

† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 II – 4 II: Fig. 01.1	7 – 47: Fig. 01.2	48 – 82: Fig. 01.3	5 II – 44 II: Fig. 01.4	45 E – 63 E: Fig. 01.5	1 – 17 I: Fig. 02.1	Input; Signal Ground (SG)	Output; CAN (Network)	Serial and Encoded Communications; SCP Network

VARIANT: NAS Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

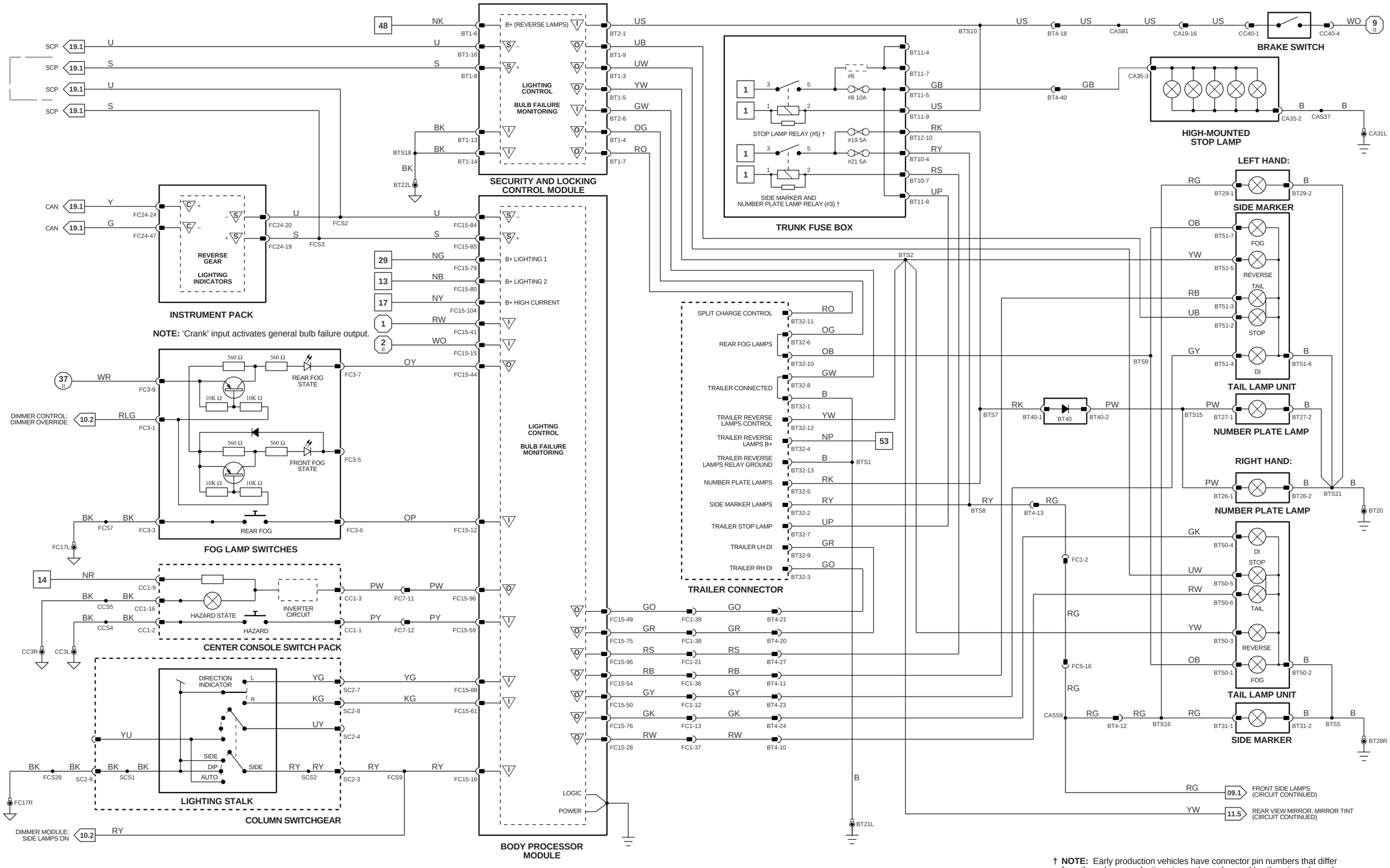


NOTES:
DI bulb failure – BPM internal function.
Daytime running lamps – BPM programmed function.

† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 – 4 (II) Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 (II) – 44 (II) Fig. 01.4	45 (E) – 63 (E) Fig. 01.5	1 – 17 (I) Fig. 02.1	I Input; Signal Ground (SG)	O Output; C CAN (Network)	D Serial and Encoded Communications; S SCP Network

VARIANT: ROW Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

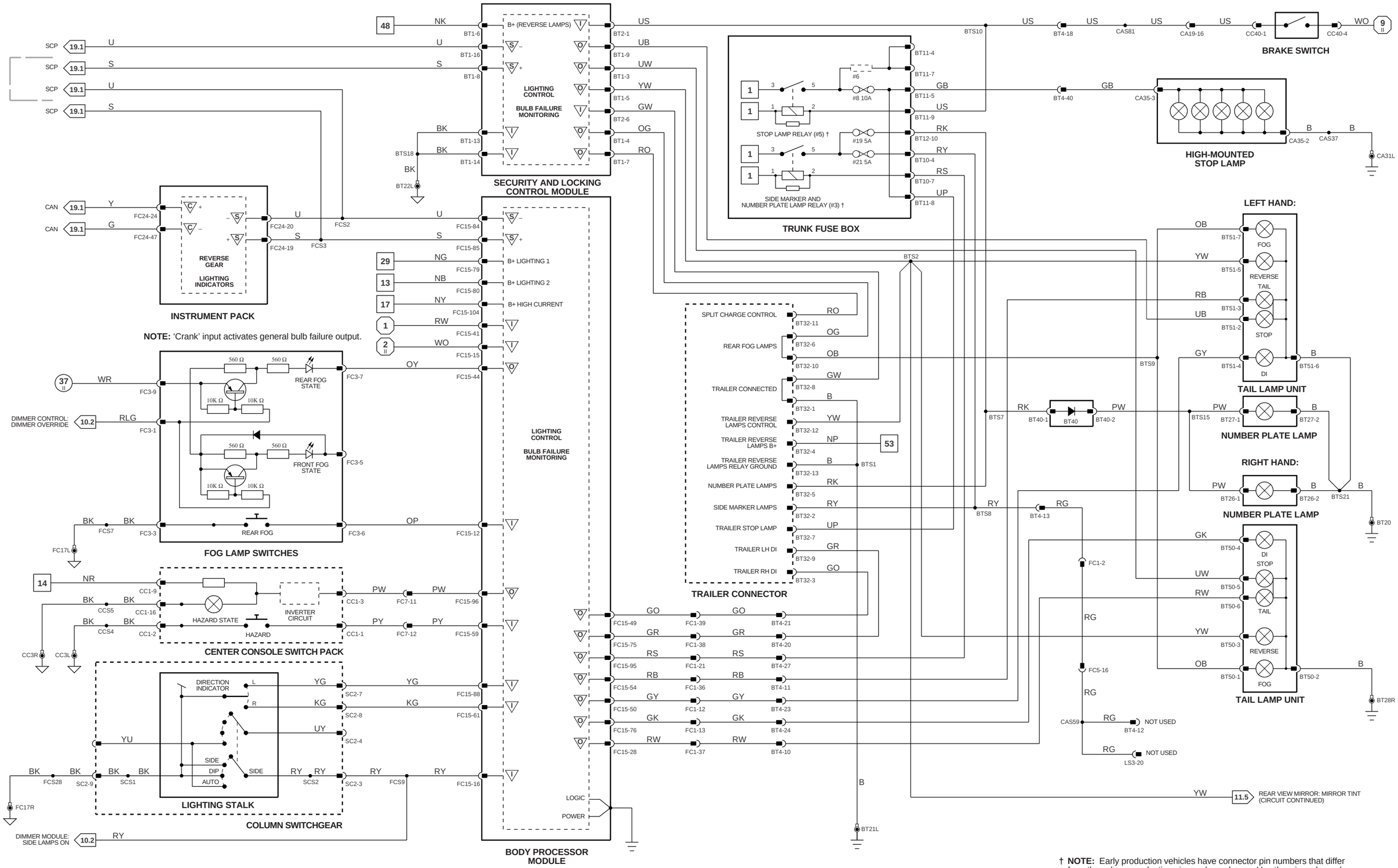


† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 – 4 Fig. 01.1 | 7 – 47 Fig. 01.2 | 48 – 82 Fig. 01.3 | 5 – 44 Fig. 01.4 | 45 – 63 Fig. 01.5 | 1 – 17 Fig. 02.1

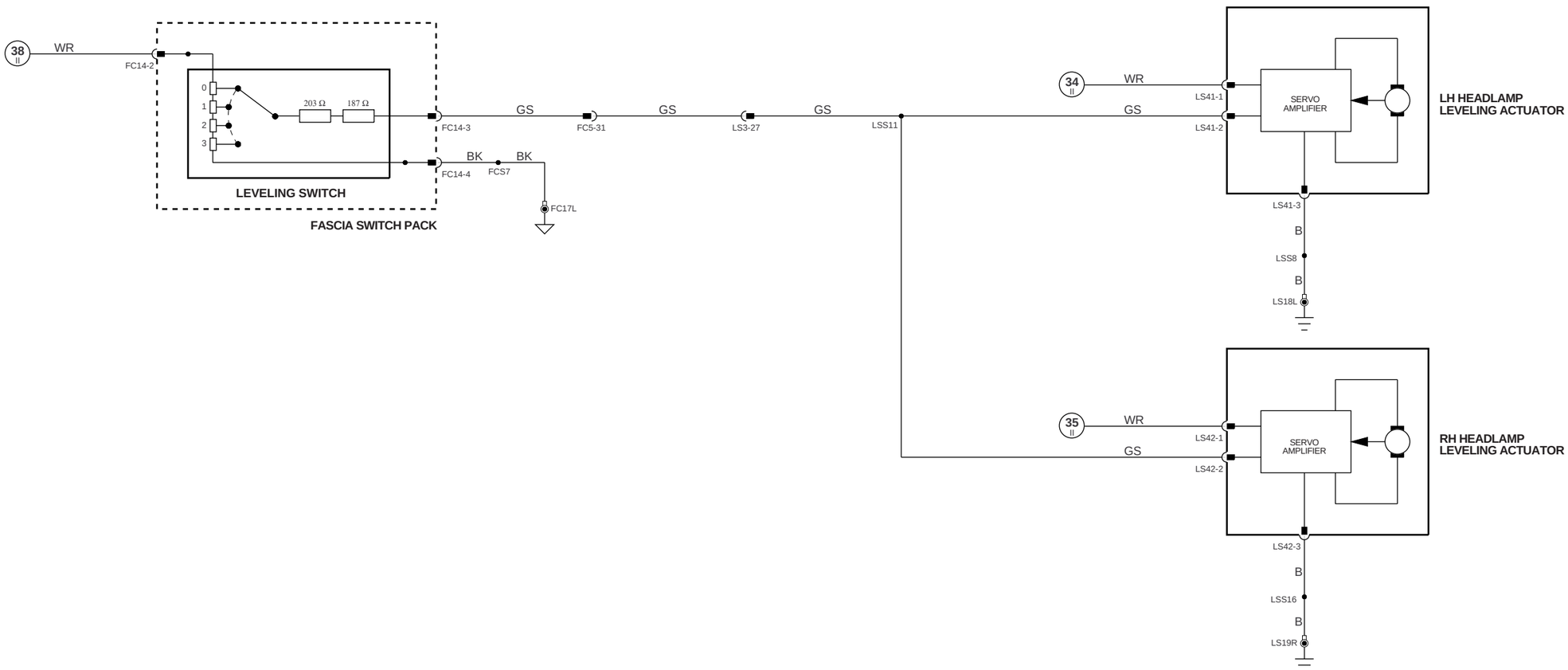
Input | Output | Serial and Encoded Communications | Signal Ground (SG) | CAN (Network) | SCP Network

VARIANT: NAS Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6; 1 II – 4 II } Fig. 01.1	7 – 47 Fig. 01.2	5 II – 44 II Fig. 01.4	1 – 17 I Fig. 02.1	Input	Output	Serial and Encoded Communications	**VARIANT:** ROW Vehicles
	48 – 82 Fig. 01.3	45 E – 63 E Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network	**VIN RANGE:** All
							DATE OF ISSUE: SEPTEMBER 1997



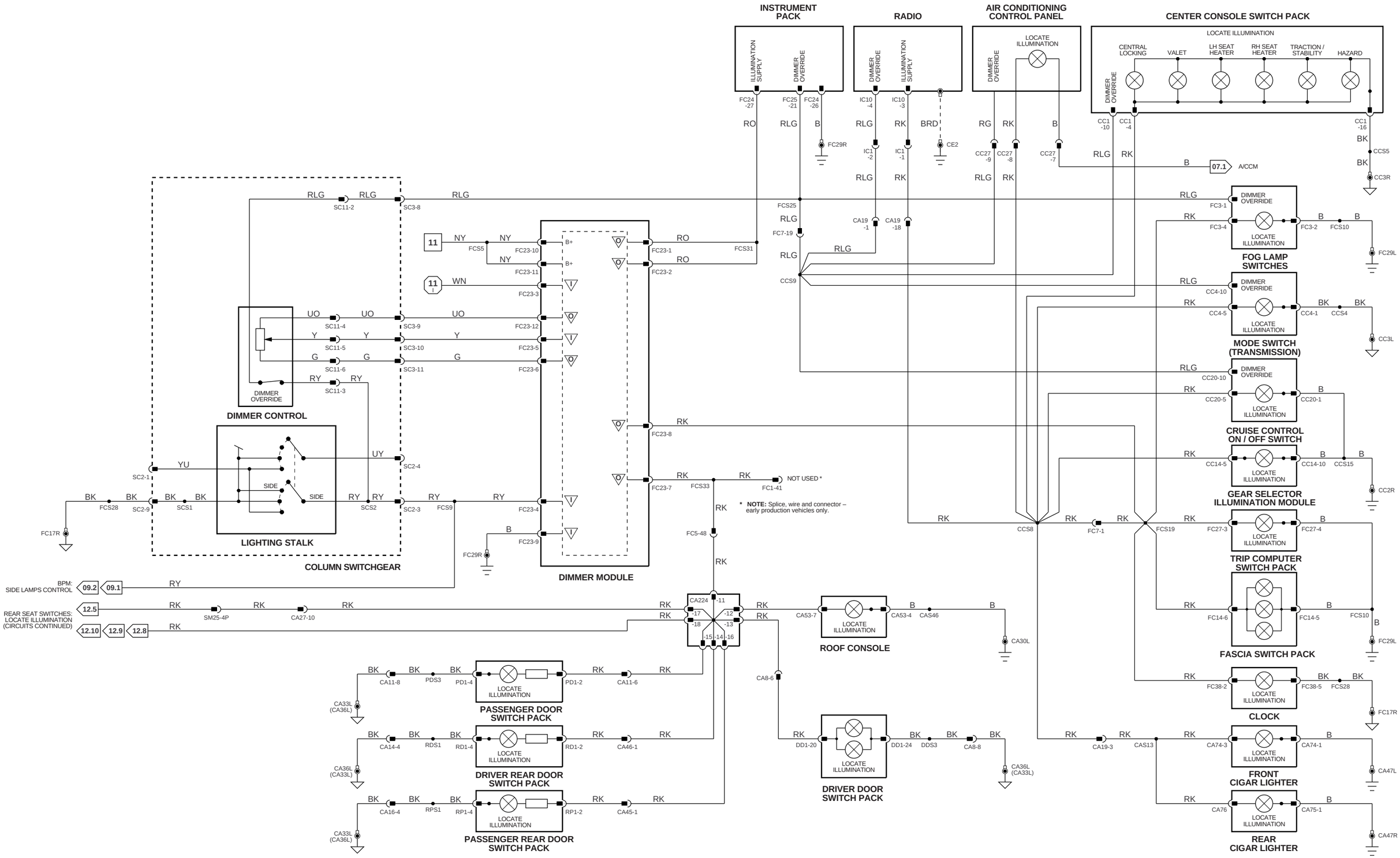
1 – 6, 1 II – 4 II Fig. 01.1
7 – 47, 48 – 82 Fig. 01.2 Fig. 01.3
5 II – 44 II, 45 E – 63 E Fig. 01.4 Fig. 01.5
1 – 17 I Fig. 02.1

I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

VARIANT: Headlamp Leveling Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

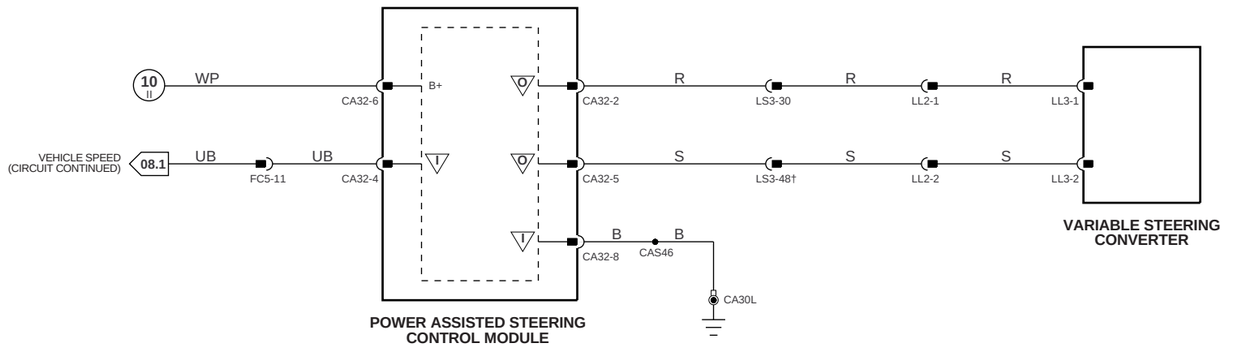
NOTE: 'Crank' input is used to switch off interior lamps during engine cranking.

1 – 6; 1 II – 4 II Fig. 01.1	7 – 47 Fig. 01.2	5 II – 44 II Fig. 01.4	1 – 17 I Fig. 02.1	Input	Output	Serial and Encoded Communications	VARIANT: All Vehicles
	48 – 82 Fig. 01.3	45 E – 63 E Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network	VIN RANGE: All DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 II – 4 II } Fig. 01.1	7 – 47 Fig. 01.2	5 II – 44 II Fig. 01.4	1 – 17 I Fig. 02.1	Input	Output	Serial and Encoded Communications
	48 – 82 Fig. 01.3	45 E – 63 E Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

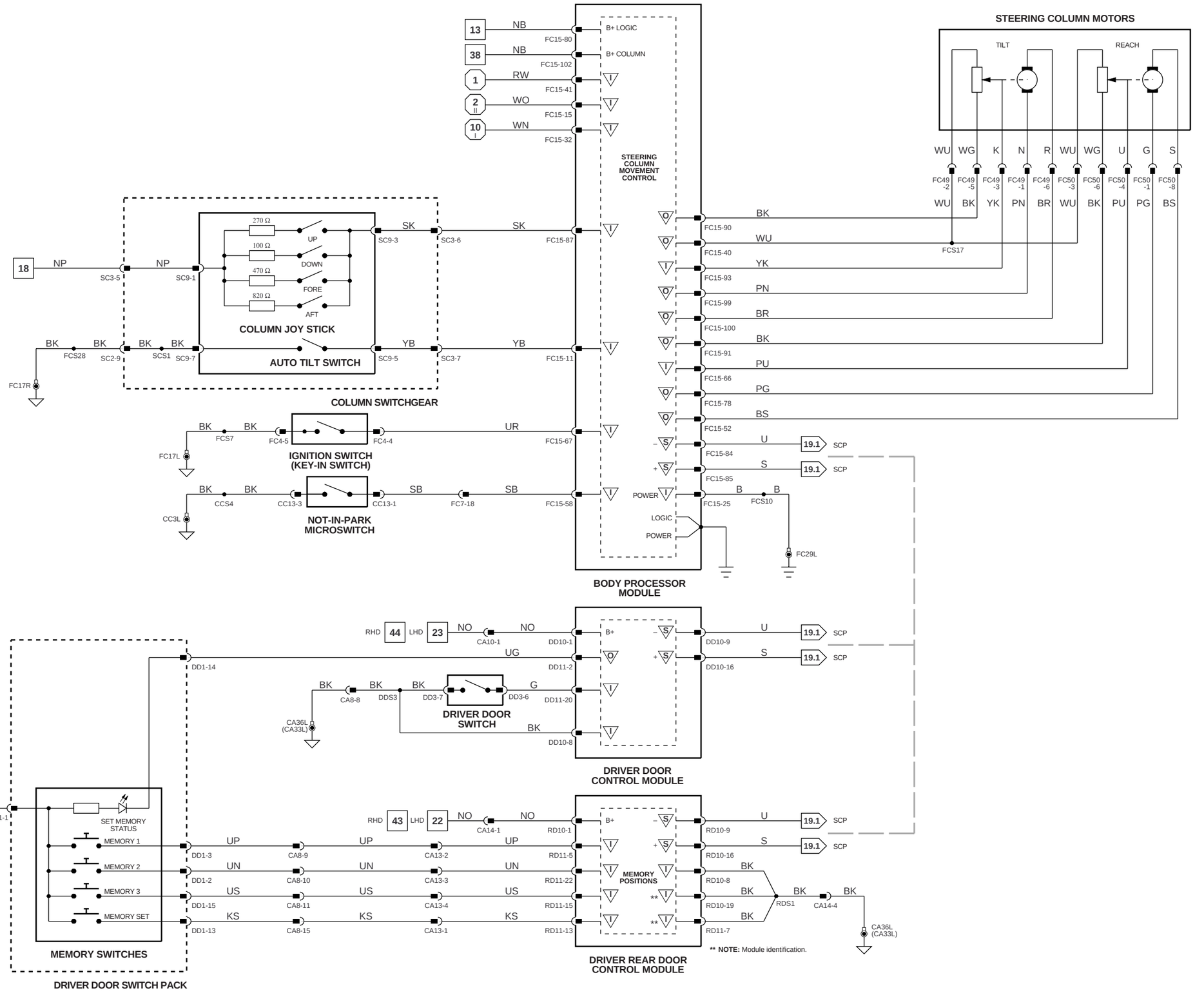


† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 II – 4 II Fig. 01.1
7 – 47, 48 – 82 Fig. 01.2
5 II – 44 II, 45 E – 63 E Fig. 01.4
1 – 17 I Fig. 02.1
Fig. 01.3
Fig. 01.5

I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

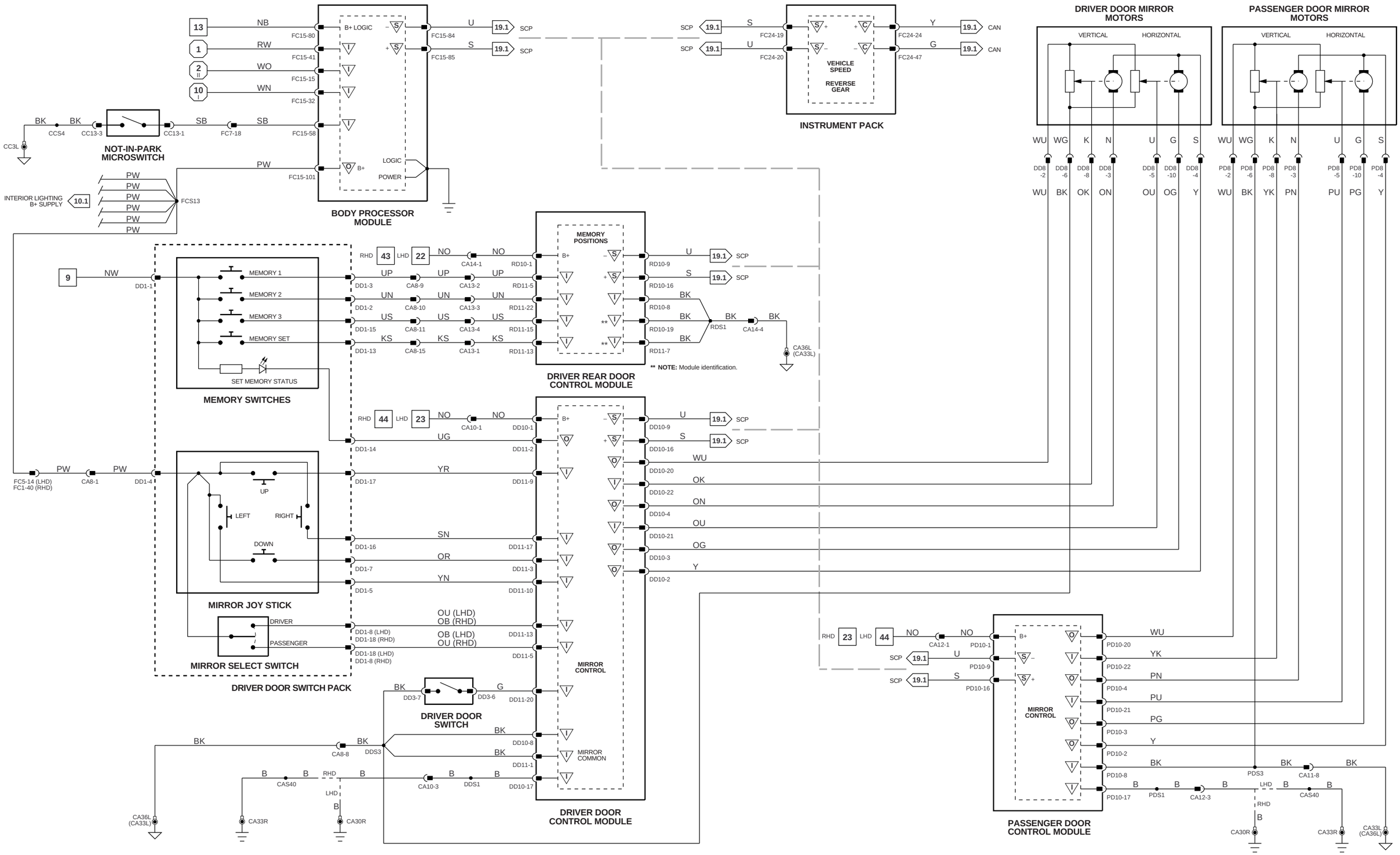


NOTE: Memory switches – driver memory seat vehicles only.

1 – 6, 1 II – 4 II } Fig. 01.1
7 – 47, 48 – 82 Fig. 01.2
5 II – 44 II, 45 E – 63 E Fig. 01.4
1 – 17 I Fig. 02.1
Fig. 01.3
Fig. 01.5

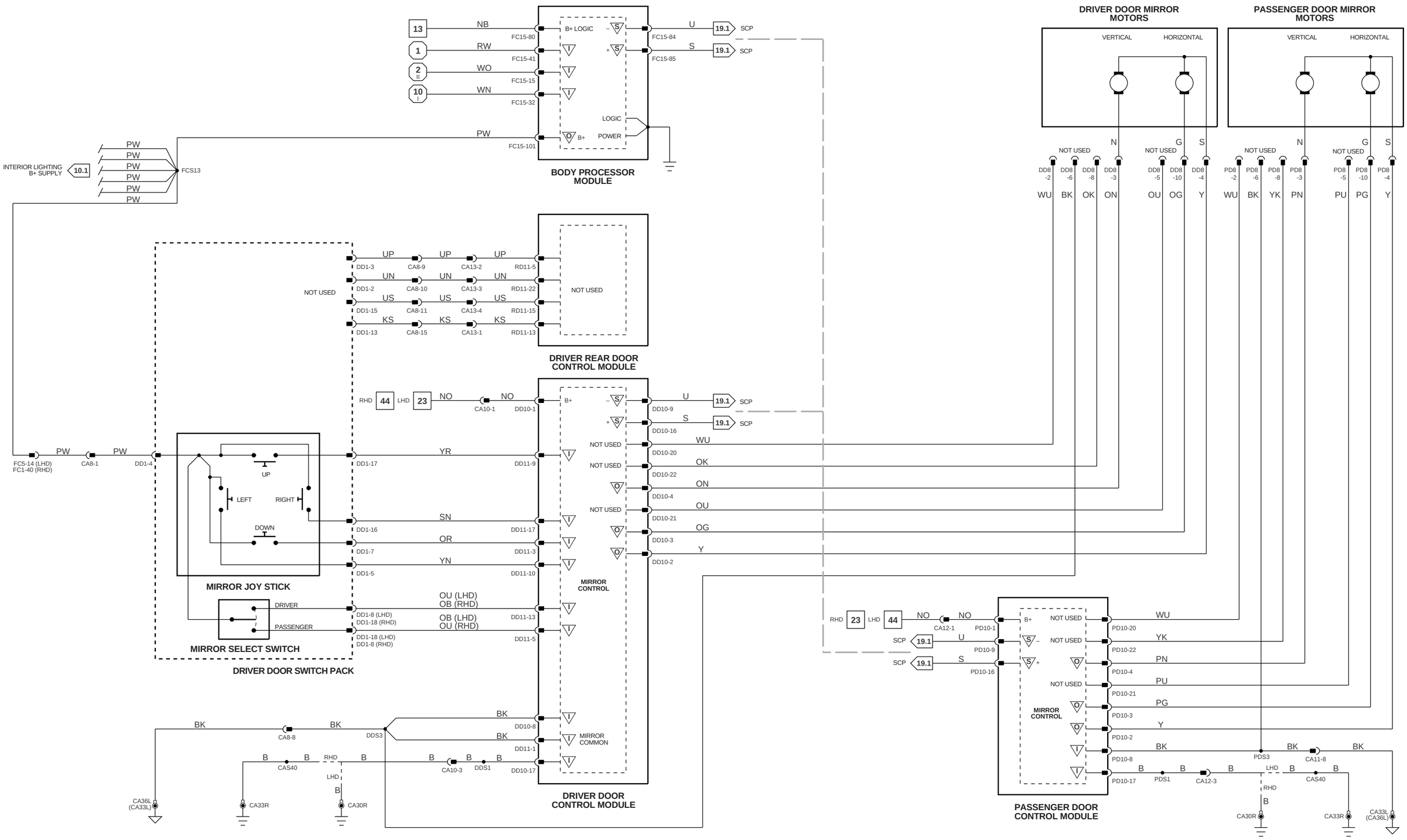
I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

VARIANT: Powered Column Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6 / 1 – 4 (II) Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 (II) – 44 (II) Fig. 01.4	45 (E) – 63 (E) Fig. 01.5	1 – 17 (I) Fig. 02.1	Input	Output	Serial and Encoded Communications
						Signal Ground (SG)	CAN (Network)	SCP Network

VARIANT: Memory Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6; 1 II – 4 II } Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	Input; Signal Ground (SG)	Output; CAN (Network)	Serial and Encoded Communications; SCP Network

VARIANT: Non-Memory Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

NOTE: Position Select Switch to neutral to operate Fold-Back Mirrors.

RHD 44 LHD 23 NO CA10-1 DD10-1 B+

DD10-9 U 19.1 SCP

DD10-16 S 19.1 SCP

PW DD1-4

UP (FOLD-OUT)

LEFT RIGHT

DOWN (FOLD-BACK)

MIRROR JOY STICK

DRIVER NEUTRAL PASSENGER

MIRROR SELECT SWITCH

DRIVER DOOR SWITCH PACK

DD1-17 YR DD11-9

DD1-16 SN DD11-17

DD1-7 OR DD11-3

DD1-5 YN DD11-10

DD1-8 (LHD) DD1-18 (RHD) OU (LHD) OB (RHD) DD11-13

DD1-18 (LHD) DD1-8 (RHD) OB (LHD) OU (RHD) DD11-5

MIRROR CONTROL

BK CA8-8 BK DDS3 BK DD10-8

BK DD11-1

MIRROR COMMON

B CAS40 B RHD B CA10-3 B DDS1 B DD10-17

LHD B

CA36L (CA33L) CA33R CA30R

DRIVER DOOR CONTROL MODULE

13 NB FC15-80

2 WO FC15-15

10 WN FC15-32

B+ LOGIC

FC15-84 U 19.1 SCP

FC15-85 S 19.1 SCP

FC15-72 YU FC5-42 YU

FC15-77 RG FC5-43 RG

CA8-1 PW FC5-14 (LHD) FC1-40 (RHD) PW

INTERIOR LIGHTING B+ SUPPLY 10.1

PW PW PW PW PW PW

FCS13 PW FC15-101 B+

MIRROR FOLD-BACK CONTROL

YU SC2-1 YU DIP UY SC2-4 UY FC15-42

BK FCS28 BK SC2-9 BK SCS1 BK SIDE DIP AUTO SIDE RY SCS2 RY SC2-3 RY FCS9 RY FC15-16

FC17R

LIGHTING STALK

COLUMN SWITCHGEAR

LOGIC POWER

BODY PROCESSOR MODULE

NOTE: Refer to Fig. 09.1 and Fig. 09.2 for Lighting Circuit.

SCP 19.1 S FC24-19 U FC24-20

S+ C+ S- C-

Y FC24-24 19.1 CAN

G FC24-47 19.1 CAN

VEHICLE SPEED

REVERSE GEAR

INSTRUMENT PACK

CA60 R 3 YU 2 4 5 1 B NB 31 NB 32

FOLD-BACK RELAY

CA60 SR 8 RG 7 9 10 6 B CAS50 NB 33 NB 34

FOLD-OUT RELAY

B CA38R

CA224 -2 -1 -3

CAS35

R CA8-13 R DD8-1

SR CA8-14 SR DD8-7

FOLD-BACK MOTOR

MIRROR TINT

YLG CA8-12 YLG DD8-12

DRIVER DOOR MIRROR

R CA11-13 R PD8-1

SR CA11-14 SR PD8-7

FOLD-BACK MOTOR

CAS41 YLG CA11-12 YLG PD8-12

MIRROR TINT

PASSENGER DOOR MIRROR

YLG CA55-4

13 WS CA55-1

YU FC1-11 YU CA55-5

BT4-8 YW CA55-2

BK CAS61 BK CA55-3

CA30R

MIRROR TINT

AUTO HEADLAMPS

INTERIOR REAR VIEW MIRROR

YW 09.3 09.4 REVERSE LAMPS (CIRCUIT CONTINUED)

1 – 6 / 1 II – 4 II Fig. 01.1

7 – 47 / 48 – 82 Fig. 01.2 Fig. 01.3

5 II – 44 II / 45 E – 63 E Fig. 01.4 Fig. 01.5

1 – 17 I Fig. 02.1

Input

Signal Ground (SG)

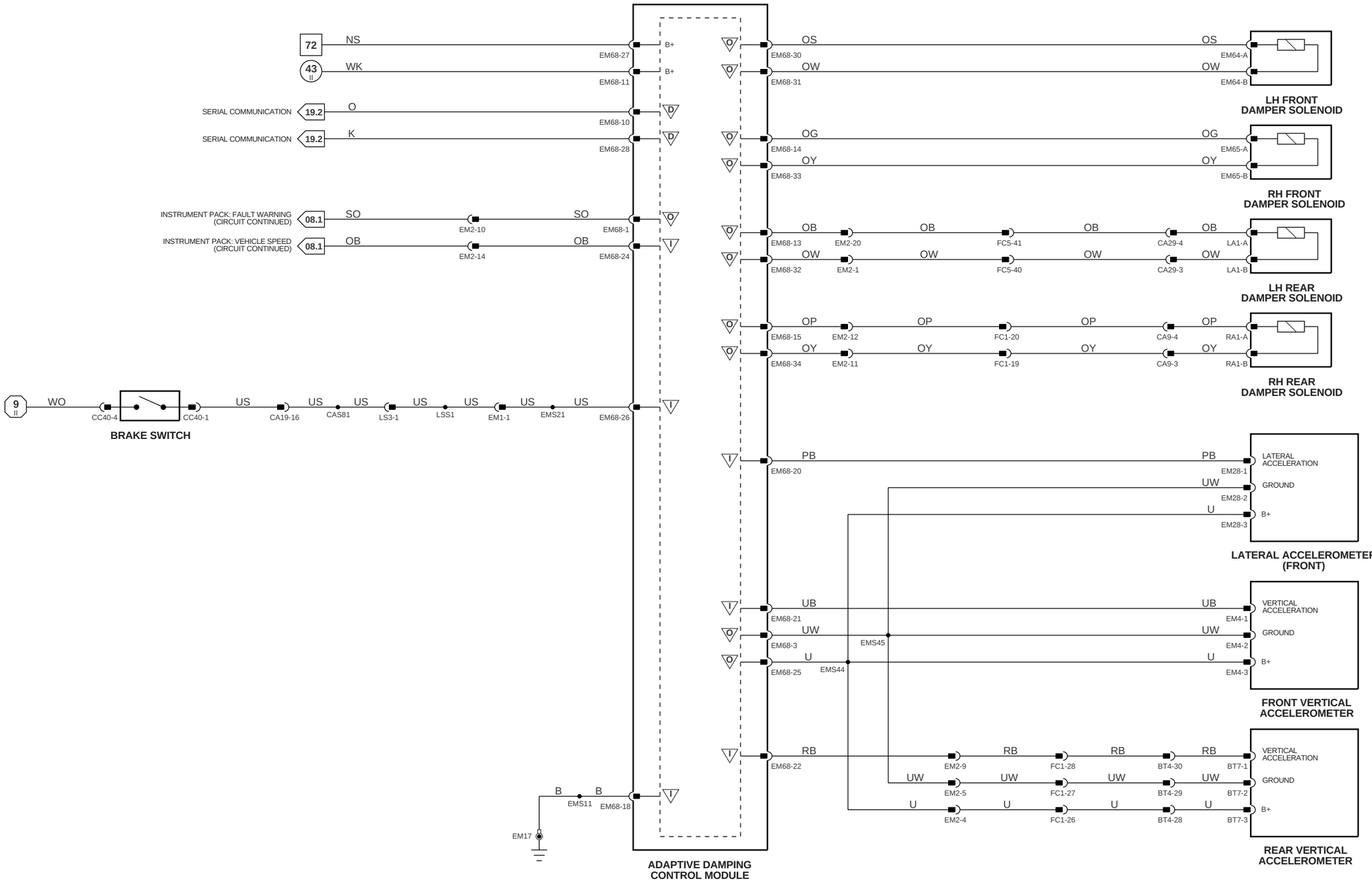
Output

CAN (Network)

Serial and Encoded Communications

SCP Network

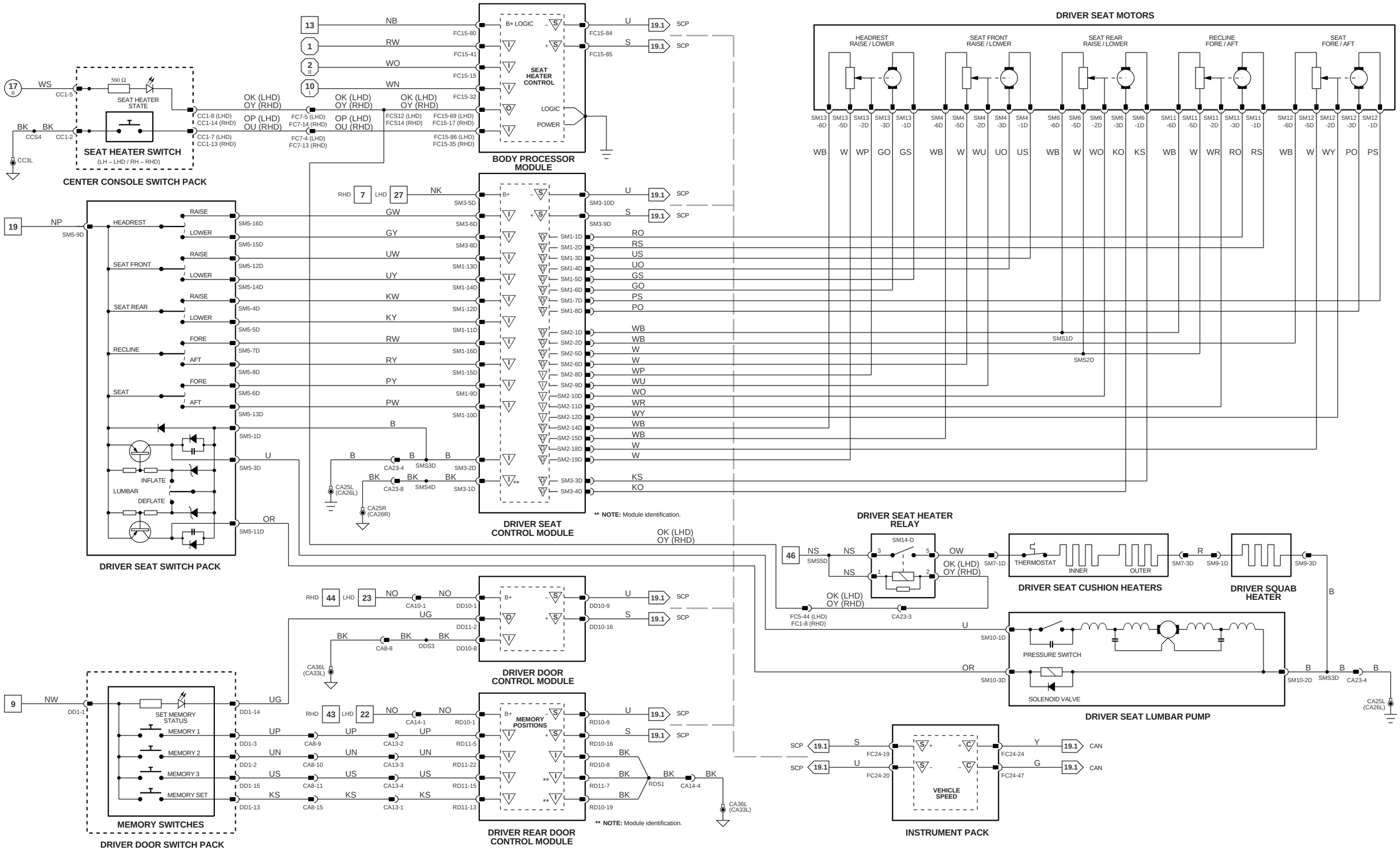
VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 II – 4 II } Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

Input
Signal Ground (SG)
Output
CAN (Network)
Serial and Encoded Communications
SCP Network

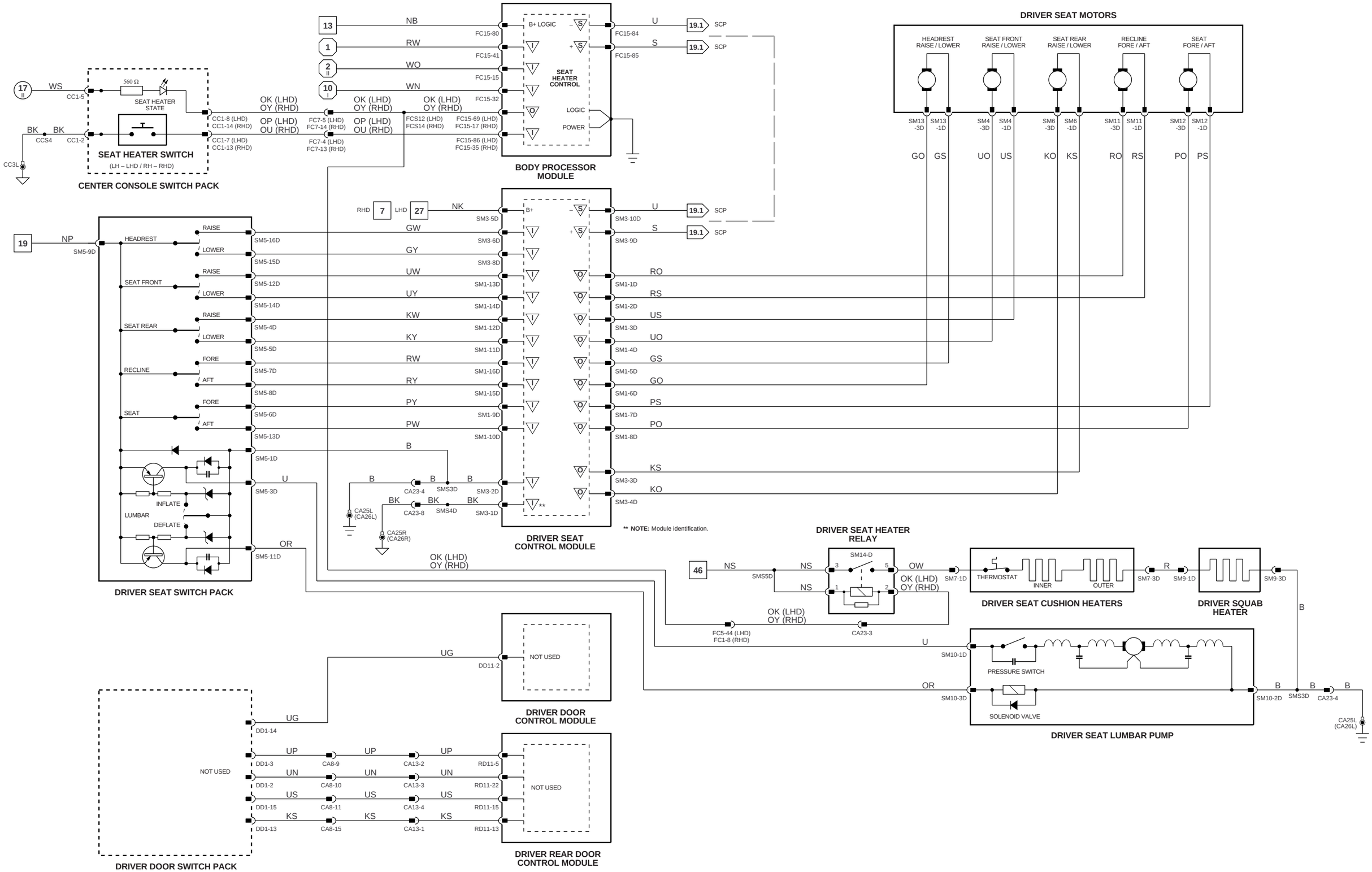
VARIANT: Adaptive Damping Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 – 4 (II)	Fig. 01.1	7 – 47	Fig. 01.2	5 (II) – 44 (II)	Fig. 01.4	1 – 17 (I)	Fig. 02.1
		48 – 82	Fig. 01.3	45 (E) – 63 (E)	Fig. 01.5		

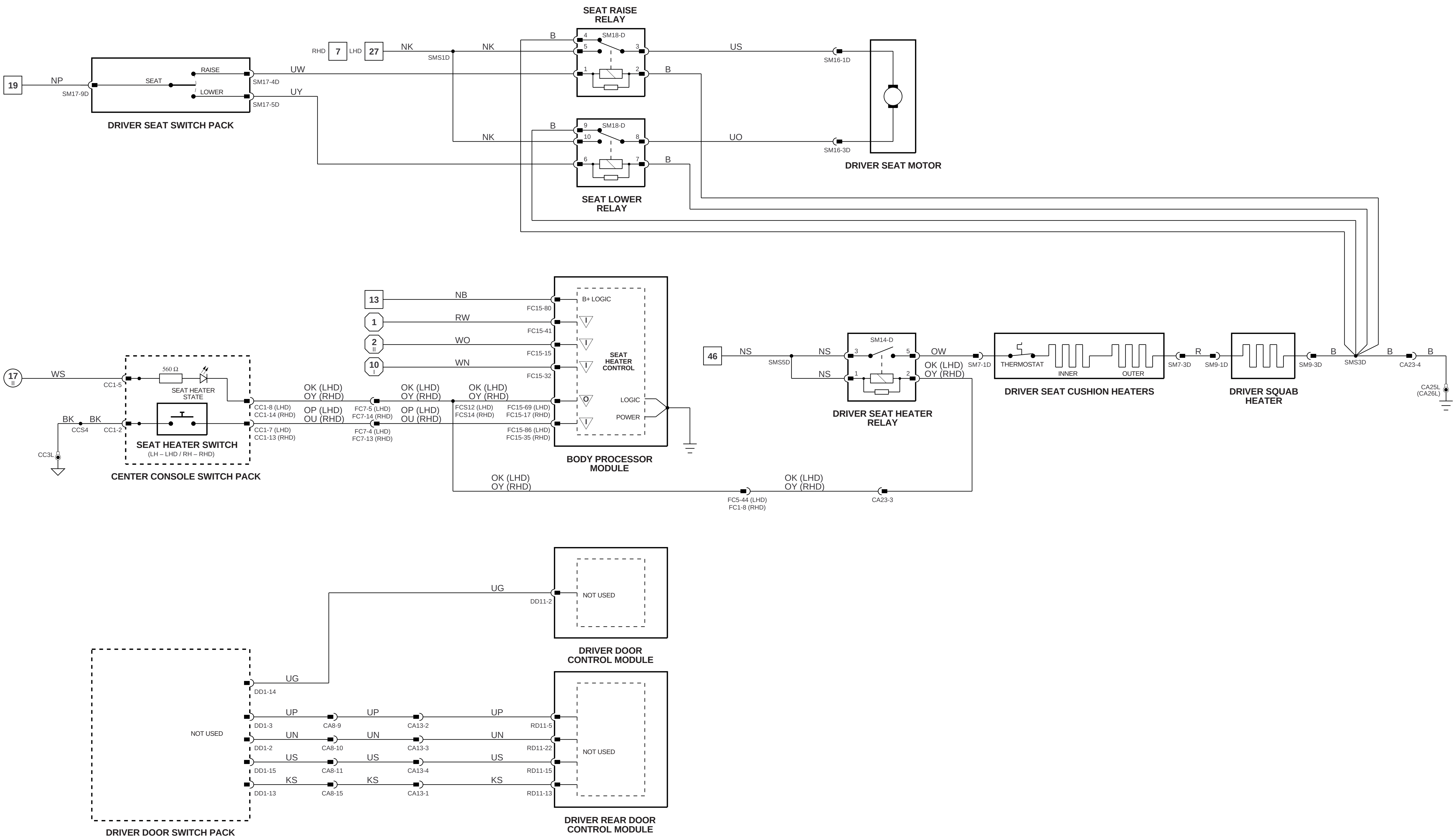
Input · Output · Serial and Encoded Communications
Signal Ground (SG) · CAN (Network) · SCP Network

VARIANT: Driver Memory Seat Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6; 1 (II) – 4 (II) Fig. 01.1	7 – 47 Fig. 01.2	5 (II) – 44 (II) Fig. 01.4	1 – 17 (I) Fig. 02.1	Input	Output	Serial and Encoded Communications
	48 – 82 Fig. 01.3	45 (E) – 63 (E) Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network

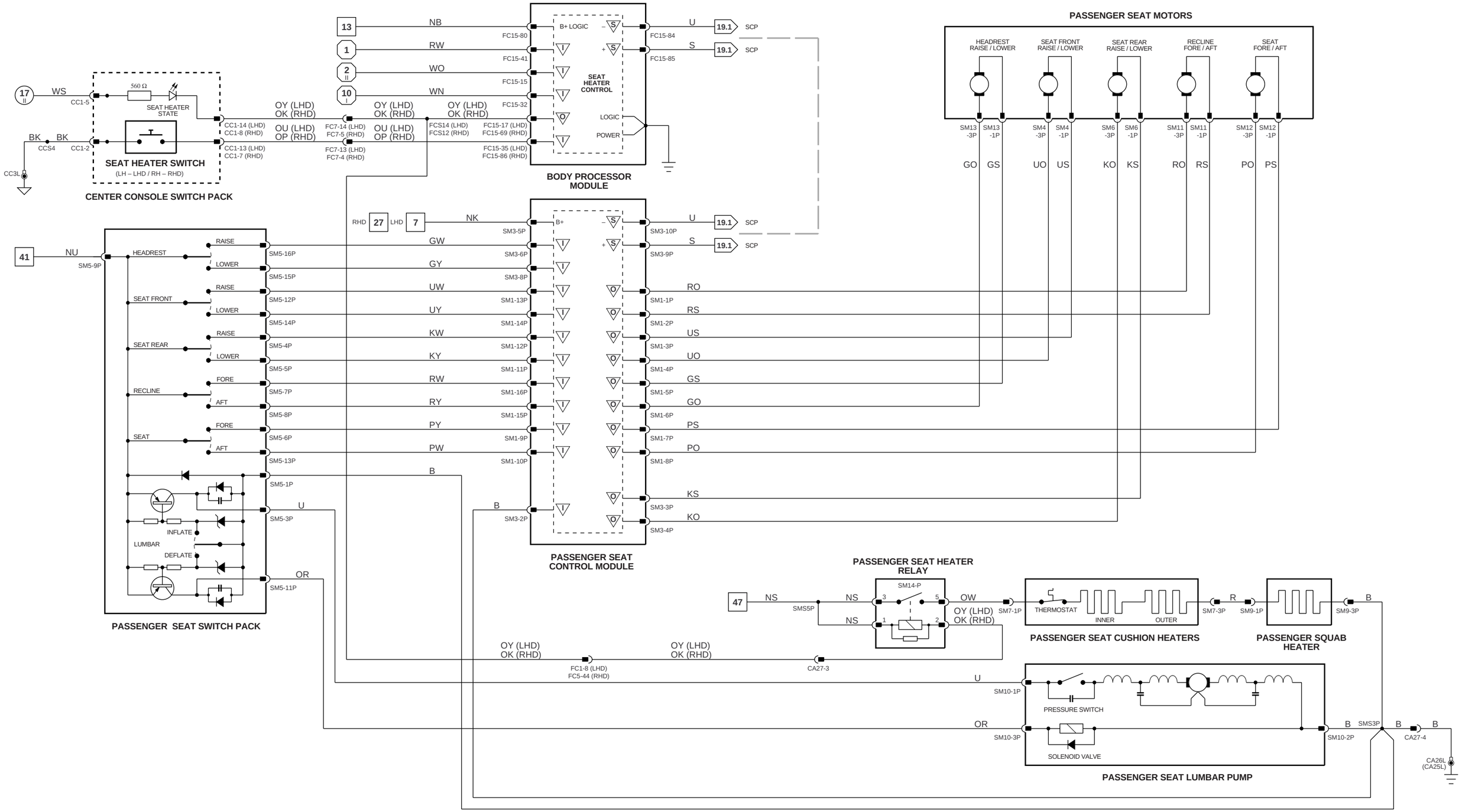
VARIANT: Driver 5-Way Powered Seat Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 – 4 Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 – 44 Fig. 01.4
45 – 63 Fig. 01.5
1 – 17 Fig. 02.1

I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

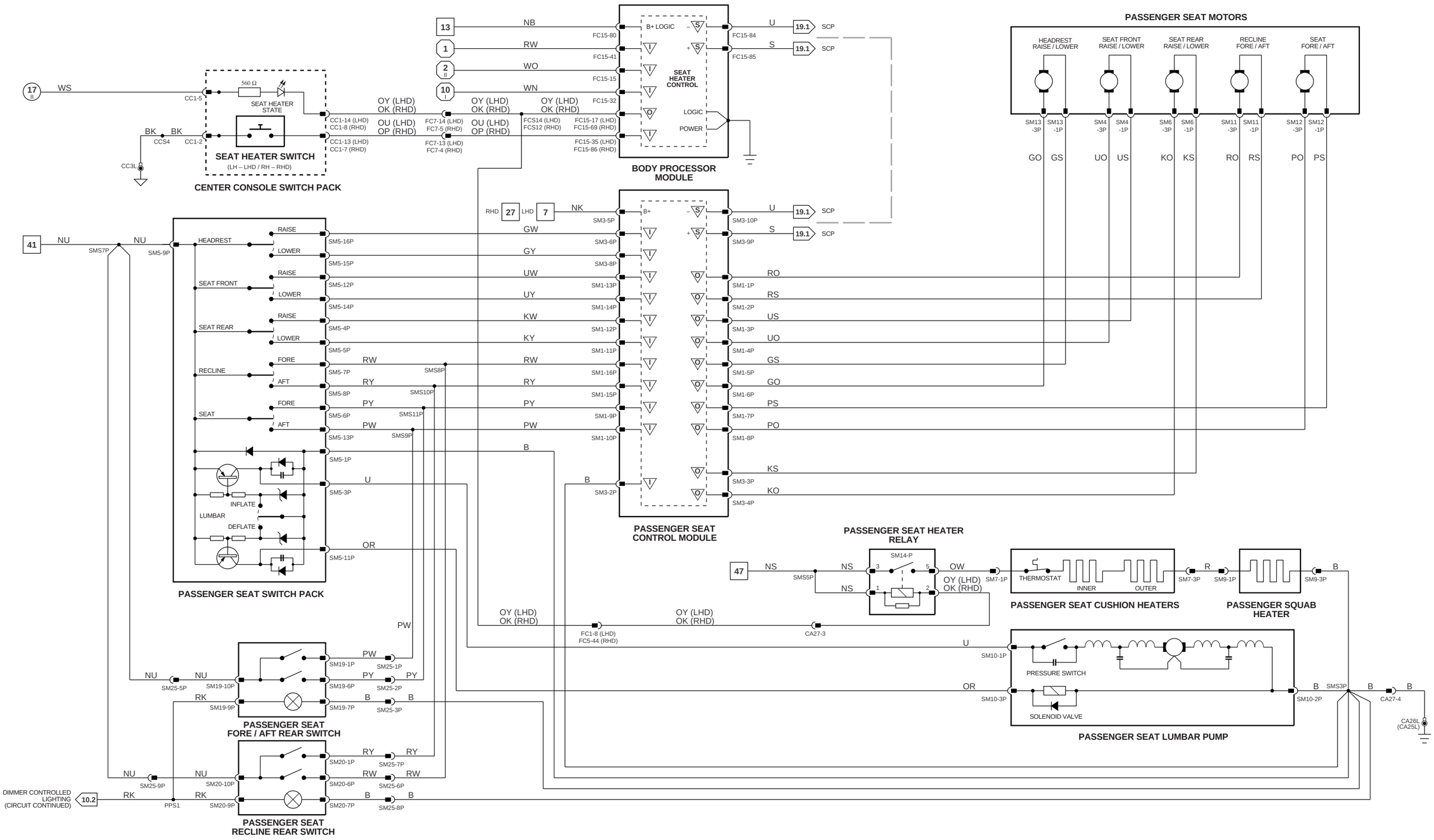
VARIANT: Driver Raise / Lower Seat Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 – 4 Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 – 44 Fig. 01.4
45 – 63 Fig. 01.5
1 – 17 Fig. 02.1

Input
Output
Serial and Encoded Communications
Signal Ground (SG)
CAN (Network)
SCP Network

VARIANT: Passenger 5-Way Powered Seat Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

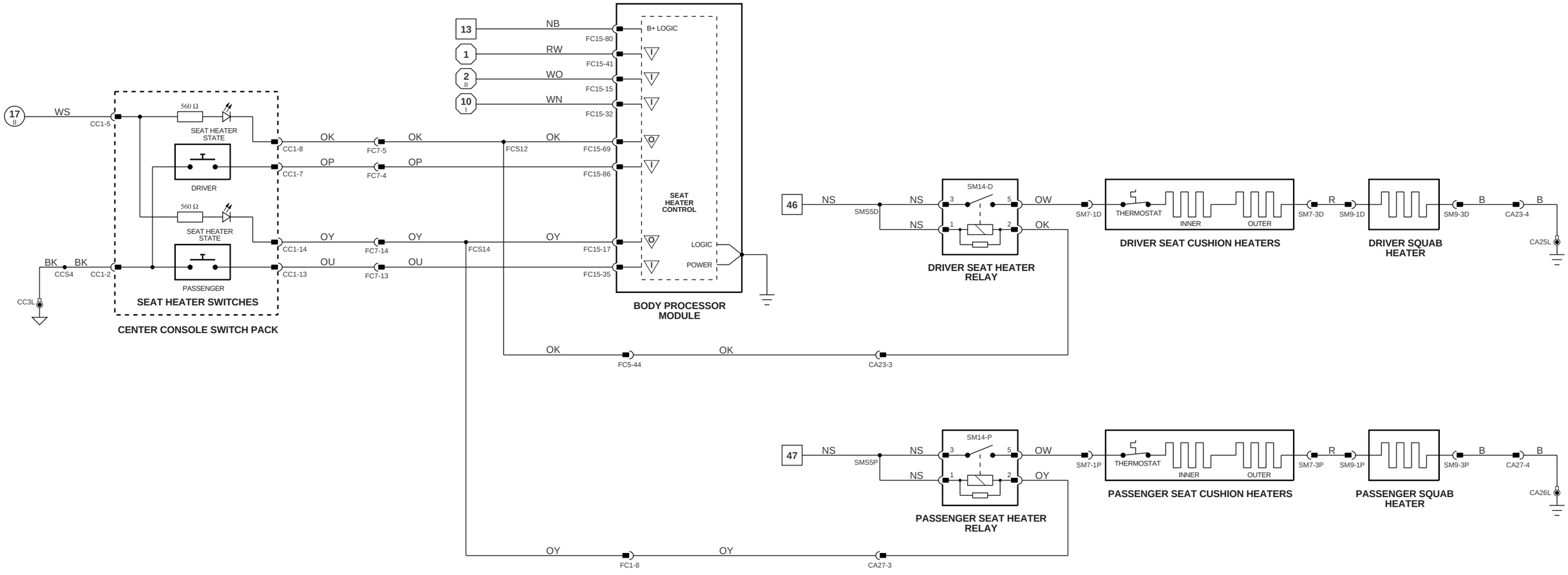


1 – 6; 1 II – 4 II	Fig. 01.1	7 – 47	Fig. 01.2	5 II – 44 II	Fig. 01.4	1 – 17 I	Fig. 02.1
		48 – 82	Fig. 01.3	45 E – 63 E	Fig. 01.5		

I Input — O Output — D Serial and Encoded Communications

Signal Ground (SG) — C CAN (Network) — S SCP Network

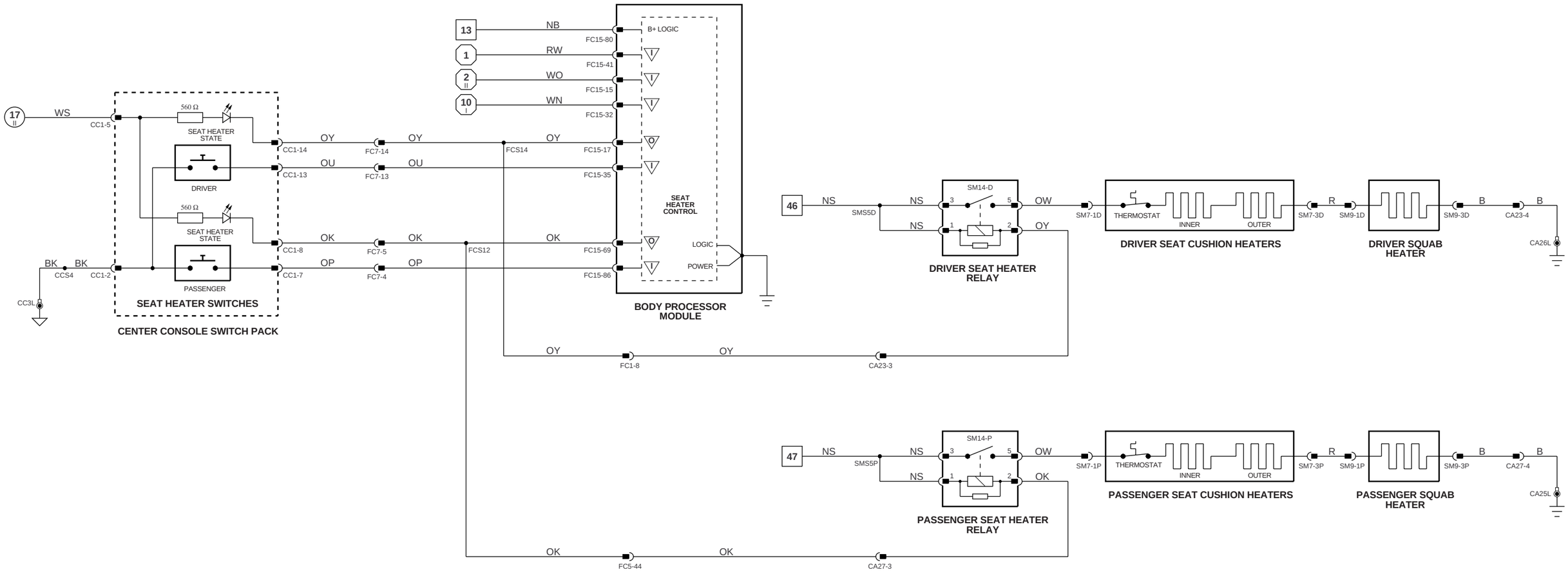
VARIANT: LWB Powered Rear Seat Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 II – 4 II } Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

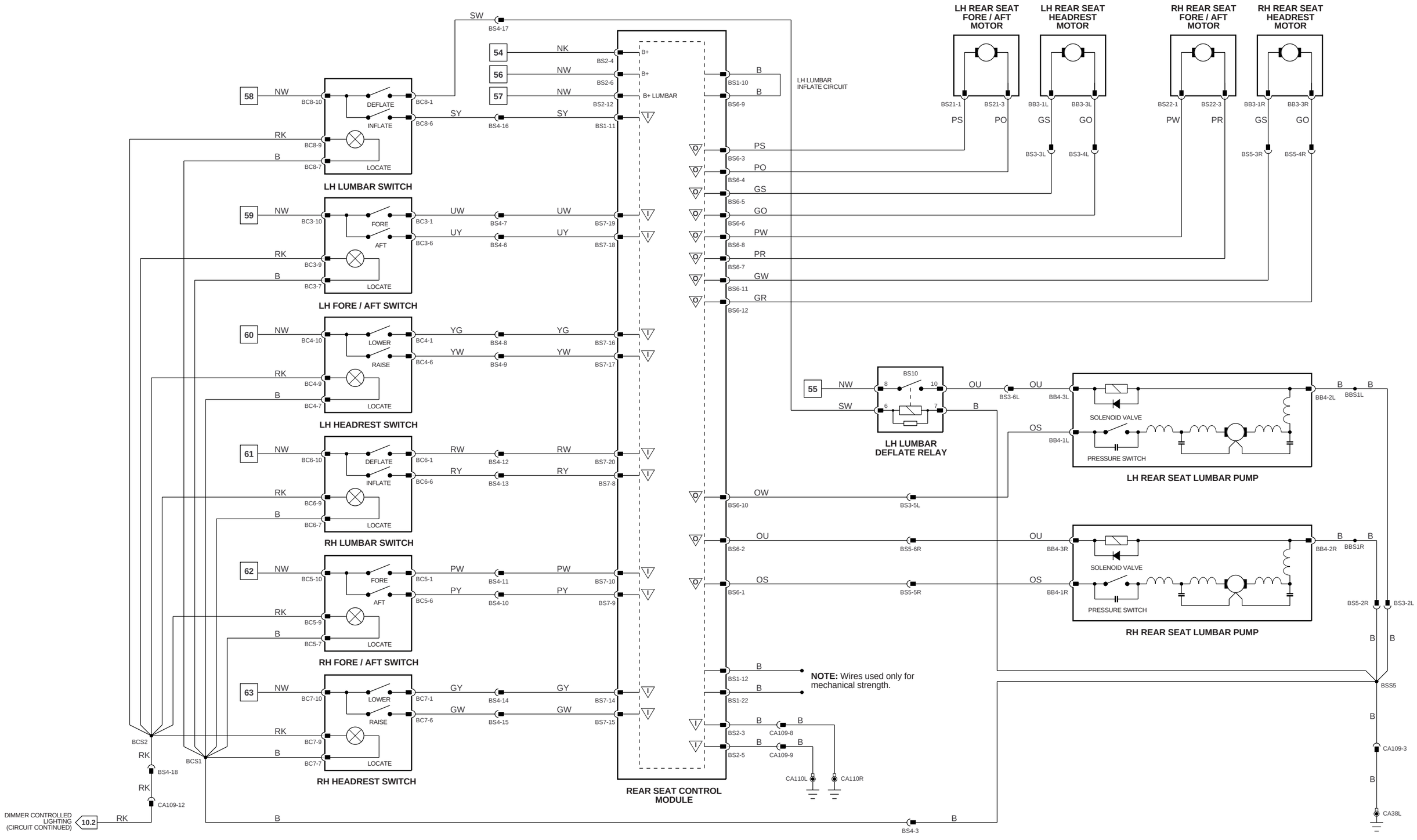
VARIANT: Heaters Only Front Seats LHD Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 II – 4 II Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

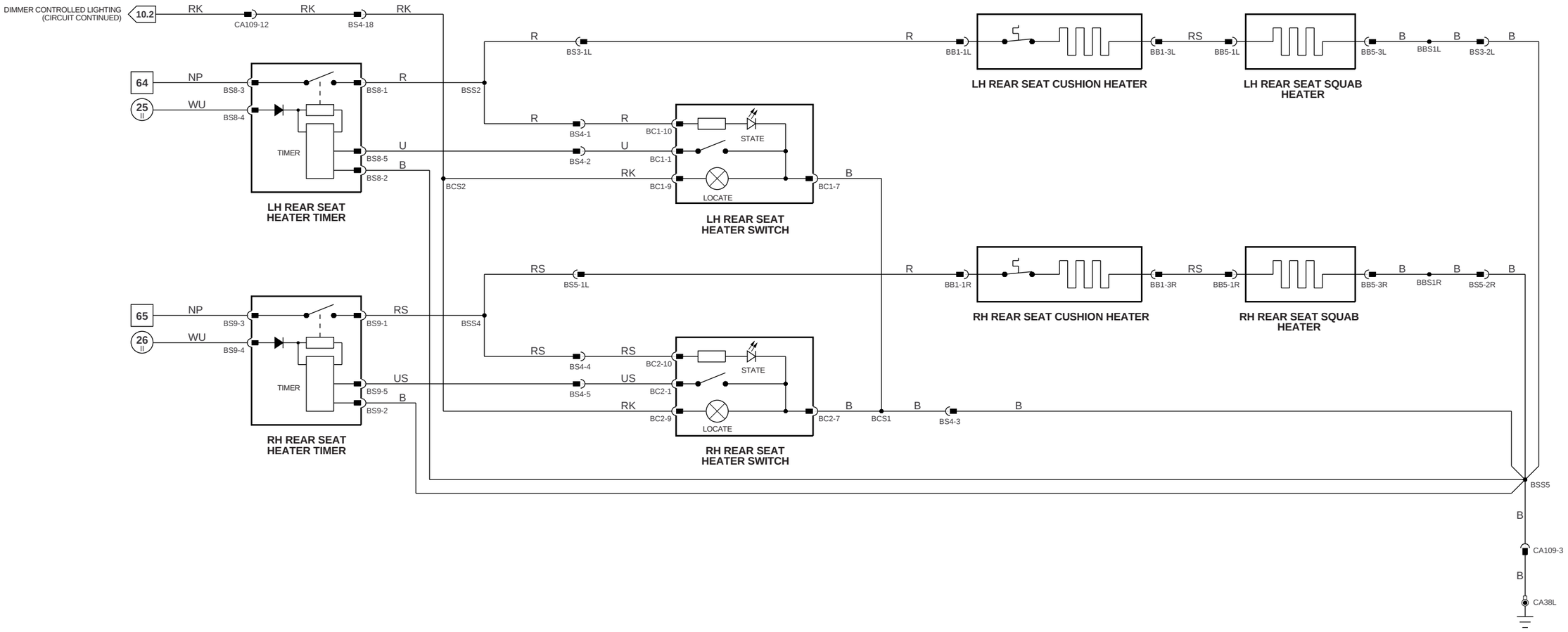
Input
Signal Ground (SG)
Output
CAN (Network)
Serial and Encoded Communications
SCP Network

VARIANT: Heaters Only Front Seats RHD Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



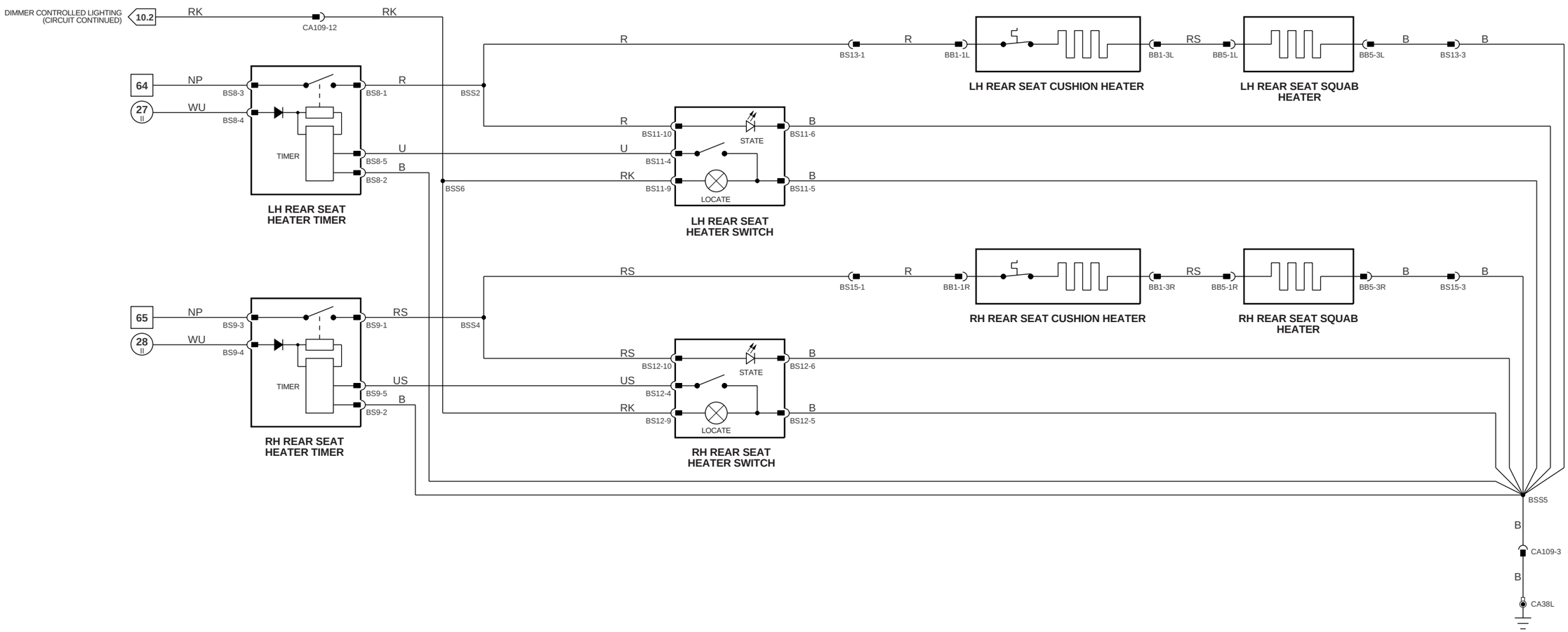
1 – 6 / 1 – 4 (II)	Fig. 01.1	7 – 47	Fig. 01.2	5 – 44 (II)	Fig. 01.4	1 – 17 (I) Fig. 02.1
		48 – 82	Fig. 01.3	45 – 63 (E)	Fig. 01.5	

Input	Output	Serial and Encoded Communications	**VARIANT:** LWB / Powered Rear Seat Vehicles
Signal Ground (SG)	CAN (Network)	SCP Network	**VIN RANGE:** All
			DATE OF ISSUE: SEPTEMBER 1997



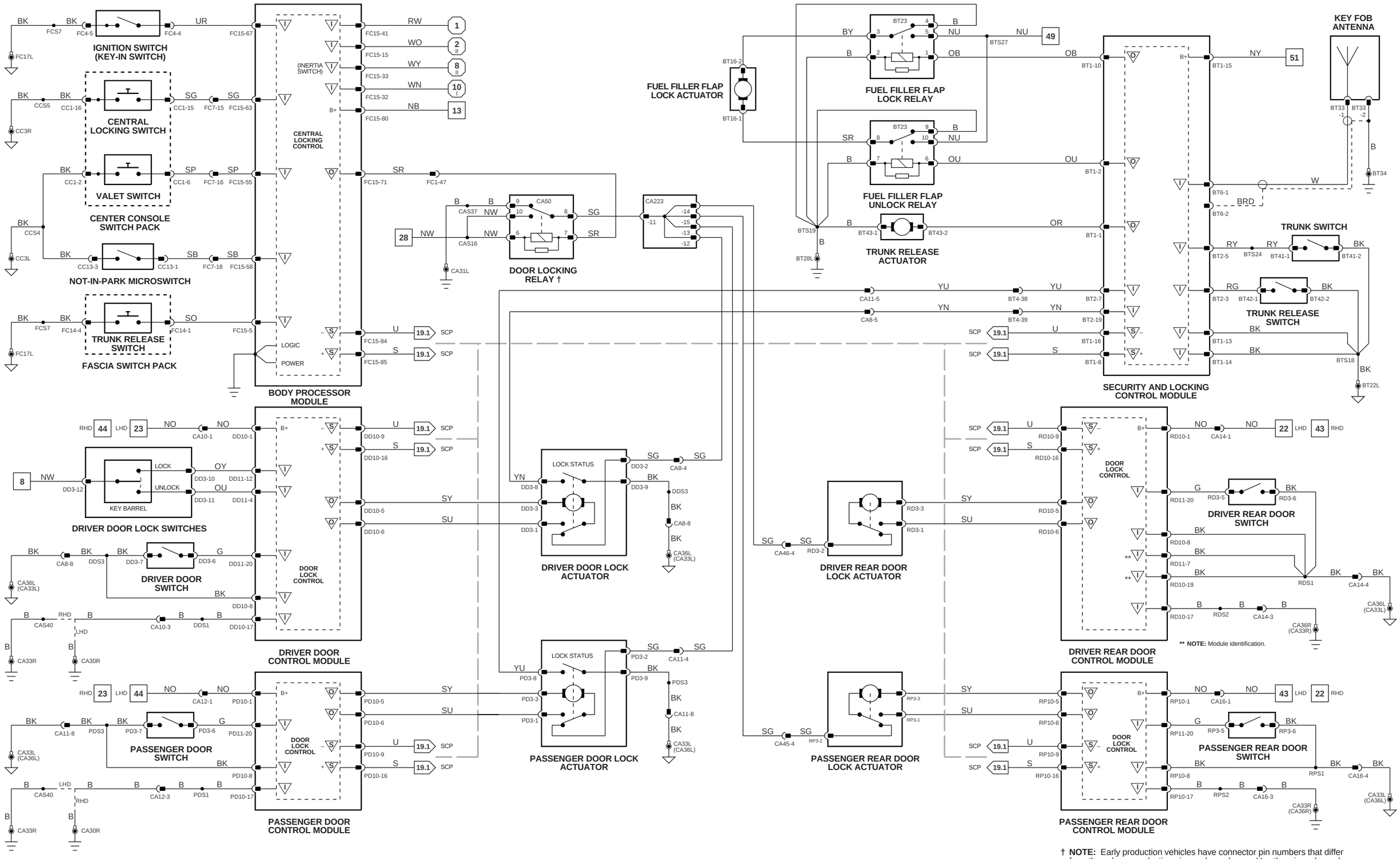
1 – 6; 1 II – 4 II } Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	I Input; Signal Ground (SG)	O Output; C CAN (Network)	D Serial and Encoded Communications; S SCP Network

VARIANT: LWB / Powered Rear Seat Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6 / 1 II – 4 II Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	I Input / Signal Ground (SG) / O Output / C CAN (Network) / D Serial and Encoded Communications / S SCP Network

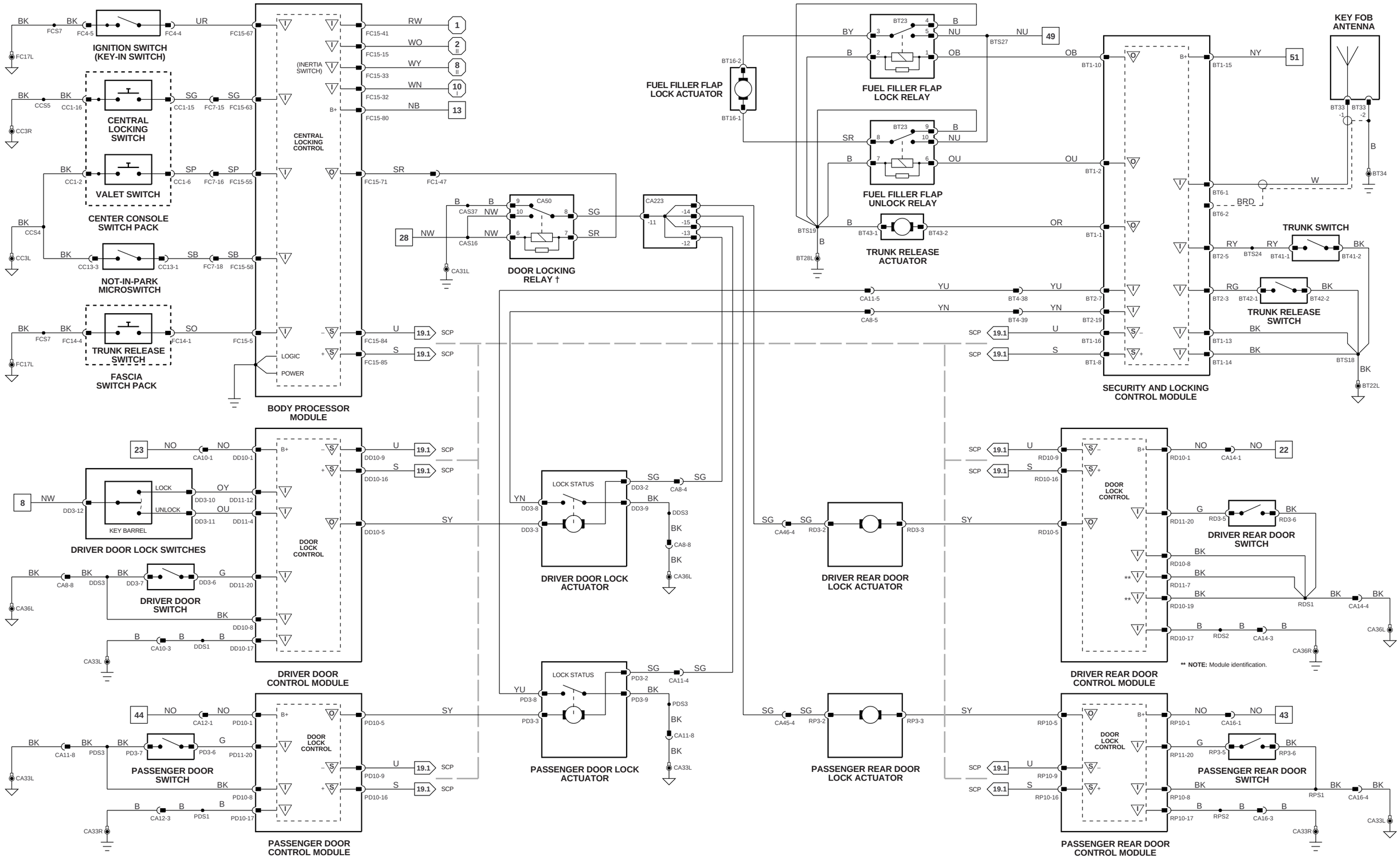
VARIANT: Heaters Only Rear Seat Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 II – 4 II Fig. 01.1	7 – 47 Fig. 01.2	5 II – 44 II Fig. 01.4	1 – 17 I Fig. 02.1	Input	Output	Serial and Encoded Communications
	48 – 82 Fig. 01.3	45 E – 63 E Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network

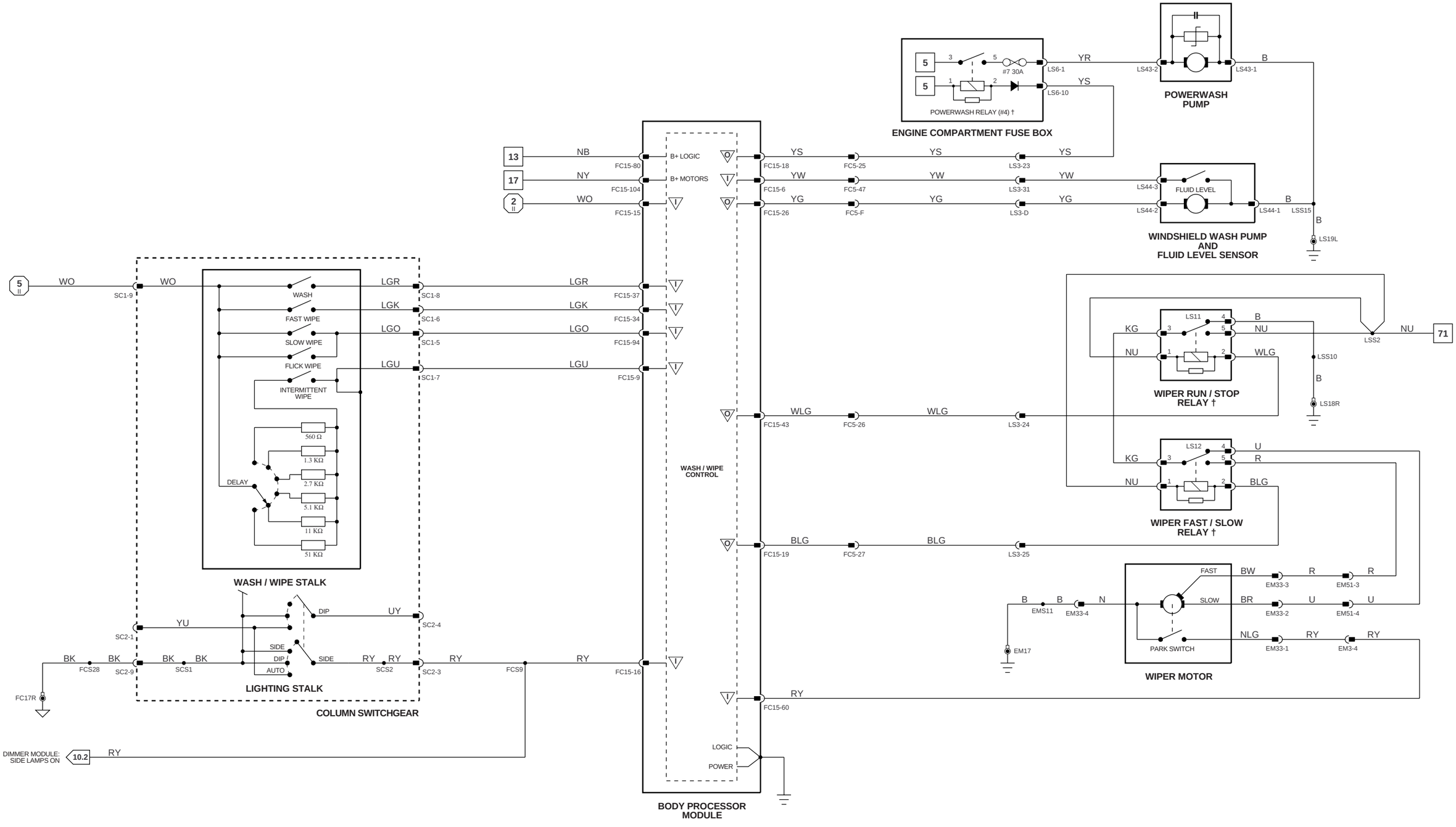
VARIANT: ROW Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 II – 4 II Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	▽ Input, ▽ Signal Ground (SG), ▽ Output, ▽ CAN (Network), ▽ Serial and Encoded Communications, ▽ SCP Network

VARIANT: NAS Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

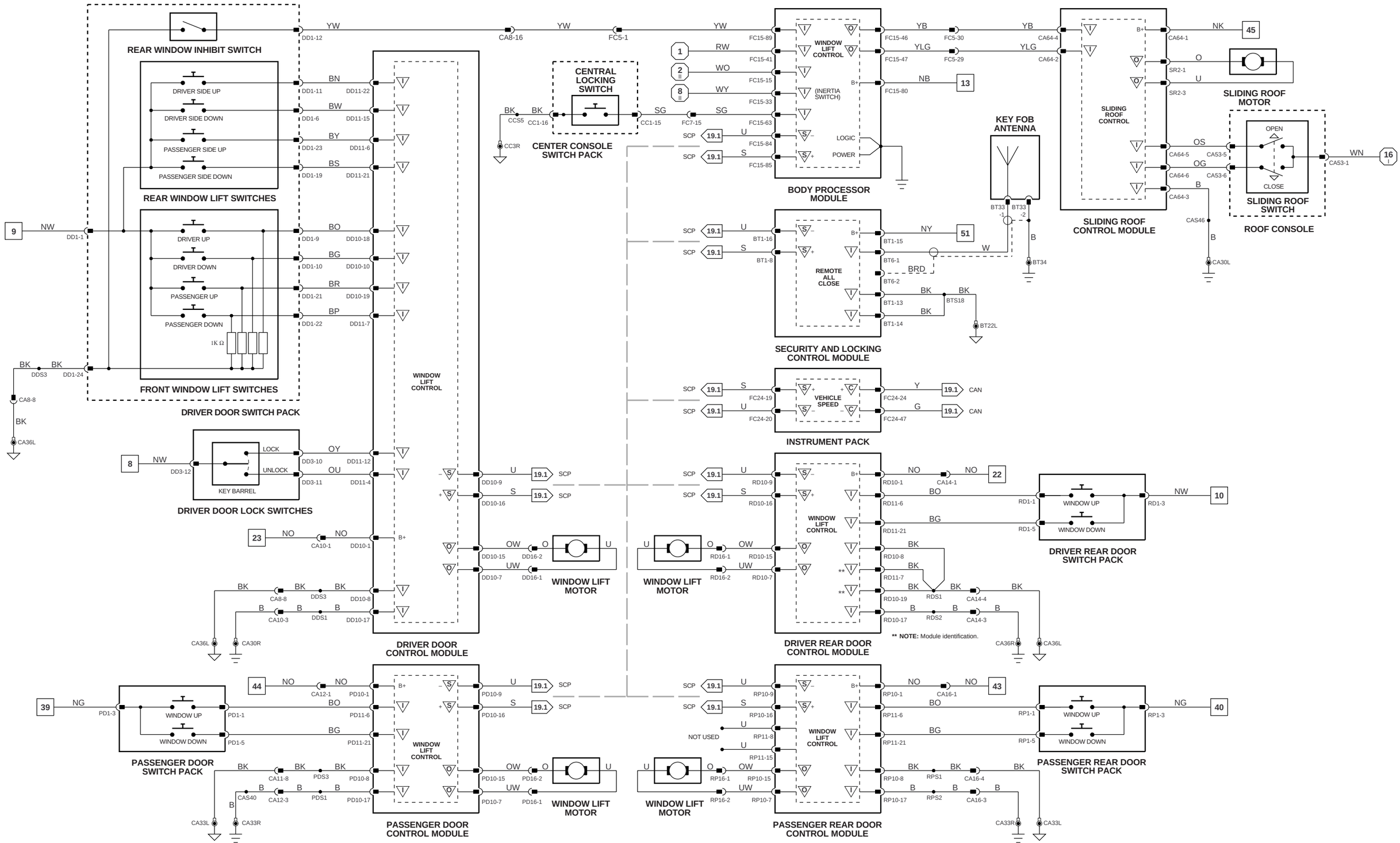


† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 II – 4 II } Fig. 01.1
7 – 47, 48 – 82 Fig. 01.2 / Fig. 01.3
5 II – 44 II, 45 E – 63 E Fig. 01.4 / Fig. 01.5
1 – 17 I Fig. 02.1

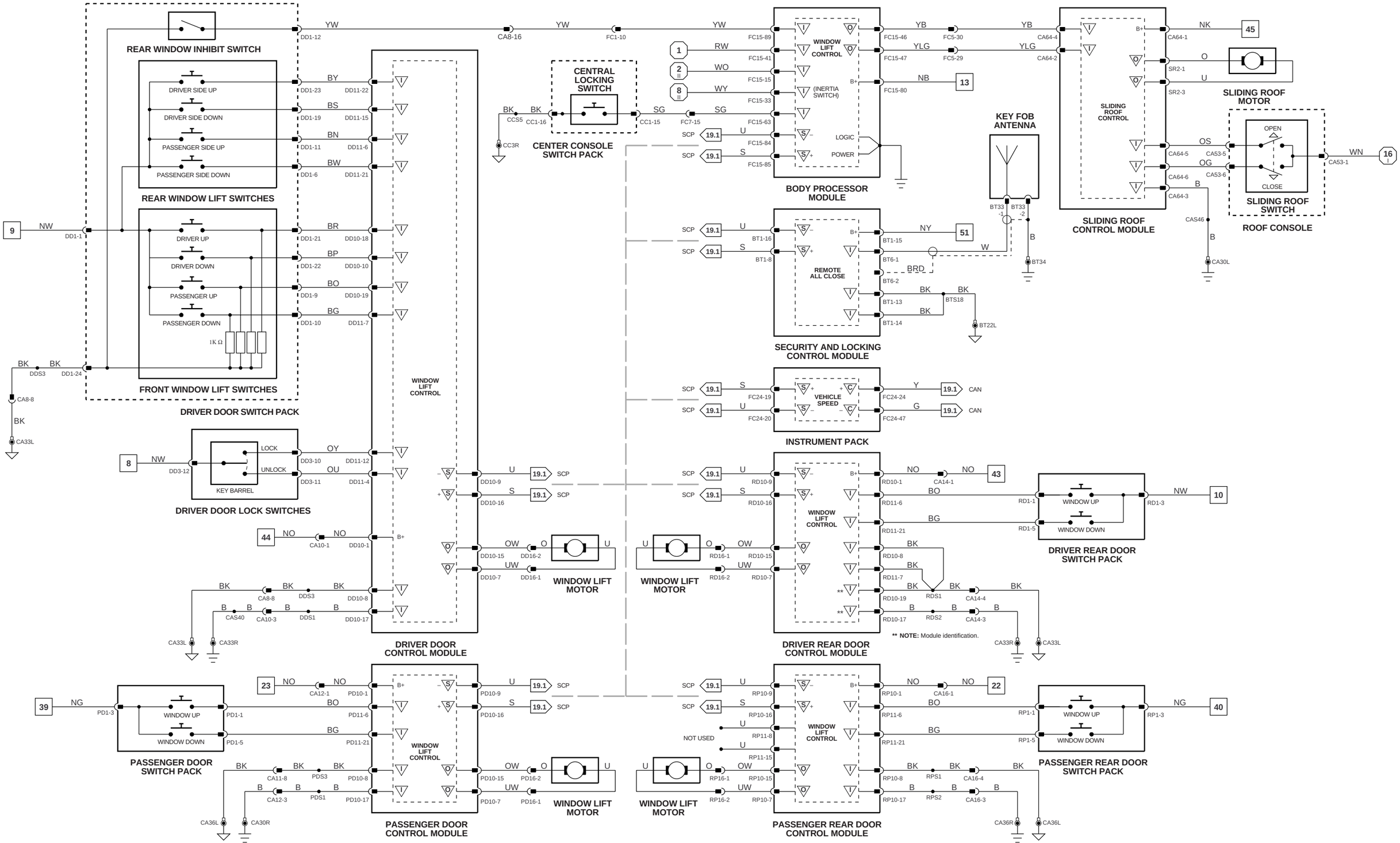
Input · Signal Ground (SG) · Output · CAN (Network) · Serial and Encoded Communications · SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 II – 4 II } Fig. 01.1	7 – 47 Fig. 01.2	48 – 82 Fig. 01.3	5 II – 44 II Fig. 01.4	45 E – 63 E Fig. 01.5	1 – 17 I Fig. 02.1	Input	Output	Serial and Encoded Communications
						Signal Ground (SG)	CAN (Network)	SCP Network

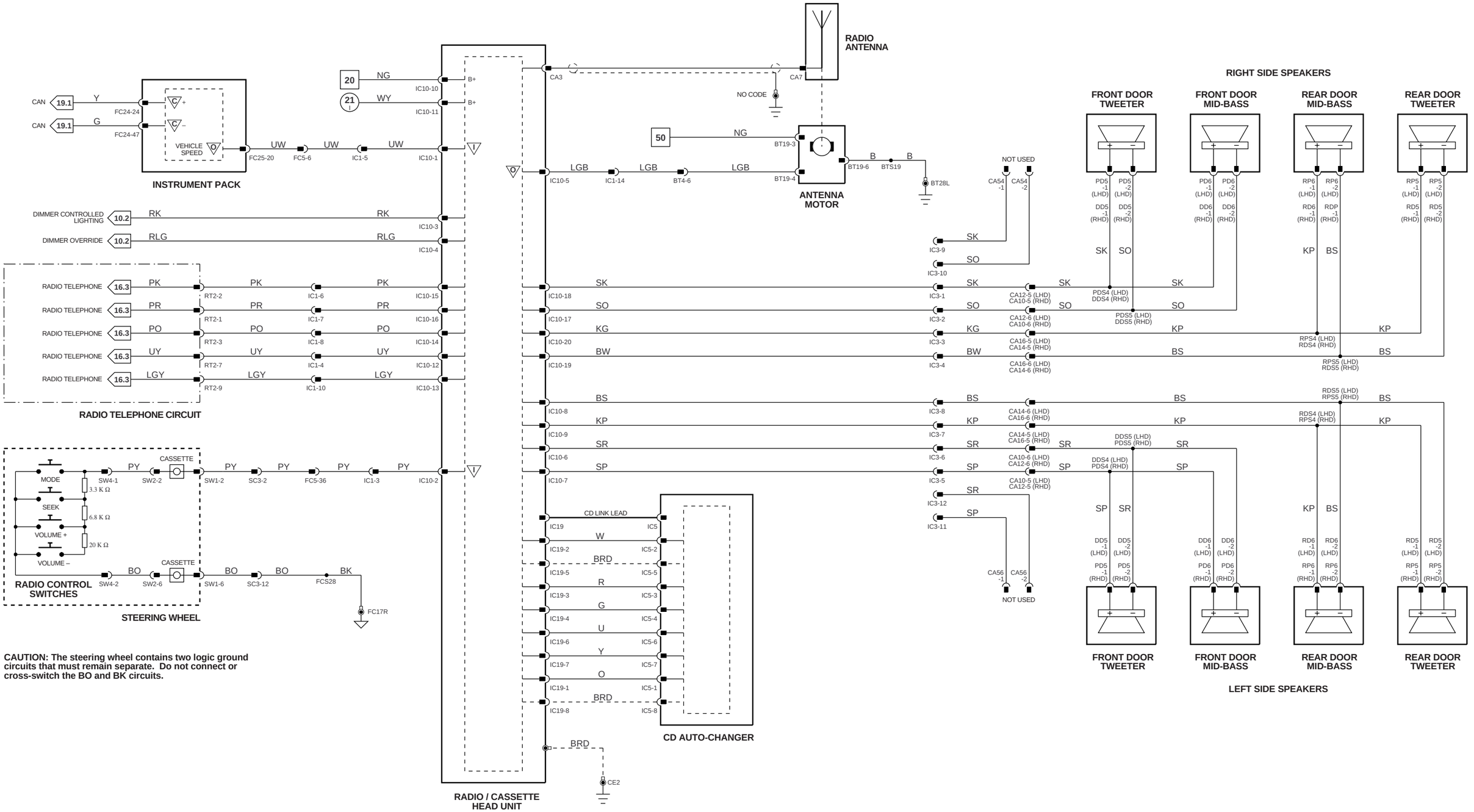
VARIANT: LHD Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6 / 1 II – 4 II	Fig. 01.1	7 – 47	Fig. 01.2	5 II – 44 II	Fig. 01.4	1 – 17 I	Fig. 02.1
		48 – 82	Fig. 01.3	45 E – 63 E	Fig. 01.5		

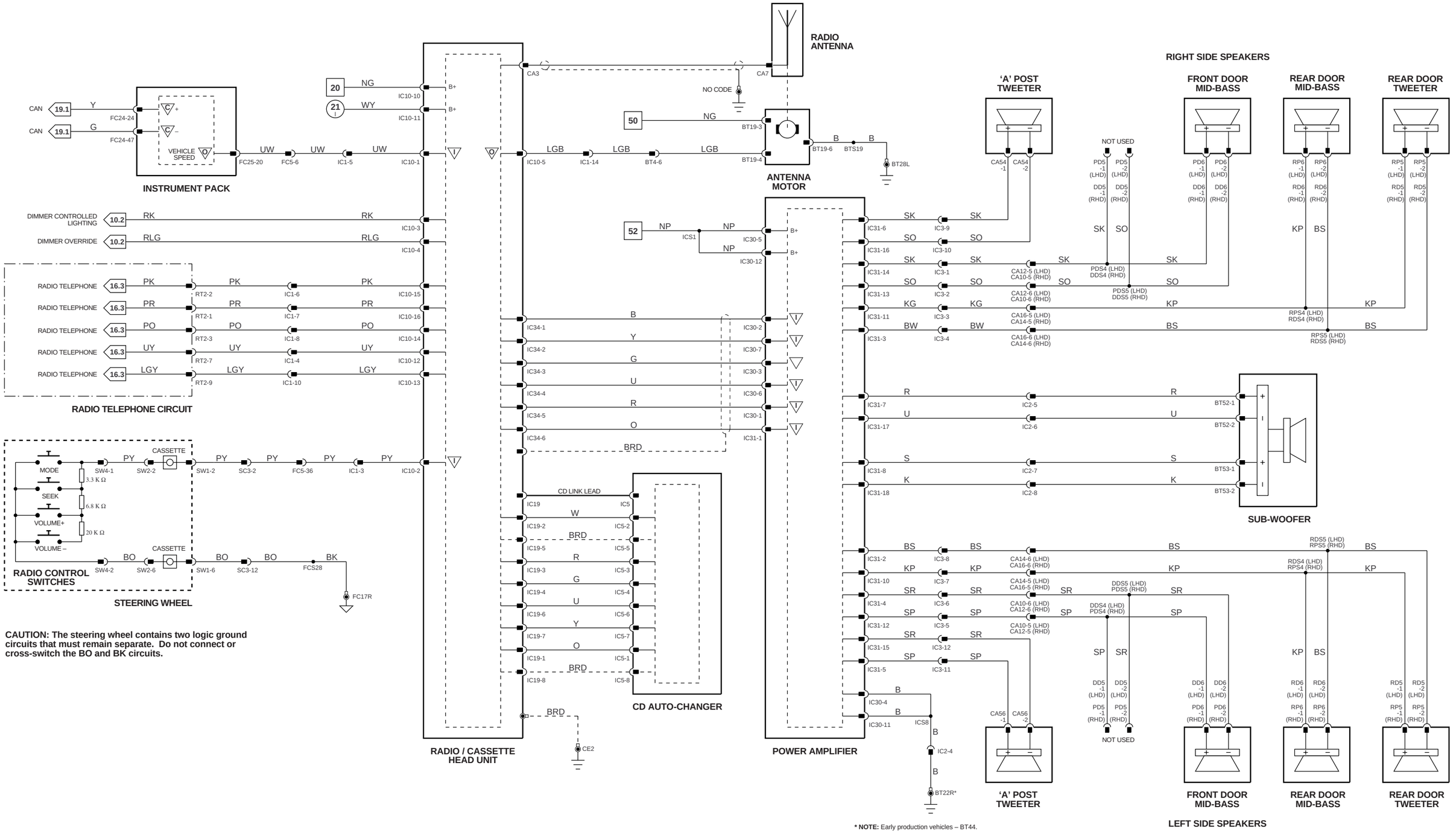
Input | Output | Serial and Encoded Communications
Signal Ground (SG) | CAN (Network) | SCP Network

VARIANT: RHD Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 II – 4 II	Fig. 01.1	7 – 47	Fig. 01.2	5 II – 44 II	Fig. 01.4	1 – 17 I	Fig. 02.1
		48 – 82	Fig. 01.3	45 E – 63 E	Fig. 01.5		

I Input	O Output	D Serial and Encoded Communications	**VARIANT:** Standard ICE Vehicles
Signal Ground (SG)	C CAN (Network)	S SCP Network	**VIN RANGE:** All
			DATE OF ISSUE: SEPTEMBER 1997

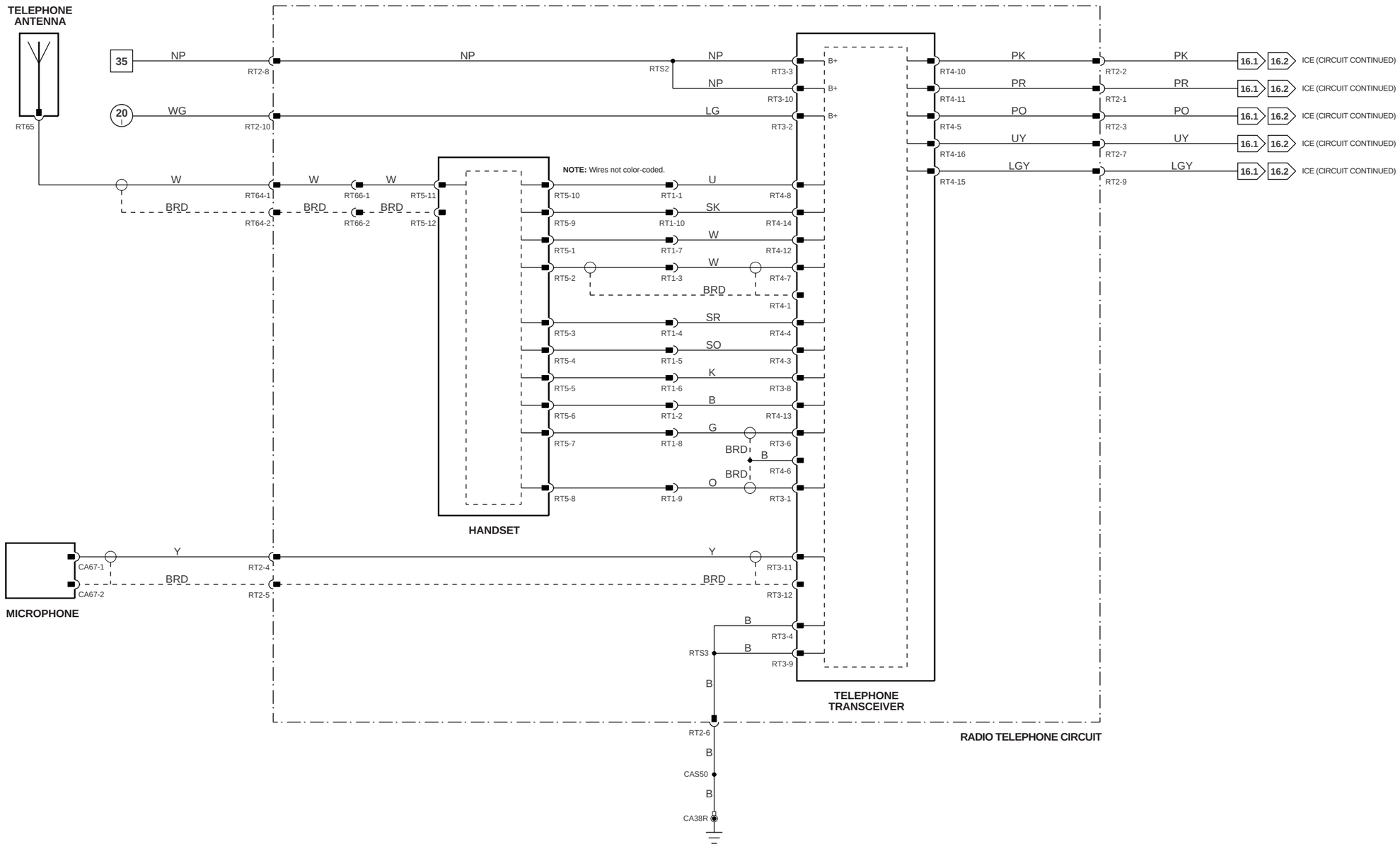


CAUTION: The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

*** NOTE:** Early production vehicles – BT44.

1 – 6; I 1 – II 4 Fig. 01.1	7 – 47 Fig. 01.2	II 5 – II 44 Fig. 01.4	1 – I 17 Fig. 02.1	Input	Output	Serial and Encoded Communications
	48 – 82 Fig. 01.3	E 45 – E 63 Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network

VARIANT: Premium ICE Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



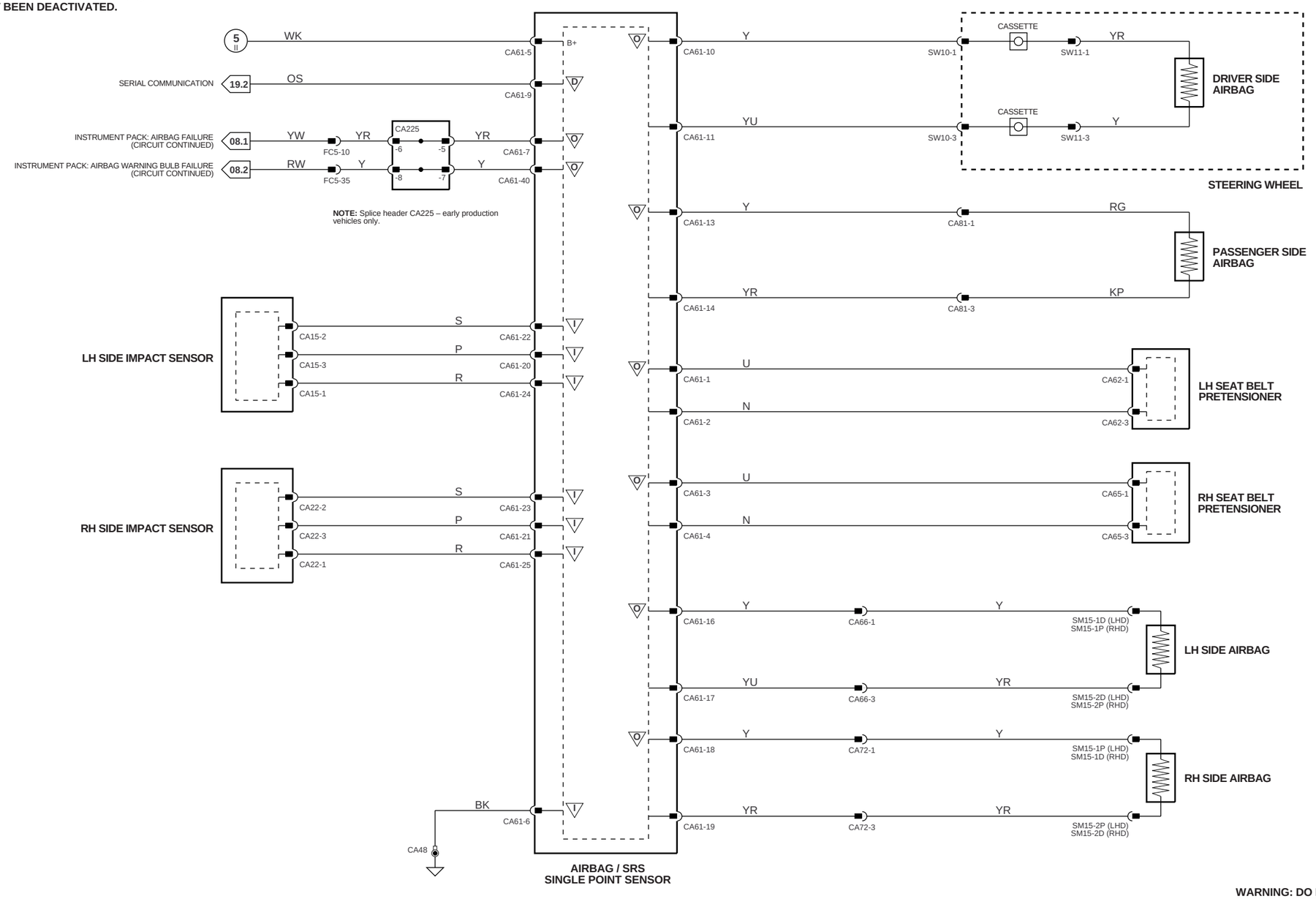
1 – 6, 1 II – 4 II Fig. 01.1
7 – 47 Fig. 01.2
48 – 82 Fig. 01.3
5 II – 44 II Fig. 01.4
45 E – 63 E Fig. 01.5
1 – 17 I Fig. 02.1

I Input
Signal Ground (SG)
O Output
C CAN (Network)
D Serial and Encoded Communications
S SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

CAUTION: Do not substitute another fuse value for the 10A battery fuse.

WARNING: DO NOT ATTEMPT TO REPLACE THE 10A BATTERY FUSE UNLESS THE AIRBAG SYSTEM HAS FIRST BEEN DEACTIVATED.

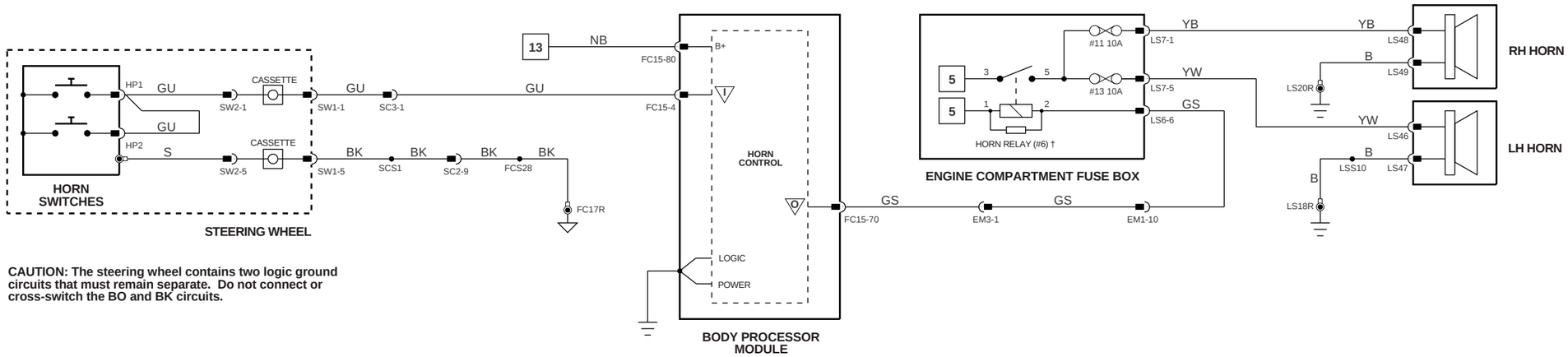


WARNING: DO NOT ATTEMPT TO MEASURE THE RESISTANCE THROUGH THE AIRBAG ASSEMBLY. DOING SO MAY TRIGGER AIRBAG DEPLOYMENT AND POSSIBLY RESULT IN PERSONAL INJURY.

1 – 6, 1 II – 4 II } Fig. 01.1
7 – 47, 48 – 82 Fig. 01.2
5 II – 44 II, 45 E – 63 E Fig. 01.4
1 – 17 I Fig. 02.1
Fig. 01.3
Fig. 01.5

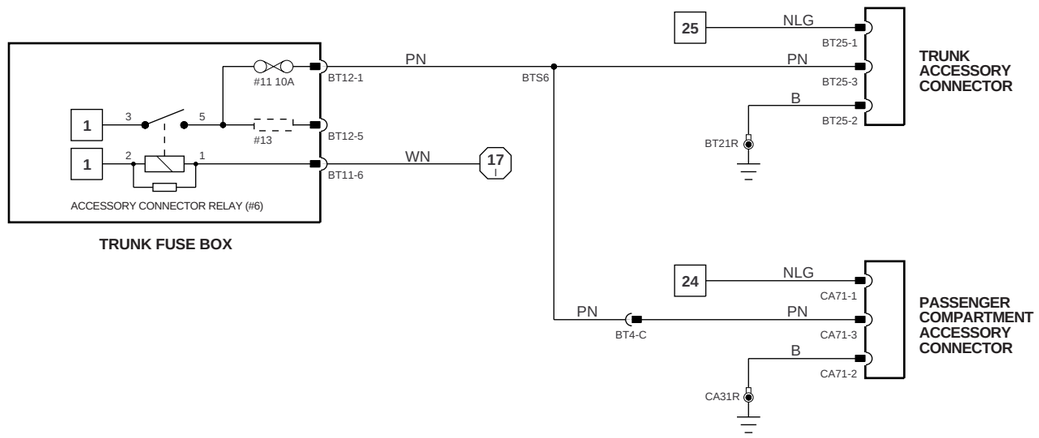
I Input
O Output
D Serial and Encoded Communications
Signal Ground (SG)
C CAN (Network)
S SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

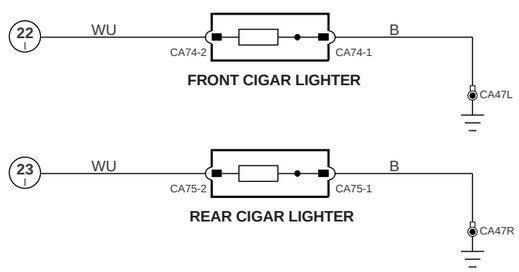


CAUTION: The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

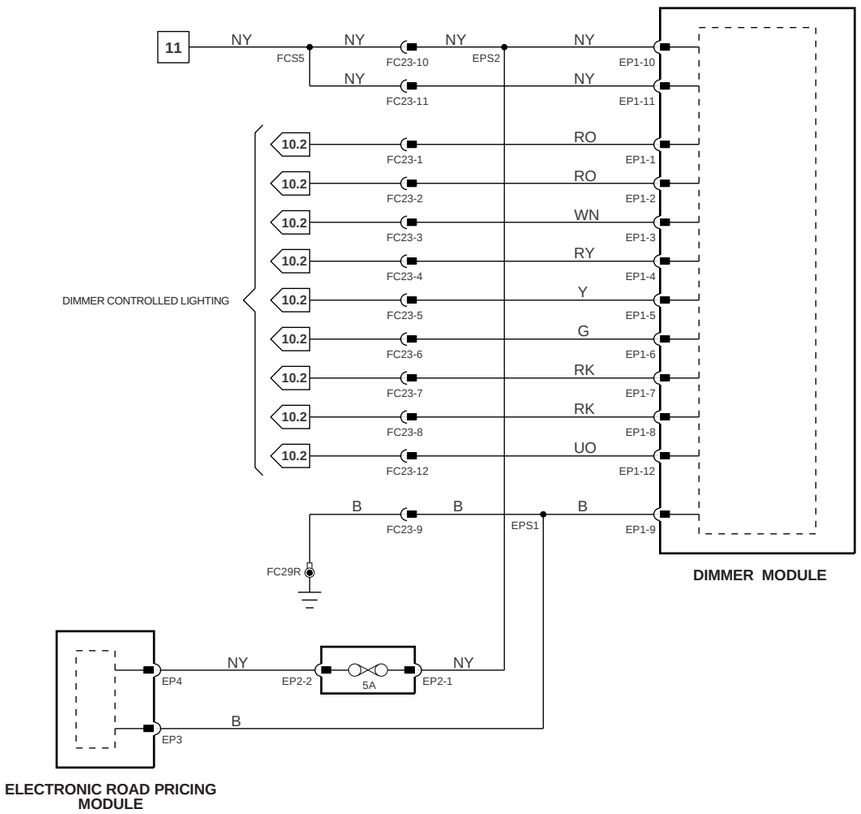
HORNS



ACCESSORY CONNECTORS



CIGAR LIGHTERS



ELECTRONIC ROAD PRICING

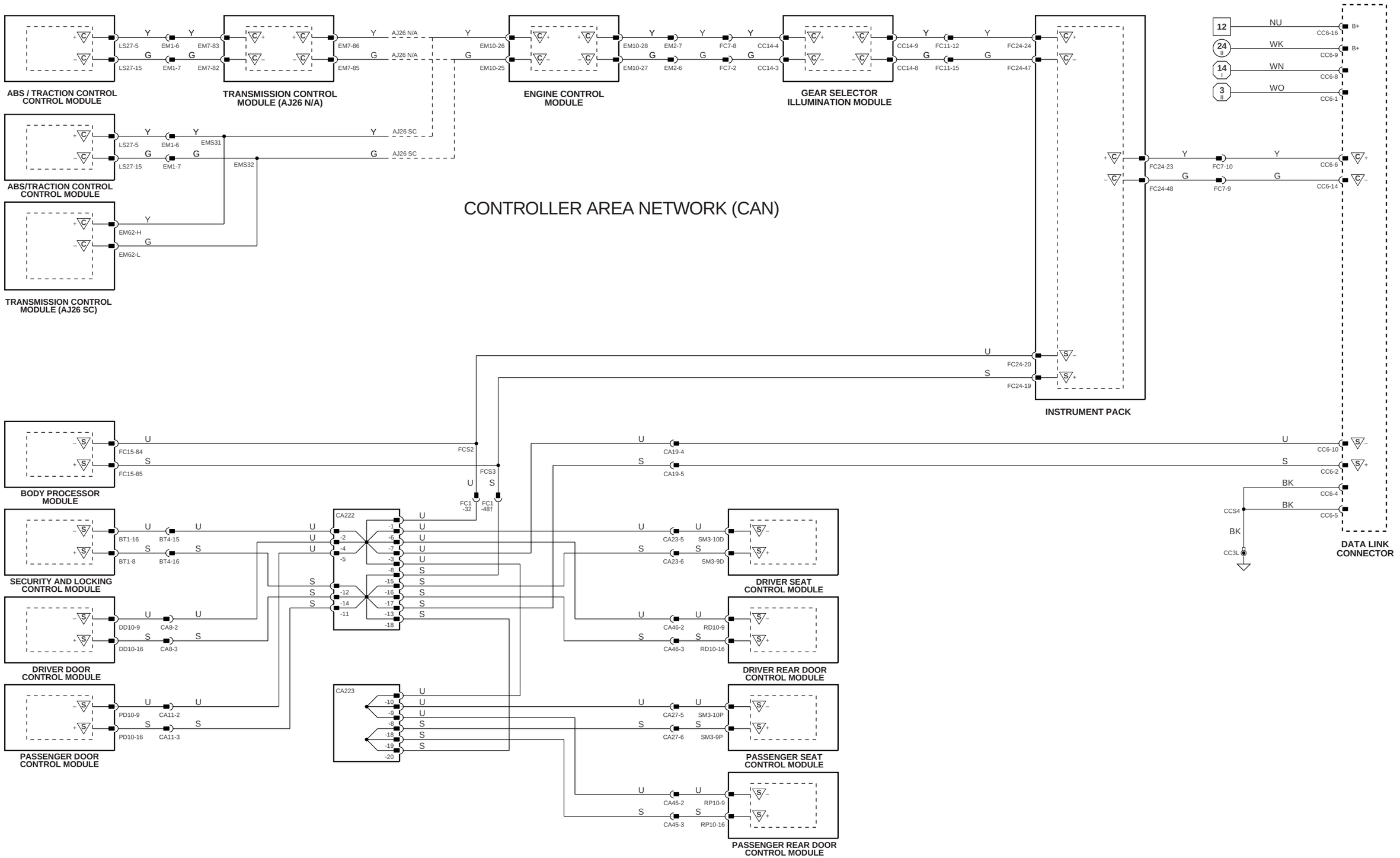
† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 – 4 (II) Fig. 01.1 | 7 – 47 Fig. 01.2 | 48 – 82 Fig. 01.3 | 5 (II) – 44 (II) Fig. 01.4 | 45 (E) – 63 (E) Fig. 01.5 | 1 – 17 (I) Fig. 02.1

Input | Output | Serial and Encoded Communications

Signal Ground (SG) | CAN (Network) | SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

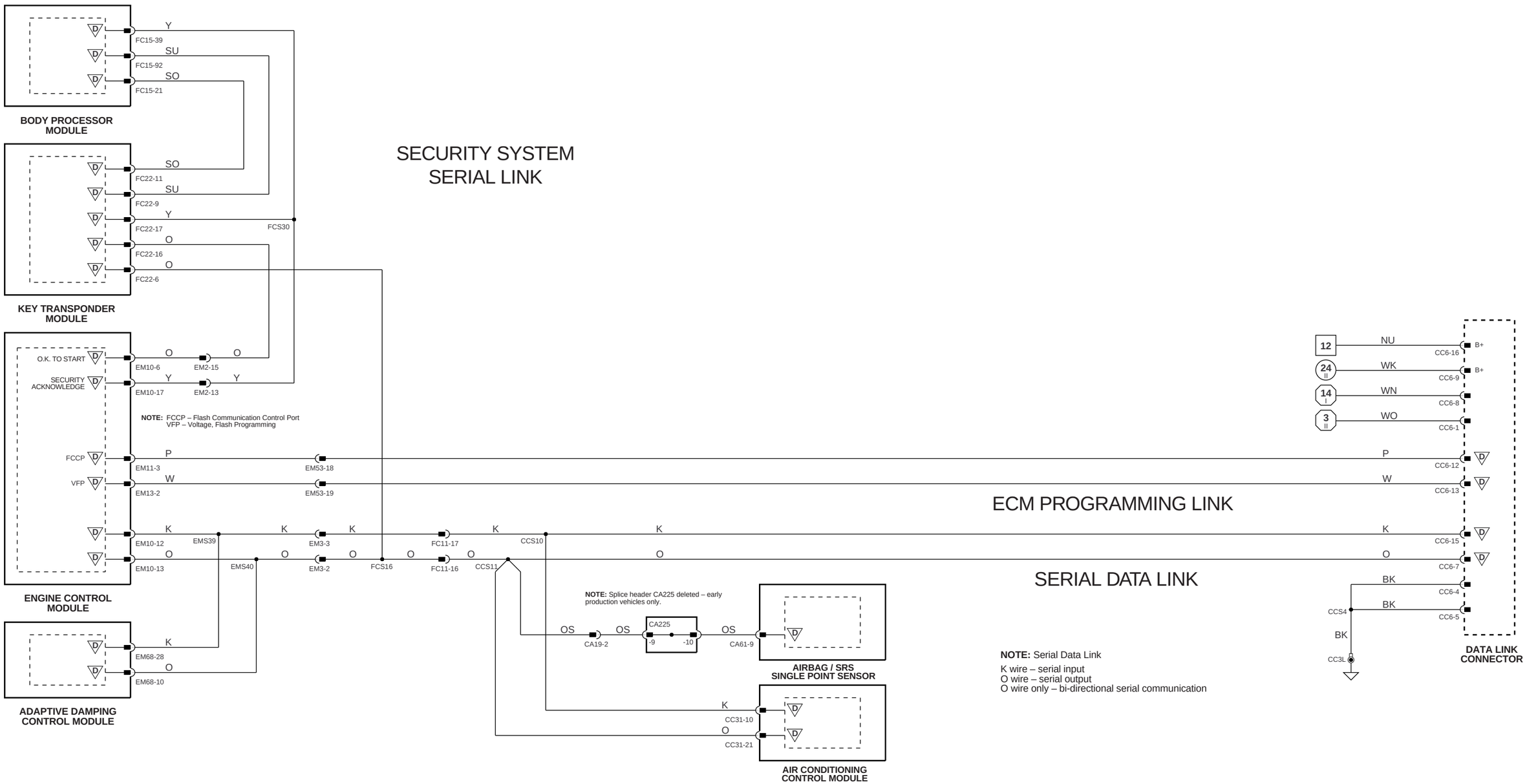


† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

1 – 6, 1 II – 4 II } Fig. 01.1 | 7 – 47 Fig. 01.2 | 48 – 82 Fig. 01.3 | 5 II – 44 II Fig. 01.4 | 45 E – 63 E Fig. 01.5 | 1 – 17 I Fig. 02.1

Input | Output | Serial and Encoded Communications | Signal Ground (SG) | CAN (Network) | SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997



1 – 6, 1 II – 4 II Fig. 01.1
7 – 47, 48 – 82 Fig. 01.3
5 II – 44 II, 45 E – 63 E Fig. 01.4
1 – 17 I Fig. 02.1
Fig. 01.2
Fig. 01.5

Input
Output
Serial and Encoded Communications
Signal Ground (SG)
CAN (Network)
SCP Network

VARIANT: All Vehicles
VIN RANGE: All
DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

BODY PROCESSOR MODULE

▽	Pin	Description	Active	Inactive
I	FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I	FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
O	FC15-97	RELAY COIL DRIVE		

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: *The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.*

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 01.1

COMPONENTS

Component	Connector / Type / Color	Location / Access
BATTERY	BT66 / BATTERY CABLE CLAMP BT67 / BATTERY CABLE CLAMP	TRUNK / BATTERY COVER
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
FUSE BOX – ENGINE COMPARTMENT	LS5 / 10-WAY U.T.A. FUSE BOX / NATURAL LS6 / 10-WAY U.T.A. FUSE BOX / BLACK LS7 / 10-WAY U.T.A. FUSE BOX / GREEN LS8 / 10-WAY U.T.A. FUSE BOX / BLUE ST19 / EYELET	ENGINE COMPARTMENT / LH FRONT
FUSE BOX – ENGINE MANAGEMENT	EM19 / 10-WAY U.T.A. FUSE BOX / NATURAL EM20 / 10-WAY U.T.A. FUSE BOX / BLACK ST20 / EYELET ST21 / EYELET	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
FUSE BOX – LH HEELBOARD	CA1 / 10-WAY U.T.A. FUSE BOX / NATURAL CA2 / 10-WAY U.T.A. FUSE BOX / BLACK ST15 / EYELET	LH HEELBOARD / HEELBOARD COVER
FUSE BOX – RH HEELBOARD	CA41 / 10-WAY U.T.A. FUSE BOX / NATURAL CA42 / 10-WAY U.T.A. FUSE BOX / BLACK ST13 / EYELET ST14 / EYELET	RH HEELBOARD / HEELBOARD COVER
FUSE BOX – TRUNK	BT10 / 10-WAY U.T.A. FUSE BOX / NATURAL BT11 / 10-WAY U.T.A. FUSE BOX / BLACK BT12 / 10-WAY U.T.A. FUSE BOX / GREEN BT13 / 10-WAY U.T.A. FUSE BOX / BLUE BT64 / EYELET	TRUNK ELECTRICAL CARRIER
HIGH POWER PROTECTION MODULE	BT60 / EYELET BT61 / EYELET BT62 / EYELET BT63 / EYELET	TRUNK / ADJACENT TO BATTERY
TRANSIT ISOLATION DEVICE	BT37 / LUCAR – STRAIGHT BT66 / BATTERY CABLE CLAMP	ADJACENT TO BATTERY / BATTERY COVER

RELAYS

Relay	Case Color	Connector / Color	Location / Access
AUXILIARY POSITIVE RELAY (RH HEELBOARD FUSE BOX)	BROWN	BUS	RH HEELBOARD FUSE BOX / HEELBOARD COVER
EMS CONTROL RELAY (ENGINE MANAGEMENT FUSE BOX)	BROWN	BUS	ENGINE MANAGEMENT FUSE BOX / ENGINE COMPARTMENT
IGNITION POSITIVE RELAY (ENGINE COMPARTMENT FUSE BOX)	BROWN	BUS	ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT
IGNITION POSITIVE RELAY (LH HEELBOARD FUSE BOX)	BROWN	BUS	LH HEELBOARD FUSE BOX / HEELBOARD COVER

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
ST5	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD
ST6	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD

GROUNDS

Ground	Location / Type
BT65	EYELET (SINGLE) – BATTERY GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

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Fig. 01.2

COMPONENTS

Component	Connector / Type / Color	Location / Access
FUSE BOX – LH HEELBOARD	CA1 / 10-WAY U.T.A. FUSE BOX / NATURAL CA2 / 10-WAY U.T.A. FUSE BOX / BLACK ST15 / EYELET	LH HEELBOARD / HEELBOARD COVER
FUSE BOX – RH HEELBOARD	CA41 / 10-WAY U.T.A. FUSE BOX / NATURAL CA42 / 10-WAY U.T.A. FUSE BOX / BLACK ST13 / EYELET ST14 / EYELET	RH HEELBOARD / HEELBOARD COVER
SPLICE HEADER – CA222	CA222 / 20-WAY SUMITOMO SPLICE HEADER / GREY	RH HEELBOARD / HEELBOARD COVER
SPLICE HEADER – CA223	CA223 / 20-WAY SUMITOMO SPLICE HEADER / BLACK	RH HEELBOARD / HEELBOARD COVER
SPLICE HEADER – CA224	CA224 / 20-WAY SUMITOMO SPLICE HEADER / GREEN	LH HEELBOARD / HEELBOARD COVER

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA12	8-WAY MULTILOCK 070 / YELLOW	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA14	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA16	6-WAY MULTILOCK 070 / WHITE	PASSENGER 'B/C' POST / DOOR HARNESS GAITER
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
CA20	20-WAY MULTILOCK 070 / YELLOW	RH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
CA23	10-WAY MULTILOCK 070 / WHITE	BELOW DRIVER SEAT
CA27	10-WAY MULTILOCK 070 / WHITE	BELOW PASSENGER SEAT
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
IC1	14-WAY MULTILOCK 070 / WHITE	LH HEELBOARD

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

Fig. 01.3

COMPONENTS

Component	Connector / Type / Color	Location / Access
FUSE BOX – ENGINE COMPARTMENT	LS5 / 10-WAY U.T.A. FUSE BOX / NATURAL LS6 / 10-WAY U.T.A. FUSE BOX / BLACK LS7 / 10-WAY U.T.A. FUSE BOX / GREEN LS8 / 10-WAY U.T.A. FUSE BOX / BLUE ST19 / EYELET	ENGINE COMPARTMENT / LH FRONT
FUSE BOX – ENGINE MANAGEMENT	EM19 / 10-WAY U.T.A. FUSE BOX / NATURAL EM20 / 10-WAY U.T.A. FUSE BOX / BLACK ST20 / EYELET ST21 / EYELET	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
FUSE BOX – TRUNK	BT10 / 10-WAY U.T.A. FUSE BOX / NATURAL BT11 / 10-WAY U.T.A. FUSE BOX / BLACK BT12 / 10-WAY U.T.A. FUSE BOX / GREEN BT13 / 10-WAY U.T.A. FUSE BOX / BLUE BT64 / EYELET	TRUNK ELECTRICAL CARRIER

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BS4	20-WAY MULTILOCK 070 / WHITE	BELOW REAR CENTER CONSOLE SEAT SWITCHES
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA109	12-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION
EM42	4-WAY YAZAKI / GREY	BULKHEAD / REAR OF ENGINE
IC2	8-WAY MULTILOCK 070 / WHITE	REARWARD OF FUEL TANK / BATTERY COVER
LS32	4-WAY YAZAKI / GREY	FORWARD OF LH FRONT SUSPENSION ARM

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

Fig. 01.4

COMPONENTS

Component	Connector / Type / Color	Location / Access
FUSE BOX – ENGINE COMPARTMENT	LS5 / 10-WAY U.T.A. FUSE BOX / NATURAL LS6 / 10-WAY U.T.A. FUSE BOX / BLACK LS7 / 10-WAY U.T.A. FUSE BOX / GREEN LS8 / 10-WAY U.T.A. FUSE BOX / BLUE ST19 / EYELET	ENGINE COMPARTMENT / LH FRONT
FUSE BOX – LH HEELBOARD	CA1 / 10-WAY U.T.A. FUSE BOX / NATURAL CA2 / 10-WAY U.T.A. FUSE BOX / BLACK ST15 / EYELET	LH HEELBOARD / HEELBOARD COVER
FUSE BOX – RH HEELBOARD	CA41 / 10-WAY U.T.A. FUSE BOX / NATURAL CA42 / 10-WAY U.T.A. FUSE BOX / BLACK ST13 / EYELET ST14 / EYELET	RH HEELBOARD / HEELBOARD COVER
FUSE BOX – TRUNK	BT10 / 10-WAY U.T.A. FUSE BOX / NATURAL BT11 / 10-WAY U.T.A. FUSE BOX / BLACK BT12 / 10-WAY U.T.A. FUSE BOX / GREEN BT13 / 10-WAY U.T.A. FUSE BOX / BLUE BT64 / EYELET	TRUNK ELECTRICAL CARRIER
SPLICE HEADER – CA225	CA225 / 20-WAY SUMITOMO SPLICE HEADER / NATURAL	LH HEELBOARD / HEELBOARD COVER

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA19	20 WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
CA20	20-WAY MULTILOCK 070 / YELLOW	RH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
CA109	12-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION
EM1	12 WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM42	4-WAY YAZAKI / GREY	BULKHEAD / REAR OF ENGINE
EM51	12-WAY AUGAT 1.6 / GREY	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
FC1	54 WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
IC1	14-WAY MULTILOCK 070 / WHITE	LH HEELBOARD
LS3	54 WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

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Fig. 01.5

COMPONENTS

Component	Connector / Type / Color	Location / Access
FUSE BOX – ENGINE MANAGEMENT	EM19 / 10-WAY U.T.A. FUSE BOX / NATURAL EM20 / 10-WAY U.T.A. FUSE BOX / BLACK ST20 / EYELET ST21 / EYELET	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM51	12-WAY AUGAT 1.6 / GREY	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

Fig. 02.1

COMPONENTS

Component	Connector / Type / Color	Location / Access
IGNITION SWITCH	FC4 / 8-WAY MULTILOCK 070 / WHITE	STEERING COLUMN
INERTIA SWITCH	CA6 / 3-WAY ECONOSEAL III LC / BLACK	RH 'A' POST / LOWER 'A' POST FINISHER

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
CA20	20-WAY MULTILOCK 070 / YELLOW	RH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC11	18-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER

GROUNDS

Ground	Location / Type
FC17L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

CONTROL MODULE PIN OUT INFORMATION

BODY PROCESSOR MODULE

▽	Pin	Description	Active	Inactive
I	FC15-7	NEUTRAL SWITCH STATUS	GROUND (N)	B+ (P, R, D, 4, 3, 2)
D	FC15-21	SERIAL COMMUNICATION – KEY TRANSPONDER	ENCODED COMMUNICATION	
D	FC15-39	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O	FC15-73	STARTER RELAY ACTIVATE	GROUND (CRANKING)	B+
I	FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
D	FC15-92	ENCODED COMMUNICATIONS		

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
D	EM10-6	OK TO START – ENCODED COMMUNICATIONS	B+ (P, N)	GROUND (R,D,4,3,2)
I	EM10-15	PARK / NEUTRAL CONFIRMATION	ENCODED COMMUNICATIONS	
D	EM10-17	SECURITY ACKNOWLEDGE		
I	EM11-6	ENGINE CRANK	GROUND (CRANKING)	B+

KEY TRANSPONDER MODULE

▽	Pin	Description	Active	Inactive
D	FC22-9	SERIAL COMMUNICATION (ENCODED COMMUNICATION)	ENCODED COMMUNICATION	
D	FC22-11	SERIAL COMMUNICATION BPM		
D	FC22-16	OK TO START (ENCODED COMMUNICATION)		
D	FC22-17	SECURITY ACKNOWLEDGE (ENCODED COMMUNICATION)		

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 03.1

COMPONENTS

Component	Connector / Type / Color	Location / Access
BATTERY	BT66 / BATTERY CABLE CLAMP BT67 / BATTERY CABLE CLAMP	TRUNK / BATTERY COVER
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
GENERATOR	AN1 / EYELET AN2 / EYELET ST4 / EYELET	ENGINE COMPARTMENT / RH FRONT
HIGH POWER PROTECTION MODULE	BT60 / EYELET BT61 / EYELET BT62 / EYELET BT63 / EYELET	TRUNK / ADJACENT TO BATTERY
IGNITION SWITCH	FC4 / 8-WAY MULTILOCK 070 / WHITE	STEERING COLUMN
KEY TRANSPONDER MODULE	FC22 / 20-WAY MULTILOCK 040 / GREEN	BELOW INSTRUMENT PACK
NEUTRAL SWITCH	CC21 / 3-WAY MULTILOCK 070 / GREY	GEAR SELECTOR ASSEMBLY / CENTER CONSOLE
REGULATOR (GENERATOR)	PI50 / 3-WAY SUMITOMO 92 / BLACK	ENGINE COMPARTMENT / RH FRONT
STARTER MOTOR	ST1 / EYELET ST2 / EYELET ST3 / EYELET	ENGINE COMPARTMENT / ENGINE BLOCK / RH SIDE
SUPPRESSION MODULE	AN3 / 3-WAY ECONOSEAL III LC / RED	ENGINE COMPARTMENT / RIGHT FRONT

RELAYS

Relay	Case Color	Connector / Color	Location / Access
STARTER RELAY	BROWN	EM50 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM60	2-WAY ECONOSEAL III HC / GREY	ENGINE COMPARTMENT / ADJACENT RH TO FALSE BULKHEAD
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
ST5	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD
ST6	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD

GROUNDS

Ground	Location / Type
BT65	EYELET (SINGLE) – BATTERY GROUND STUD
CC3R	EYELET (PAIR) – RH FRONT BULKHEAD STUD / CABIN SIDE
FC17L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

BODY PROCESSOR MODULE

▽	Pin	Description	Active	Inactive
I	FC15-7	NEUTRAL SWITCH STATUS	GROUND (N)	B+ (P, R, D, 4, 3, 2)
D	FC15-21	SERIAL COMMUNICATION – KEY TRANSPONDER	ENCODED COMMUNICATION	
D	FC15-39	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O	FC15-73	STARTER RELAY ACTIVATE	GROUND (CRANKING)	B+
I	FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
D	FC15-92	ENCODED COMMUNICATIONS		

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
D	EM10-6	OK TO START – ENCODED COMMUNICATIONS		
I	EM10-15	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	GROUND (R,D,4,3,2)
D	EM10-17	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
I	EM11-6	ENGINE CRANK	GROUND (CRANKING)	B+

KEY TRANSPONDER MODULE

▽	Pin	Description	Active	Inactive
D	FC22-9	SERIAL COMMUNICATION (ENCODED COMMUNICATION)		
D	FC22-11	SERIAL COMMUNICATION – BPM	ENCODED COMMUNICATION	
D	FC22-16	OK TO START (ENCODED COMMUNICATION)		
D	FC22-17	SECURITY ACKNOWLEDGE (ENCODED COMMUNICATION)		

DUAL LINEAR SWITCH

▽	Pin	Description	Active	Inactive
I	CC8-2	TCM / DUAL LINEAR SWITCH COMMON GROUND SUPPLY	GROUND	GROUND
O	CC8-4	NEUTRAL SWITCH STATUS	GROUND (N)	B+ (P, R, D, 4, 3, 2)
O	CC8-5	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	GROUND (R, D, 4, 3, 2)

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	*Serial and encoded communications*	B+	*Battery voltage*	KHz	*Frequency x 1000*
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 03.2

COMPONENTS

Component	Connector / Type / Color	Location / Access
BATTERY	BT66 / BATTERY CABLE CLAMP BT67 / BATTERY CABLE CLAMP	TRUNK / BATTERY COVER
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DUAL LINEAR SWITCH	CC8 / 12-WAY MULTILOCK 070 / WHITE	RIGHT HAND SIDE OF GEAR SELECTOR / CENTER CONSOLE
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
GENERATOR	AN1 / EYELET AN2 / EYELET ST4 / EYELET	ENGINE COMPARTMENT / RH FRONT
HIGH POWER PROTECTION MODULE	BT60 / EYELET BT61 / EYELET BT62 / EYELET BT63 / EYELET	TRUNK / ADJACENT TO BATTERY
IGNITION SWITCH	FC4 / 8-WAY MULTILOCK 070 / WHITE	STEERING COLUMN
KEY TRANSPONDER MODULE	FC22 / 20-WAY MULTILOCK 040 / GREEN	BELOW INSTRUMENT PACK
REGULATOR (GENERATOR)	PI50 / 3-WAY SUMITOMO 92 / BLACK	ENGINE COMPARTMENT / RH FRONT
STARTER MOTOR	ST1 / EYELET ST2 / EYELET ST3 / EYELET	ENGINE COMPARTMENT / ENGINE BLOCK / RH SIDE
SUPPRESSION MODULE	AN3 / 3-WAY ECONOSEAL III LC / RED	ENGINE COMPARTMENT / RIGHT FRONT

RELAYS

Relay	Case Color	Connector / Color	Location / Access
STARTER RELAY	BROWN	EM50 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM60	2-WAY ECONOSEAL III HC / GREY	ENGINE COMPARTMENT / ADJACENT RH TO FALSE BULKHEAD
EM63	14-WAY MULTILOCK 070 / YELLOW	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
ST5	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD
ST6	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD

GROUNDS

Ground	Location / Type
BT65	EYELET (SINGLE) – BATTERY GROUND STUD
FC17L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM8R	EYELET (PAIR) – EMS LH GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

←

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
I	EM10-1	IGNITION SWITCHED POWER SUPPLY	B+	0 V
I	EM10-5	IGNITION SWITCHED POWER SUPPLY	B+	B+
D	EM10-6	OK TO START – ENCODED COMMUNICATIONS		
I	EM10-9	BATTERY POWER SUPPLY	B+	B+
I	EM10-10	BRAKE SWITCH	GROUND	B+
D	EM10-12	SERIAL COMMUNICATIONS		
D	EM10-13	SERIAL COMMUNICATIONS		
I	EM10-14	PARKING BRAKE SWITCH	GROUND (APPLIED)	B+
I	EM10-15	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	GROUND (R,D,4,3,2)
O	EM10-16	EMS CONTROLLED RELAY ACTIVATE	GROUND	B+
D	EM10-17	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
O	EM10-20	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION COMMON REFERENCE GROUND	GROUND	GROUND
O	EM10-21	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM10-22	GROUND	GROUND	GROUND
I	EM10-23	GROUND	GROUND	GROUND
C	EM10-25	CAN NETWORK	15 – 1500 Hz	
C	EM10-26	CAN NETWORK	15 – 1500 Hz	
C	EM10-27	CAN NETWORK	15 – 1500 Hz	
C	EM10-28	CAN NETWORK	15 – 1500 Hz	
D	EM11-3	ECM PROGRAMMING	B+	B+
I	EM11-6	ENGINE CRANK	GROUND (CRANKING)	B+
I	EM11-7	FUEL TANK PRESSURE SENSOR FEEDBACK	4.9 V = LOW PRESSURE, 0.2 V = HIGH PRESSURE	
O	EM11-8	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS / FUEL TANK PRESSURE SENSOR COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM11-9	ECT FEEDBACK	0.41 V @ 195°F (DECREASING WITH TEMPERATURE)	
I	EM11-10	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-11	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
O	EM11-12	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION FUEL TANK PRESSURE SENSOR COMMON REFERENCE GROUND	GROUND	GROUND
I	EM11-13	MECHANICAL GUARD POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
SG	EM11-14	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS SHIELD	GROUND	GROUND
I	EM11-15	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-16	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM12-12	IATS FEEDBACK	0.98 V @ 10°C, DECREASING WITH TEMPERATURE	
I	EM12-13	MAFS FEEDBACK	1.2 V @ IDLE, INCREASING WITH RPM INCREASE	
I	EM12-14	UPSTREAM 'B' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-15	UPSTREAM 'A' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-16	DOWNSTREAM 'B' BANK O2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-17	DOWNSTREAM 'A' BANK O2S	0.1 – 0.9 V @ IDLE (SWING)	
O	EM12-18	MAFS REFERENCE GROUND	GROUND	GROUND
O	EM12-19	MAFS REFERENCE GROUND	GROUND	GROUND
SG	EM12-22	02S / HO2S COMMON SHIELD	GROUND	GROUND
D	EM13-2	ECM PROGRAMMING		
O	EM13-4	CANISTER CLOSE VALVE ACTIVATE	GROUND	B+
O	EM13-11	VACUUM SWITCHING VALVE #3 ACTIVATE	GROUND	B+
O	EM13-12	VACUUM SWITCHING VALVE #1 ACTIVATE	GROUND	B+
O	EM13-13	VACUUM SWITCHING VALVE #2 ACTIVATE	GROUND	B+
O	EM13-14	THROTTLE MOTOR POWER RELAY ACTIVATE	GROUND	B+
I	EM13-17	'B' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-18	'A' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-19	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
I	EM13-20	CMPS SIGNAL	5 Hz @ IDLE	
I	EM13-27	CMPS / CKPS / KNOCK SENSORS COMMON SHIELD	GROUND	GROUND
I	EM13-28	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
SG	EM13-29	CMPS SIGNAL GROUND	GROUND	GROUND
I	EM14-1	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-2	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-3	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
I	EM14-4	GROUND	GROUND	GROUND
O	EM14-5	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM14-6	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-7	GROUND	GROUND	GROUND
I	EM14-8	GROUND	GROUND	GROUND
I	EM14-9	GROUND	GROUND	GROUND
I	EM14-10	GROUND	GROUND	GROUND
O	EM14-11	THROTTLE MOTOR POWER SUPPLY	GROUND	GROUND
O	EM14-12	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM15-1	UPSTREAM 'B' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-2	UPSTREAM 'A' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-3	EVAP VALVE ACTIVATE	GROUND (VALVE OPEN)	B+
O	EM15-8	VARIABLE VALVE TIMING SOLENOID 'B' BANK	GROUND	B+
O	EM15-9	VARIABLE VALVE TIMING SOLENOID 'A' BANK	GROUND	B+
I	EM15-11	GROUND	GROUND	GROUND
I	EM15-12	GROUND	GROUND	GROUND
I	EM15-22	GROUND	GROUND	GROUND

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

The following symbols are used to represent values for Control Module Pin Out data:

I	**Input**	**D**	**Serial and encoded communications**	**B+**	**Battery voltage**	**KHz**	**Frequency x 1000**
O	**Output**	**C**	**CAN (Network)**	**V**	**Voltage (DC)**	**MS**	**Milliseconds**
SG	**Signal Ground**	**S**	**SCP Network**	**Hz**	**Frequency**	**MV**	**Millivolts**

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 04.1

COMPONENTS

Component	Connector / Type / Color	Location / Access
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CANISTER CLOSE VALVE	CV1 / 2-WAY YAZAKI 90 / BLACK	UNDER VEHICLE / RH REAR
CKPS: CRANKSHAFT POSITION SENSOR	PI17 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE / REAR OF BED PLATE
CMPS: CAMSHAFT POSITION SENSOR	PI15 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE COMPARTMENT / 'B' BANK CYLINDER HEAD, REAR
ECM AND TCM COOLING FAN	EM66 / 2-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ECTS: ENGINE COOLANT TEMPERATURE SENSOR	PI4 / 2-WAY ECONOSEAL E J2 / GREY	ENGINE COMPARTMENT / REAR OF ENGINE TOP HOSE
EVAPP: EVAP CANISTER PURGE VALVE	EM39 / 2-WAY ECONOSEAL J2= / BLACK	ENGINE COMPARTMENT / BULKHEAD
FUEL TANK PRESSURE SENSOR	BT5 / 3-WAY MULTILOCK 070 / WHITE FP1 / 3-WAY ECONOSEAL III LC / BLACK	TOP OF FUEL TANK / TRUNK CARPET
HO2S: HEATED OXYGEN SENSOR (UPSTREAM) – A	EM21 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR (UPSTREAM) – B	EM23 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
IATS: INTAKE AIR TEMPERATURE SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
KS: KNOCK SENSOR – 'A' BANK	PI26 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
KS: KNOCK SENSOR – 'B' BANK	PI27 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
MAFS: MASS AIR FLOW SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
O2S: OXYGEN SENSOR (DOWNSTREAM) – A	EM22 / 2-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
O2S: OXYGEN SENSOR (DOWNSTREAM) – B	EM24 / 2-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
PARKING BRAKE SWITCH	CC11 / 2-WAY MULTILOCK 040 / BLACK	CENTER CONSOLE ASSEMBLY
PEDAL POSITION AND MECHANICAL GUARD SENSORS	PI42 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
THROTTLE MOTOR	PI33 / 2-WAY TWIN CLIP / BLACK	ENGINE COMPARTMENT / THROTTLE ASSEMBLY
THROTTLE POSITION SENSOR	PI6 / 4-WAY SUMITOMO TS90 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
VACUUM SWITCHING VALVE – 1	EM57 / 2-WAY SUMITOMO 90 DC / BLUE	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 2	EM58 / 2-WAY SUMITOMO 90 DC / BROWN	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 3	EM59 / 2-WAY YAZAKI 90 / GREY	ENGINE COMPARTMENT / BULKHEAD
VARIABLE VALVE TIMING SOLENOID VALVE – 'A' BANK	PI31 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / 'A' BANK CYLINDER HEAD / FRONT
VARIABLE VALVE TIMING SOLENOID VALVE – 'B' BANK	PI32 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / 'B' BANK CYLINDER HEAD / FRONT

RELAYS

Relay	Case Color	Connector / Color	Location / Access
THROTTLE MOTOR POWER RELAY	BROWN	EM49 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER
PI1	67-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION

GROUNDS

Ground	Location / Type
EM8L	EYELET (PAIR) – EMS LH GROUND STUD
EM16L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM16R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

←

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
I	EM10-1	IGNITION SWITCHED POWER SUPPLY	B+	0 V
I	EM10-5	IGNITION SWITCHED POWER SUPPLY	B+	B+
D	EM10-6	OK TO START – ENCODED COMMUNICATIONS		
I	EM10-9	BATTERY POWER SUPPLY	B+	B+
I	EM10-10	BRAKE SWITCH	GROUND	B+
D	EM10-12	SERIAL COMMUNICATIONS		
D	EM10-13	SERIAL COMMUNICATIONS		
I	EM10-14	PARKING BRAKE SWITCH	GROUND (APPLIED)	B+
I	EM10-15	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	GROUND (R,D,4,3,2)
O	EM10-16	EMS CONTROLLED RELAY ACTIVATE	GROUND	B+
D	EM10-17	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
O	EM10-20	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION COMMON REFERENCE GROUND	GROUND	GROUND
O	EM10-21	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM10-22	GROUND	GROUND	GROUND
I	EM10-23	GROUND	GROUND	GROUND
C	EM10-25	CAN NETWORK	15 – 1500 Hz	
C	EM10-26	CAN NETWORK	15 – 1500 Hz	
C	EM10-27	CAN NETWORK	15 – 1500 Hz	
C	EM10-28	CAN NETWORK	15 – 1500 Hz	
D	EM11-3	ECM PROGRAMMING	B+	B+
I	EM11-6	ENGINE CRANK	GROUND (CRANKING)	B+
O	EM11-8	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS / FUEL TANK PRESSURE SENSOR COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM11-9	ECT FEEDBACK	0.41 V @ 195°F (DECREASING WITH TEMPERATURE)	
I	EM11-10	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-11	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
O	EM11-12	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION FUEL TANK PRESSURE SENSOR COMMON REFERENCE GROUND	GROUND	GROUND
I	EM11-13	MECHANICAL GUARD POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
SG	EM11-14	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS SHIELD	GROUND	GROUND
I	EM11-15	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-16	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM12-12	IATS FEEDBACK	0.98 V @ 10°C, DECREASING WITH TEMPERATURE	
I	EM12-13	MAFS FEEDBACK	1.2 V @ IDLE, INCREASING WITH RPM INCREASE	
I	EM12-14	UPSTREAM 'B' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-15	UPSTREAM 'A' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
O	EM12-18	MAFS REFERENCE GROUND	GROUND	GROUND
O	EM12-19	MAFS REFERENCE GROUND	GROUND	GROUND
SG	EM12-22	02S / HO2S COMMON SHIELD	GROUND	GROUND
D	EM13-2	ECM PROGRAMMING		
O	EM13-11	VACUUM SWITCHING VALVE #3 ACTIVATE	GROUND	B+
O	EM13-12	VACUUM SWITCHING VALVE #1 ACTIVATE	GROUND	B+
O	EM13-13	VACUUM SWITCHING VALVE #2 ACTIVATE	GROUND	B+
O	EM13-14	THROTTLE MOTOR POWER RELAY ACTIVATE	GROUND	B+
I	EM13-17	'B' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-18	'A' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-19	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
I	EM13-20	CMPS SIGNAL	5 Hz @ IDLE	
I	EM13-27	CMPS / CKPS / KNOCK SENSORS COMMON SHIELD	GROUND	GROUND
I	EM13-28	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
SG	EM13-29	CMPS SIGNAL GROUND	GROUND	GROUND
I	EM14-1	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-2	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-3	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
I	EM14-4	GROUND	GROUND	GROUND
O	EM14-5	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM14-6	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-7	GROUND	GROUND	GROUND
I	EM14-8	GROUND	GROUND	GROUND
I	EM14-9	GROUND	GROUND	GROUND
I	EM14-10	GROUND	GROUND	GROUND
O	EM14-11	THROTTLE MOTOR POWER SUPPLY	GROUND	GROUND
O	EM14-12	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM15-1	UPSTREAM 'B' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-2	UPSTREAM 'A' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-3	EVAP VALVE ACTIVATE	GROUND (VALVE OPEN)	B+
O	EM15-8	VARIABLE VALVE TIMING SOLENOID 'B' BANK	GROUND	B+
O	EM15-9	VARIABLE VALVE TIMING SOLENOID 'A' BANK	GROUND	B+
I	EM15-11	GROUND	GROUND	GROUND
I	EM15-12	GROUND	GROUND	GROUND
I	EM15-22	GROUND	GROUND	GROUND

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

The following symbols are used to represent values for Control Module Pin Out data:

I	**Input**	**D**	**Serial and encoded communications**	**B+**	**Battery voltage**	**KHz**	**Frequency x 1000**
O	**Output**	**C**	**CAN (Network)**	**V**	**Voltage (DC)**	**MS**	**Milliseconds**
SG	**Signal Ground**	**S**	**SCP Network**	**Hz**	**Frequency**	**MV**	**Millivolts**

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 04.2

COMPONENTS

Component	Connector / Type / Color	Location / Access
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CKPS: CRANKSHAFT POSITION SENSOR	PI17 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE / REAR OF BED PLATE
CMPS: CAMSHAFT POSITION SENSOR	PI15 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE COMPARTMENT / 'B' BANK CYLINDER HEAD, REAR
ECM AND TCM COOLING FAN	EM66 / 2-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY FM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ECTS: ENGINE COOLANT TEMPERATURE SENSOR	PI4 / 2-WAY ECONOSEAL E J2 / GREY	ENGINE COMPARTMENT / REAR OF ENGINE TOP HOSE
EVAPP: EVAP CANISTER PURGE VALVE	EM39 / 2-WAY ECONOSEAL J2+ / BLACK	ENGINE COMPARTMENT / BULKHEAD
HO2S: HEATED OXYGEN SENSOR – A	EM21 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR – B	EM23 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
IATS: INTAKE AIR TEMPERATURE SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
KS: KNOCK SENSOR – 'A' BANK	PI26 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
KS: KNOCK SENSOR – 'B' BANK	PI27 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
MAFS: MASS AIR FLOW SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
PARKING BRAKE SWITCH	CC11 / 2-WAY MULTILOCK 040 / BLACK	CENTER CONSOLE ASSEMBLY
PEDAL POSITION AND MECHANICAL GUARD SENSORS	PI42 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
THROTTLE MOTOR	PI33 / 2-WAY TWIN CLIP / BLACK	ENGINE COMPARTMENT / THROTTLE ASSEMBLY
THROTTLE POSITION SENSOR	PI6 / 4-WAY SUMITOMO TS90 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
VACUUM SWITCHING VALVE – 1	EM57 / 2-WAY SUMITOMO 90 DC / BLUE	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 2	EM58 / 2-WAY SUMITOMO 90 DC / BROWN	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 3	EM59 / 2-WAY YAZAKI 90 / GREY	ENGINE COMPARTMENT / BULKHEAD
VARIABLE VALVE TIMING SOLENOID VALVE – 'A' BANK	PI31 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / 'A' BANK CYLINDER HEAD / FRONT
VARIABLE VALVE TIMING SOLENOID VALVE – 'B' BANK	PI32 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / 'B' BANK CYLINDER HEAD / FRONT

RELAYS

Relay	Case Color	Connector / Color	Location / Access
THROTTLE MOTOR POWER RELAY	BROWN	EM49 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION

GROUNDS

Ground	Location / Type
EM8L	EYELET (PAIR) – EMS LH GROUND STUD
EM16L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM16R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

CONTROL MODULE PIN OUT INFORMATION

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
I	EM10-1	IGNITION SWITCHED POWER SUPPLY	B+	0 V
I	EM10-5	IGNITION SWITCHED POWER SUPPLY	B+	B+
D	EM10-6	OK TO START – ENCODED COMMUNICATIONS		
I	EM10-9	BATTERY POWER SUPPLY	B+	B+
I	EM10-10	BRAKE SWITCH	GROUND	B+
I	EM10-14	PARKING BRAKE SWITCH	GROUND (APPLIED)	B+
D	EM10-12	SERIAL COMMUNICATIONS		
D	EM10-13	SERIAL COMMUNICATIONS		
I	EM10-15	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	GROUND (R,D,4,3,2)
O	EM10-16	EMS CONTROLLED RELAY ACTIVATE	GROUND	B+
D	EM10-17	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
O	EM10-20	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION COMMON REFERENCE GROUND	GROUND	GROUND
O	EM10-21	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM10-22	GROUND	GROUND	GROUND
I	EM10-23	GROUND	GROUND	GROUND
C	EM10-25	CAN NETWORK	15 – 1500 Hz	
C	EM10-26	CAN NETWORK	15 – 1500 Hz	
C	EM10-27	CAN NETWORK	15 – 1500 Hz	
C	EM10 28	CAN NETWORK	15 – 1500 Hz	
D	EM11-3	ECM PROGRAMMING	B+	B+
I	EM11-6	ENGINE CRANK	GROUND (CRANKING)	B+
O	EM11-8	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS / FUEL TANK PRESSURE SENSOR COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM11-9	ECT FEEDBACK	0.41 V @ 195°F (DECREASING WITH TEMPERATURE)	
I	EM11-10	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-11	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
O	EM11-12	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION FUEL TANK PRESSURE SENSOR COMMON REFERENCE GROUND	GROUND	GROUND
I	EM11-13	MECHANICAL GUARD POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
SG	EM11-14	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS SHIELD	GROUND	GROUND
I	EM11-15	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-16	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM12-12	IATS FEEDBACK	0.98 V @ 10°C, DECREASING WITH TEMPERATURE	
I	EM12-13	MAFS FEEDBACK	1.2 V @ IDLE, INCREASING WITH RPM INCREASE	
I	EM12-14	UPSTREAM 'B' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-15	UPSTREAM 'A' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
O	EM12-18	MAFS REFERENCE GROUND	GROUND	GROUND
O	EM12-19	MAFS REFERENCE GROUND	GROUND	GROUND
SG	EM12-22	02S / HO2S COMMON SHIELD	GROUND	GROUND
D	EM13-2	ECM PROGRAMMING		
O	EM13-11	VACUUM SWITCHING VALVE #3 ACTIVATE	GROUND	B+
O	EM13-12	VACUUM SWITCHING VALVE #1 ACTIVATE	GROUND	B+
O	EM13-13	VACUUM SWITCHING VALVE #2 ACTIVATE	GROUND	B+
O	EM13-14	THROTTLE MOTOR POWER RELAY ACTIVATE	GROUND	B+
I	EM13-17	'B' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-18	'A' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-19	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
I	EM13-20	CMPS SIGNAL	5 Hz @ IDLE	
I	EM13-27	CMPS / CKPS / KNOCK SENSORS COMMON SHIELD	GROUND	GROUND
I	EM13-28	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
SG	EM13-29	CMPS SIGNAL GROUND	GROUND	GROUND
I	EM14-1	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-2	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-3	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
I	EM14-4	GROUND	GROUND	GROUND
O	EM14-5	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM14-6	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-7	GROUND	GROUND	GROUND
I	EM14-8	GROUND	GROUND	GROUND
I	EM14-9	GROUND	GROUND	GROUND
I	EM14-10	GROUND	GROUND	GROUND
O	EM14-11	THROTTLE MOTOR POWER SUPPLY	GROUND	GROUND
O	EM14-12	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM15-1	UPSTREAM 'B' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-2	UPSTREAM 'A' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-3	EVAP VALVE ACTIVATE	GROUND (VALVE OPEN)	B+
O	EM15-8	VARIABLE VALVE TIMING SOLENOID 'B' BANK	GROUND	B+
O	EM15-9	VARIABLE VALVE TIMING SOLENOID 'A' BANK	GROUND	B+
I	EM15-11	GROUND	GROUND	GROUND
I	EM15-12	GROUND	GROUND	GROUND
I	EM15-22	GROUND	GROUND	GROUND

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

The following symbols are used to represent values for Control Module Pin Out data:

I	**Input**	**D**	**Serial and encoded communications**	**B+**	**Battery voltage**	**KHz**	**Frequency x 1000**
O	**Output**	**C**	**CAN (Network)**	**V**	**Voltage (DC)**	**MS**	**Milliseconds**
SG	**Signal Ground**	**S**	**SCP Network**	**Hz**	**Frequency**	**MV**	**Millivolts**

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 04.3

COMPONENTS

Component	Connector / Type / Color	Location / Access
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CKPS: CRANKSHAFT POSITION SENSOR	PI17 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE / REAR OF BED PLATE
CMPS: CAMSHAFT POSITION SENSOR	PI15 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE COMPARTMENT / 'B' BANK CYLINDER HEAD, REAR
ECM AND TCM COOLING FAN	EM66 / 2-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ENGINE CONTROL MODULE	EM10 / 26-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ECTS: ENGINE COOLANT TEMPERATURE SENSOR	PI4 / 2-WAY ECONOSEAL E J2 / GREY	ENGINE COMPARTMENT / REAR OF ENGINE TOP HOSE
EVAPP: EVAP CANISTER PURGE VALVE	EM39 / 2-WAY ECONOSEAL J2+ / BLACK	ENGINE COMPARTMENT / BULKHEAD
HO2S: HEATED OXYGEN SENSOR – A	EM21 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR – B	EM23 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
IATS: INTAKE AIR TEMPERATURE SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
KS: KNOCK SENSOR – 'A' BANK	PI26 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
KS: KNOCK SENSOR – 'B' BANK	PI27 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
MAFS: MASS AIR FLOW SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
PARKING BRAKE SWITCH	CC11 / 2-WAY MULTILOCK 040 / BLACK	CENTER CONSOLE ASSEMBLY
PEDAL POSITION AND MECHANICAL GUARD SENSORS	PI42 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
THROTTLE MOTOR	PI33 / 2-WAY TWIN CLIP / BLACK	ENGINE COMPARTMENT / THROTTLE ASSEMBLY
THROTTLE POSITION SENSOR	PI6 / 4-WAY SUMITOMO TS90 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
VACUUM SWITCHING VALVE – 1	EM57 / 2-WAY SUMITOMO 90 DC / BLUE	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 2	EM58 / 2-WAY SUMITOMO 90 DC / BROWN	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 3	EM59 / 2-WAY YAZAKI 90 / GREY	ENGINE COMPARTMENT / BULKHEAD

RELAYS

Relay	Case Color	Connector / Color	Location / Access
THROTTLE MOTOR POWER RELAY	BROWN	EM49 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION

GROUNDS

Ground	Location / Type
EM8L	EYELET (PAIR) – EMS LH GROUND STUD
EM16L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM16R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

CONTROL MODULE PIN OUT INFORMATION

AIR CONDITIONING CONTROL MODULE

▽	Pin	Description	Active	Inactive
I	CC28-1	COMPRESSOR CLUTCH STATUS	B+ (ON)	0 V
O	CC30-1	AIR CONDITIONING ELECTRICAL LOAD SIGNAL	B+	0 V
I	CC31-7	LOAD INHIBIT	0 V	B+
O	CC31-9	COMPRESSOR CLUTCH ON REQUEST	B+	0 V
I	CC31-17	REFRIGERANT 4 WAY PRESSURE SWITCH	0 V (2 – 30 BAR)	B+ (OUT OF ACTIVE RANGE)

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
O	EM10-2	A/CCM LOAD INHIBIT	GROUND	B+
I	EM10-3	A/CCM ELECTRICAL LOAD SIGNAL	B+	GROUND
I	EM10-4	A/CCM COMPRESSOR CLUTCH REQUEST	B+	GROUND
I	EM10-11	CRUISE CONTROL BRAKE CANCEL REQUEST	GROUND (APPLIED)	B+
I	EM11-1	CRUISE CONTROL SET +/-	7.3 V = (+), 8.8 V = (-)	B+
I	EM11-4	CRUISE CONTROL ON REQUEST	B+	GROUND
I	EM11-5	CRUISE CONTROL CANCEL / RESUME	7.3 V = RESUME, 8.8 V = CANCEL B+	
I	EM12-5	4 WAY REFRIGERANT SWITCH HIGH PRESSURE	GROUND @ 20 BAR (290 PSI)	
I	EM12-6	4 WAY REFRIGERANT SWITCH HIGH PRESSURE	GROUND @ 12 BAR (174 PSI)	
I	EM12-8	IGNITION MODULE 2 SWITCHING FEEDBACK	23 Hz @ IDLE (5 V)	
I	EM12-9	IGNITION MODULE1 SWITCHING FEEDBACK	23 Hz @ IDLE (5 V)	
O	EM12-10	AIR CONDITIONING COMPRESSOR RELAY ACTIVATE	GROUND	B+
O	EM13-1	FUEL PUMP RELAY ACTIVATE	GROUND	B+
O	EM13-3	CRUISE CONTROL ON STATUS LED	GROUND	B+
O	EM13-15	SERIES (LOW) SPEED FAN ACTIVATE	GROUND	B+
O	EM13-16	PARALLEL (HIGH) SPEED FAN ACTIVATE	GROUND	B+
O	EM13-22	IGNITION COIL RELAY ACTIVATE	GROUND	B+
O	EM13-23	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM13-24	IGNITION MODULE 2 SWITCHING	5 Hz @ IDLE	
O	EM13-25	IGNITION MODULE 2 SWITCHING	5 Hz @ IDLE	
O	EM13-26	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM13-31	IGNITION MODULE 2 SWITCHING	5 Hz @ IDLE	
O	EM13-32	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM13-33	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM13-34	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM15-4	INJECTOR '3B' ACTIVATE	GROUND	B+
O	EM15-5	INJECTOR '2B' ACTIVATE	GROUND	B+
O	EM15-6	INJECTOR '4A' ACTIVATE	GROUND	B+
O	EM15-7	INJECTOR '1A' ACTIVATE	GROUND	B+
O	EM15-15	INJECTOR '4B' ACTIVATE	GROUND	B+
O	EM15-16	INJECTOR '3A' ACTIVATE	GROUND	B+
O	EM15-17	INJECTOR '2A' ACTIVATE	GROUND	B+
O	EM15-18	INJECTOR '1B' ACTIVATE	GROUND	B+

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 04.4

COMPONENTS

Component	Connector / Type / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH	PI36 / 1-WAY SUMITOMO 90 A TYPE / BLACK	ENGINE COMPARTMENT / A/C COMPRESSOR
AIR CONDITIONING CONTROL MODULE	CC28 / 26-WAY MULTILOCK 47 / GREY CC29 / 16-WAY MULTILOCK 47 / GREY CC30 / 12-WAY MULTILOCK 47 / GREY CC31 / 22-WAY MULTILOCK 47 / GREY	RH SIDE OF TRANSMISSION TUNNEL / GLOVE BOX ASSEMBLY
BRAKE CANCEL SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CRUISE CONTROL ON / OFF SWITCH	CC20 / 10-WAY AMP MICRO QUAD LOCK / NATURAL	CENTER CONSOLE ASSEMBLY
CRUISE CONTROL SWITCHES (STEERING WHEEL)	SW3 / 3-WAY EPC / BLACK / WHITE	CENTER OF STEERING WHEEL
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
FUEL INJECTOR – 1A	PI7 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL
FUEL INJECTOR – 1B	PI11 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL
FUEL INJECTOR – 2A	PI8 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL
FUEL INJECTOR – 2B	PI12 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL
FUEL INJECTOR – 3A	PI9 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL
FUEL INJECTOR – 3B	PI13 / 2 WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL
FUEL INJECTOR – 4A	PI10 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL
FUEL INJECTOR – 4B	PI14 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL
FUEL PUMP	BT9 / 4-WAY SUMITOMO DL90 / NATURAL	TOP OF FUEL TANK / TRUNK CARPET
FUSE BOX – TRUNK	BT10 / 10-WAY U.T.A. FUSE BOX / NATURAL BT11 / 10-WAY U.T.A. FUSE BOX / BLACK BT12 / 10-WAY U.T.A. FUSE BOX / GREEN BT13 / 10-WAY U.T.A. FUSE BOX / BLUE BT64 / EYELET	TRUNK ELECTRICAL CARRIER
IGNITION COIL – 1A	PI18 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 1B	PI22 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 2A	PI19 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 2B	PI23 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 3A	PI20 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 3B	PI24 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 4A	PI21 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 4B	PI25 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION MODULE – 1	EM27 / 12-WAY IGNITION POWER MODULE / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
IGNITION MODULE – 2	EM29 / 12-WAY IGNITION POWER MODULE / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
RADIATOR FAN CONTROL RELAY MODULE	LS31 / 8-WAY TRW / BLACK	ENGINE COMPARTMENT / ADJACENT TO LH CRUSH TUBE
RADIATOR FAN – LH	CF1 / 2-WAY REINSHAGEN / BLACK	ENGINE COMPARTMENT / BELOW LH FAN
RADIATOR FAN – RH	CF2 / 2-WAY REINSHAGEN / BLACK	ENGINE COMPARTMENT / BELOW RH FAN
REFRIGERANT 4-WAY PRESSURE SWITCH	LS26 / 6-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / ADJACENT TO LH SIDE OF RADIATOR

RELAYS

Relay	Case Color	Connector / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH RELAY	BROWN	EM25 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
FUEL INJECTION RELAY	BROWN	EM52 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
FUEL PUMP RELAY	BROWN	BUS	RELAY #4, TRUNK FUSE BOX / TRUNK
IGNITION COIL RELAY	BROWN	EM26 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM51	12-WAY AUGAT 1.6 / GREY	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
LS32	4-WAY YAZAKI / GREY	FORWARD OF LH FRONT SUSPENSION ARM
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
SC3	12-WAY MULTILOCK 070 / GREY	ADJACENT TO STEERING COLUMN MOTOR
SW1	12-WAY MULTILOCK 040 / BLACK	INSIDE STEERING COLUMN COWL
SW2	6-WAY JST / WHITE	CENTER OF STEERING WHEEL

GROUNDS

Ground	Location / Type
BT20	EYELET (SINGLE) – TRUNK / RH REAR GROUND STUD
EM8R	EYELET (PAIR) – EMS LH GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
LS10L	EYELET (PAIR) – LH FORWARD GROUND STUD
LS10R	EYELET (PAIR) – LH FORWARD GROUND STUD
LS20L	EYELET (PAIR) – RH FORWARD GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
I	EM10-1	IGNITION SWITCHED POWER SUPPLY	B+	0 V
I	EM10-5	IGNITION SWITCHED POWER SUPPLY	B+	B+
D	EM10-6	OK TO START – ENCODED COMMUNICATIONS		
I	EM10-9	BATTERY POWER SUPPLY	B+	B+
I	EM10-10	BRAKE SWITCH	GROUND	B+
D	EM10-12	SERIAL COMMUNICATIONS		
D	EM10-13	SERIAL COMMUNICATIONS		
I	EM10-14	PARKING BRAKE SWITCH	GROUND (APPLIED)	B+
I	EM10-15	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	GROUND (R,D,4,3,2)
O	EM10-16	EMS CONTROLLED RELAY ACTIVATE	GROUND	B–
D	EM10-17	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
O	EM10-20	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION COMMON REFERENCE GROUND	GROUND	GROUND
O	EM10-21	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM10-22	GROUND	GROUND	GROUND
I	EM10-23	GROUND	GROUND	GROUND
C	EM10-25	CAN NETWORK	15 – 1500 Hz	
C	EM10-26	CAN NETWORK	15 – 1500 Hz	
C	EM10-27	CAN NETWORK	15 – 1500 Hz	
C	EM10-28	CAN NETWORK	15 – 1500 Hz	
D	EM11-3	ECM PROGRAMMING		
I	EM11-6	ENGINE CRANK	B+	B+
I	EM11-7	FUEL TANK PRESSURE SENSOR FEEDBACK	GROUND (CRANKING)	B+
O	EM11-8	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS / FUEL TANK PRESSURE SENSOR COMMON REFERENCE VOLTAGE	4.9 V = LOW PRESSURE, 0.2 V = HIGH PRESSURE 5 V	5 V
I	EM11-9	ECT FEEDBACK	0.41 V @ 195°F (DECREASING WITH TEMPERATURE)	
I	EM11-10	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-11	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
O	EM11-12	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION FUEL TANK PRESSURE SENSOR COMMON REFERENCE GROUND	GROUND	GROUND
I	EM11-13	MECHANICAL GUARD POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
SG	EM11-14	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS SHIELD	GROUND	GROUND
I	EM11-15	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-16	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
O	EM12-1	EGR STEPPER MOTOR 'S1' WINDING SUPPLY	GROUND	B+
O	EM12-2	EGR STEPPER MOTOR 'S2' WINDING SUPPLY	GROUND	B+
O	EM12-3	EGR STEPPER MOTOR 'S3' WINDING SUPPLY	GROUND	B+
O	EM12-4	EGR STEPPER MOTOR 'S4' WINDING SUPPLY	GROUND	B+
I	EM12-7	MANIFOLD IATS FEEDBACK		
I	EM12-12	IATS FEEDBACK	0.98 V @ 10°C, DECREASING WITH TEMPERATURE	
I	EM12-13	MAFS FEEDBACK	1.2 V @ IDLE, INCREASING WITH RPM INCREASE	
I	EM12-14	UPSTREAM 'B' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-15	UPSTREAM 'A' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-16	DOWNSTREAM 'B' BANK O2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-17	DOWNSTREAM 'A' BANK O2S	0.1 – 0.9 V @ IDLE (SWING)	
O	EM12-18	MAFS REFERENCE GROUND	GROUND	GROUND
O	EM12-19	MAFS REFERENCE GROUND	GROUND	GROUND
SG	EM12-22	02S / HO2S COMMON SHIELD	GROUND	GROUND
D	EM13-2	ECM PROGRAMMING		
O	EM13-4	CANISTER CLOSE VALVE ACTIVATE	GROUND	B+
O	EM13-11	VACUUM SWITCHING VALVE #3 ACTIVATE	GROUND	B+
O	EM13-12	VACUUM SWITCHING VALVE #1 ACTIVATE	GROUND	B+
O	EM13-13	VACUUM SWITCHING VALVE #2 ACTIVATE	GROUND	B+
O	EM13-14	THROTTLE MOTOR POWER RELAY ACTIVATE	GROUND	B+
I	EM13-17	'B' BANK KNOCK SENSOR FEEDBACK	0 KHz – NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-18	'A' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-19	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
I	EM13-20	CMPS SIGNAL	5 Hz @ IDLE	
I	EM13-27	CMPS / CKPS / KNOCK SENSORS COMMON SHIELD	GROUND	GROUND
I	EM13-28	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
SG	EM13-29	CMPS SIGNAL GROUND	GROUND	GROUND
I	EM14-1	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-2	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-3	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
I	EM14-4	GROUND	GROUND	GROUND
O	EM14-5	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM14-6	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-7	GROUND	GROUND	GROUND
I	EM14-8	GROUND	GROUND	GROUND
I	EM14-9	GROUND	GROUND	GROUND
I	EM14-10	GROUND	GROUND	GROUND
O	EM14-11	THROTTLE MOTOR POWER SUPPLY	GROUND	GROUND
O	EM14-12	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM15-1	UPSTREAM 'B' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-2	UPSTREAM 'A' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-3	EVAP VALVE ACTIVATE	GROUND (VALVE OPEN)	B+
I	EM15-11	GROUND	GROUND	GROUND
I	EM15-12	GROUND	GROUND	GROUND
I	EM15-22	GROUND	GROUND	GROUND

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

The following symbols are used to represent values for Control Module Pin Out data:

I	**Input**	**D**	**Serial and encoded communications**	**B+**	**Battery voltage**	**KHz**	**Frequency x 1000**
O	**Output**	**C**	**CAN (Network)**	**V**	**Voltage (DC)**	**MS**	**Milliseconds**
SG	**Signal Ground**	**S**	**SCP Network**	**Hz**	**Frequency**	**MV**	**Millivolts**

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 04.5

COMPONENTS

Component	Connector / Type / Color	Location / Access
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CANISTER CLOSE VALVE	CV1 / 2-WAY YAZAKI 90 / BLACK	UNDER VEHICLE / RH REAR
CKPS: CRANKSHAFT POSITION SENSOR	PI17 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE / REAR OF BED PLATE
CMPS: CAMSHAFT POSITION SENSOR	PI15 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE COMPARTMENT / 'B' BANK CYLINDER HEAD, REAR
ECM AND TCM COOLING FAN	EM66 / 2-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
EGRV: EGR VALVE	PI34 / 6-WAY SUMITOMO 92 / GREY	ENGINE COMPARTMENT / REAR OF THROTTLE ASSEMBLY
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ECTS: ENGINE COOLANT TEMPERATURE SENSOR	PI4 / 2-WAY ECONOSEAL E J2 / GREY	ENGINE COMPARTMENT / REAR OF ENGINE TOP HOSE
EVAPP: EVAP CANISTER PURGE VALVE	EM39 / 2-WAY ECONOSEAL J2+ / BLACK	ENGINE COMPARTMENT / BULKHEAD
FUEL TANK PRESSURE SENSOR	BT5 / 3-WAY MULTILOCK 070 / WHITE FP1 / 3-WAY ECONOSEAL III LC / BLACK	TOP OF FUEL TANK / TRUNK CARPET
HO2S: HEATED OXYGEN SENSOR (UPSTREAM) – A	EM21 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR (UPSTREAM) – B	EM23 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
IATS: INTAKE AIR TEMPERATURE SENSOR 1	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
IATS 2: INTAKE AIR TEMPERATURE SENSOR 2	PI3 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / 'A' BANK INTERCOOLER / REAR
KS: KNOCK SENSOR – 'A' BANK	PI26 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
KS: KNOCK SENSOR – 'B' BANK	PI27 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
MAFS: MASS AIR FLOW SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
O2S: OXYGEN SENSOR (DOWNSTREAM) – A	EM22 / 2-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
O2S: OXYGEN SENSOR (DOWNSTREAM) – B	EM24 / 2-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
PARKING BRAKE SWITCH	CC11 / 2-WAY MULTILOCK 040 / BLACK	CENTER CONSOLE ASSEMBLY
PEDAL POSITION AND MECHANICAL GUARD SENSORS	PI42 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
THROTTLE MOTOR	PI33 / 2-WAY TWIN CLIP / BLACK	ENGINE COMPARTMENT / THROTTLE ASSEMBLY
THROTTLE POSITION SENSOR	PI6 / 4-WAY SUMITOMO TS90 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
VACUUM SWITCHING VALVE – 1	EM57 / 2-WAY SUMITOMO 90 DC / BLUE	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 2	EM58 / 2-WAY SUMITOMO 90 DC / BROWN	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 3	EM59 / 2-WAY YAZAKI 90 / GREY	ENGINE COMPARTMENT / BULKHEAD

RELAYS

Relay	Case Color	Connector / Color	Location / Access
THROTTLE MOTOR POWER RELAY	BROWN	EM49 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION

GROUNDS

Ground	Location / Type
EM8L	EYELET (PAIR) – EMS LH GROUND STUD
EM16L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM16R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

CONTROL MODULE PIN OUT INFORMATION

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
I	EM10-1	IGNITION SWITCHED POWER SUPPLY	B+	0 V
I	EM10-5	IGNITION SWITCHED POWER SUPPLY	B+	B+
D	EM10-6	OK TO START – ENCODED COMMUNICATIONS		
I	EM10-9	BATTERY POWER SUPPLY	B+	B+
I	EM10-10	BRAKE SWITCH	GROUND	B+
D	EM10-12	SERIAL COMMUNICATIONS		
D	EM10-13	SERIAL COMMUNICATIONS		
I	EM10-14	PARKING BRAKE SWITCH	GROUND (APPLIED)	B+
I	EM10-15	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	GROUND (R,D,4,3,2)
O	EM10-16	EMS CONTROLLED RELAY ACTIVATE	GROUND	B+
D	EM10-17	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
O	EM10-20	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION COMMON REFERENCE GROUND	GROUND	GROUND
O	EM10-21	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM10-22	GROUND	GROUND	GROUND
I	EM10-23	GROUND	GROUND	GROUND
C	EM10-25	CAN NETWORK	15 – 1500 Hz	
C	EM10-26	CAN NETWORK	15 – 1500 Hz	
C	EM10-27	CAN NETWORK	15 – 1500 Hz	
C	EM10-28	CAN NETWORK	15 – 1500 Hz	
D	EM11-3	ECM PROGRAMMING	B+	B+
I	EM11-6	ENGINE CRANK	GROUND (CRANKING)	B+
O	EM11-8	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS / FUEL TANK PRESSURE SENSOR COMMON REFERENCE VOLTAGE	5 V	5 V
I	EM11-9	ECT FEEDBACK	0.41 V @ 195°F (DECREASING WITH TEMPERATURE)	
I	EM11-10	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-11	TPS FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
O	EM11-12	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION FUEL TANK PRESSURE SENSOR COMMON REFERENCE GROUND	GROUND	GROUND
I	EM11-13	MECHANICAL GUARD POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
SG	EM11-14	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS SHIELD	GROUND	GROUND
I	EM11-15	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
I	EM11-16	PEDAL POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	
O	EM12-1	EGR STEPPER MOTOR 'S1' WINDING SUPPLY	GROUND	B+
O	EM12-2	EGR STEPPER MOTOR 'S2' WINDING SUPPLY	GROUND	B+
O	EM12-3	EGR STEPPER MOTOR 'S3' WINDING SUPPLY	GROUND	B+
O	EM12-4	EGR STEPPER MOTOR 'S4' WINDING SUPPLY	GROUND	B+
I	EM12-7	MANIFOLD IATS FEEDBACK		
I	EM12-12	IATS FEEDBACK	0.98 V @ 10°C, DECREASING WITH TEMPERATURE	
I	EM12-13	MAFS FEEDBACK	1.2 V @ IDLE, INCREASING WITH RPM INCREASE	
I	EM12-14	UPSTREAM 'B' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
I	EM12-15	UPSTREAM 'A' BANK HO2S	0.1 – 0.9 V @ IDLE (SWING)	
O	EM12-18	MAFS REFERENCE GROUND	GROUND	GROUND
O	EM12-19	MAFS REFERENCE GROUND	GROUND	GROUND
SG	EM12-22	02S / HO2S COMMON SHIELD	GROUND	GROUND
D	EM13-2	ECM PROGRAMMING		
O	EM13-11	VACUUM SWITCHING VALVE #3 ACTIVATE	GROUND	B+
O	EM13-12	VACUUM SWITCHING VALVE #1 ACTIVATE	GROUND	B+
O	EM13-13	VACUUM SWITCHING VALVE #2 ACTIVATE	GROUND	B+
O	EM13-14	THROTTLE MOTOR POWER RELAY ACTIVATE	GROUND	B+
I	EM13-17	'B' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-18	'A' BANK KNOCK SENSOR FEEDBACK	0 KHz = NO KNOCK, 2 – 20 KHz = KNOCK	
I	EM13-19	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
I	EM13-20	CMPS SIGNAL	5 Hz @ IDLE	
I	EM13-27	CMPS / CKPS / KNOCK SENSORS COMMON SHIELD	GROUND	GROUND
I	EM13-28	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
SG	EM13-29	CMPS SIGNAL GROUND	GROUND	GROUND
I	EM14-1	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-2	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-3	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
I	EM14-4	GROUND	GROUND	GROUND
O	EM14-5	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM14-6	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM14-7	GROUND	GROUND	GROUND
I	EM14-8	GROUND	GROUND	GROUND
I	EM14-9	GROUND	GROUND	GROUND
I	EM14-10	GROUND	GROUND	GROUND
O	EM14-11	THROTTLE MOTOR POWER SUPPLY	GROUND	GROUND
O	EM14-12	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM15-1	UPSTREAM 'B' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-2	UPSTREAM 'A' BANK HO2S HEATER GROUND	GROUND	GROUND
O	EM15-3	EVAP VALVE ACTIVATE	GROUND (VALVE OPEN)	B+
I	EM15-11	GROUND	GROUND	GROUND
I	EM15-12	GROUND	GROUND	GROUND
I	EM15-22	GROUND	GROUND	GROUND

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

The following symbols are used to represent values for Control Module Pin Out data:

I	**Input**	**D**	**Serial and encoded communications**	**B+**	**Battery voltage**	**KHz**	**Frequency x 1000**
O	**Output**	**C**	**CAN (Network)**	**V**	**Voltage (DC)**	**MS**	**Milliseconds**
SG	**Signal Ground**	**S**	**SCP Network**	**Hz**	**Frequency**	**MV**	**Millivolts**

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 04.6

COMPONENTS

Component	Connector / Type / Color	Location / Access
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CKPS: CRANKSHAFT POSITION SENSOR	PI17 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE / REAR OF BED PLATE
CMPS: CAMSHAFT POSITION SENSOR	PI15 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE COMPARTMENT / 'B' BANK CYLINDER HEAD, REAR
ECM AND TCM COOLING FAN	EM66 / 2-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ECTS: ENGINE COOLANT TEMPERATURE SENSOR	PI4 / 2-WAY ECONOSEAL E J2 / GREY	ENGINE COMPARTMENT / REAR OF ENGINE TOP HOSE
EVAPP: EVAP CANISTER PURGE VALVE	EM39 / 2-WAY ECONOSEAL J2+ / BLACK	ENGINE COMPARTMENT / BULKHEAD
HO2S: HEATED OXYGEN SENSOR – A	EM21 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR – B	EM23 / 4-WAY SUMITOMO 90 II / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
IATS: INTAKE AIR TEMPERATURE SENSOR 1	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
IATS 2: INTAKE AIR TEMPERATURE SENSOR 2	PI3 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / 'A' BANK INTERCOOLER / REAR
KS: KNOCK SENSOR – 'A' BANK	PI26 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
KS: KNOCK SENSOR – 'B' BANK	PI27 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
MAFS: MASS AIR FLOW SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
PARKING BRAKE SWITCH	CC11 / 2-WAY MULTILOCK 040 / BLACK	CENTER CONSOLE ASSEMBLY
PEDAL POSITION AND MECHANICAL GUARD SENSORS	PI42 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
THROTTLE MOTOR	PI33 / 2-WAY TWIN CLIP / BLACK	ENGINE COMPARTMENT / THROTTLE ASSEMBLY
THROTTLE POSITION SENSOR	PI6 / 4-WAY SUMITOMO TS90 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
VACUUM SWITCHING VALVE – 1	EM57 / 2-WAY SUMITOMO 90 DC / BLUE	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 2	EM58 / 2-WAY SUMITOMO 90 DC / BROWN	ENGINE COMPARTMENT / BULKHEAD
VACUUM SWITCHING VALVE – 3	EM59 / 2-WAY YAZAKI 90 / GREY	ENGINE COMPARTMENT / BULKHEAD

RELAYS

Relay	Case Color	Connector / Color	Location / Access
THROTTLE MOTOR POWER RELAY	BROWN	EM49 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION

GROUNDS

Ground	Location / Type
EM8L	EYELET (PAIR) – EMS LH GROUND STUD
EM16L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM16R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

AIR CONDITIONING CONTROL MODULE

▽	Pin	Description	Active	Inactive
I	CC28-1	COMPRESSOR CLUTCH STATUS	B+ (ON)	0 V
O	CC30-1	AIR CONDITIONING ELECTRICAL LOAD SIGNAL	B+	0 V
I	CC31-7	LOAD INHIBIT	0 V	B+
O	CC31-9	COMPRESSOR CLUTCH ON REQUEST	B+	0 V
I	CC31-17	REFRIGERANT 4 WAY PRESSURE SWITCH	0 V (2 – 30 BAR)	B+ (OUT OF ACTIVE RANGE)

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
O	EM10-2	A/CCM LOAD INHIBIT	GROUND	B+
I	EM10-3	A/CCM ELECTRICAL LOAD SIGNAL	B+	GROUND
I	EM10-4	A/CCM COMPRESSOR CLUTCH REQUEST	B+	GROUND
I	EM10-11	CRUISE CONTROL BRAKE CANCEL REQUEST	GROUND (APPLIED)	B+
I	EM11-1	CRUISE CONTROL SET +/-	7.3 V = (+), 8.8 V = (-)	B+
I	EM11-4	CRUISE CONTROL ON REQUEST	B+	GROUND
I	EM11-5	CRUISE CONTROL CANCEL / RESUME	7.3 V = RESUME, 8.8 V = CANCEL B+	
I	EM12-5	4 WAY REFRIGERANT SWITCH HIGH PRESSURE	GROUND @ 20 BAR (290 PSI)	
I	EM12-6	4 WAY REFRIGERANT SWITCH HIGH PRESSURE	GROUND @ 12 BAR (174 PSI)	
I	EM12-8	IGNITION MODULE 2 SWITCHING FEEDBACK	23 Hz @ IDLE (5 V)	
I	EM12-9	IGNITION MODULE 1 SWITCHING FEEDBACK	23 Hz @ IDLE (5 V)	
O	EM12-10	AIR CONDITIONING COMPRESSOR RELAY ACTIVATE	GROUND	B+
O	EM13-1	FUEL PUMP RELAY ACTIVATE	GROUND	B+
O	EM13-3	CRUISE CONTROL ON STATUS LED	GROUND	B+
O	EM13-9	FUEL PUMP RELAY ACTIVATE	GROUND	B+
O	EM13-10	INTERCOOLER PUMP RELAY ACTIVATE	GROUND	B+
O	EM13-15	SERIES (LOW) SPEED FAN ACTIVATE	GROUND	B+
O	EM13-16	PARALLEL (HIGH) SPEED FAN ACTIVATE	GROUND	B+
O	EM13-22	IGNITION COIL RELAY ACTIVATE	GROUND	B+
O	EM13-23	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM13-24	IGNITION MODULE 2 SWITCHING	5 Hz @ IDLE	
O	EM13-25	IGNITION MODULE 2 SWITCHING	5 Hz @ IDLE	
O	EM13-26	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM13-31	IGNITION MODULE 2 SWITCHING	5 Hz @ IDLE	
O	EM13-32	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM13-33	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM13-34	IGNITION MODULE 1 SWITCHING	5 Hz @ IDLE	
O	EM15-4	INJECTOR '3B' ACTIVATE	GROUND	B+
O	EM15-5	INJECTOR '2B' ACTIVATE	GROUND	B+
O	EM15-6	INJECTOR '4A' ACTIVATE	GROUND	B+
O	EM15-7	INJECTOR '1A' ACTIVATE	GROUND	B+
O	EM15-15	INJECTOR '4B' ACTIVATE	GROUND	B+
O	EM15-16	INJECTOR '3A' ACTIVATE	GROUND	B+
O	EM15-17	INJECTOR '2A' ACTIVATE	GROUND	B+
O	EM15-18	INJECTOR '1B' ACTIVATE	GROUND	B+

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 04.7

COMPONENTS

Component	Connector / Type / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH	PI36 / 1-WAY SUMITOMO 90 A TYPE / BLACK	ENGINE COMPARTMENT / A/C COMPRESSOR
AIR CONDITIONING CONTROL MODULE	CC28 / 26-WAY MULTILOCK 47 / GREY CC29 / 16-WAY MULTILOCK 47 / GREY CC30 / 12-WAY MULTILOCK 47 / GREY CC31 / 22-WAY MULTILOCK 47 / GREY	RH SIDE OF TRANSMISSION TUNNEL / GLOVE BOX ASSEMBLY
BRAKE CANCEL SWITCHES	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CRUISE CONTROL ON / OFF SWITCH	CC20 / 10-WAY AMP MICRO QUAD LOCK / NATURAL	CENTER CONSOLE ASSEMBLY
CRUISE CONTROL SWITCHES (STEERING WHEEL)	SW3 / 3-WAY EPC / BLACK / WHITE	CENTER OF STEERING WHEEL
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
FUEL INJECTOR – 1A	IJ3 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD
FUEL INJECTOR – 1B	IJ7 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD
FUEL INJECTOR – 2A	IJ4 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD
FUEL INJECTOR – 2B	IJ8 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD
FUEL INJECTOR – 3A	IJ5 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD
FUEL INJECTOR – 3B	IJ9 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD
FUEL INJECTOR – 4A	IJ6 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD
FUEL INJECTOR – 4B	IJ10 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / INTAKE MANIFOLD
FUEL PUMPS	BT9 / 4-WAY SUMITOMO DL90 / NATURAL	TOP OF FUEL TANK / TRUNK CARPET
FUSE BOX – TRUNK	BT10 / 10-WAY U.T.A. FUSE BOX / NATURAL BT11 / 10-WAY U.T.A. FUSE BOX / BLACK BT12 / 10-WAY U.T.A. FUSE BOX / GREEN BT13 / 10-WAY U.T.A. FUSE BOX / BLUE BT64 / EYELET	TRUNK ELECTRICAL CARRIER
IGNITION COIL – 1A	PI18 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 1B	PI22 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 2A	PI19 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 2B	PI23 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 3A	PI20 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 3B	PI24 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 4A	PI21 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION COIL – 4B	PI25 / 2-WAY YAZAKI 90 / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER
IGNITION MODULE – 1	EM27 / 12-WAY IGNITION POWER MODULE / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
IGNITION MODULE – 2	EM29 / 12-WAY IGNITION POWER MODULE / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
INTERCOOLER PUMP	LS30 / 2-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO RH CRUSH TUBE
RADIATOR FAN CONTROL RELAY MODULE	LS31 / 8-WAY TRW / BLACK	ENGINE COMPARTMENT / ADJACENT TO LH CRUSH TUBE
RADIATOR FAN – LH	CF1 / 2-WAY REINSHAGEN / BLACK	ENGINE COMPARTMENT / BELOW LH FAN
RADIATOR FAN – RH	CF2 / 2-WAY REINSHAGEN / BLACK	ENGINE COMPARTMENT / BELOW RH FAN
REFRIGERANT 4-WAY PRESSURE SWITCH	LS26 / 6-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / ADJACENT TO LH SIDE OF RADIATOR

RELAYS

Relay	Case Color	Connector / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH RELAY	BROWN	EM25 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
FUEL INJECTION RELAY	BROWN	EM52 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
FUEL PUMP RELAY 2	BROWN	BUS	RELAY #1, TRUNK FUSE BOX / TRUNK
FUEL PUMP RELAY 1	BROWN	BUS	RELAY #4, TRUNK FUSE BOX / TRUNK
IGNITION COIL RELAY	BROWN	EM26 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
INTERCOOLER PUMP RELAY	BLUE	EM41 / BLUE	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM3	14-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM51	12-WAY AUGAT 1.6 / GREY	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
IJ1	6-WAY AUGAT 1.6 / BLACK	ENGINE / FORWARD OF INTAKE MANIFOLD
IJ2	6-WAY AUGAT 1.6 / BLACK	ENGINE / FORWARD OF INTAKE MANIFOLD
LS32	4-WAY YAZAKI / GREY	FORWARD OF LH FRONT SUSPENSION ARM
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
PI2	13-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
SC3	12-WAY MULTILOCK 070 / GREY	ADJACENT TO STEERING COLUMN MOTOR
SW1	12-WAY MULTILOCK 040 / BLACK	INSIDE STEERING COLUMN COWL
SW2	6-WAY JST / WHITE	CENTER OF STEERING WHEEL

GROUNDS

Ground	Location / Type	Ground	Location / Type
BT20	EYELET (SINGLE) – TRUNK / RH REAR GROUND STUD	LS10L	EYELET (PAIR) – LH FORWARD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD	LS10R	EYELET (PAIR) – LH FORWARD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD	LS20L	EYELET (PAIR) – RH FORWARD GROUND STUD
EM8R	EYELET (PAIR) – EMS LH GROUND STUD	LS20R	EYELET (PAIR) – RH FORWARD GROUND STUD
FC17R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD		

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

CONTROL MODULE PIN OUT INFORMATION

GEAR SELECTOR ILLUMINATION MODULE

▽	Pin	Description	Active	Inactive
I	CC14-1	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
C	CC14-3	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
C	CC14-4	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
I	CC14-6	GROUND	GROUND	GROUND
C	CC14-8	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
C	CC14-9	CAN NETWORK	15 – 1500 Hz @ 2.5 V	

TRANSMISSION CONTROL MODULE: AJ26 N/A

▽	Pin	Description	Active	Inactive
O	EM7-1	PRESSURE REGULATOR #2	GROUND (MAXIMUM PRESSURE)	B+ (NO PRESSURE)
O	EM7-2	SPORT MODE SWITCH STATUS LED	GROUND = LED ON	B+
O	EM7-4	PRESSURE REGULATOR #4	GROUND (MAXIMUM PRESSURE)	B+ (NO PRESSURE)
O	EM7-5	PRESSURE REGULATOR #1	GROUND (MAXIMUM PRESSURE)	B+ (NO PRESSURE)
I	EM7-6	GROUND	GROUND	GROUND
I	EM7-8	ROTARY SWITCH 'L2' CONTACTS	B+	GROUND
I	EM7-9	ROTARY SWITCH 'L4' CONTACTS	B+	GROUND
I	EM7-12	SPORT MODE SWITCH STRATEGY SELECT	GROUND = SPORT	9 V = NORMAL
I	EM7-13	D – 4 SWITCH	GROUND	B+
I	EM7-14	TURBINE SPEED SENSOR	300 Hz @ IDLE (2.5 V)	
SG	EM7-15	OUTPUT SPEED SENSOR SHIELD	GROUND	GROUND
SG	EM7-16	OUTPUT SPEED SENSOR	GROUND	GROUND
I	EM7-18	KICKDOWN SWITCH	GROUND	B+
SG	EM7-21	FLUID TEMPERATURE SENSOR	1.31 V	
I	EM7-22	FLUID TEMPERATURE SENSOR FEEDBACK	1.15 V @ 90°C	
I	EM7-23	TURBINE SPEED SENSOR SHIELD	GROUND	GROUND
I	EM7-26	BATTERY POWER SUPPLY	B+	B+
O	EM7-28	ROTARY / D – 4 / KICK DOWN SWITCHES COMMON GROUND	GROUND	GROUND
O	EM7-29	PRESSURE REGULATOR #3	GROUND (MAXIMUM PRESSURE)	B+ (NO PRESSURE)
O	EM7-30	SOLENOID VALVE #1	GROUND	B+
O	EM7-32	SOLENOID VALVE #3	GROUND	B+
O	EM7-33	SOLENOID VALVE #2	GROUND	B+
I	EM7-34	GROUND	GROUND	GROUND
I	EM7-36	ROTARY SWITCH 'L1' CONTACTS	B+	GROUND
I	EM7-37	ROTARY SWITCH 'L3' CONTACTS	B+	GROUND
I	EM7-42	TURBINE SPEED SENSOR	1.51 V @ 10 MPH (16 KM/H) = 250 Hz, 20 MPH (32 KM/H) = 500 Hz	
I	EM7-44	OUTPUT SPEED SENSOR	1.51 V @ 10 MPH (16 KM/H) = 223 Hz, 20 MPH (32 KM/H) = 446 Hz	
I	EM7-45	SPORT MODE SWITCH STRATEGY SELECT	10 v = SPORT	GROUND = NORMAL
O	EM7-51	PRESSURE REGULATOR #5	GROUND (MAXIMUM PRESSURE)	B+ (NO PRESSURE)
O	EM7-52	SOLENOID VALVES COMMON SUPPLY	B+	B+
O	EM7-53	PRESSURE REGULATORS COMMON SUPPLY	B+	B+
I	EM7-54	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
I	EM7-55	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
C	EM7-82	CAN NETWORK	15 – 1500 Hz	
C	EM7-83	CAN NETWORK	15 – 1500 Hz	
C	EM7-85	CAN NETWORK	15 – 1500 Hz	
C	EM7-86	CAN NETWORK	15 – 1500 Hz	

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 05.1

COMPONENTS

Component	Connector / Type / Color	Location / Access
D – 4 SWITCH	CC7 / 3-WAY MULTILOCK 070 / YELLOW	CENTER CONSOLE ASSEMBLY
GEAR SELECTOR ILLUMINATION MODULE	CC14 / 10-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
KICKDOWN SWITCH	CC18 / 2-WAY ECONOSEAL III / BLACK	UNDER ACCELERATOR PEDAL
MODE SWITCH (TRANSMISSION)	CC4 / 10 WAY AMP MICRO QUAD LOCK / BLACK	CENTER CONSOLE ASSEMBLY
TRANSMISSION CONTROL MODULE: AJ26 N/A	EM7 / 88-WAY BOSCH / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
TRANSMISSION ELECTRICAL CONNECTOR: AJ26 N/A	EM46 / 16-WAY KOSTAL TRANSMISSION CONNECTOR / BLACK	LEFT HAND REAR OF TRANSMISSION
TRANSMISSION ROTARY SWITCH	EM47 / 10-WAY METRI-PACK 150 / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER

GROUNDS

Ground	Location / Type
CC2R	EYELET (PAIR) – DRIVE SHAFT TUNNEL GROUND STUD – LH SIDE
CC3L	EYELET (PAIR) – RH FRONT BULKHEAD STUD / CABIN SIDE
EM8R	EYELET (PAIR) – EMS LH GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

←

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

GEAR SELECTOR ILLUMINATION MODULE

▽	Pin	Description	Active	Inactive
I	CC14-1	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
C	CC14-3	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
C	CC14-4	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
I	CC14-6	GROUND	GROUND	GROUND
C	CC14-8	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
C	CC14-9	CAN NETWORK	15 – 1500 Hz @ 2.5 V	

TRANSMISSION CONTROL MODULE: AJ26 SC

▽	Pin	Description	Active	Inactive
D	EM61-1	SERIAL COMMUNICATIONS		
I	EM61-2	KICKDOWN SWITCH	GROUND (= WOT)	B+ (< WOT)
I	EM61-3	SPORT MODE SWITCH	0 V = SPORT; 0 V = NORMAL	
I	EM61-25	DUAL LINEAR SWITCH VOLTAGE ENCODED GEAR RECOGNITION	GROUND = R, D, 4, 3	B+ = P, N, 2
I	EM61-26	DUAL LINEAR SWITCH VOLTAGE ENCODED GEAR RECOGNITION	GROUND = N, D, 4, 2	B+ = P, R, 3
I	EM61-27	DUAL LINEAR SWITCH VOLTAGE ENCODED GEAR RECOGNITION	GROUND = N, 4, 3, 2 8 V = R, D	B+ = P
I	EM61-28	DUAL LINEAR SWITCH VOLTAGE ENCODED GEAR RECOGNITION	GROUND = P, D, 3, 2	B+ = R, N, 4
I	EM61-29	IGNITION SUPPLIED VOLTAGE	B+	GROUND
I	EM61-30	TCM / DUAL LINEAR SWITCH COMMON GROUND SUPPLY	GROUND	GROUND
C	EM62-L	CAN NETWORK	5 – 1500 Hz	
C	EM62-H	CAN NETWORK	5 – 1500 Hz	
I	EM62-12	n2 SPEED SENSOR FEEDBACK	6V = 900 Hz @ 10 MPH (16 KPH); 1800 HZ @ 20 MPH (32 KH) ('2' SELECTED - '1' ENGAGED)	
O	EM62-13	SPEED SENSOR COMMON VOLTAGE SUPPLY	5V	
O	EM62-14	'1-2 / 4-5' SOLENOID ACTIVATE	GROUND	B+
O	EM62-15	'3-4' SOLENOID ACTIVATE	GROUND	B+
O	EM62-16	'2-3' SOLENOID ACTIVATE	GROUND	B+
O	EM62-17	TCC SOLENOID ACTIVATE	GROUND = LOCKED	B- = UNLOCKED
O	EM62-33	SPEED SENSOR / FLUID TEMP. SENSOR COMMON GROUND	GROUND	GROUND
I	EM62-34	FLUID TEMP. SENSOR FEEDBACK	1.75 V @ 90° C = R, D, 4, 3, 2	5 V = P, N
I	EM62-35	n3 SPEED SENSOR FEEDBACK	6 V = 85 Hz @ 10 MPH (16 KPH); 170 Hz @ 20 MPH (32 KPH) ('2' SELECTED - '2' ENGAGED)	
O	EM62-36	MODULATION PRESSURE REGULATOR ACTIVATE	GROUND (42% PWM @ IDLE)	B+
O	EM62-37	SHIFT PRESSURE REGULATOR ACTIVATE	GROUND (39% PWM @ IDLE)	B+
O	EM62-38	SOLENOID VALVE / PRESSURE REGULATOR COMMON VOLTAGE SUPPLY	B+	GROUND

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 05.2

COMPONENTS

Component	Connector / Type / Color	Location / Access
DUAL LINEAR SWITCH	CC8 / 12-WAY MULTILOCK 070 / WHITE	RIGHT HAND SIDE OF GEAR SELECTOR / CENTER CONSOLE
GEAR SELECTOR ILLUMINATION MODULE	CC14 / 10-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
KICKDOWN SWITCH	CC18 / 2-WAY ECONOSEAL III / BLACK	UNDER ACCELERATOR PEDAL
MODE SWITCH (TRANSMISSION)	CC4 / 10-WAY AMP MICRO QUAD LOCK / BLACK	CENTER CONSOLE ASSEMBLY
TRANSMISSION CONTROL MODULE: AJ26 SC	EM61 / 18-WAY AMP JUNIOR POWER TIMER / BLACK EM62 / 14 WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
TRANSMISSION ELECTRICAL CONNECTOR: AJ26 SC	GB1 / 12-WAY KOSTAL 1.5 / BLACK	TRANSMISSION

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
EM44	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM63	14-WAY MULTILOCK 070 / YELLOW	PASSENGER 'A' POST / LOWER 'A' POST FINISHER

GROUNDS

Ground	Location / Type
CC2R	EYELET (PAIR) – DRIVE SHAFT TUNNEL GROUND STUD – LH SIDE
CC3L	EYELET (PAIR) – RH FRONT BULKHEAD STUD / CABIN SIDE
CC3R	EYELET (PAIR) – RH FRONT BULKHEAD STUD / CABIN SIDE
EM8R	EYELET (PAIR) – EMS LH GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

←

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

BODY PROCESSOR MODULE

▽	Pin	Description	Active	Inactive
I	FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I	FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
O	FC15-48	GEARSHIFT INTERLOCK SOLENOID ACTIVATE	B+ (UNLOCKED)	GROUND (LOCKED)
O	FC15-51	COLUMN SWITCHGEAR KEYLOCK SOLENOID ACTIVATE	B+ (LOCKED)	GROUND (UNLOCKED)
I	FC15-58	NOT IN PARK MICROSWITCH STATUS	GROUND (PARK)	B+ (NOT IN PARK)
I	FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
S	FC15-84	SCP NETWORK	2 – 1600 Hz	
S	FC15-85	SCP NETWORK	2 – 1600 Hz	
I	FC15-104	BATTERY SUPPLY VOLTAGE	B+	B+

ENGINE CONTROL MODULE

▽	Pin	Description	Active	Inactive
I	EM10-10	BRAKE SWITCH	GROUND	B+
C	EM10-27	CAN NETWORK	15 – 1500 Hz	
C	EM10-28	CAN NETWORK	15 – 1500 Hz	

GEAR SELECTOR ILLUMINATION MODULE

▽	Pin	Description	Active	Inactive
C	CC14-3	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
C	CC14-4	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
C	CC14-8	CAN NETWORK	15 – 1500 Hz @ 2.5 V	
C	CC14-9	CAN NETWORK	15 – 1500 Hz @ 2.5 V	

INSTRUMENT PACK

▽	Pin	Description	Active	Inactive
S	FC24-19	SCP NETWORK	2 – 1600 Hz	
S	FC24-20	SCP NETWORK	2 – 1600 Hz	
C	FC24-24	CAN NETWORK	15 – 1500 Hz	
C	FC24-47	CAN NETWORK	15 – 1500 Hz	

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

The following symbols are used to represent values for Control Module Pin Out data:

I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means a load is not applied or a switch is OFF.

Fig. 05.3

COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	RH KHEAD / BEHIND GLOVE BOX
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 16-WAY MULTILOCK 040 / GREY EM12 / 22-WAY MULTILOCK 040 / GREY EM13 / 34-WAY MULTILOCK 040 / GREY EM14 / 12-WAY MULTILOCK 47 / WHITE EM15 / 22-WAY MULTILOCK 47 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
GEAR SELECTOR ILLUMINATION MODULE	CC14 / 10-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
GEARSHIFT INTERLOCK SOLENOID	CC12 / 2 WAY MULTILOCK 070 / WHITE	GEAR SELECTOR ASSEMBLY / CENTER CONSOLE
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
KEYLOCK SOLENOID (COLUMN SWITCHGEAR)	SC5 / 2-WAY MULTILOCK 040 / BLUE	COLUMN SWITCHGEAR
NOT-IN-PARK MICROSWITCH	CC13 / 3-WAY MULTILOCK 070 / YELLOW	CENTER CONSOLE ASSEMBLY

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
FC11	18-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER
SC1	12-WAY MULTILOCK 070 / WHITE	COLUMN SWITCHGEAR

GROUNDS

Ground	Location / Type
CC2R	EYELET (PAIR) – DRIVE SHAFT TUNNEL GROUND STUD – LH SIDE
CC3L	EYELET (PAIR) – RH FRONT BULKHEAD STUD / CABIN SIDE
FC29L	EYELET (PAIR) – LH BULKHEAD GROUND STUD / CABIN SIDE

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

←

REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

CONTROL MODULE PIN OUT INFORMATION

ABS / TRACTION CONTROL CONTROL MODULE

▽	Pin	Description	Active	Inactive
O	LS27-1	BRAKE FLUID RESERVOIR LEVEL SWITCH REFERENCE	B+	B+
I	LS27-2	BRAKE SWITCH	GROUND	B+
I	LS27-3	RH FRONT WHEEL SPEED SENSOR	2.5 V @ 10 MPH (16 KM/H) = 100 Hz; 20 MPH (32 KM/H) = 200 Hz	
SG	LS27-4	RH FRONT WHEEL SPEED SENSOR	2.5 V @ REST	
C	LS27-5	CAN NETWORK	15 – 1500 Hz	
SG	LS27-6	RH REAR WHEEL SPEED SENSOR	2.5 V @ REST	
I	LS27-7	RH REAR WHEEL SPEED SENSOR	2.5 V @ 10 MPH (16 KM/H) = 100 Hz; 20 MPH (32 KM/H) = 200 Hz	
I	LS27-8	POWER GROUND	GROUND	GROUND
I	LS27-9	BATTERY POWER SUPPLY	B+	B+
I	LS27-13	BRAKE FLUID RESERVOIR LEVEL SWITCH	GROUND	B+
I	LS27-14	STABILITY / TRACTION CONTROL SWITCH	GROUND (MOMENTARY)	B+
C	LS27-15	CAN NETWORK	15 – 1500 Hz	
O	LS27-16	STABILITY / TRACTION CONTROL SWITCH STATE LED	GROUND	B+
I	LS27-17	LH FRONT WHEEL SPEED SENSOR	2.5 V @ 10 MPH (16 KM/H) = 100 Hz; 20 MPH (32 KM/H) = 200 Hz	
SG	LS27-18	LH FRONT WHEEL SPEED SENSOR	2.5 V @ REST	
	LS27-19	NOT USED		
I	LS27-20	IGNITION SWITCHED SUPPLY	B+	GROUND
I	LS27-21	LH REAR WHEEL SPEED SENSOR	2.5 V @ 10 MPH (16 KM/H) = 100 Hz; 20 MPH (32 KM/H) = 200 Hz	
SG	LS27-22	LH REAR WHEEL SPEED SENSOR	2.5 V @ REST	
I	LS27-24	POWER GROUND	GROUND	GROUND
I	LS27-25	BATTERY POWER SUPPLY	B+	B+

NOTE: REFER TO THE APPENDIX AT THE REAR OF THIS BOOK FOR CAN AND SCP NETWORK MESSAGES.

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I	Input	D	Serial and encoded communications	B+	Battery voltage	KHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	MS	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	MV	Millivolts

CAUTION: The information on this data page is furnished to aid the user in understanding circuit operation. THIS INFORMATION SHOULD BE USED FOR REFERENCE ONLY.

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Fig. 06.1

COMPONENTS

Component	Connector / Type / Color	Location / Access
ABS / TRACTION CONTROL CONTROL MODULE	LS27 / 25-WAY AMP / FORD / BLACK	ENGINE COMPARTMENT / BEHIND LH HEADLAMP ASSEMBLY
BRAKE FLUID RESERVOIR	FM37 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / ON BRAKE FLUID RESERVOIR
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
STABILITY / TRACTION CONTROL SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
WHEEL SPEED SENSOR – LH FRONT	FL1 / 2-WAY REINSHAGEN METRI 630 / BLACK	LH FRONT HUB ASSEMBLY
WHEEL SPEED SENSOR – LH REAR	LA2 / 2-WAY REINSHAGEN METRI 630 / BLACK	REAR AXLE / LH WHEEL HUB
WHEEL SPEED SENSOR – RH FRONT	FR1 / 2-WAY REINSHAGEN METRI 630 / BLACK	RH FRONT HUB ASSEMBLY
WHEEL SPEED SENSOR – RH REAR	RA2 / 2-WAY REINSHAGEN METRI 630 / BLACK	REAR AXLE / RH WHEEL HUB

HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA9	6-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
CA29	4-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM51	12-WAY AUGAT 1.6 / GREY	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
LS1	2-WAY AUGAT 1.6 / NATURAL	BELOW CHASSIS RAIL / LH SIDE
LS2	2-WAY AUGAT 1.6 / NATURAL	BELOW CHASSIS RAIL / RH SIDE
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER

GROUNDS

Ground	Location / Type
CC3L	EYELET (PAIR) – RH FRONT BULKHEAD STUD / CABIN SIDE
LS29L	EYELET (PAIR) – ABS GROUND STUD
LS29R	EYELET (PAIR) – ABS GROUND STUD

CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)

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