



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

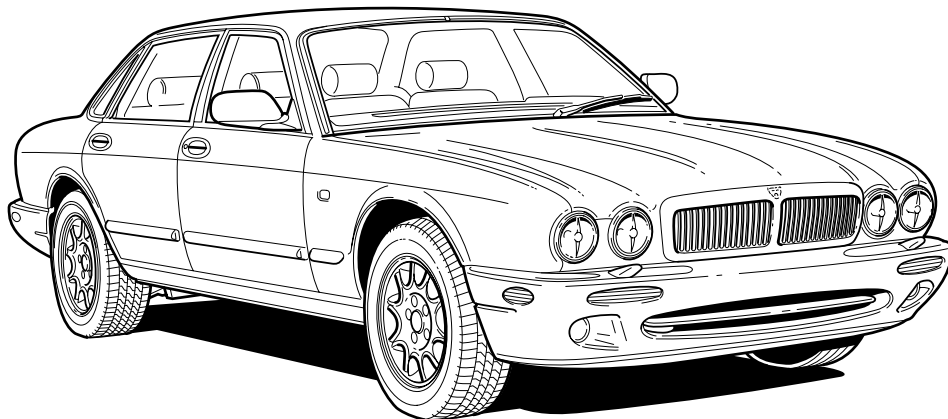


BY APPOINTMENT TO  
HER MAJESTY QUEEN ELIZABETH  
THE QUEEN MOTHER  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



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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.....	Fig. 04.6	SEAT HEATER RELAY – DRIVER .....	Fig. 12.1
POWER AMPLIFIER .....	Fig. 16.2	.....	Fig. 12.2
POWER ASSISTED STEERING CONTROL MODULE .....	Fig. 11.1	.....	Fig. 12.3
POWER WASH PUMP .....	Fig. 14.1	.....	Fig. 12.6
POWERWASH RELAY .....	Fig. 14.1	.....	Fig. 12.7
PUDDLE LAMPS .....	Fig. 10.1	SEAT HEATER RELAY – PASSENGER .....	Fig. 12.4
RADIATOR FAN CONTROL RELAY MODULE .....	Fig. 04.4	.....	Fig. 12.5
.....	Fig. 04.7	.....	Fig. 12.6
.....	Fig. 07.2	.....	Fig. 12.7
RADIATOR FANS .....	Fig. 04.4	SEAT HEATER SWITCHES .....	Fig. 12.1
.....	Fig. 04.7	.....	Fig. 12.2
.....	Fig. 07.2	.....	Fig. 12.3
RADIO / CASSETTE HEAD UNIT .....	Fig. 16.1	.....	Fig. 12.4
.....	Fig. 16.2	.....	Fig. 12.5
RADIO ANTENNA .....	Fig. 16.1	.....	Fig. 12.6
.....	Fig. 16.2	.....	Fig. 12.7
RADIO CONTROL SWITCHES (STEERING WHEEL) .....	Fig. 16.1	SEAT HEATER SWITCHES – REAR .....	Fig. 12.9
.....	Fig. 16.2	.....	Fig. 12.10
RADIO .....	Fig. 10.2	SEAT HEATER TIMERS – REAR .....	Fig. 12.9
RADIO TELEPHONE CONNECTOR .....	Fig. 16.1	.....	Fig. 12.10
.....	Fig. 16.2	SEAT LOWER RELAY .....	Fig. 12.3
READER / EXCITER COIL .....	Fig. 13.3	SEAT LUMBAR PUMP – DRIVER .....	Fig. 12.1
.....	Fig. 13.4	.....	Fig. 12.2
REAR SIDE MARKERS .....	Fig. 09.3	SEAT LUMBAR PUMP – PASSENGER .....	Fig. 12.4
REAR WINDOW INHIBIT SWITCH .....	Fig. 15.1	.....	Fig. 12.5
.....	Fig. 15.2	SEAT LUMBAR PUMPS – REAR .....	Fig. 12.8
REFRIGERANT 4-WAY PRESSURE SWITCH .....	Fig. 04.4	SEAT LUMBAR SWITCHES – REAR .....	Fig. 12.8
.....	Fig. 04.7	SEAT MOTOR – DRIVER (RAISE / LOWER ONLY) .....	Fig. 12.3
.....	Fig. 07.2	SEAT MOTORS – DRIVER .....	Fig. 12.1
ROOF CONSOLE .....	Fig. 10.2	.....	Fig. 12.2
SEAT BELT PRETENSIONERS .....	Fig. 17.1	SEAT MOTORS – PASSENGER .....	Fig. 12.4
SEAT BELT SWITCH .....	Fig. 08.2	.....	Fig. 12.5
SEAT CONTROL MODULE – DRIVER .....	Fig. 12.1	SEAT RAISE RELAY .....	Fig. 12.3
.....	Fig. 12.2	SEAT SWITCH – PASSENGER FORE / AFT – REAR .....	Fig. 12.5
.....	Fig. 19.1	SEAT SWITCH – PASSENGER RECLINE – REAR .....	Fig. 12.5
SEAT CONTROL MODULE – PASSENGER .....	Fig. 12.4	SECURITY ACTIVE INDICATOR .....	Fig. 13.3
.....	Fig. 12.5	.....	Fig. 13.4
.....	Fig. 19.1		



SECURITY AND LOCKING CONTROL MODULE .....	Fig. 09.3	SWITCH PACK – DRIVER REAR DOOR .....	Fig. 10.2
.....	Fig. 09.4	.....	Fig. 15.1
.....	Fig. 13.1	.....	Fig. 15.2
.....	Fig. 13.2	SWITCH PACK – DRIVER SEAT (RAISE / LOWER ONLY) .....	Fig. 12.3
.....	Fig. 13.3	SWITCH PACK – DRIVER SEAT .....	Fig. 12.1
.....	Fig. 13.4	.....	Fig. 12.2
.....	Fig. 15.1	SWITCH PACK – PASSENGER DOOR .....	Fig. 10.2
.....	Fig. 15.2	.....	Fig. 15.1
SIDE AIRBAGS .....	Fig. 17.1	.....	Fig. 15.2
SIDE DI REPEATERS .....	Fig. 09.2	SWITCH PACK – PASSENGER REAR DOOR .....	Fig. 10.2
SIDE MARKERS – FRONT .....	Fig. 09.1	.....	Fig. 15.1
SIDE MARKER AND NUMBER PLATE LAMP RELAY .....	Fig. 09.3	.....	Fig. 15.2
.....	Fig. 09.4	SWITCH PACK – PASSENGER SEAT .....	Fig. 12.4
SLIDING ROOF CONTROL MODULE .....	Fig. 15.1	.....	Fig. 12.5
.....	Fig. 15.2	TAIL LAMP UNITS .....	Fig. 09.3
SLIDING ROOF MOTOR .....	Fig. 15.1	.....	Fig. 09.4
.....	Fig. 15.2	TELEPHONE ANTENNA .....	Fig. 16.3
SLIDING ROOF SWITCH (ROOF CONSOLE) .....	Fig. 15.1	TELEPHONE HANDSET .....	Fig. 16.3
.....	Fig. 15.2	TELEPHONE MICROPHONE .....	Fig. 16.3
SOLAR SENSOR .....	Fig. 07.1	TELEPHONE TRANSCEIVER .....	Fig. 16.3
SPEAKER, 'A' POST TWEETERS .....	Fig. 16.2	THROTTLE MOTOR .....	Fig. 04.1
SPEAKER, FRONT DOOR MID-BASS .....	Fig. 16.1	.....	Fig. 04.2
.....	Fig. 16.2	.....	Fig. 04.3
SPEAKER, FRONT DOOR TWEETER .....	Fig. 16.1	.....	Fig. 04.5
SPEAKER, REAR DOOR MID-BASS .....	Fig. 16.1	.....	Fig. 04.6
.....	Fig. 16.2	THROTTLE MOTOR POWER RELAY .....	Fig. 04.1
SPEAKER, REAR DOOR TWEETER .....	Fig. 16.1	.....	Fig. 04.2
.....	Fig. 16.2	.....	Fig. 04.3
SQUAB HEATERS – DRIVER .....	Fig. 12.1	.....	Fig. 04.5
.....	Fig. 12.2	.....	Fig. 04.6
.....	Fig. 12.3	THROTTLE POSITION SENSOR .....	Fig. 04.1
.....	Fig. 12.6	.....	Fig. 04.2
.....	Fig. 12.7	.....	Fig. 04.3
SQUAB HEATERS – PASSENGER .....	Fig. 12.4	.....	Fig. 04.5
.....	Fig. 12.5	.....	Fig. 04.6
.....	Fig. 12.6	TRAILER CONNECTOR .....	Fig. 09.3
.....	Fig. 12.7	.....	Fig. 09.4
SQUAB HEATERS – REAR .....	Fig. 12.9	TRANSIT ISOLATION DEVICE .....	Fig. 01.1
.....	Fig. 12.10	TRANSMISSION CONTROL MODULE: AJ26 N/A .....	Fig. 05.1
STABILITY / TRACTION CONTROL SWITCH .....	Fig. 06.1	.....	Fig. 19.1
STARTER MOTOR .....	Fig. 03.1	TRANSMISSION CONTROL MODULE: AJ26 SC .....	Fig. 05.2
.....	Fig. 03.2	.....	Fig. 19.1
STARTER RELAY .....	Fig. 03.1	TRANSMISSION ELECTRICAL CONNECTOR: AJ26 N/A .....	Fig. 05.1
.....	Fig. 03.2	TRANSMISSION ELECTRICAL CONNECTOR: AJ26 SC .....	Fig. 05.2
STEERING COLUMN MOTORS .....	Fig. 11.2	TRANSMISSION ROTARY SWITCH .....	Fig. 05.1
STOP LAMP RELAY .....	Fig. 09.3	TRIP COMPUTER SWITCH PACK .....	Fig. 08.1
.....	Fig. 09.4	.....	Fig. 10.2
SUBWOOFER .....	Fig. 16.2	TRIP CYCLE SWITCH .....	Fig. 08.1
SUPPRESSION MODULE .....	Fig. 03.1	TRUNK ACCESSORY CONNECTOR .....	Fig. 18.1
.....	Fig. 03.2	TRUNK LAMPS .....	Fig. 10.1
SWITCH PACK – DRIVER DOOR .....	Fig. 10.2	TRUNK RELEASE ACTUATOR .....	Fig. 13.1
		.....	Fig. 13.2



TRUNK RELEASE SWITCHES ..... Fig. 13.1  
..... Fig. 13.2

TRUNK SWITCH ..... Fig. 10.1  
..... Fig. 13.1  
..... Fig. 13.2  
..... Fig. 13.3  
..... Fig. 13.4

VACUUM SWITCHING VALVES ..... Fig. 04.1  
..... Fig. 04.2  
..... Fig. 04.3  
..... Fig. 04.5  
..... Fig. 04.6

VALET SWITCH ..... Fig. 13.1  
..... Fig. 13.2  
..... Fig. 13.3  
..... Fig. 13.4

VANITY LAMPS ..... Fig. 10.1  
..... Fig. 10.1

VARIABLE STEERING CONVERTER ..... Fig. 11.1

VARIABLE VALVE TIMING SOLENOID VALVES ..... Fig. 04.1  
..... Fig. 04.2

VENT ASSEMBLY ..... Fig. 07.1

WASH / WIPE STALK ..... Fig. 14.1

WHEEL SPEED SENSORS ..... Fig. 06.1

WINDOW LIFT MOTORS ..... Fig. 15.1  
..... Fig. 15.2

WINDOW LIFT SWITCHES ..... Fig. 15.1  
..... Fig. 15.2

WINDSHIELD HEATER RELAYS ..... Fig. 07.2

WINDSHIELD HEATERS ..... Fig. 07.2

WINDSHIELD WASH PUMP AND FLUID LEVEL SENSOR ..... Fig. 14.1

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
FC12-3	NEUTRAL SWITCH STATUS	ENCODING	GROUND (R/S 4, 1, 2)
FC12-9	SERIAL COMMUNICATION - KEY TRANSPONDER	ENCODING COMMUNICATION	
FC12-9	SECURITY KNOWLEDGE	ENCODING COMMUNICATION	
FC12-11	STARTER ENGAGE INDICATOR	GROUND (DRIVING)	B-
FC12-12	STARTER RELAY ACTIVATE	GROUND (DRIVING)	B-
FC12-46	BATTERY SUPPLY VOLTAGE		
FC12-46	ENCODING COMMUNICATIONS	B-	

**ENGINE CONTROL MODULE**

Pin	Description	Active	Inactive
EM14-4	OK TO START - ENCODED COMMUNICATIONS		GROUND (R/S 4, 1, 2)
EM14-5	PARK / NEUTRAL DISPOSITION	ENCODING COMMUNICATIONS	
EM14-11	SECURITY KNOWLEDGE	ENCODING COMMUNICATIONS	
EM14-4	ENGINE CRANK	GROUND (DRIVING)	B-

**KEY TRANSPONDER MODULE**

Pin	Description	Active	Inactive
KCT2-9	SERIAL COMMUNICATION (ENCODING COMMUNICATION)	ENCODING COMMUNICATION	
KCT2-11	SERIAL COMMUNICATION - SWM		
KCT2-14	OK TO START (ENCODING COMMUNICATION)		
KCT2-17	SECURITY KNOWLEDGE (ENCODING COMMUNICATION)		

**Fig 03.1**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BATTERY	B14 BATTERY CABLE CLAMP B15 BATTERY CABLE CLAMP	TRUNK / BATTERY COVER
BODY PROCESSOR MODULE	FC12 16 WAY MULTICOLORED (S)	BLIND / INTERIOR DOOR SIDE
ENGINE CONTROL MODULE	EM14 16 WAY AMP (S)	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
GENERATOR	FC12 16 WAY MULTICOLORED (S)	ENGINE COMPARTMENT / IN FRONT
HIGH POWER PROTECTION MODULE	AMP1 12 VOLT ST1 12 VOLT B14 12 VOLT B15 12 VOLT	ENGINE COMPARTMENT / IN FRONT
IGNITION SWITCH	FC12 16 WAY MULTICOLORED (S)	STEERING COLUMN
KEY TRANSPONDER MODULE	FC12 16 WAY MULTICOLORED (S)	BELOW INSTRUMENT PANEL
NEUTRAL SWITCH	FC12 16 WAY MULTICOLORED (S)	GEAR SELECTOR ASSEMBLY / CENTER CONSOLE
REGULATOR	FC12 16 WAY MULTICOLORED (S)	ENGINE COMPARTMENT / IN FRONT
STARTER MOTOR	ST1 12 VOLT ST2 12 VOLT ST3 12 VOLT	ENGINE COMPARTMENT / ENGINE BLOCK / IN SIDE
SUPPRESSION MODULE	AMP1 12 VOLT AMP1 12 WAY ECONODEAL 16 I/C RED	ENGINE COMPARTMENT / IN FRONT

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
STARTER RELAY	BROWN	EM14 BROWN	CONTROL MODULE ENCLOSURE / ENGINE COMPARTMENT

**HARNESSES-TO-HARNESSES CONNECTORS**

Connector	Type / Color	Location / Access
D16	20 WAY MULTICOLORED (S)	PASSENGER / POST / LOWER / POST FRONT
D16	16 WAY MULTICOLORED (S)	PASSENGER / POST / LOWER / POST FRONT
D16	16 WAY ECONODEAL 16 I/C WHITE	ENGINE COMPARTMENT / FORWARD / TOP / FALSE BULKHEAD
FC7	20 WAY MULTICOLORED (S)	ADJACENT ENGINE / OVER TRAY
FP	20 WAY MULTICOLORED (S)	ENGINE COMPARTMENT / FORWARD / REAR / OF ENGINE
PG	10 WAY ECONODEAL 16 I/C BLACK	ENGINE COMPARTMENT / FORWARD / ON TOP OF TRANSMISSION
ST1	12 VOLT	ENGINE COMPARTMENT / IN FALSE BULKHEAD

**GROUNDINGS**

Ground	Location / Type
B14	12 VOLT (S)
CC18	12 VOLT (S)
FC12	12 VOLT (S)

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	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.

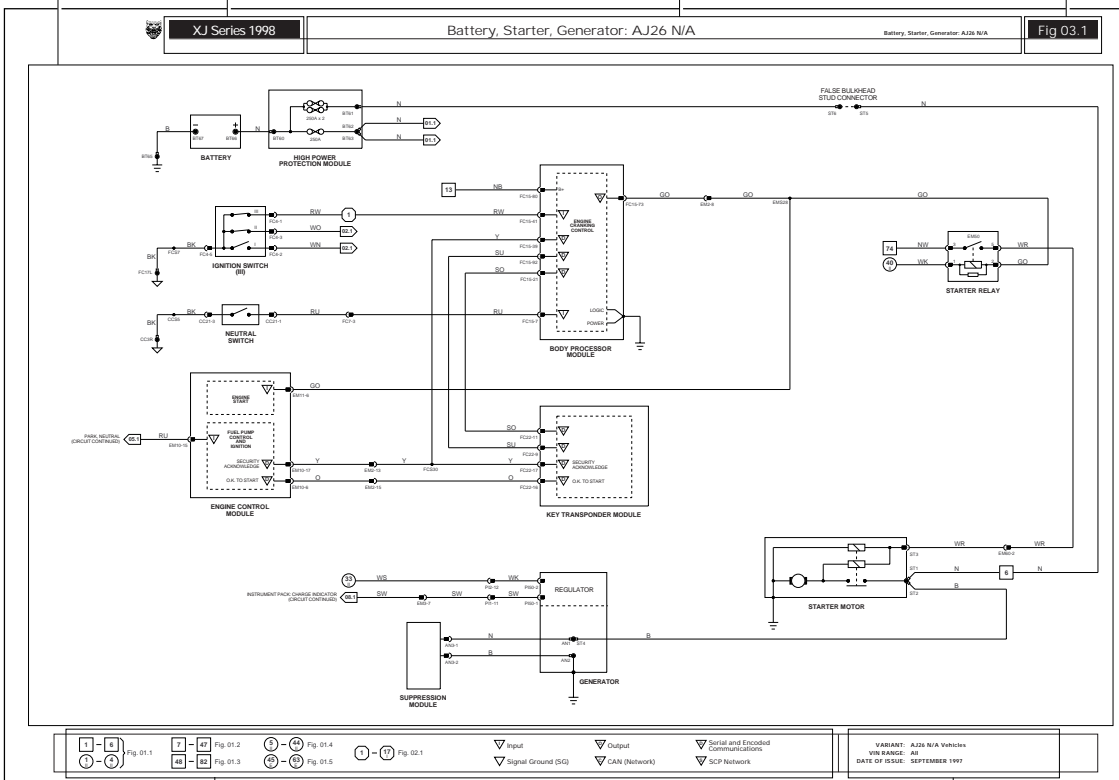
REFER TO THE FRONT OF THE BOOK FOR ILLUSTRATIONS DETAILING THE LOCATION AND IDENTIFICATION OF COMPONENTS, RELAYS, CONNECTORS, HARNESSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

DATE OF ISSUE: SEPTEMBER 1997

DATE OF ISSUE

DATA PAGE

## FIGURE MODEL RANGE AND YEAR TITLE FIGURE NUMBER



KEY TO REFERENCE SYMBOLS

FIGURE PAGE

VARIANT, VIN RANGE AND DATE OF ISSUE



**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

### **Battery Power Supply**

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

### **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.

### **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).

### **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.

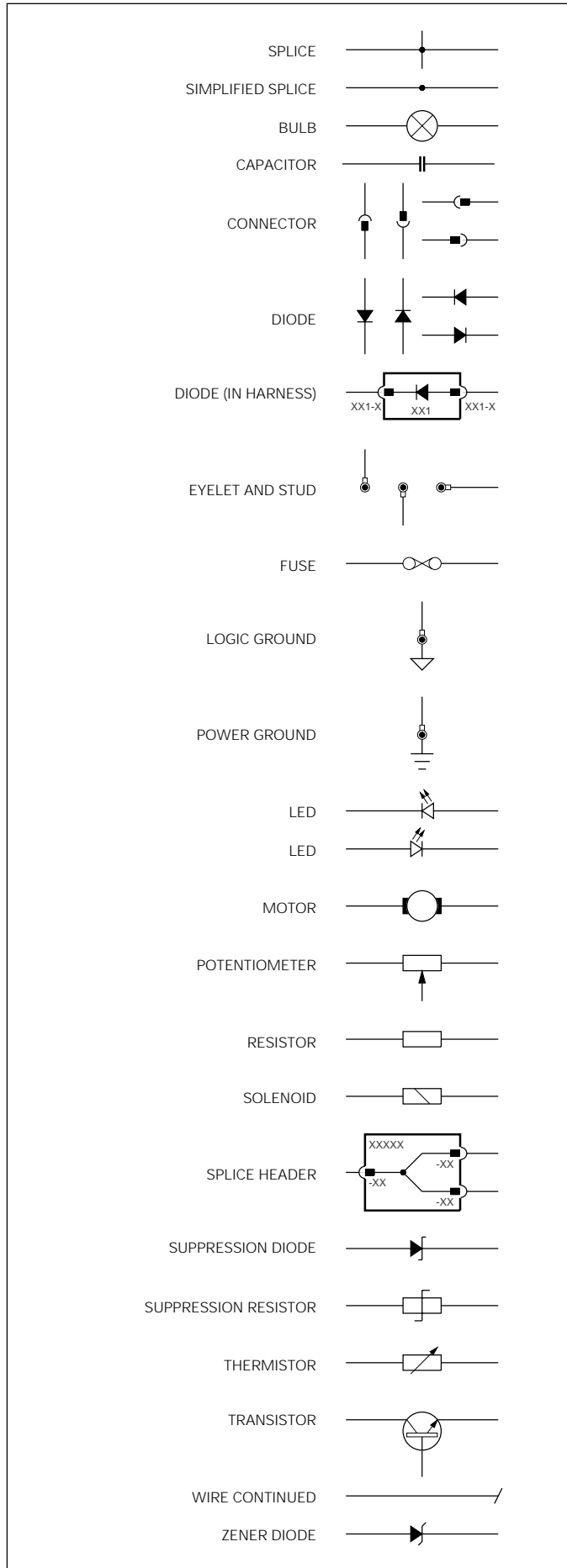
## Control Module Input, Output, Data Link, Signal Ground and Network(s)

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



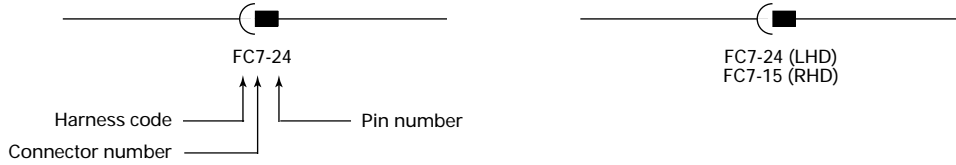
## Harness Component Numbers

### 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).

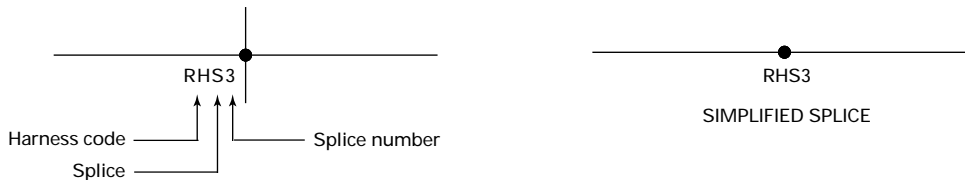


### Splices

HARNESS CODE + S (SPLICE) + SPLICE NUMBER

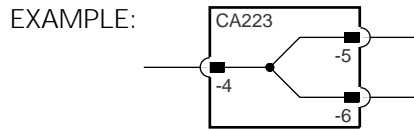
EXAMPLE: RHS3 (no dash is used)

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.



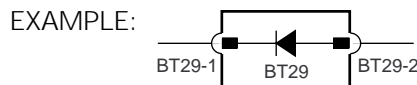
### Splice Headers

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.



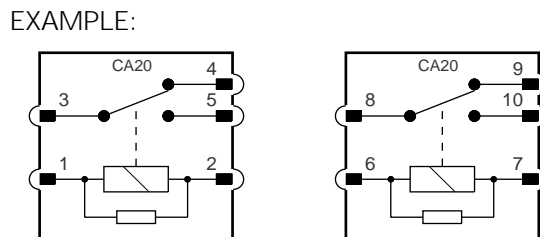
### Diodes

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



### 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.



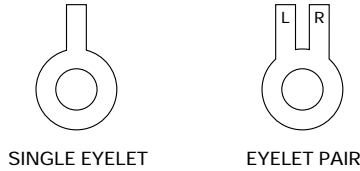


### Grounds

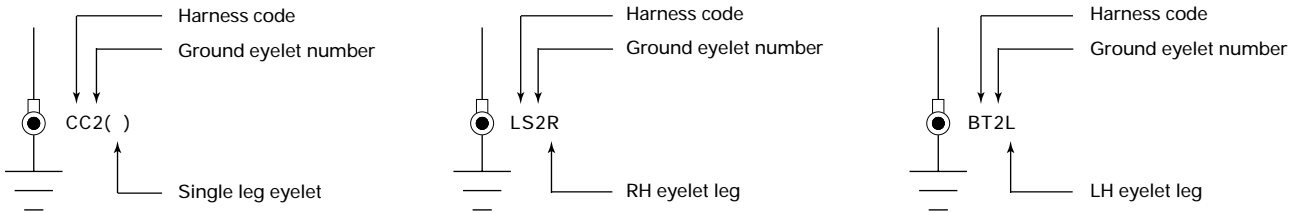
HARNESS CODE + GROUND EYELET NUMBER + EYELET DESIGNATION (L or R where applicable)

### 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).

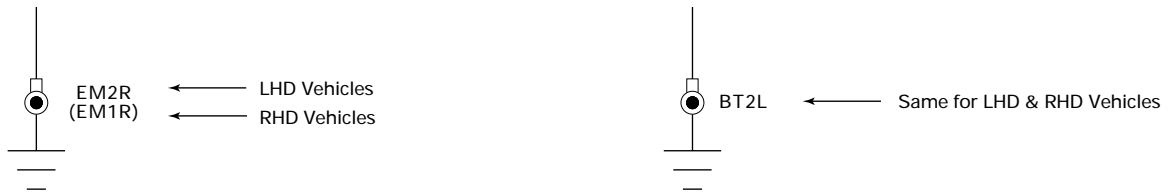


EXAMPLES:



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:

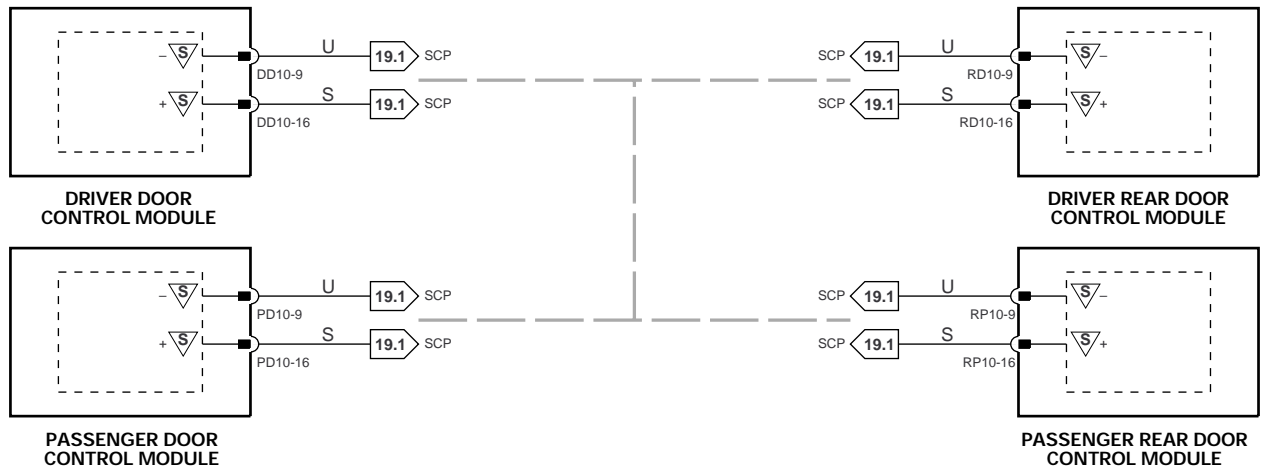


**NOTE:** The XJ Series ground studs are not identified by code. Therefore, multiple eyelets with different harness codes may be connected to a ground stud.

### 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:

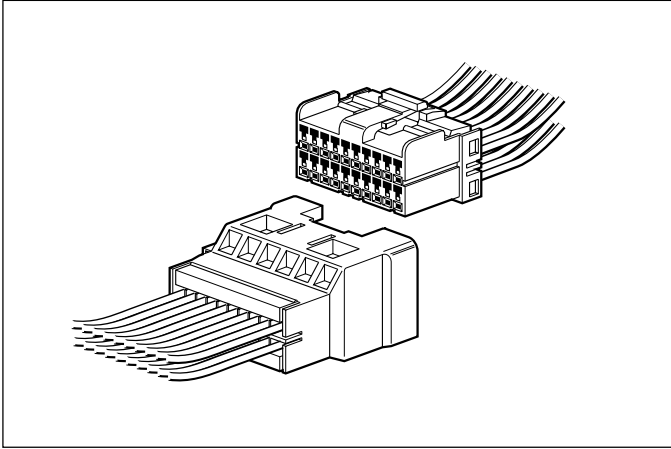




The following connectors are the common harness-to-harness connectors used throughout the vehicle.

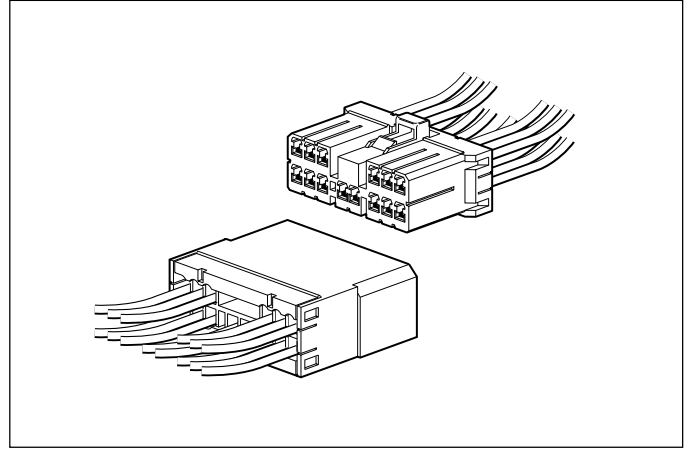
#### Multilock 040

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



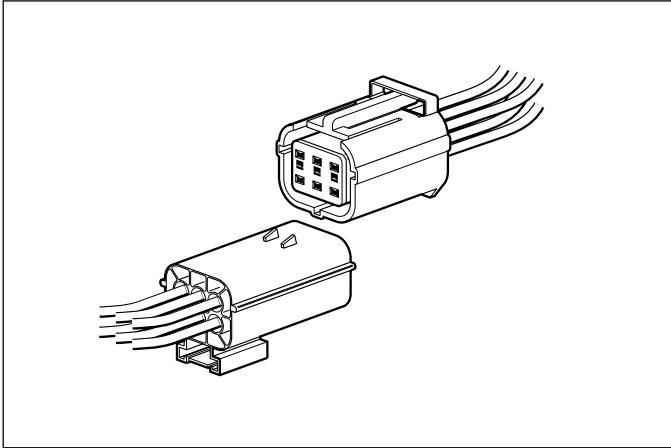
#### Multilock 070

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



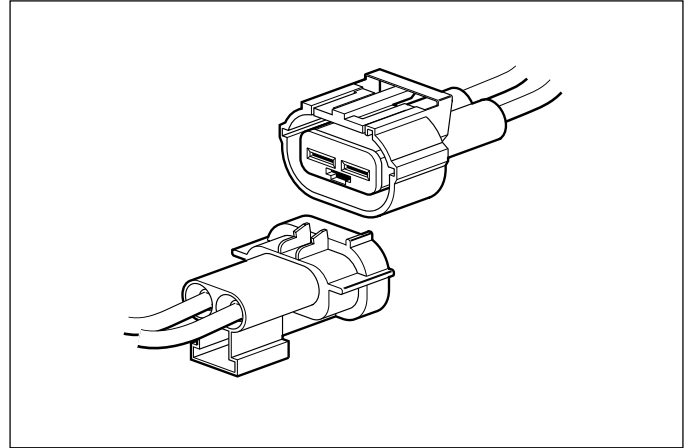
#### Econoseal III LC

Low current sealed connector.



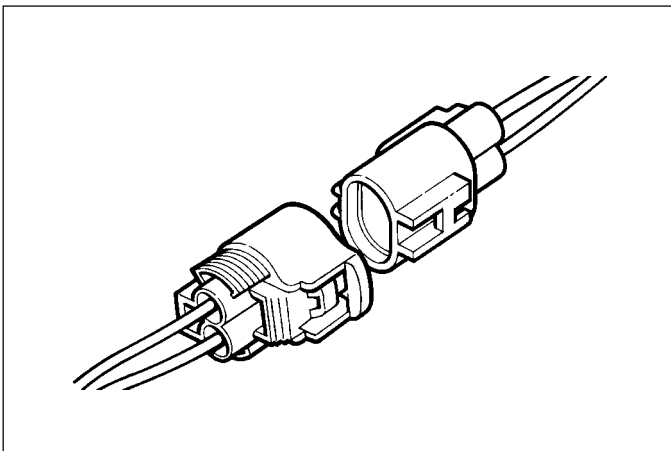
#### Econoseal III HC

High current sealed connector.



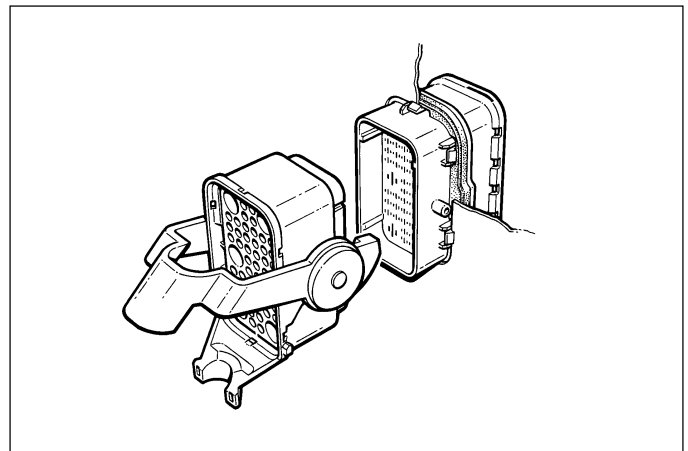
#### Ford Card

Used for SRS only.



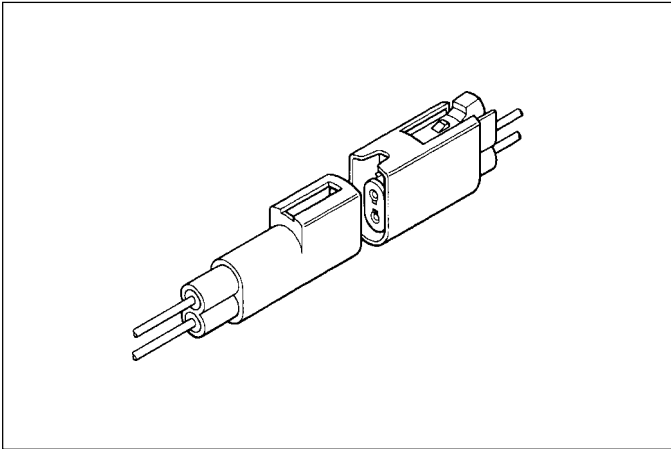
#### Through Panel

54-way connector.

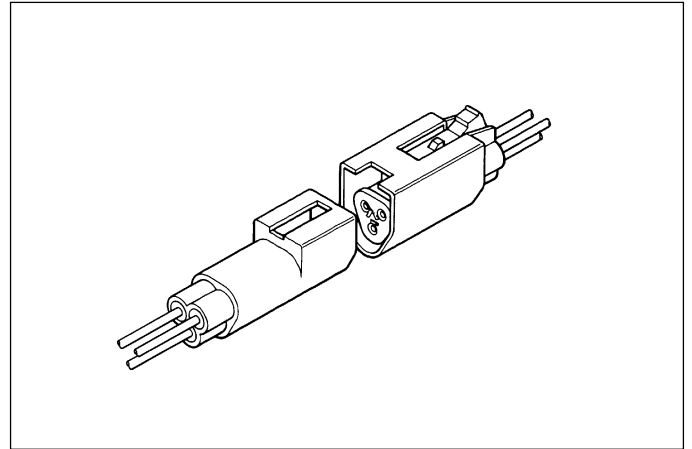




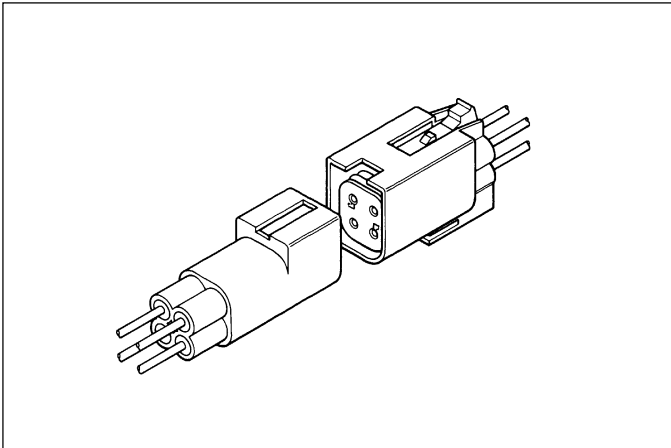
**Augat 1.6**  
2-way connector.



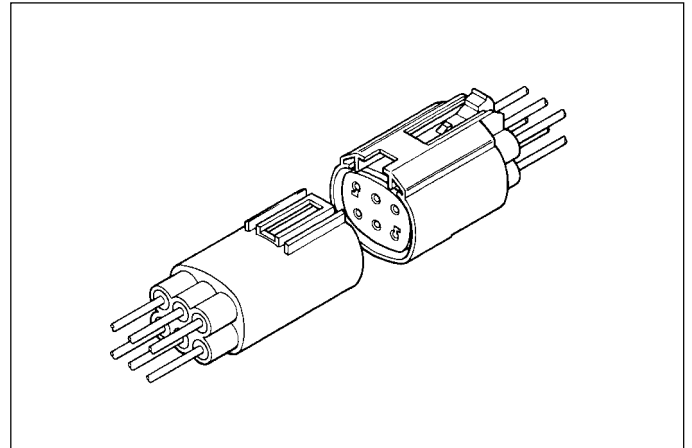
**Augat 1.6**  
3-way connector.



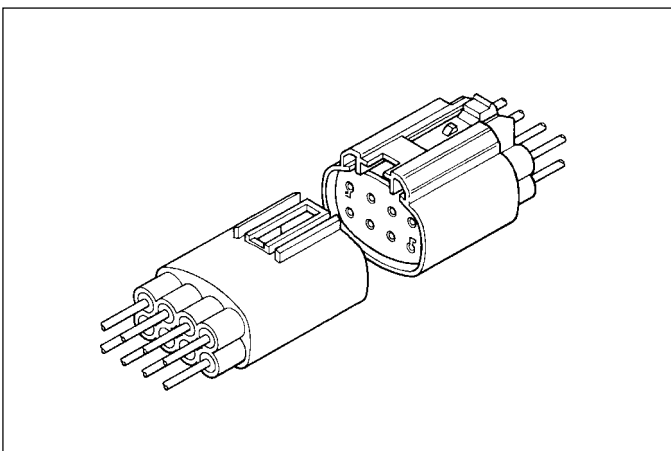
**Augat 1.6**  
4-way connector.



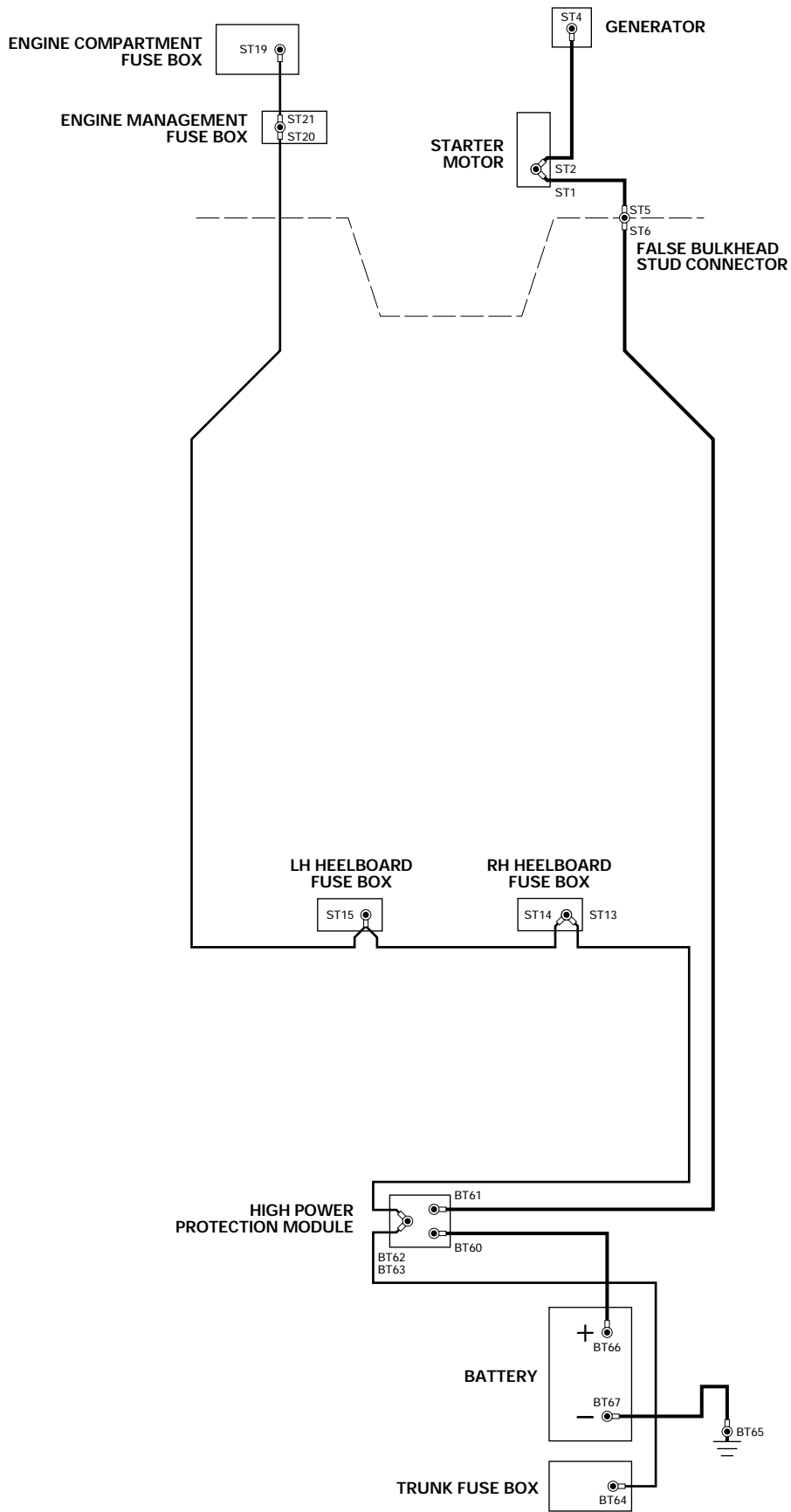
**Augat 1.6**  
6-way connector.



**Augat 1.6**  
8-way connector.



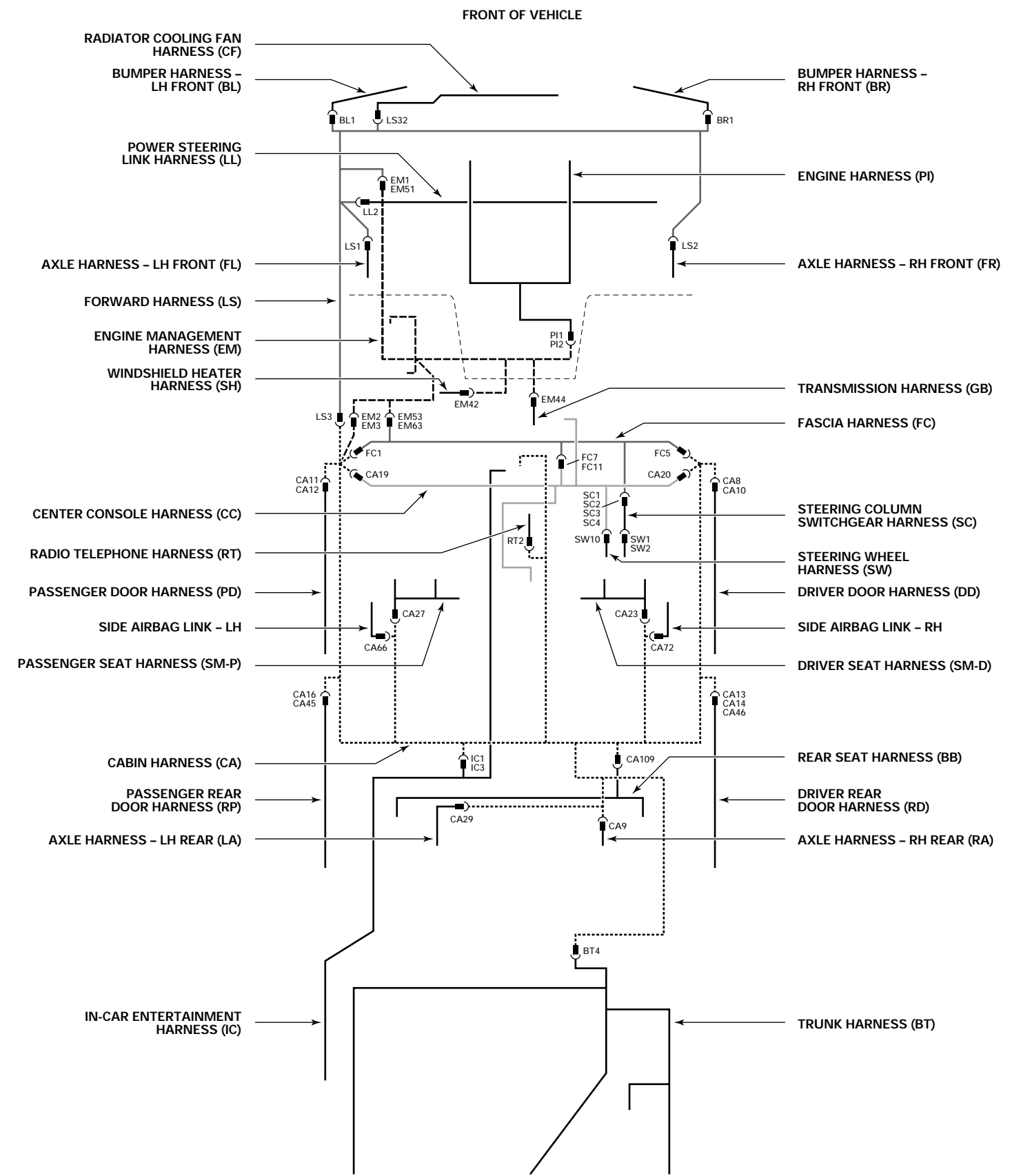
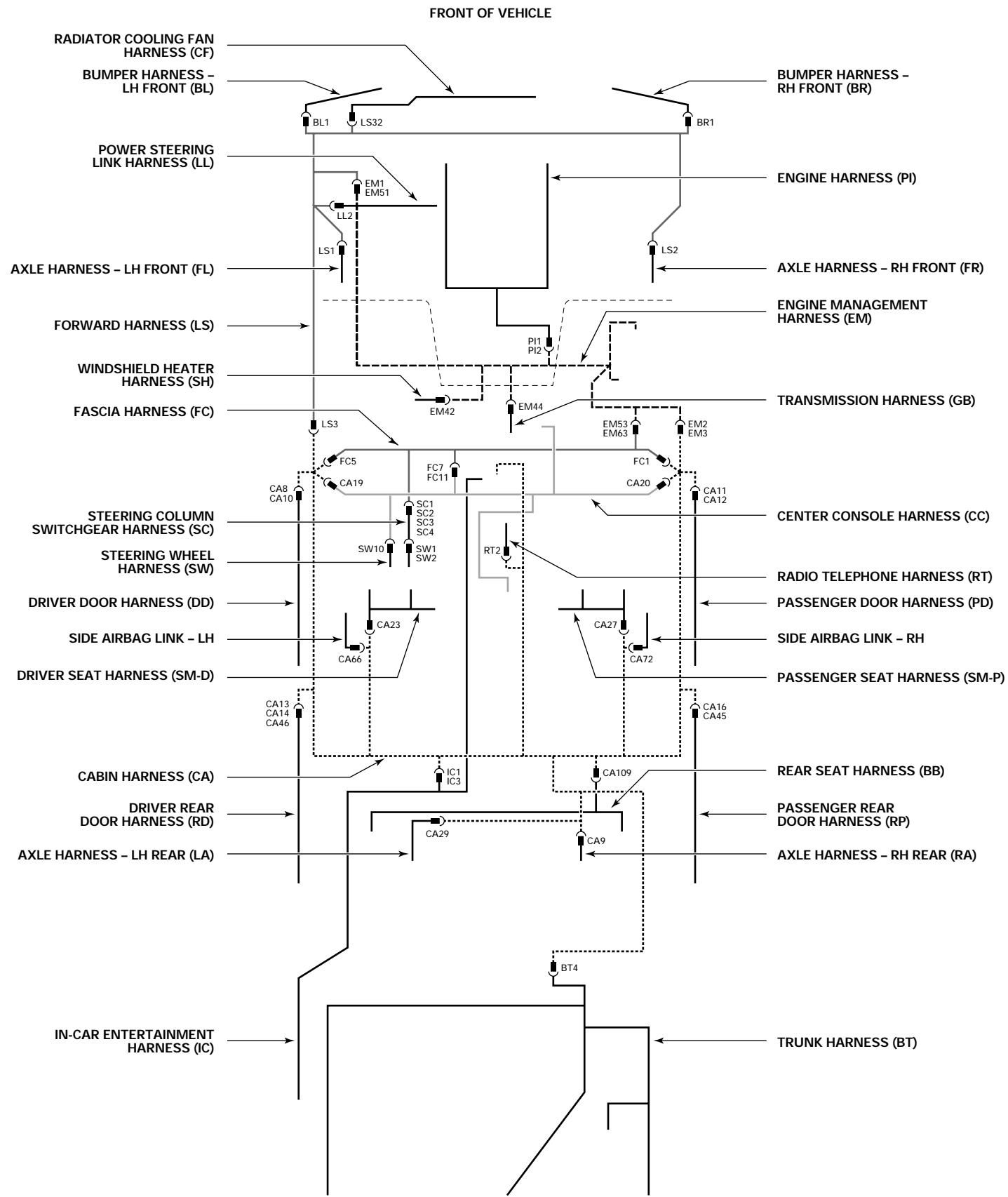


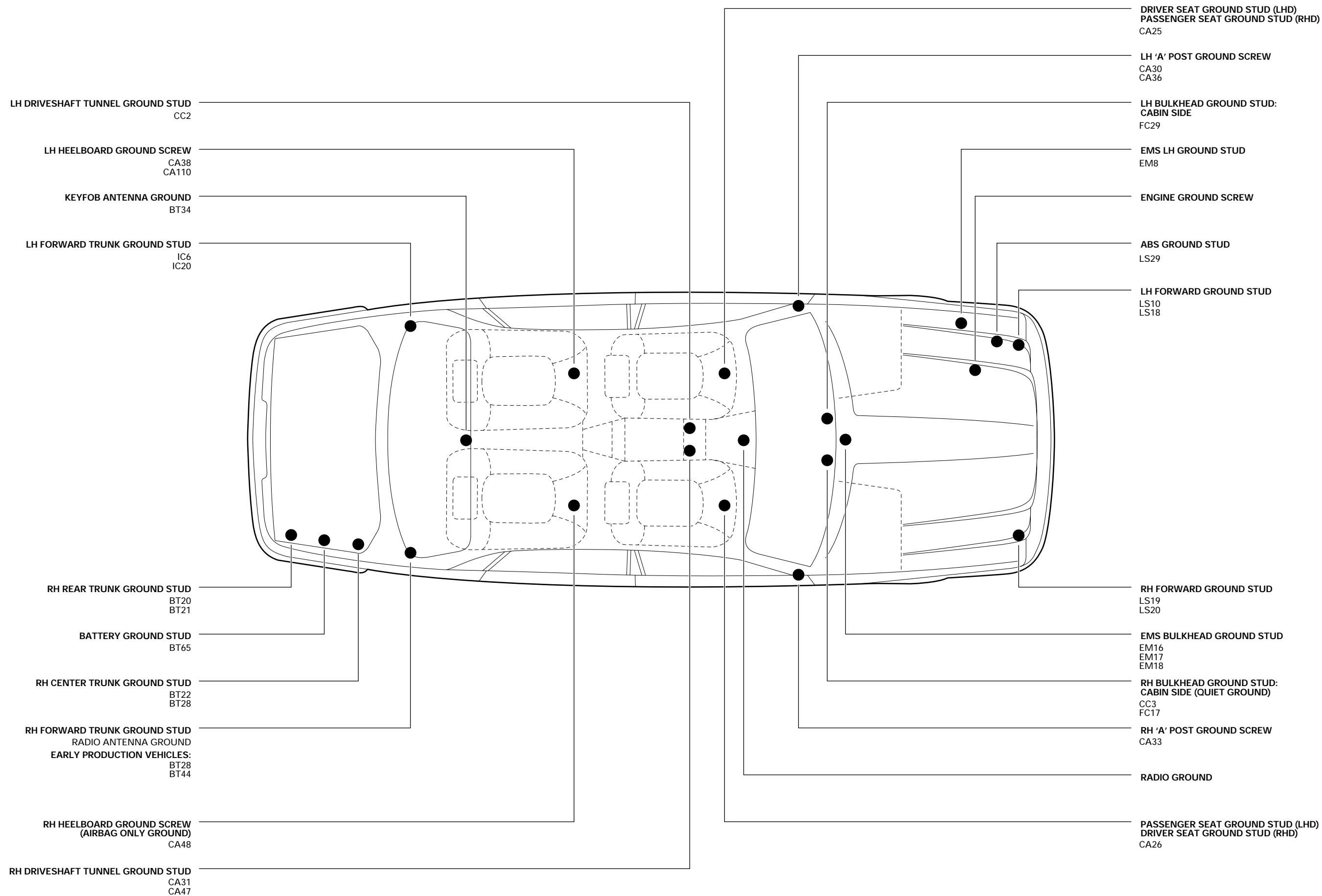




# LHD

# RHD

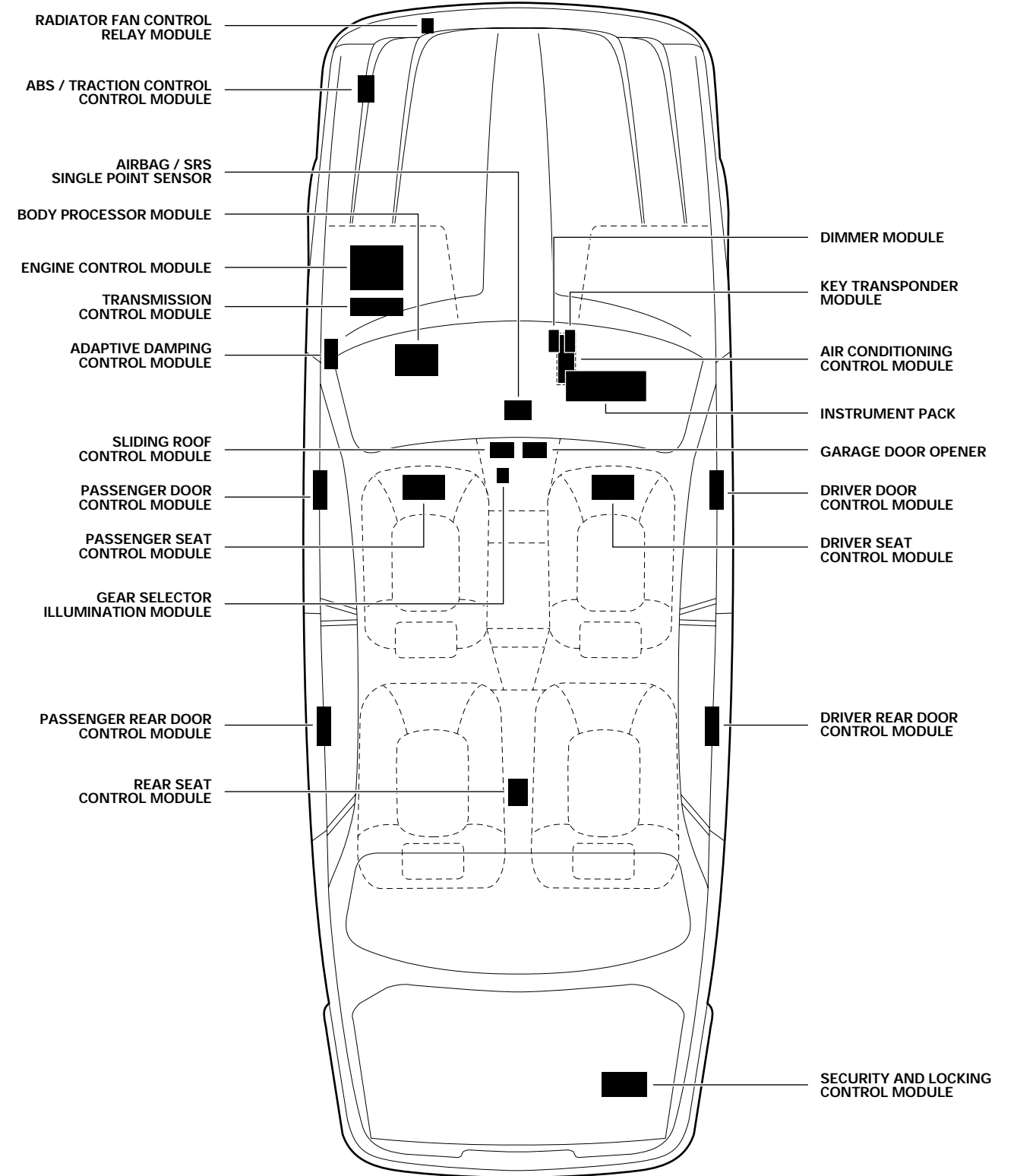
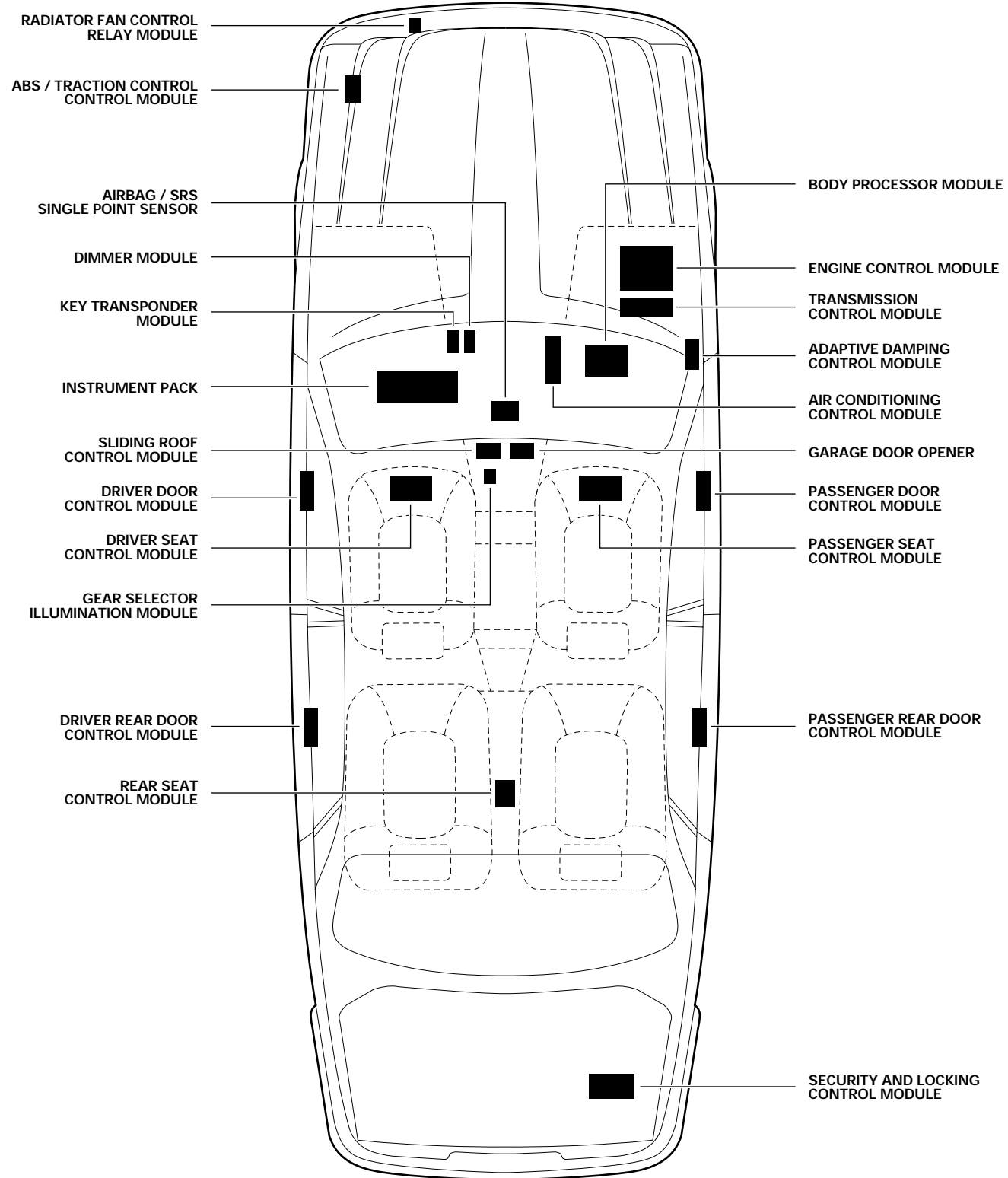






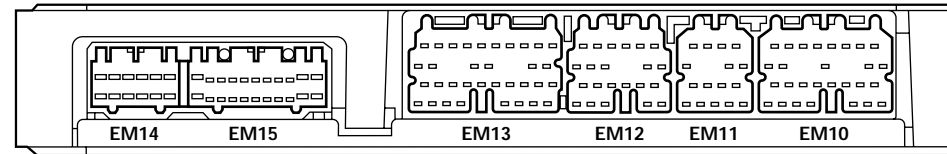
# LHD

# RHD





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

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

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 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

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

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

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

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 U	16 N	15 R	14 G	13 GY	12 UP
22 BP	21 —	20 —		19 BY	18 BY

EM11 / 16-WAY / GREY

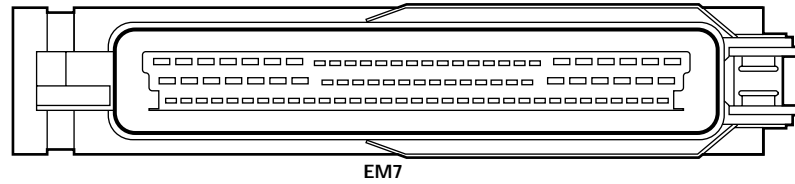
4 WU	3 P	2 —	1 SR
7 RG		6 GO	5 SG
11 U	10 G	9 UY	8 UW
16 K	15 R	14 BG	13 BY

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



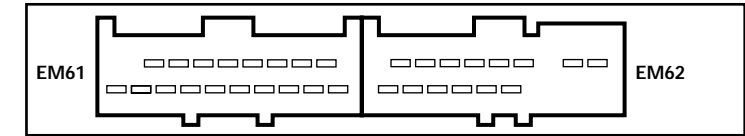
TRANSMISSION CONTROL MODULE: AJ26 N/A



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

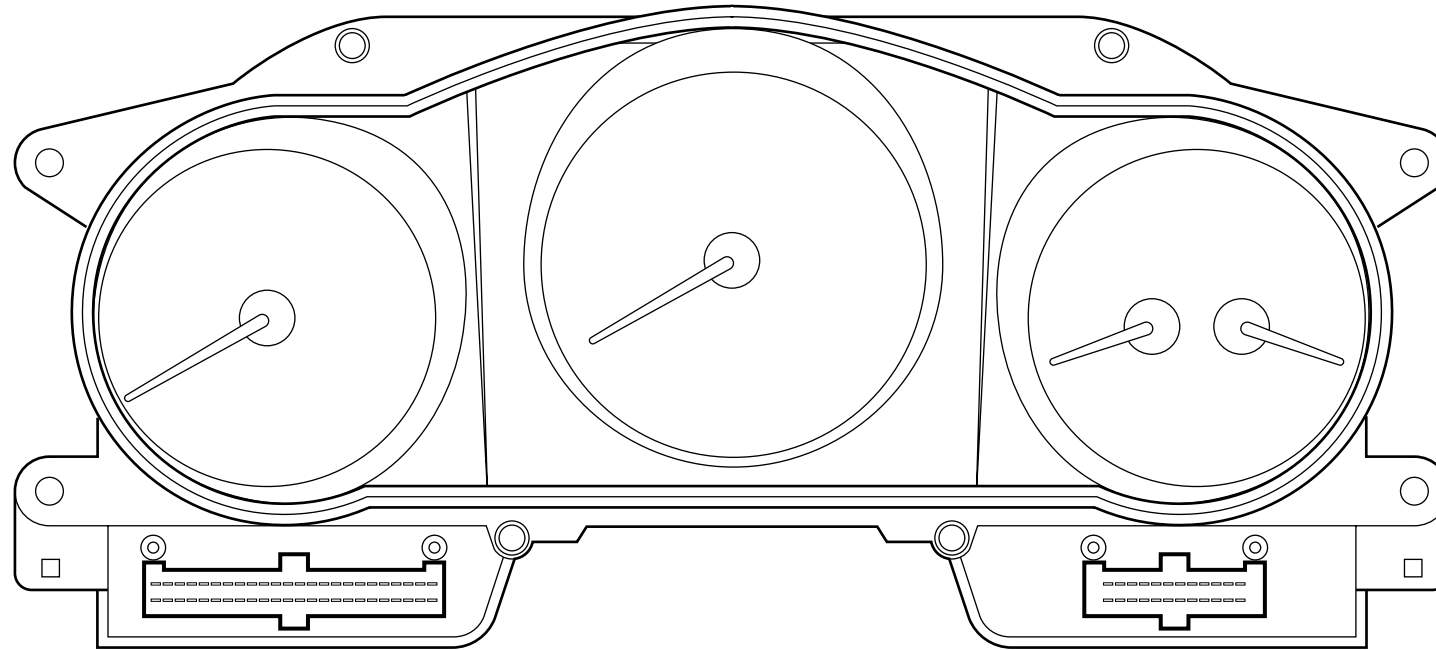
23	24	25	26	27	28	29	30		
—	—	LGB	LGU	LGP	LGN	WB	B		
1	2	3	4	5	6	7	8	9	10
YU	BS	P	—	—	—	—	—	—	—

EM62 / 14-WAY / BLACK

33	34	35	36	37	38
B	BY	BU	BO	BN	BR
12	13	14	15	16	17
BG	BW	BK	BLG	BP	BS

L	H
G	Y

INSTRUMENT PACK



FC24

FC24 / 48-WAY / BLACK

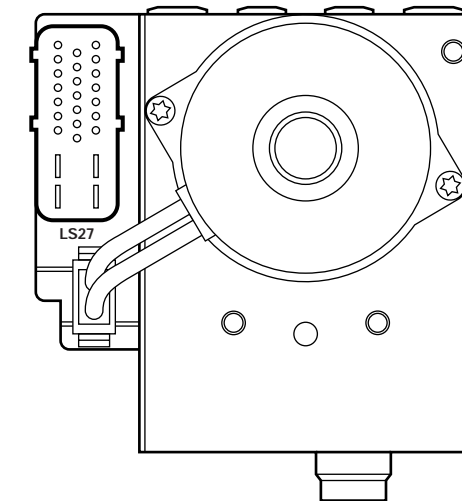
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
BK	WG	—	—	—	SO	—	—	—	SU	—	—	UY	R	—	—	—	—	S	U	—	—	Y	Y
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
—	B	RO	—	—	—	—	—	BR	—	Y	O	—	—	—	—	—	—	—	—	—	G	G	

FC25

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



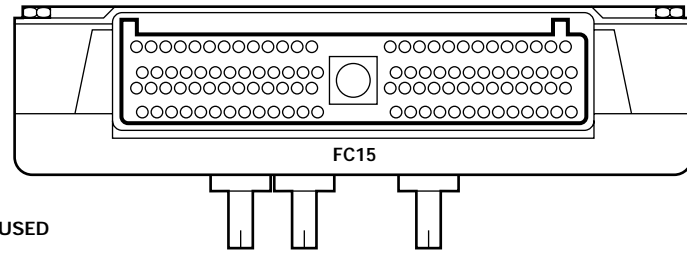
LS27 / 25-WAY / BLACK

17	18	19	20	21	22	23	24	25
W	R	UP	WU	P	U	—	B	NY
10	11	12	13	14	15	16	8	9
—	—	—	UB	R	G	RY	B	NR
1	2	3	4	5	6	7	—	—
UO	US	S	G	Y	Y	O	—	—

TOP



BODY PROCESSOR MODULE



\* NAS VEHICLES: FC15-56 NOT USED

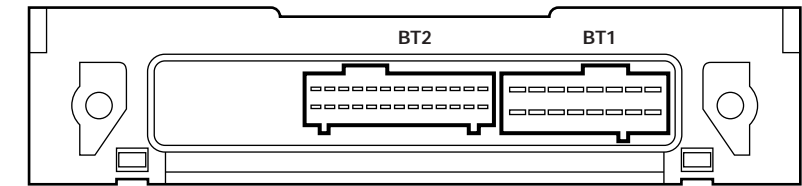
FC15 / 104-WAY / GREY (LHD)

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

FC15 / 104-WAY / GREY (RHD)

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

SECURITY AND LOCKING CONTROL MODULE



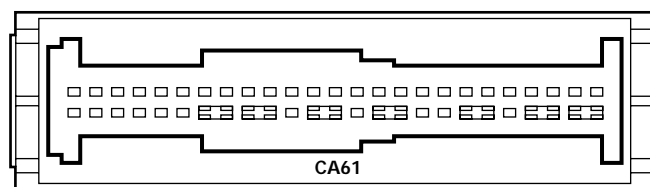
BT2 / 26-WAY / BLACK

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

BT1 / 16-WAY / BLACK

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

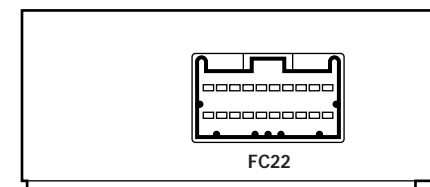
AIRBAG / SRS SINGLE POINT SENSOR



CA61 / 50-WAY / YELLOW

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

KEY TRANSPONDER MODULE



FC22 / 20-WAY / GREEN

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

ADAPTIVE DAMPING CONTROL MODULE

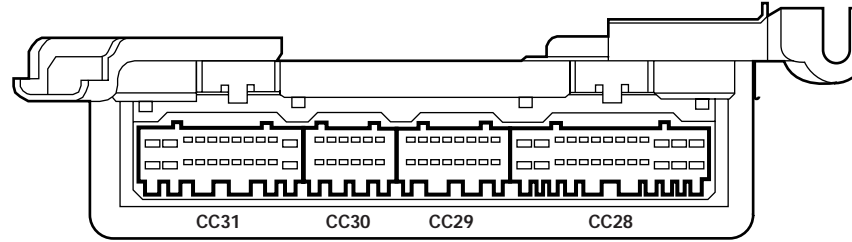


EM68 / 35-WAY / BLACK

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



AIR CONDITIONING CONTROL MODULE



CC31 / 22-WAY / GREY

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

CC30 / 12-WAY / GREY

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

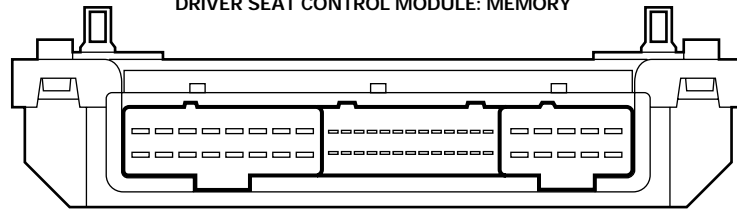
CC29 / 16-WAY / GREY

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

CC28 / 26-WAY / GREY

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

DRIVER SEAT CONTROL MODULE: MEMORY



SM1-D SM2-D SM3-D

SM1-D / 16-WAY / BLACK

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

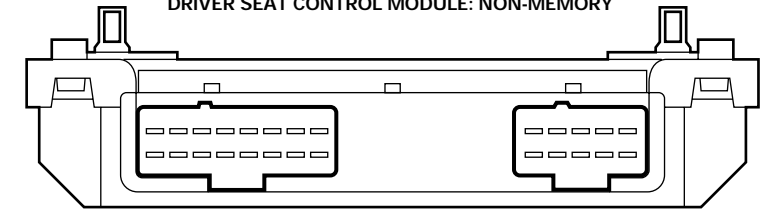
SM2-D / 26-WAY / BLACK

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

SM3-D / 10-WAY / BLACK

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

DRIVER SEAT CONTROL MODULE: NON-MEMORY



SM1-D SM3-D

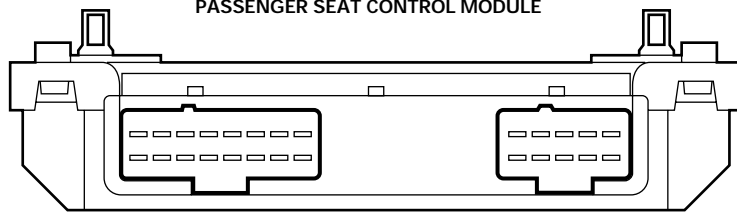
SM1-D / 16-WAY / BLACK

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

SM3-D / 10-WAY / BLACK

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

PASSENGER SEAT CONTROL MODULE



SM1-P SM3-P

SM1-P / 16-WAY / BLACK

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

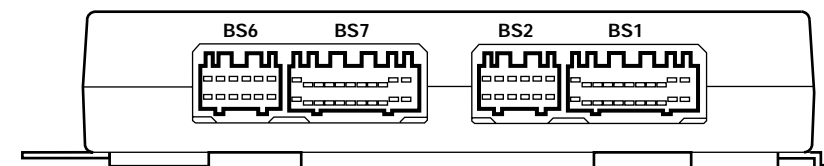
SM3-P / 10-WAY / BLACK

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

BS6 / 12-WAY / WHITE

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

REAR SEAT CONTROL MODULE



BS7 / 22-WAY / WHITE

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

BS2 / 12-WAY / BLUE

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

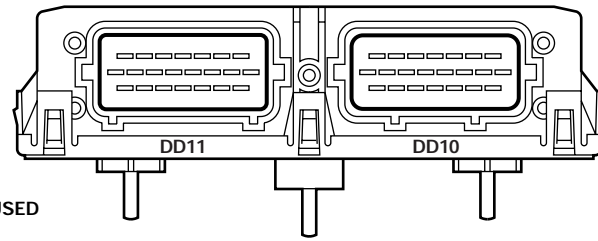
BS1 / 22-WAY / BLUE

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





DRIVER DOOR CONTROL MODULE



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

**DD11 / 22-WAY / BLACK (NAS)**

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

**DD10 / 22-WAY / BLUE (NAS)**

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

**DD11 / 22-WAY / BLACK (ROW LHD)**

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

**DD10 / 22-WAY / BLUE (ROW LHD)**

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

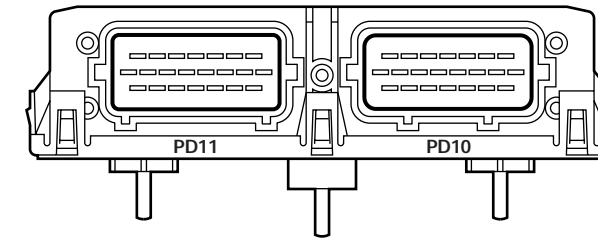
**DD11 / 22-WAY / BLACK (ROW RHD)**

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

**DD10 / 22-WAY / BLUE (ROW RHD)**

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

PASSENGER DOOR CONTROL MODULE



**PD11 / 22-WAY / BLACK (NAS)**

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

**PD10 / 22-WAY / BLUE (NAS)**

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

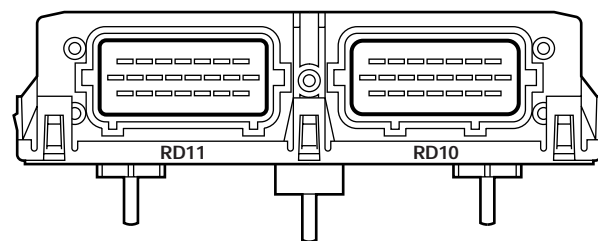
**PD11 / 22-WAY / BLACK (ROW)**

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

**PD10 / 22-WAY / BLUE (ROW)**

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

DRIVER REAR DOOR CONTROL MODULE



**RD11 / 22-WAY / BLACK (NAS)**

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

**RD10 / 22-WAY / BLUE (NAS)**

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

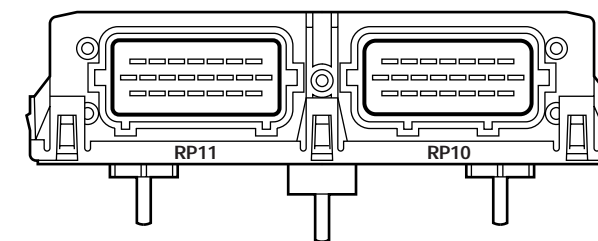
**RD11 / 22-WAY / BLACK (ROW)**

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

**RD10 / 22-WAY / BLUE (ROW)**

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

PASSENGER REAR DOOR CONTROL MODULE



**RP11 / 22-WAY / BLACK (NAS)**

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

**RP10 / 22-WAY / BLUE (NAS)**

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

**RP11 / 22-WAY / BLACK (ROW)**

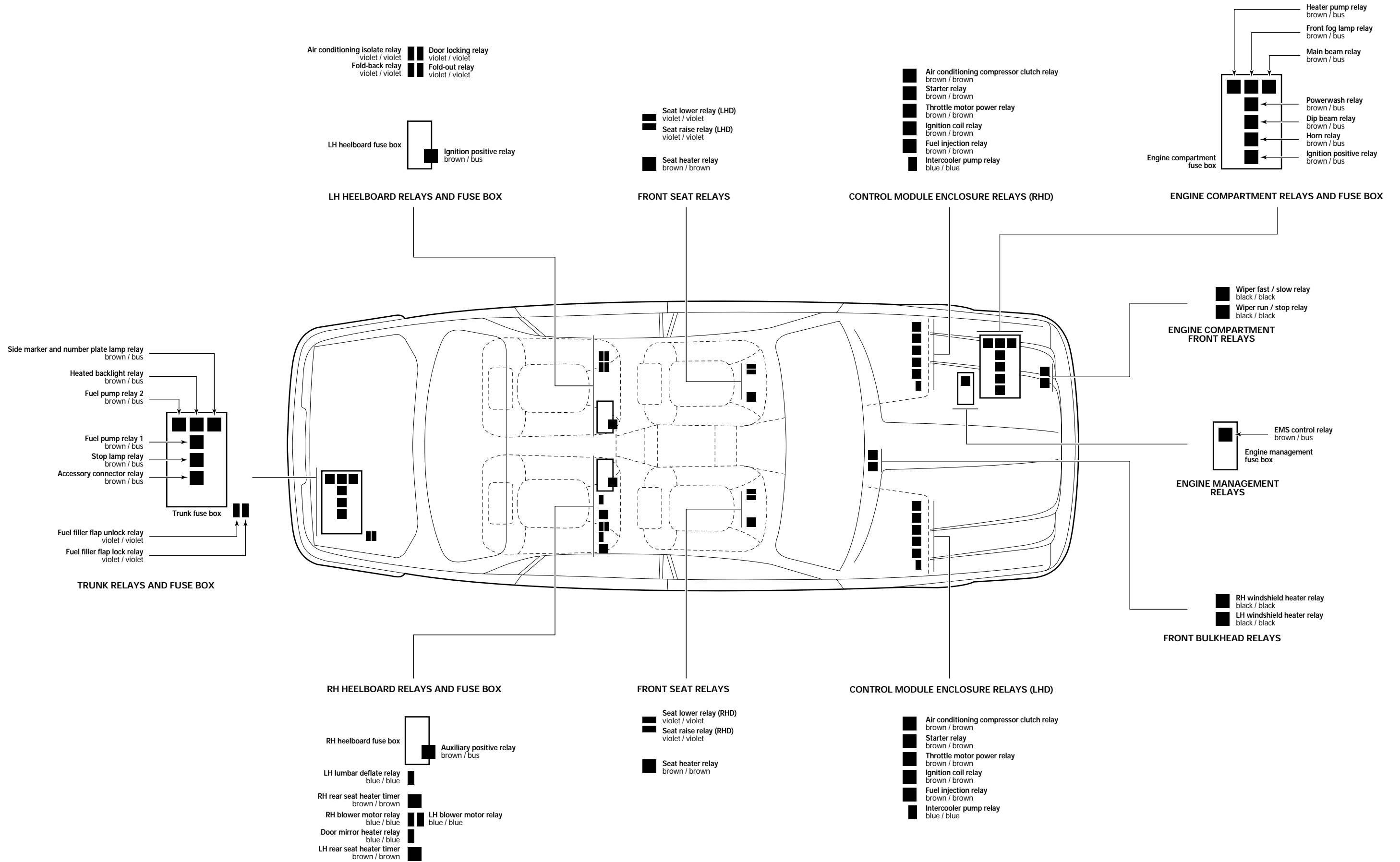
7	6	5	4	3	2	1	
	BO						
15	14	13	12	11	10	9	8
U							
22	21	20	19	18	17	16	
	BG	G					

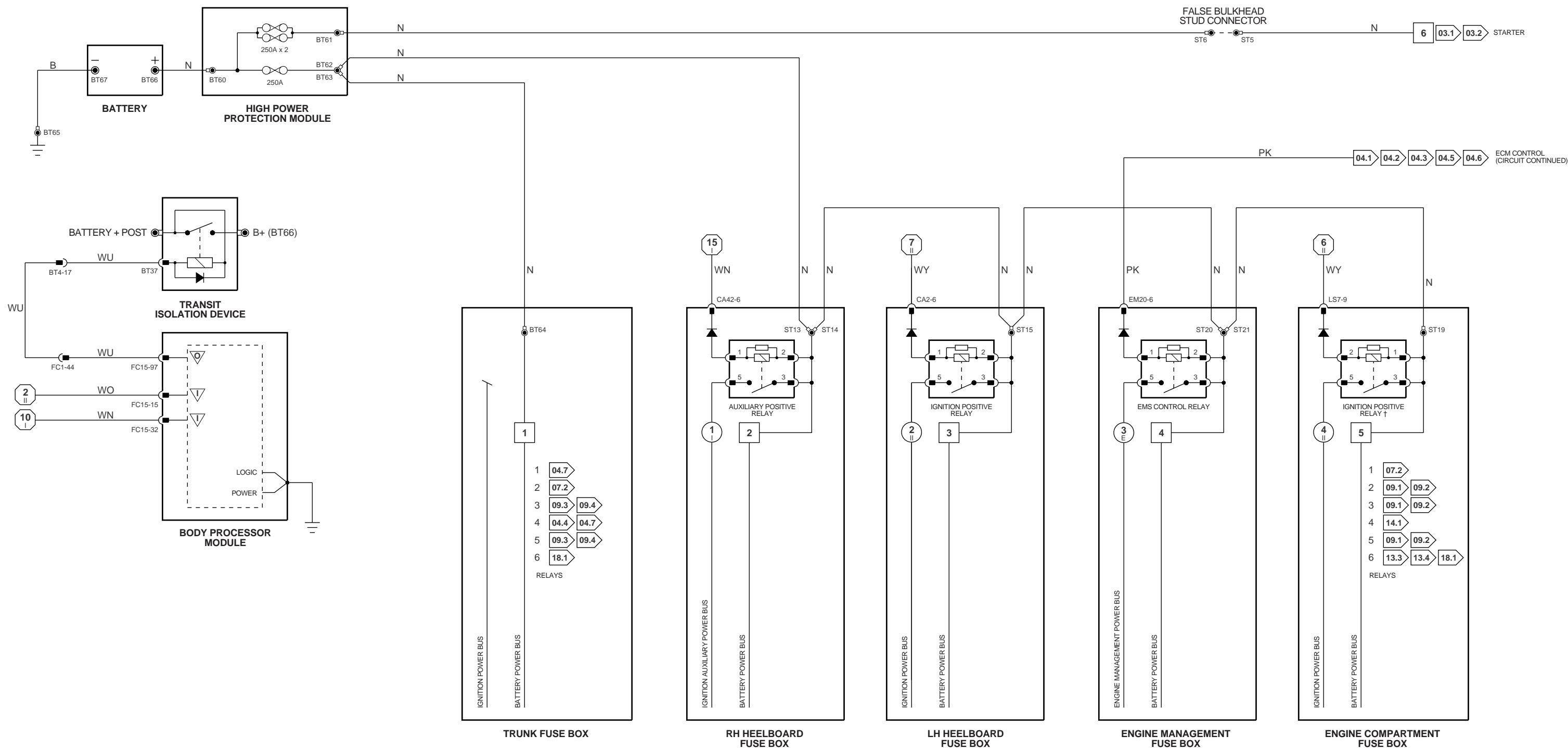
**RP10 / 22-WAY / BLUE (ROW)**

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



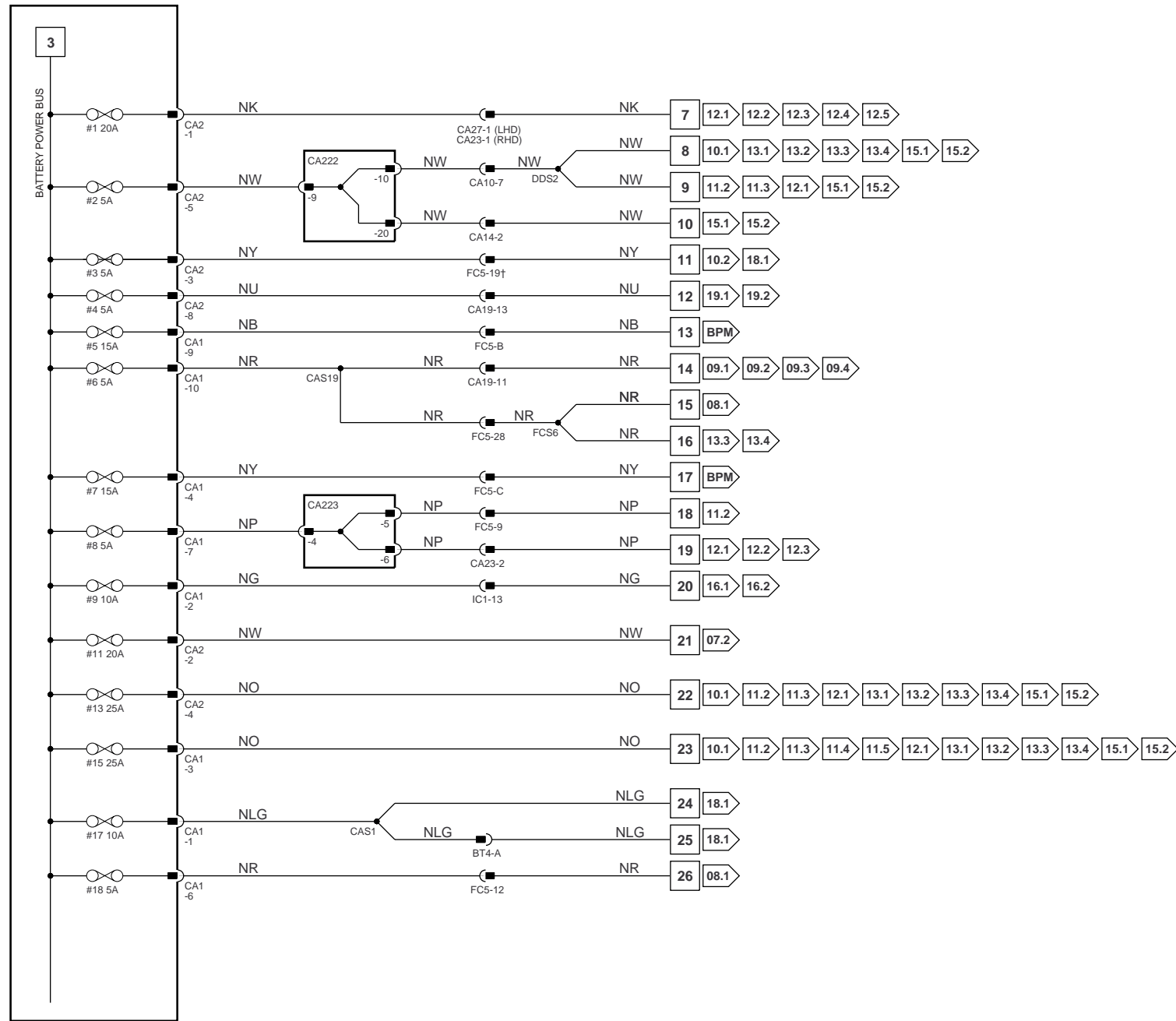
NOTE: RELAY COLORS ARE WRITTEN AS CASE COLOR / CONNECTOR COLOR. FOR EXAMPLE, BLACK / BLACK INDICATES A RELAY HAVING A BLACK CASE WITH A BLACK CONNECTOR. SOME RELAYS CONNECT DIRECTLY TO A FUSE BOX BUS; THE CONNECTOR COLOR FOR THESE RELAYS IS IDENTIFIED AS "BUS".



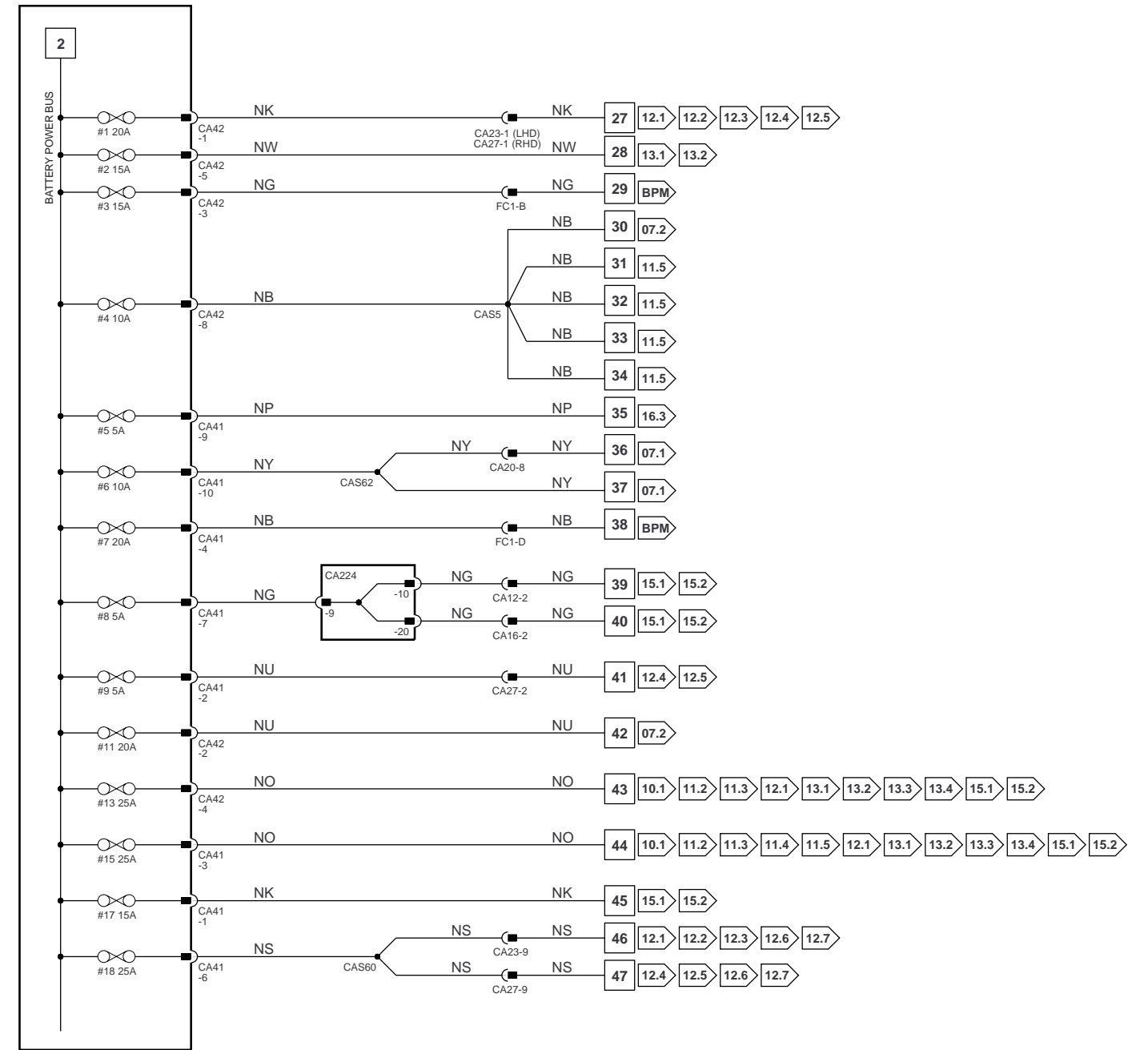


† NOTE: Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

Fig. 01.1 	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<p>VARIANT: All Vehicles          VIN RANGE: All          DATE OF ISSUE: SEPTEMBER 1997</p>
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LH HEELBOARD FUSE BOX

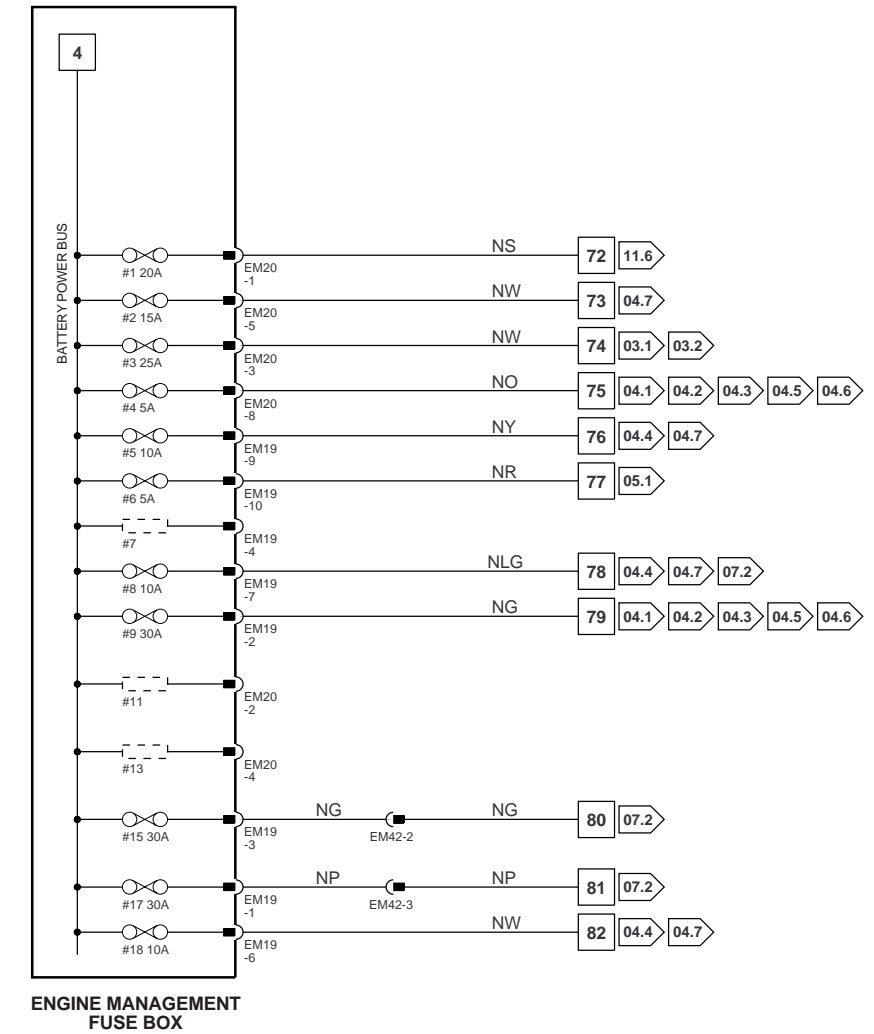
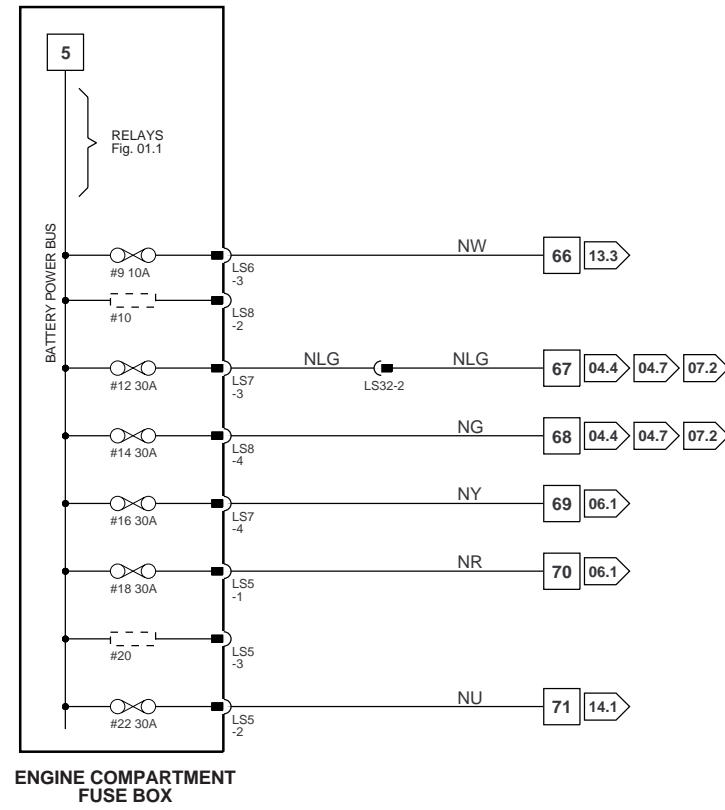
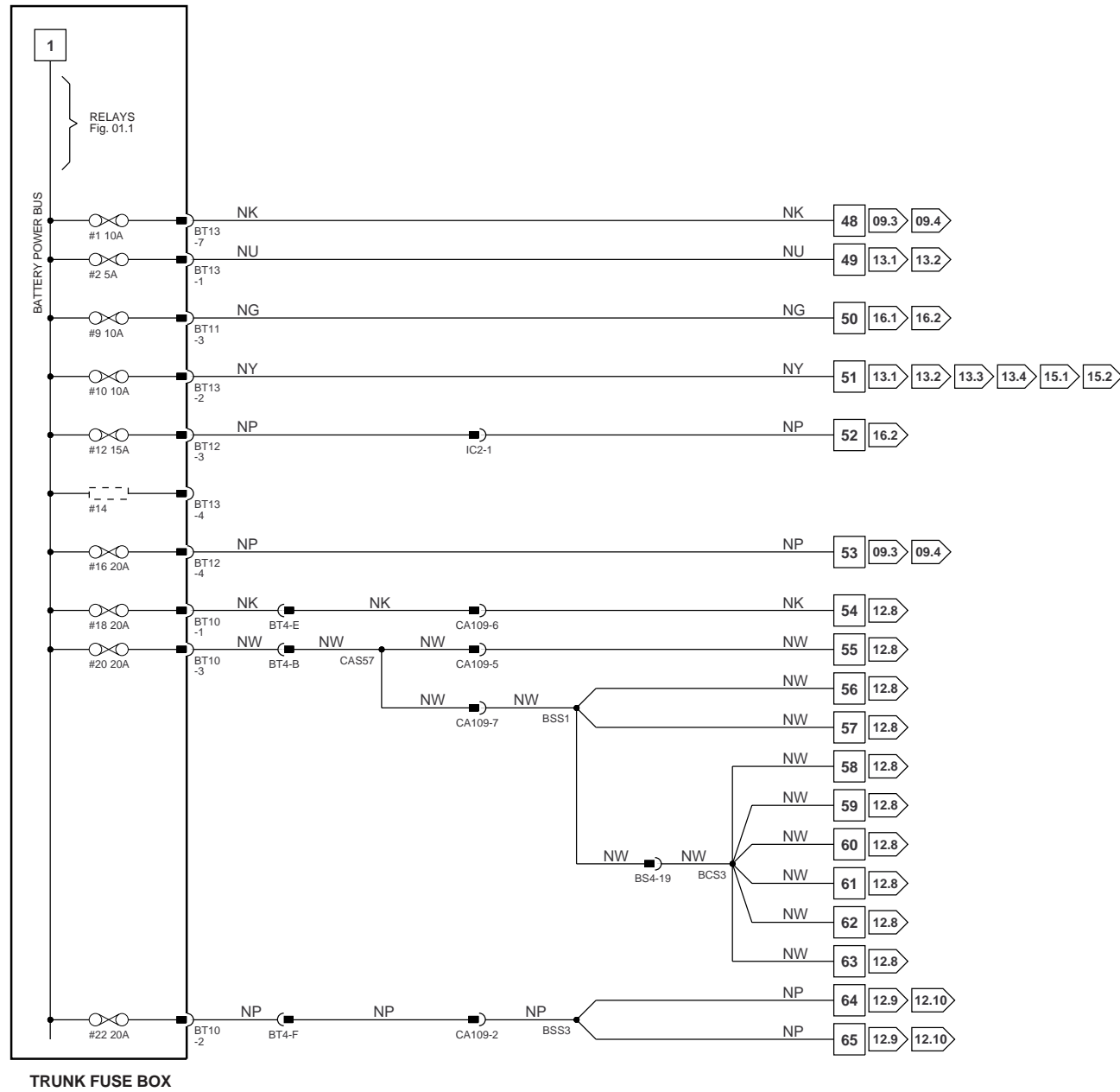


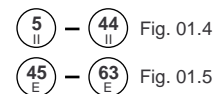
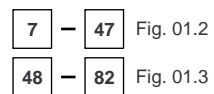
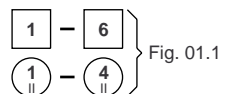
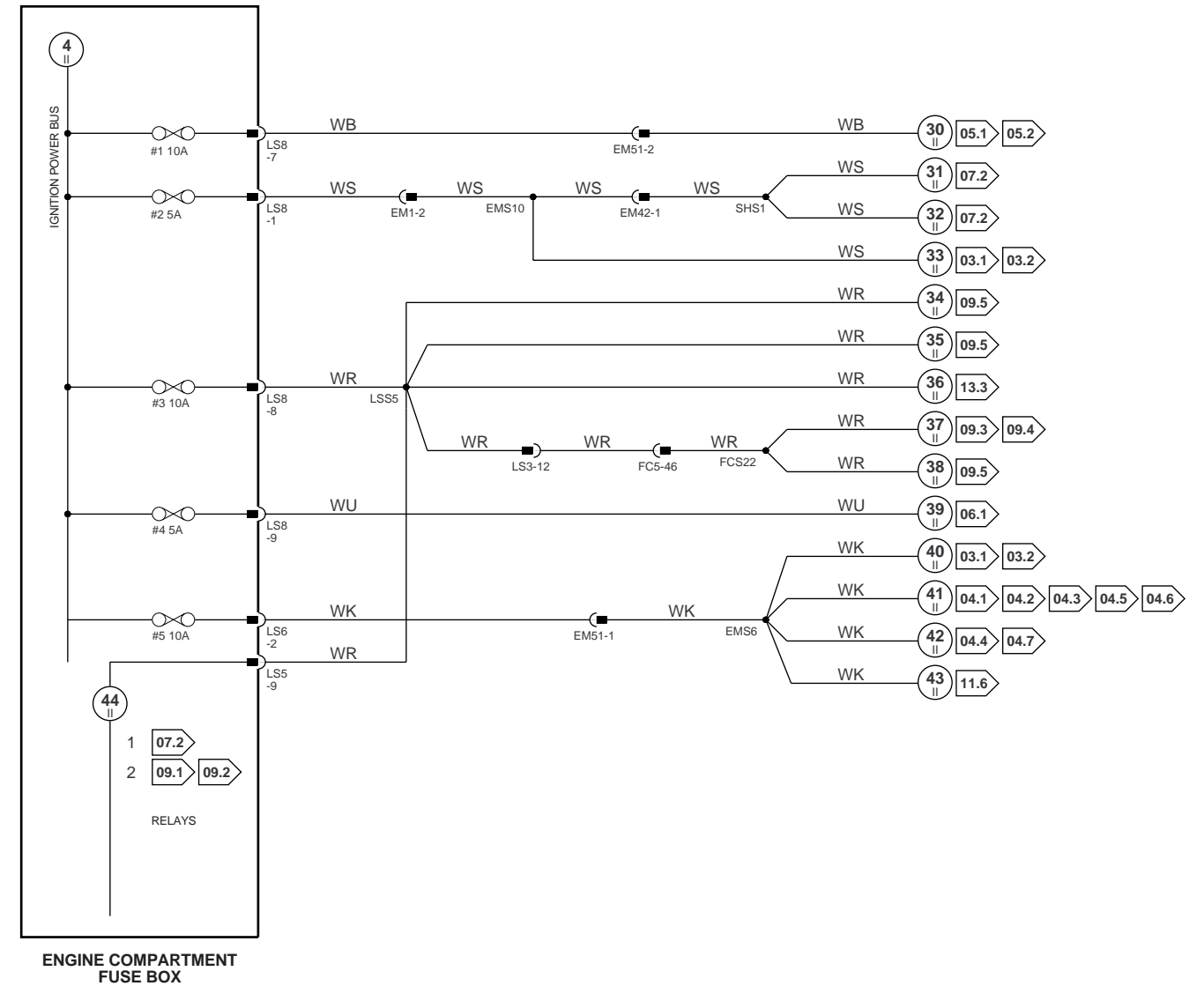
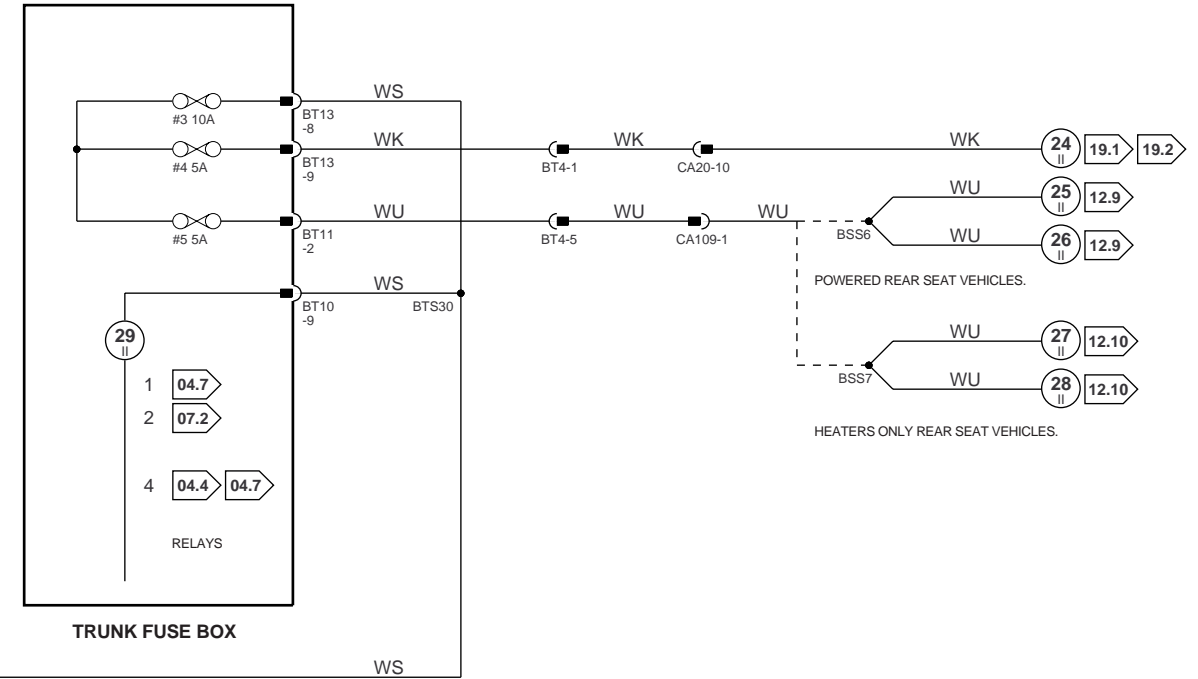
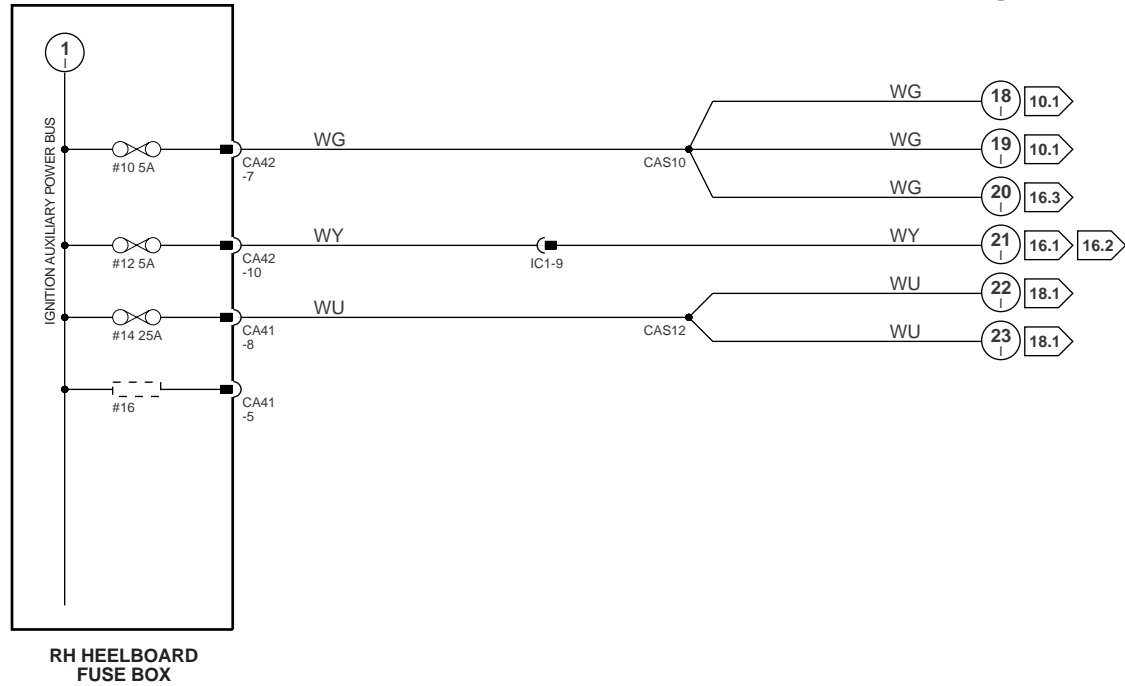
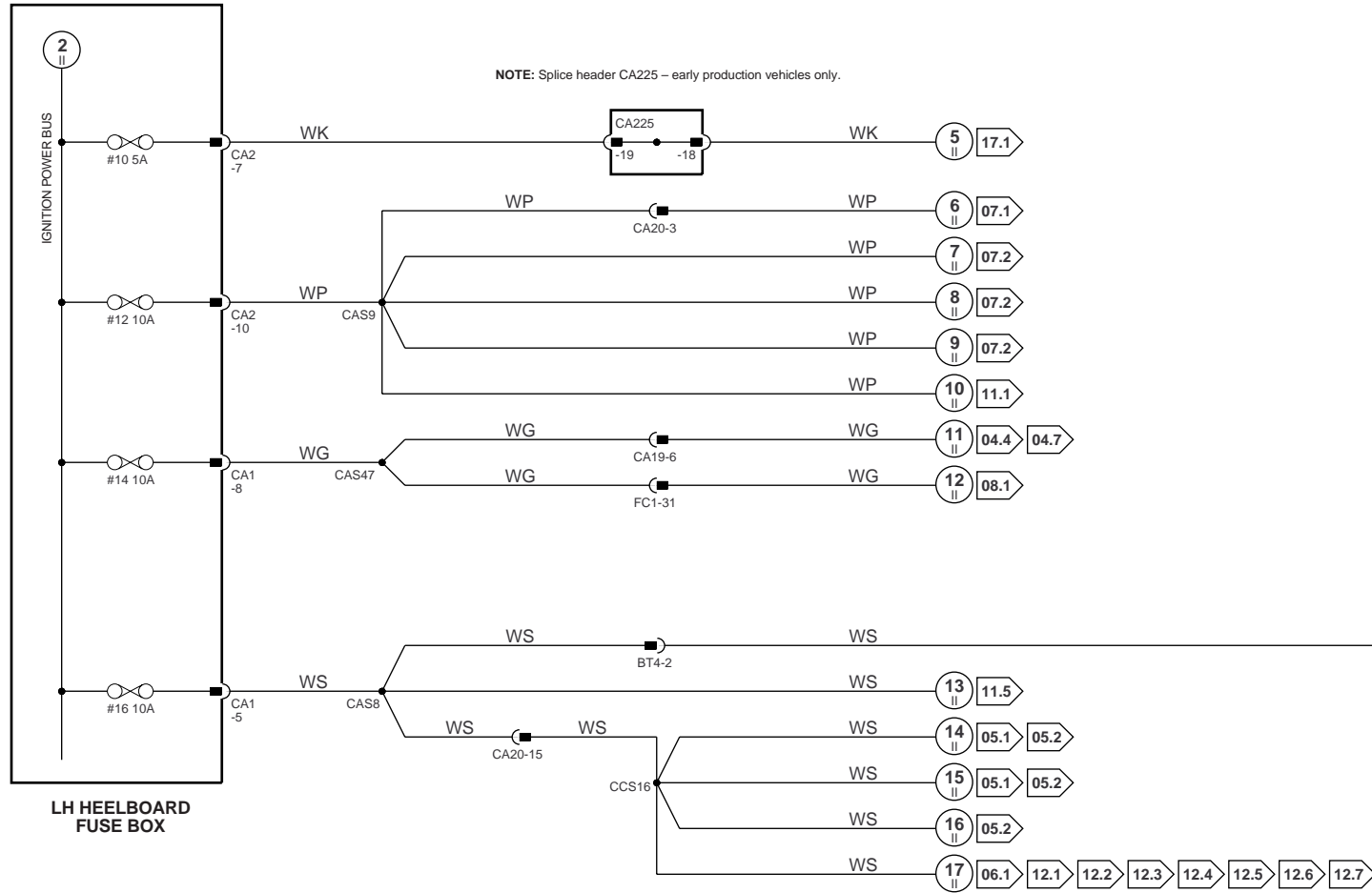
RH HEELBOARD FUSE BOX

**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.

Fig. 01.1 	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<b>VARIANT:</b> All Vehicles <b>VIN RANGE:</b> All <b>DATE OF ISSUE:</b> SEPTEMBER 1997
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▽ Input

▽ Output

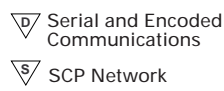
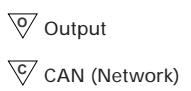
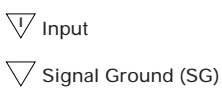
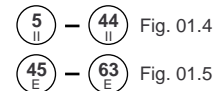
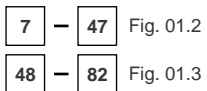
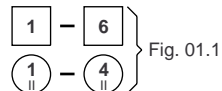
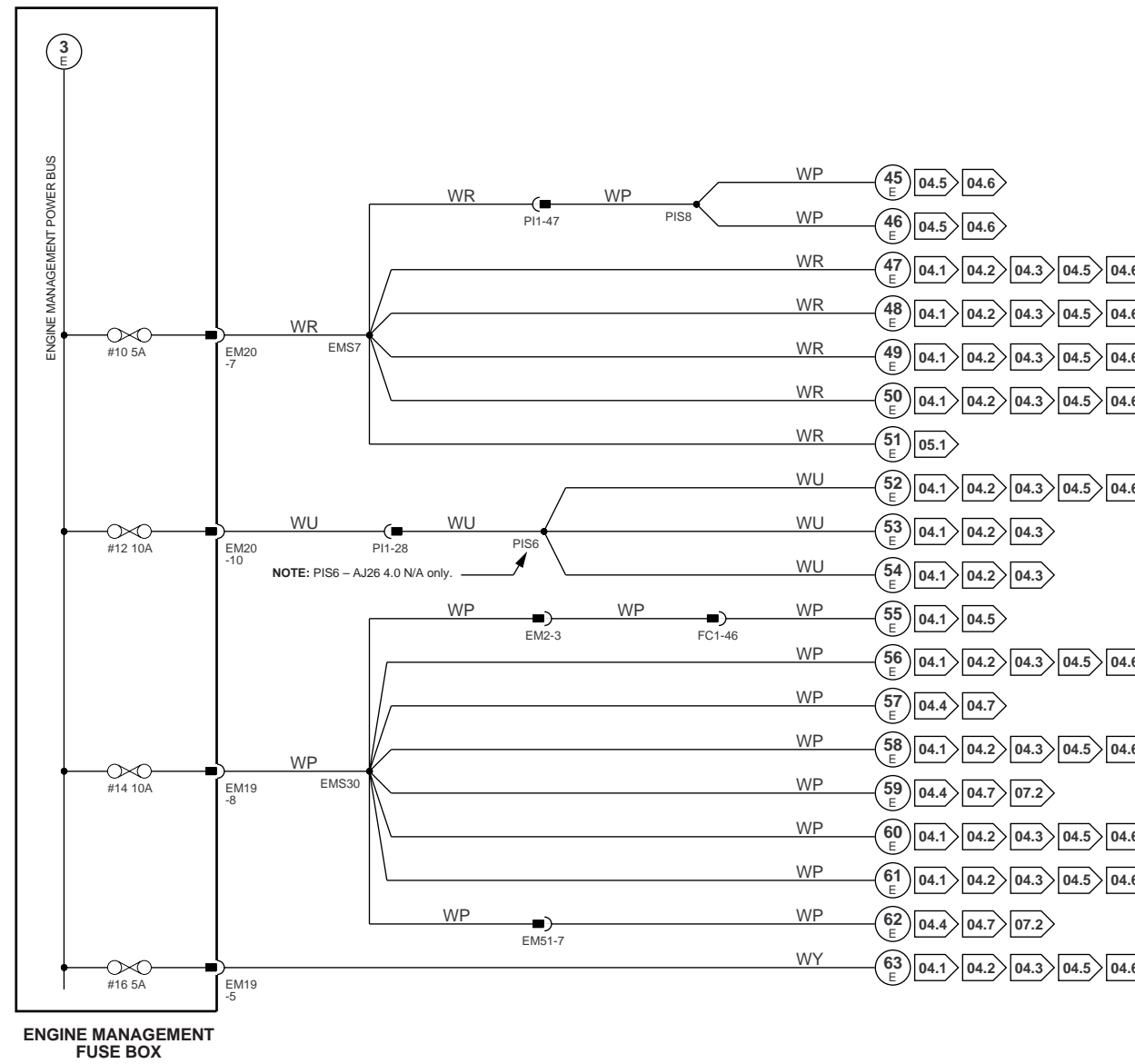
▽ Serial and Encoded Communications

▽ Signal Ground (SG)

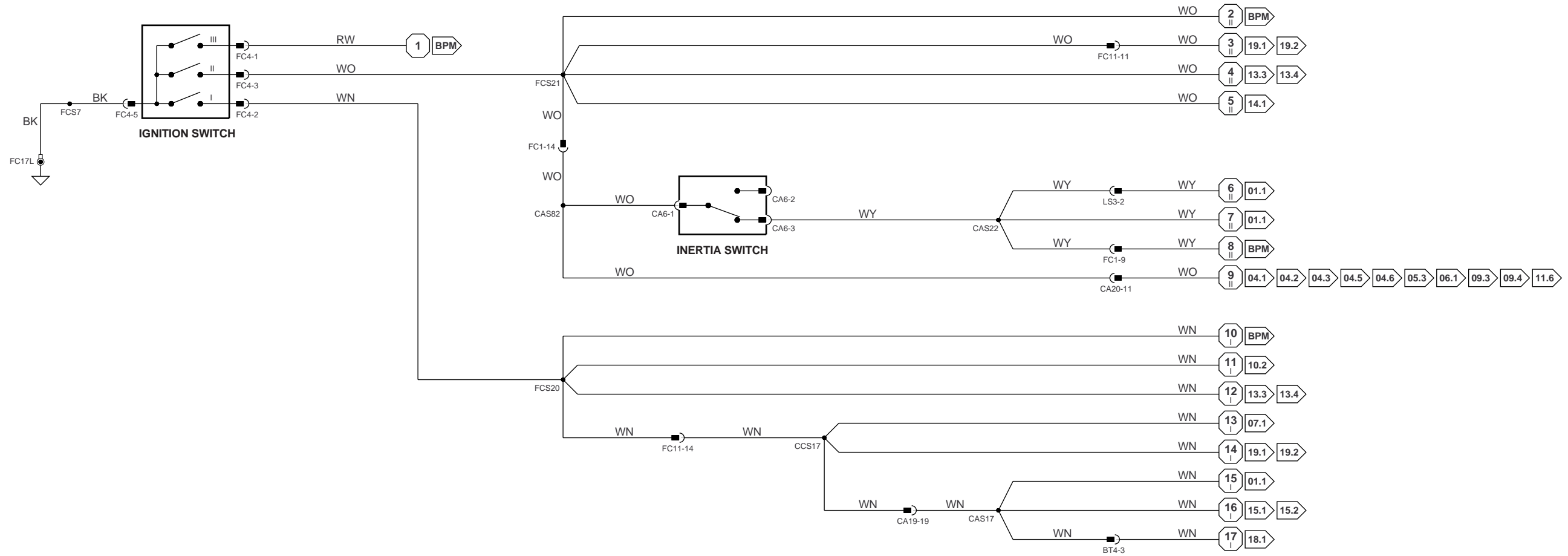
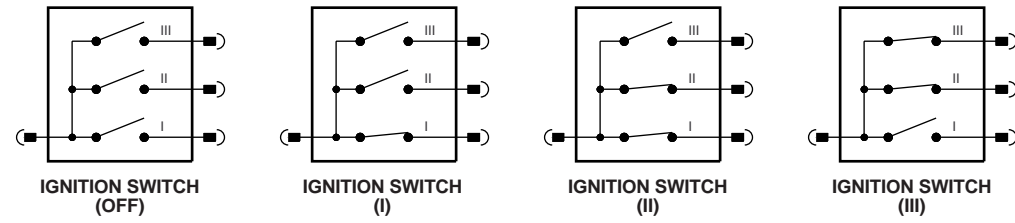
▽ CAN (Network)

▽ SCP Network

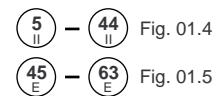
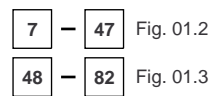
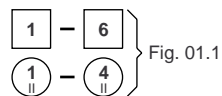
VARIANT: All Vehicles  
VIN RANGE: All  
DATE OF ISSUE: SEPTEMBER 1997



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



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



▽ Input

▽ Signal Ground (SG)

▽ Output

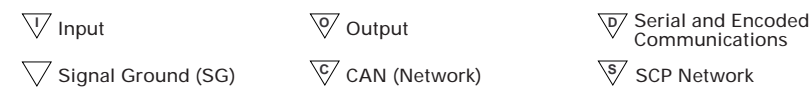
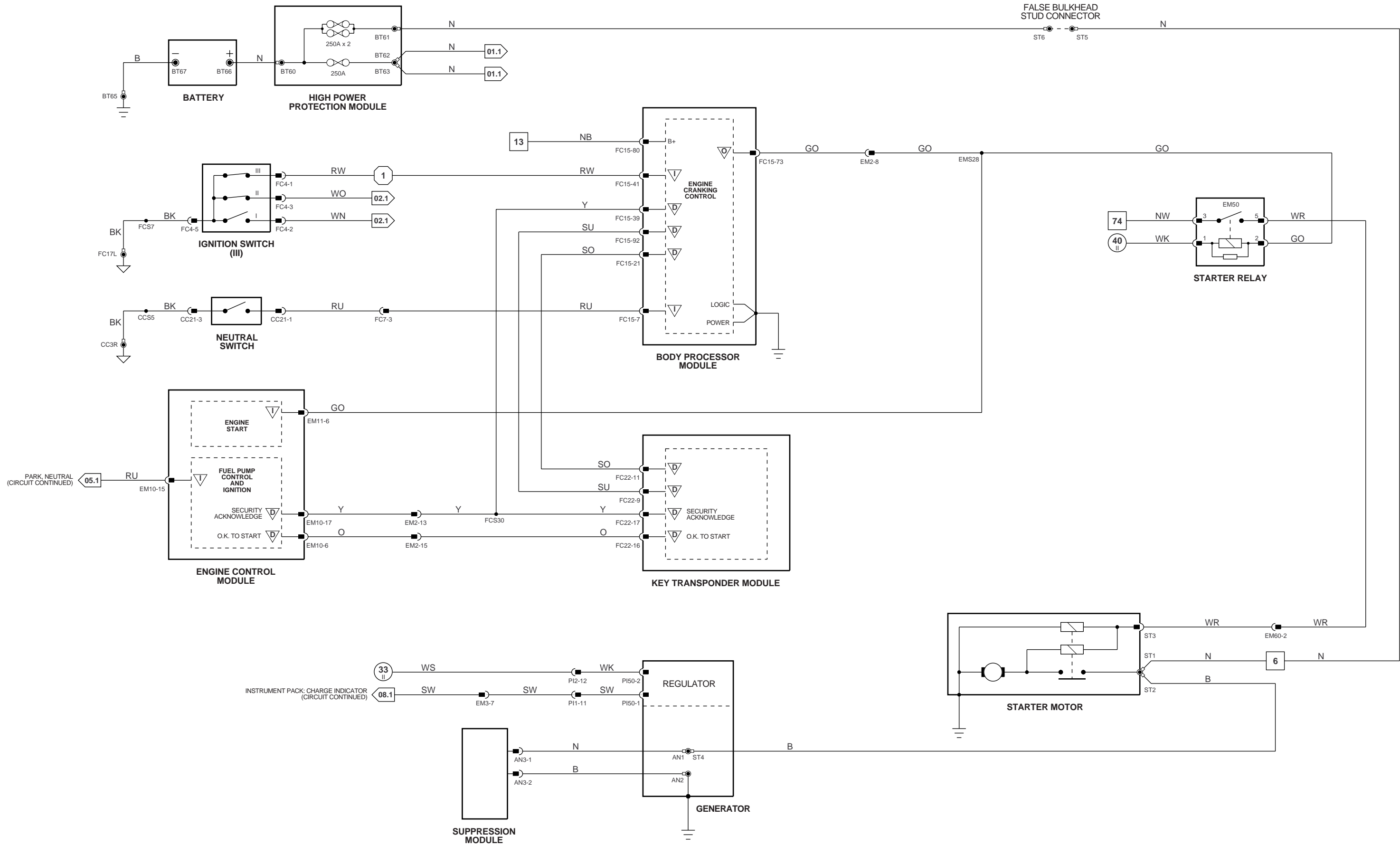
▽ CAN (Network)

▽ Serial and Encoded Communications

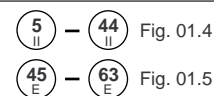
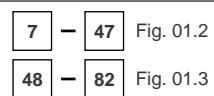
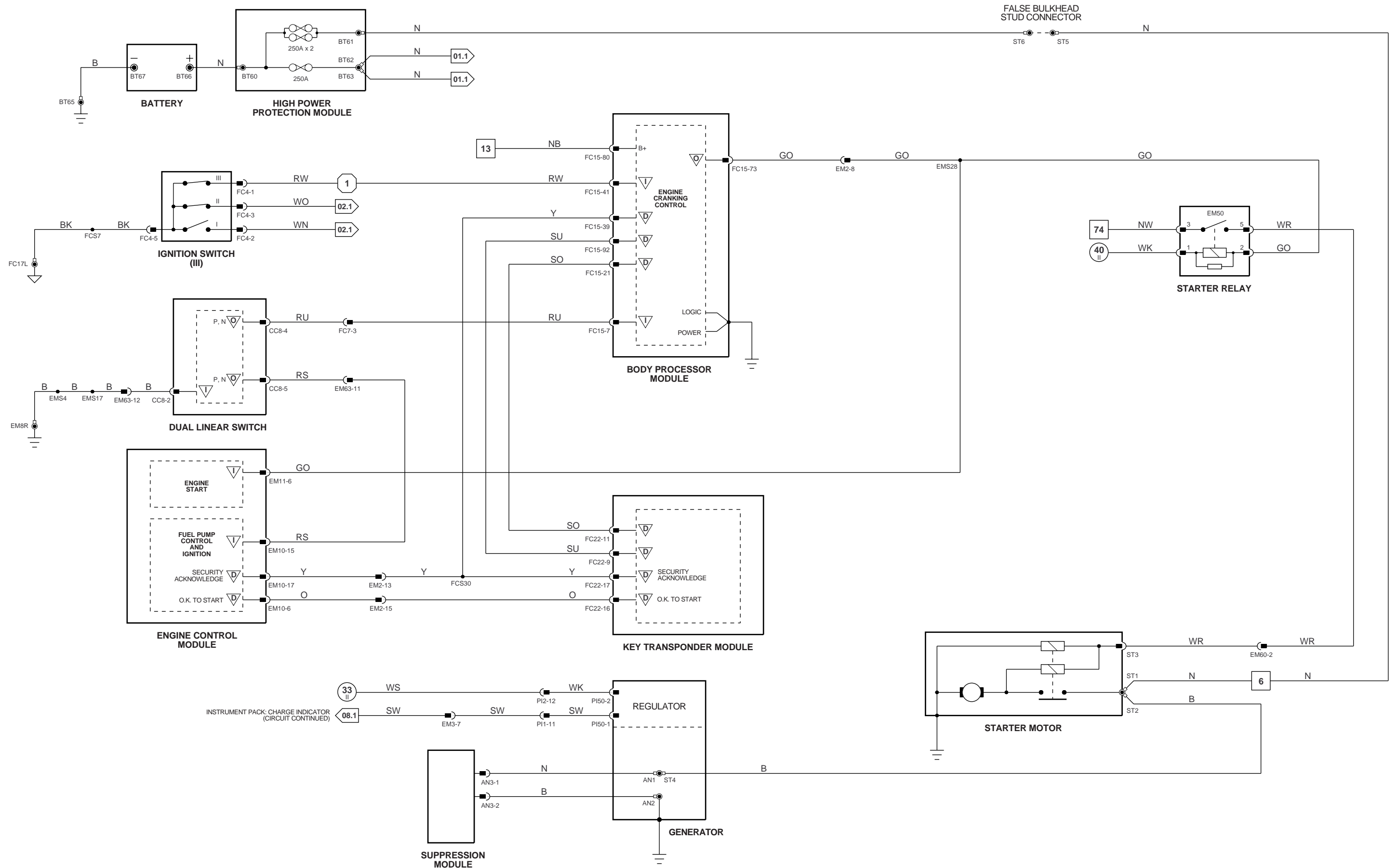
▽ SCP Network

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





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



▽ Input

▽ Signal Ground (SG)

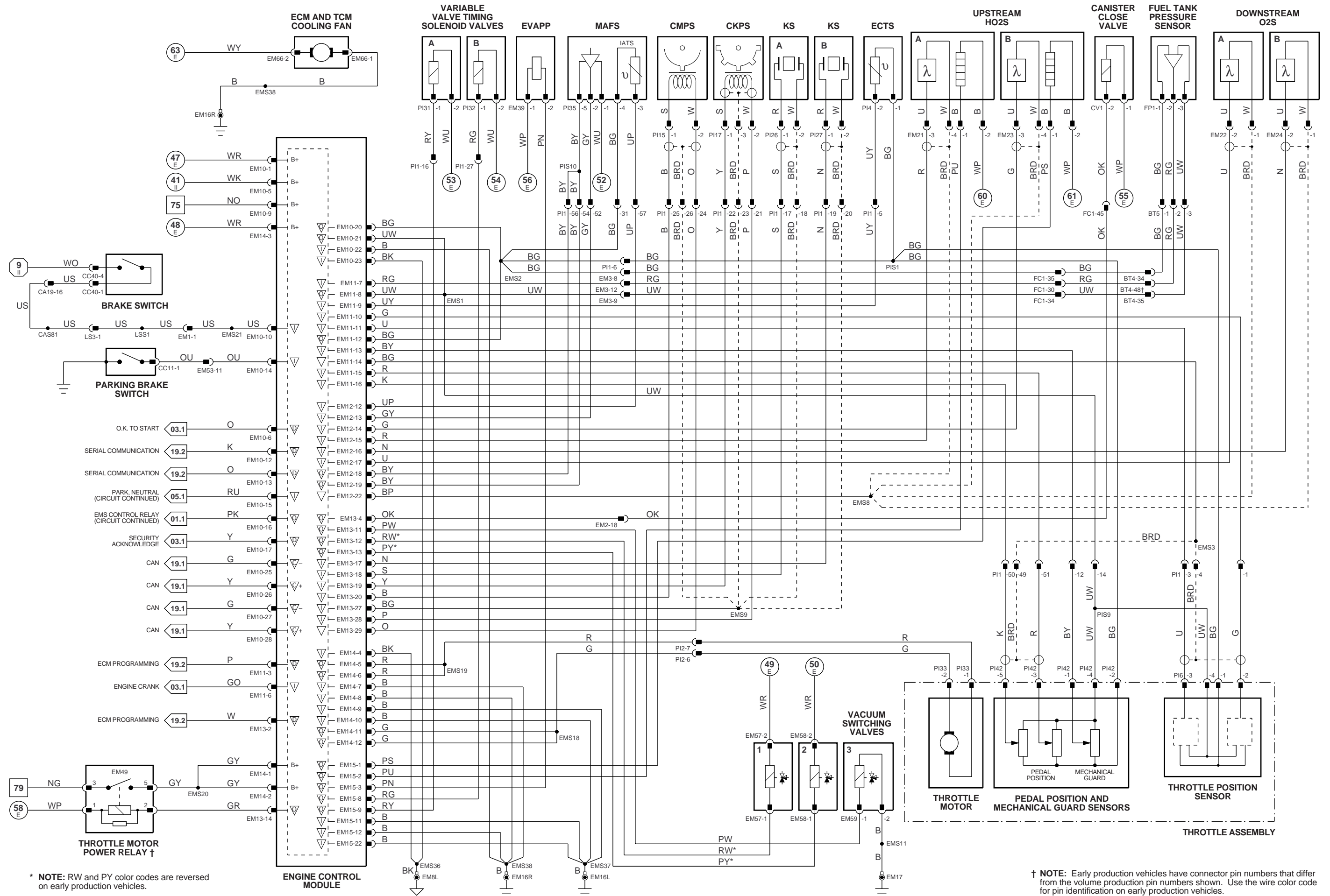
▽ Output

▽ CAN (Network)

▽ Serial and Encoded Communications

▽ SCP Network

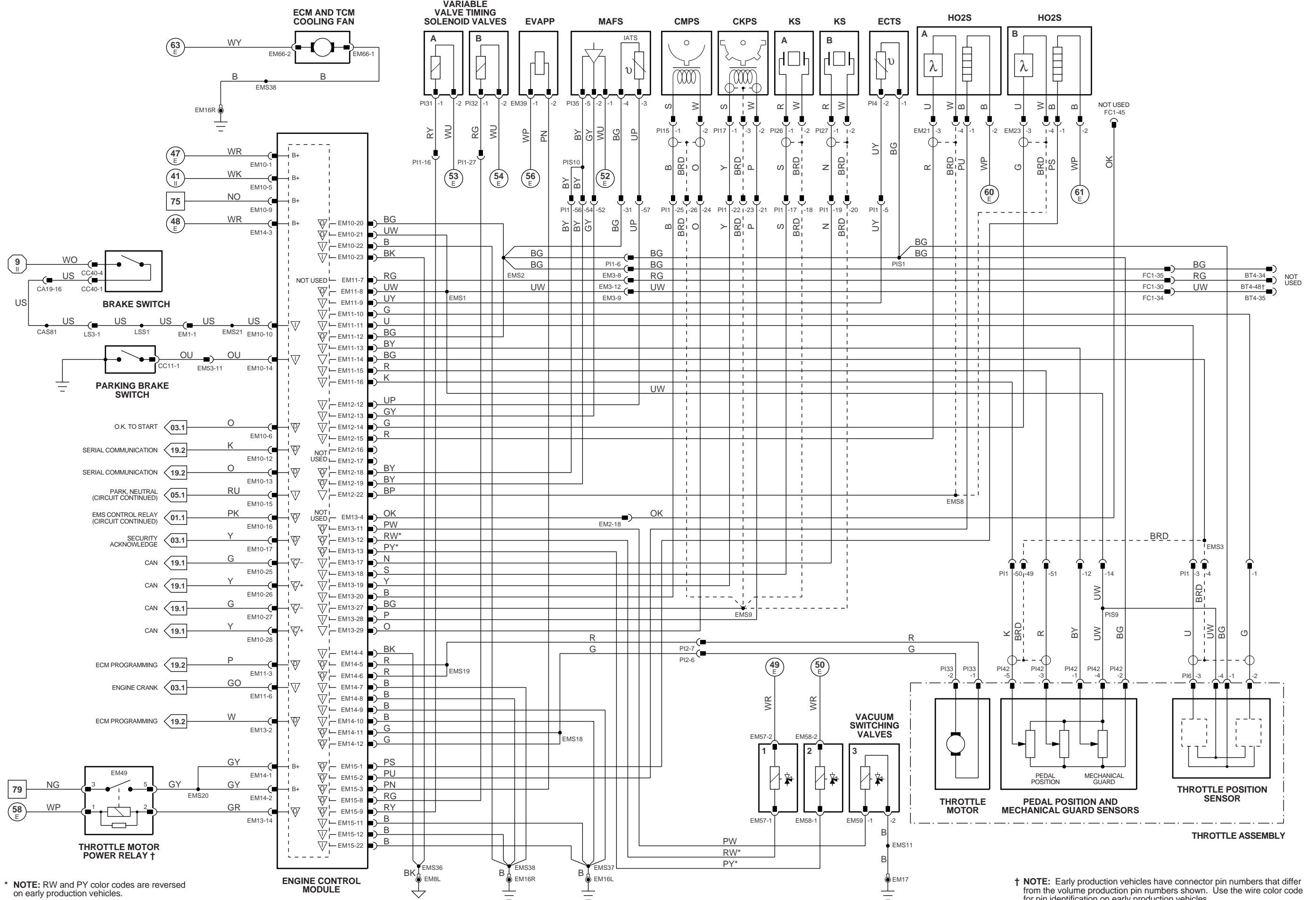
VARIANT: AJ26 SC Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997



\* 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.

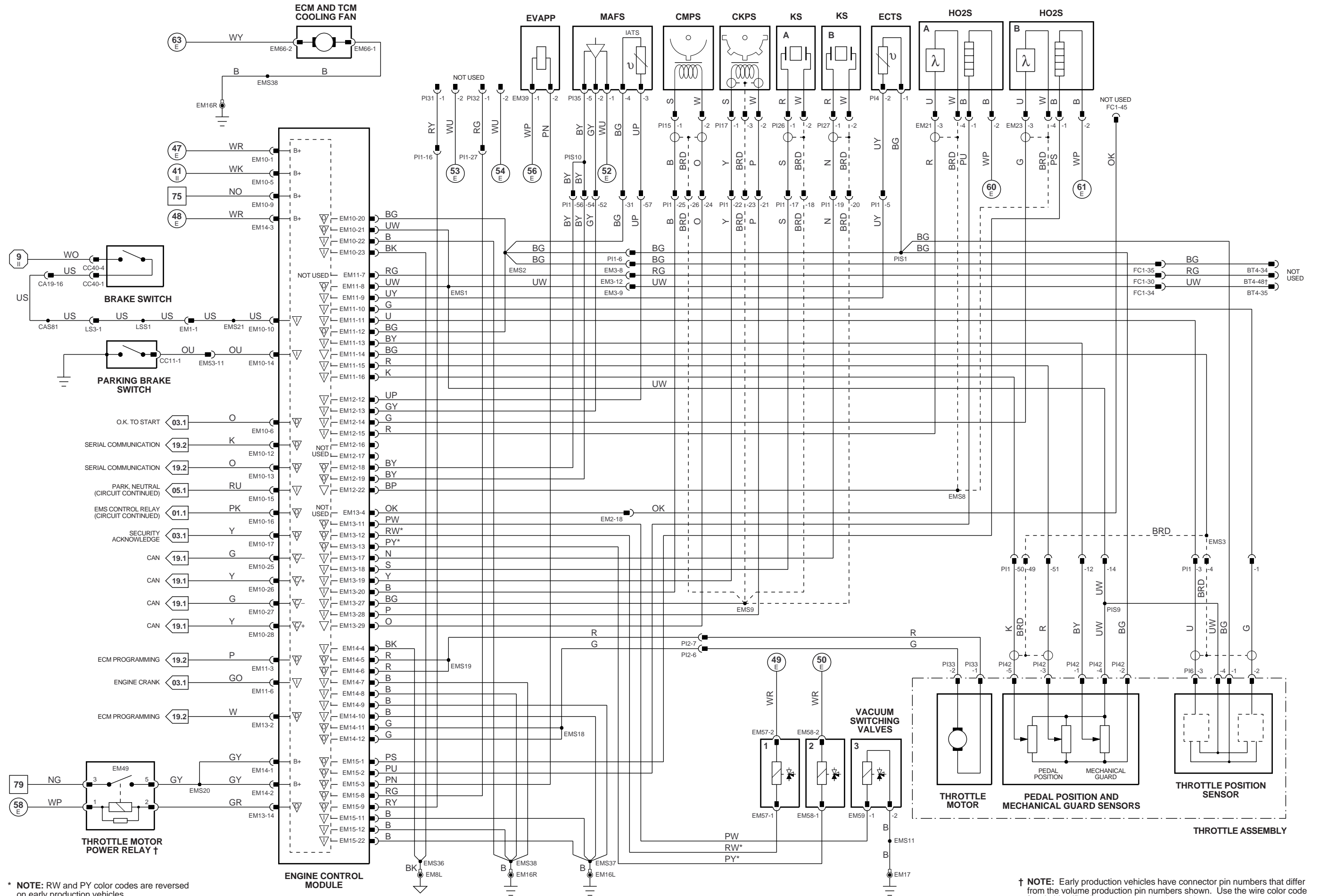
Fig. 01.1 Fig. 01.1	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<p>VARIANT: AJ26 4.0 N/A NAS Vehicles          VIN RANGE: All          DATE OF ISSUE: SEPTEMBER 1997</p>
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\* NOTE: RW and PY color codes are reversed on early production vehicles.

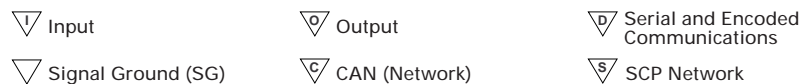
† NOTE: Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

Fig. 01.1 Fig. 01.1	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<p>VARIANT: AJ26 4.0 N/A ROW Vehicles          VIN RANGE: All          DATE OF ISSUE: SEPTEMBER 1997</p>
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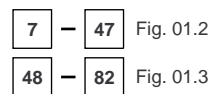
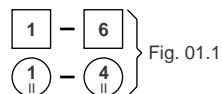
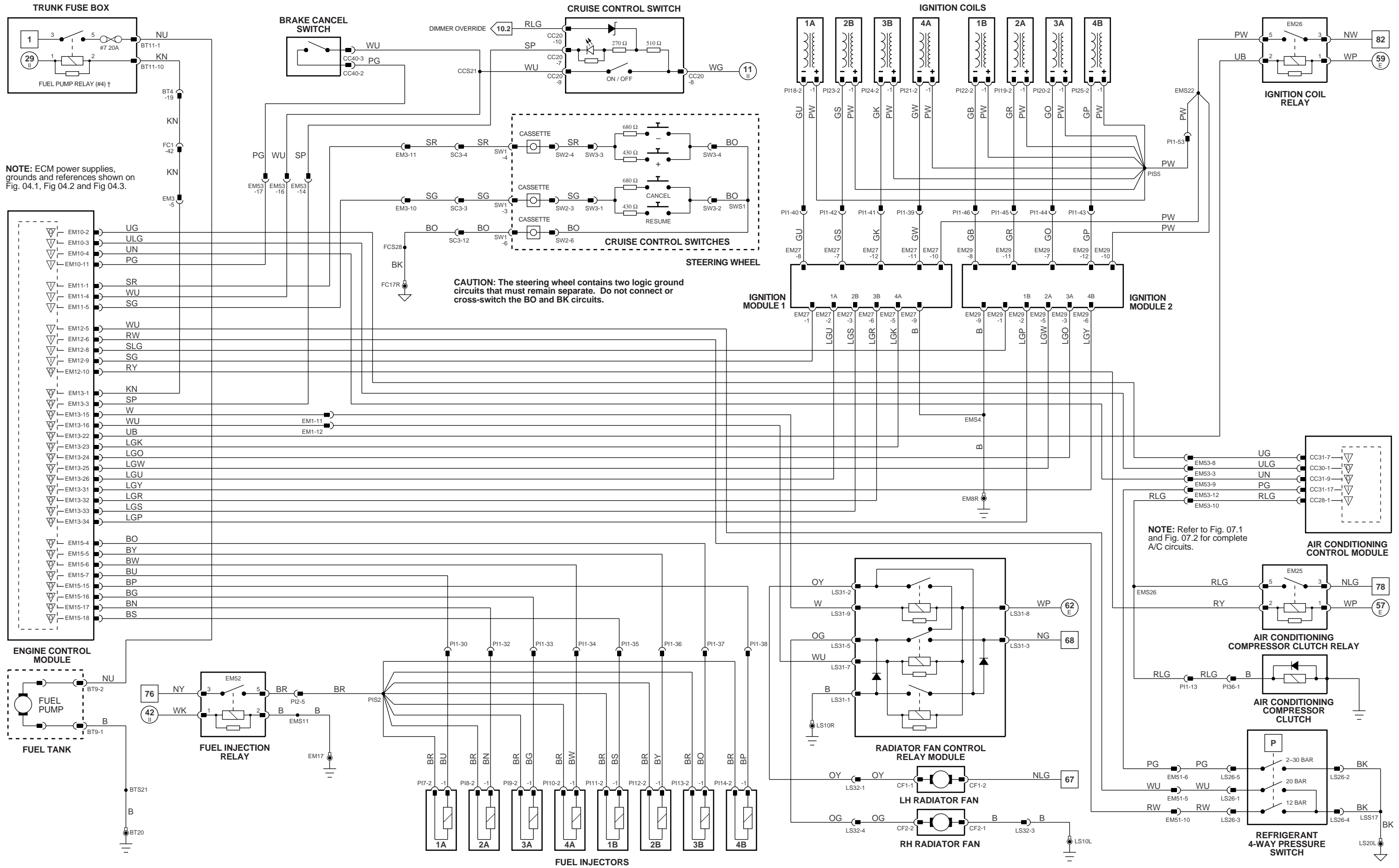


\* NOTE: RW and PY color codes are reversed on early production vehicles.

† 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.



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



▽ Input

▽ Output

▽ Serial and Encoded Communications

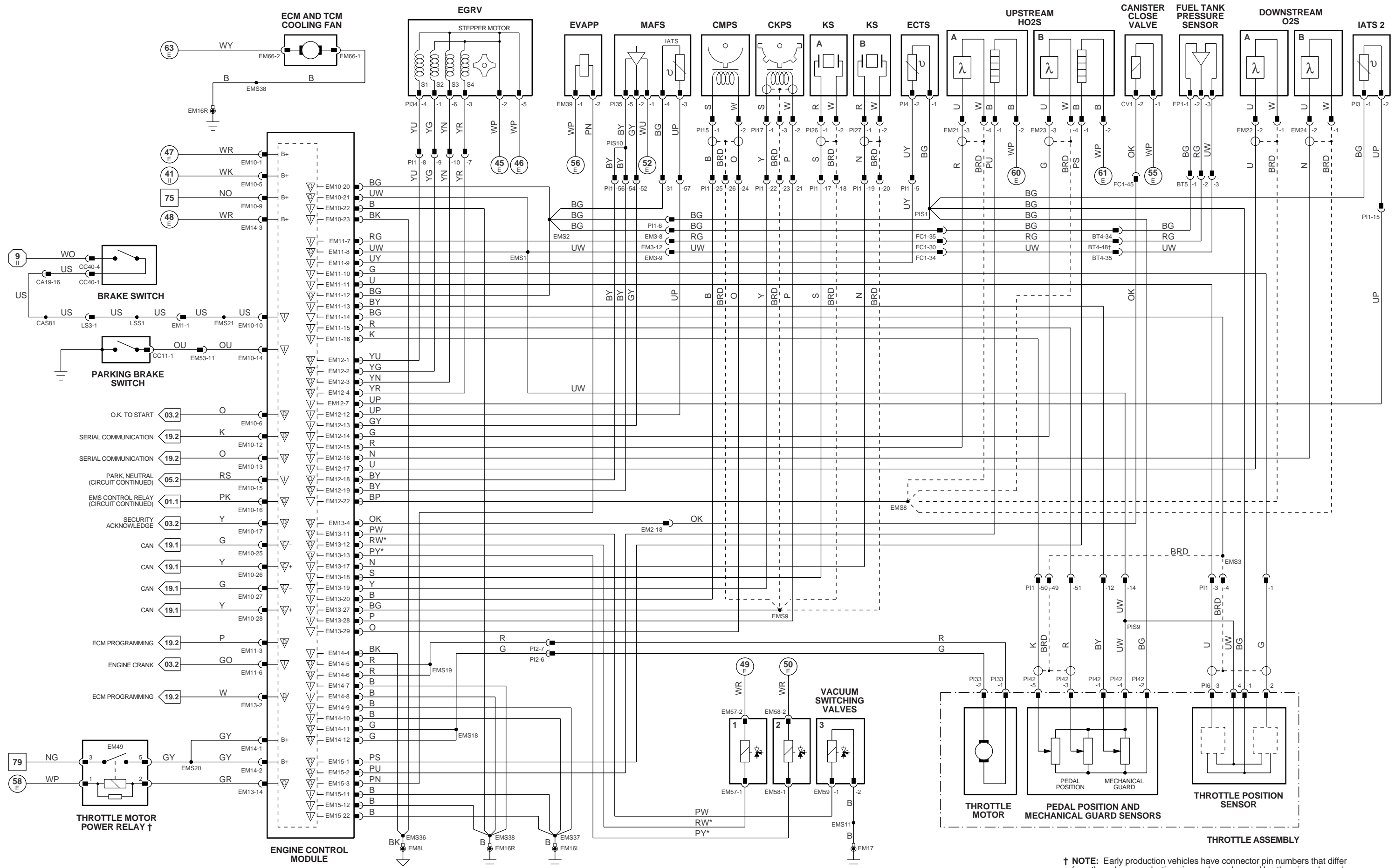
▽ Signal Ground (SG)

▽ CAN (Network)

▽ SCP Network

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





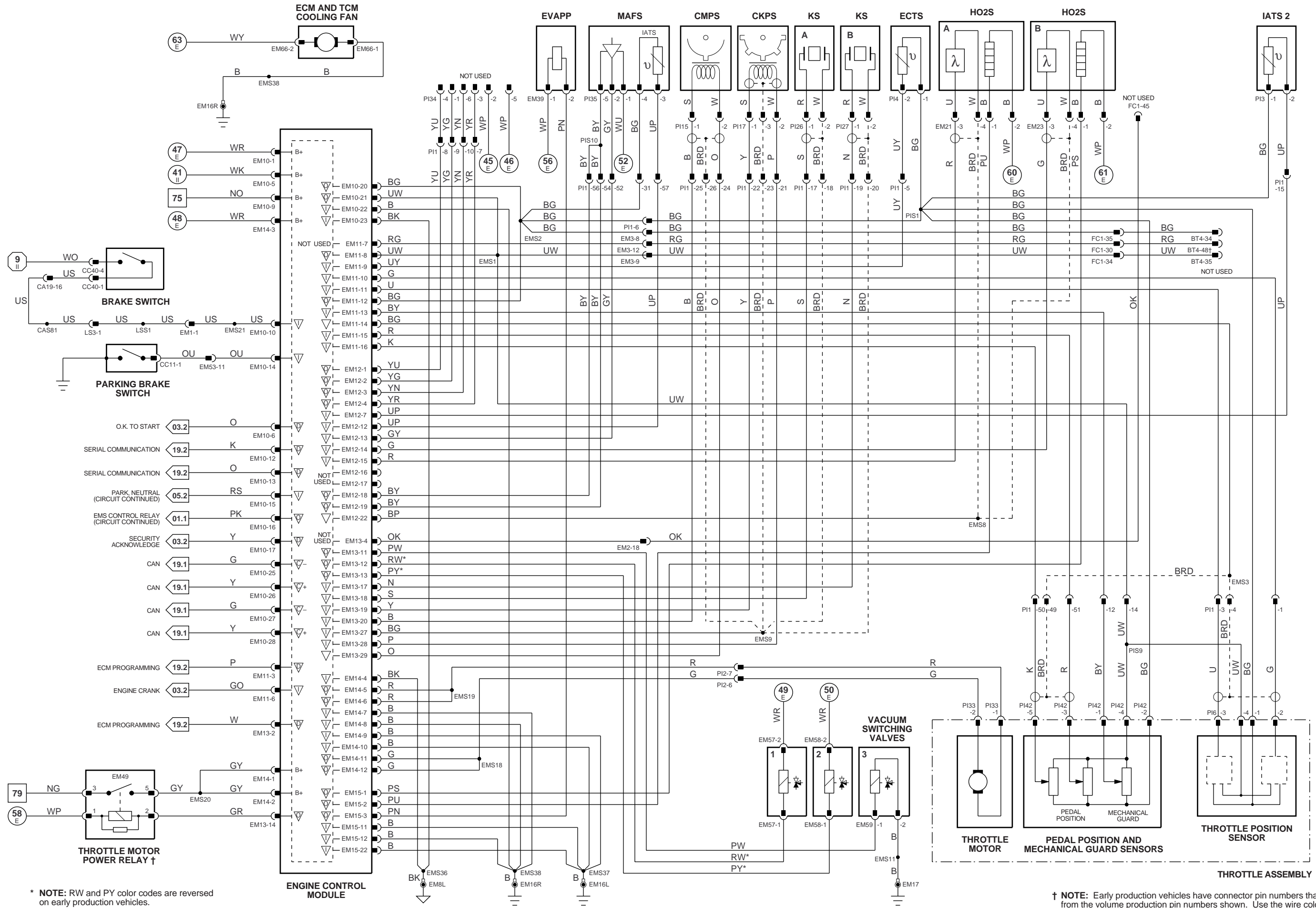
\* NOTE: RW and PY color codes are reversed on early production vehicles.

† 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.



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

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



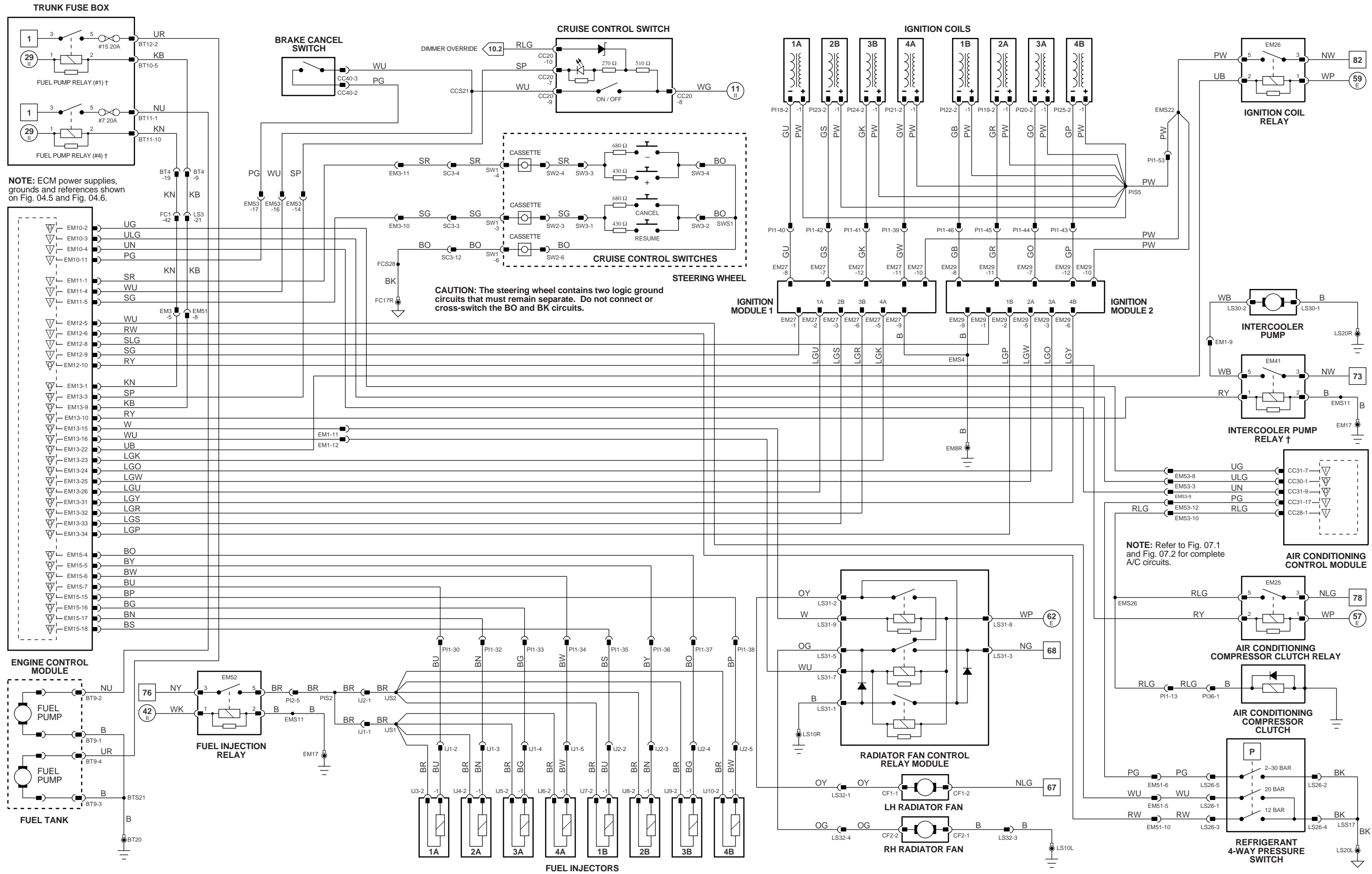
\* NOTE: RW and PY color codes are reversed on early production vehicles.

† 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 Fig. 01.1 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 Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network
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VARIANT: AJ26 4.0 SC ROW Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997





**NOTE:** ECM power supplies, grounds and references shown on Fig. 04.5 and Fig. 04.6.

**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:** Refer to Fig. 07.1 and Fig. 07.2 for complete A/C circuits.

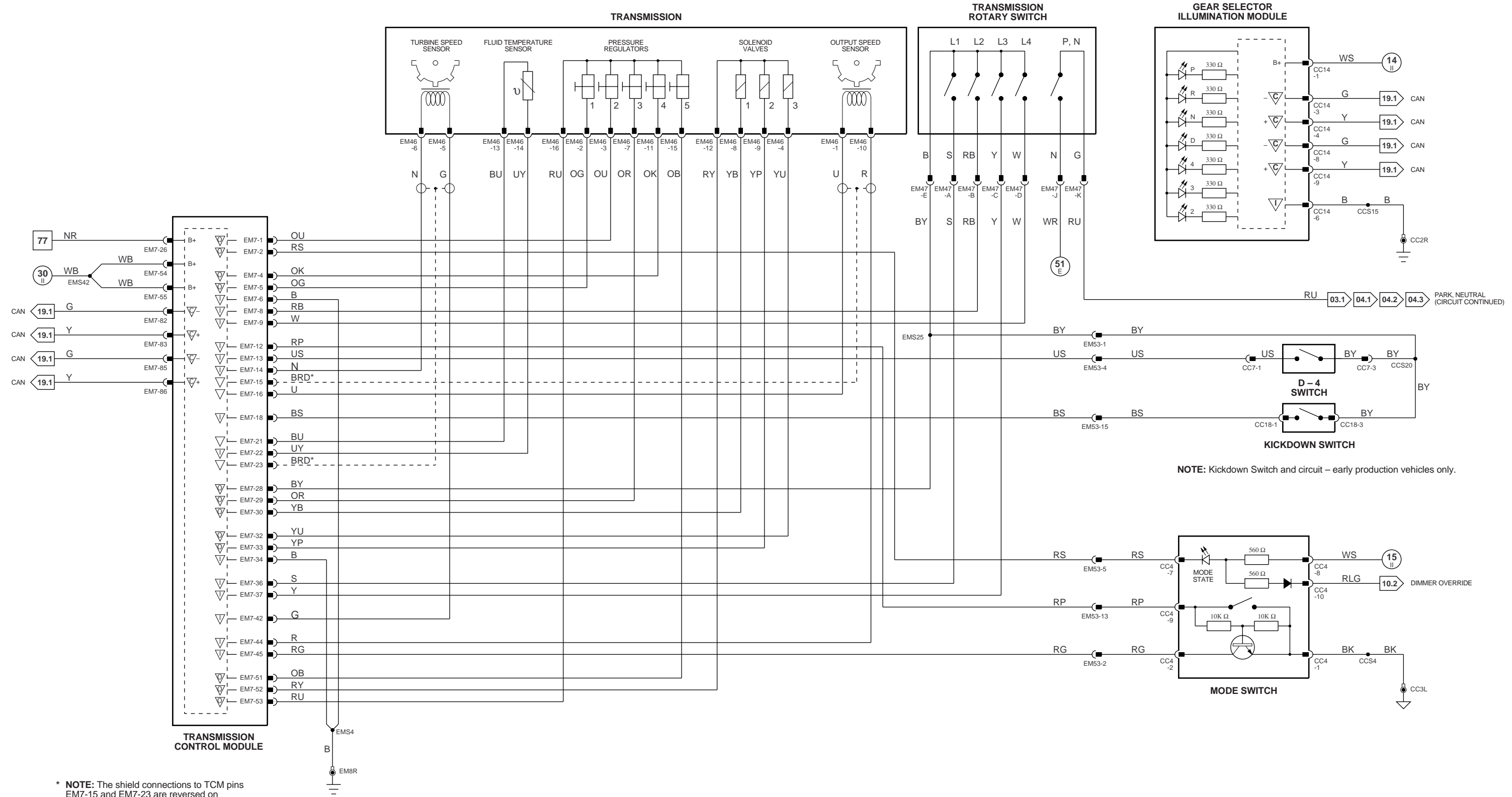
† **NOTE:** Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

Fig. 01.1	Fig. 01.2	Fig. 01.4	Input	Output	Serial and Encoded Communications
Fig. 01.1	Fig. 01.3	Fig. 01.5	Signal Ground (SG)	CAN (Network)	SCP Network
Fig. 02.1					

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

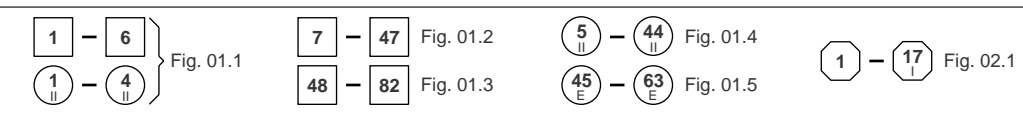
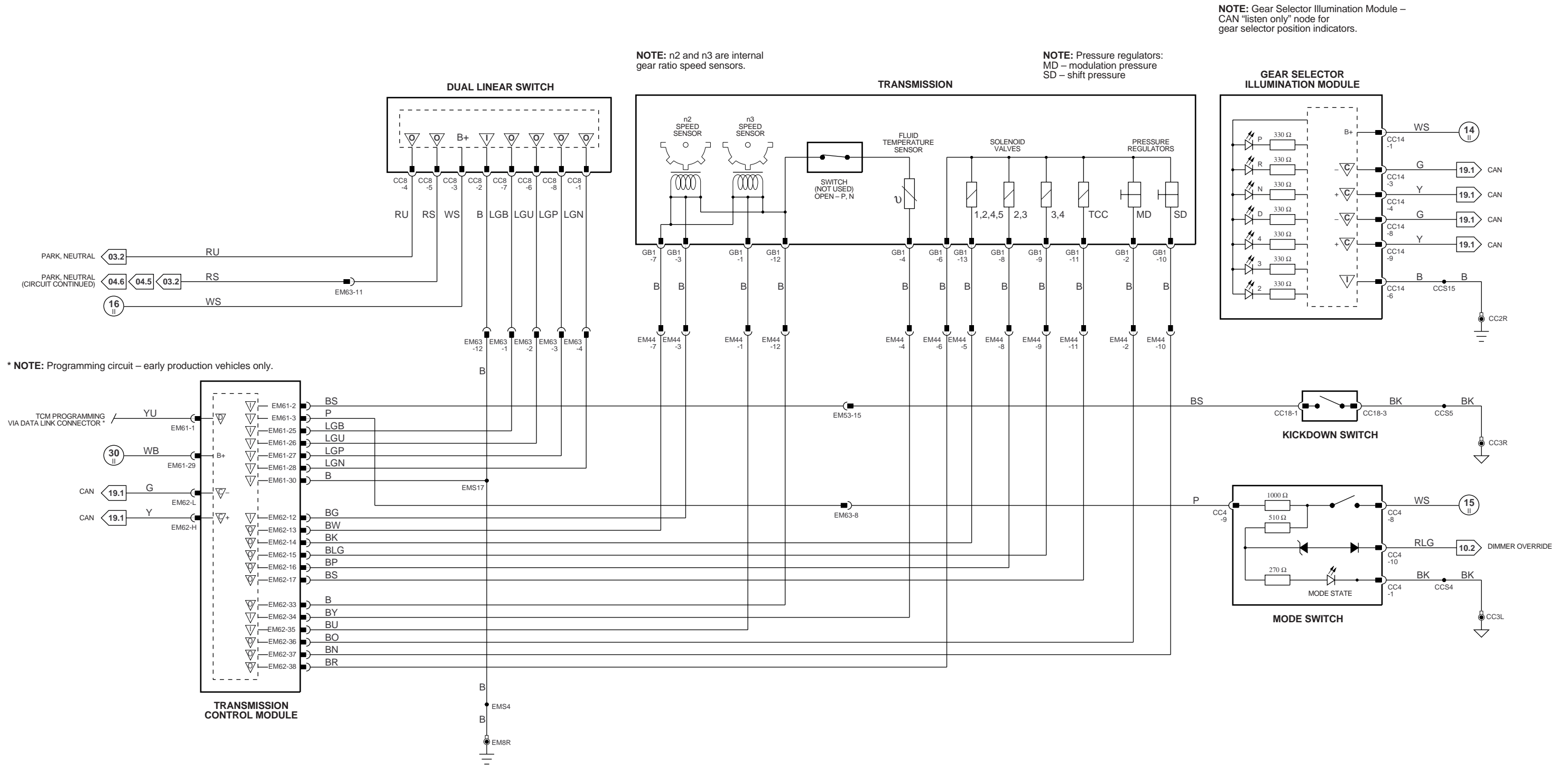


NOTE: Gear Selector Illumination Module – CAN “listen only” node for gear selector position indicators.

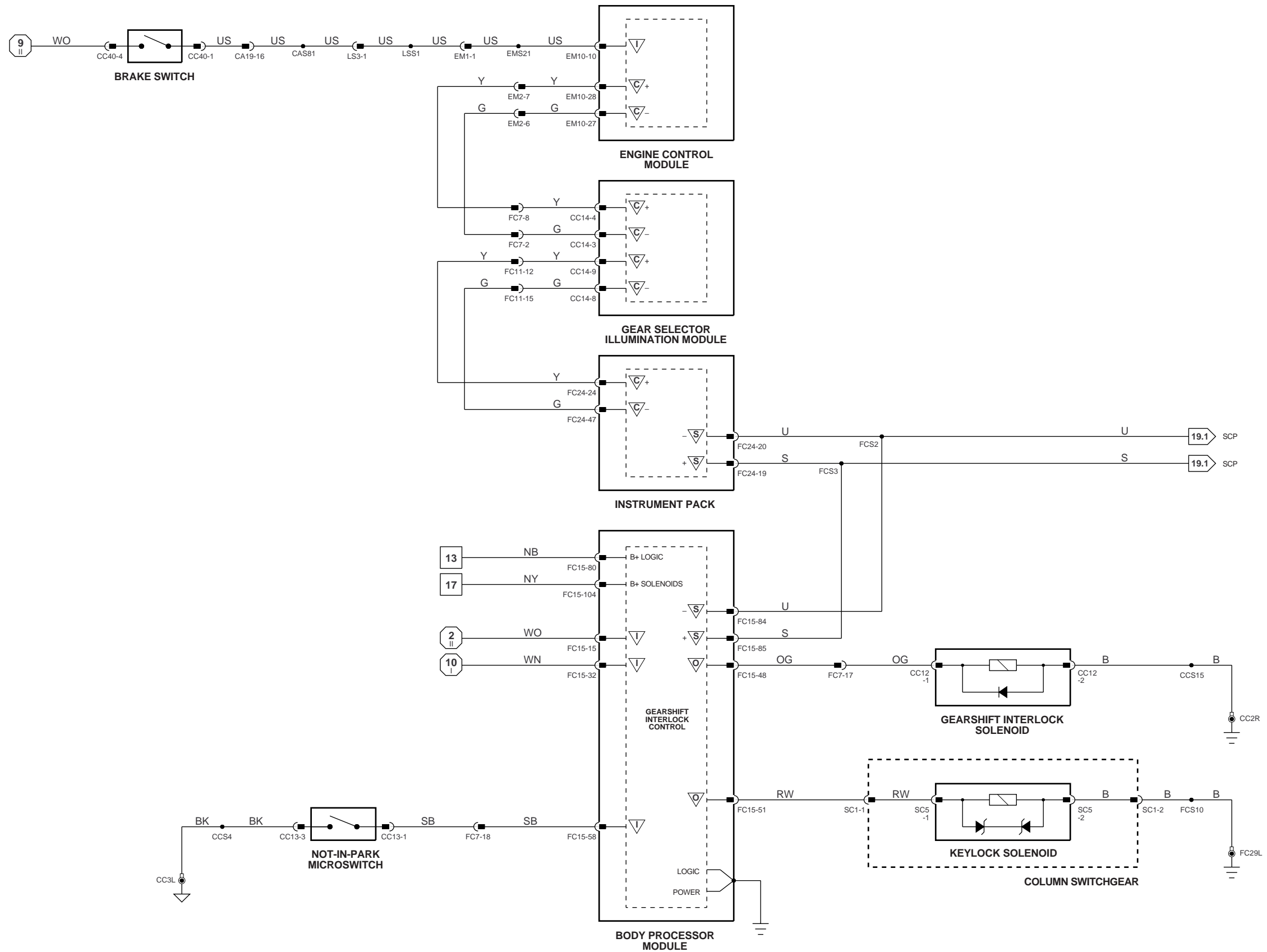


\* NOTE: The shield connections to TCM pins EM7-15 and EM7-23 are reversed on early production vehicles.

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



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



1 - 6 } Fig. 01.1  
 1 - 4 }

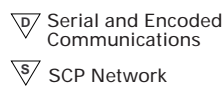
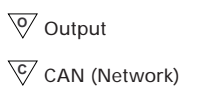
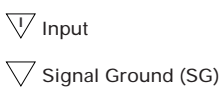
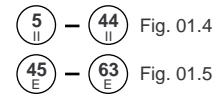
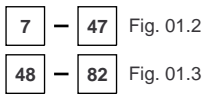
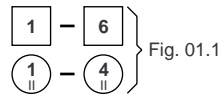
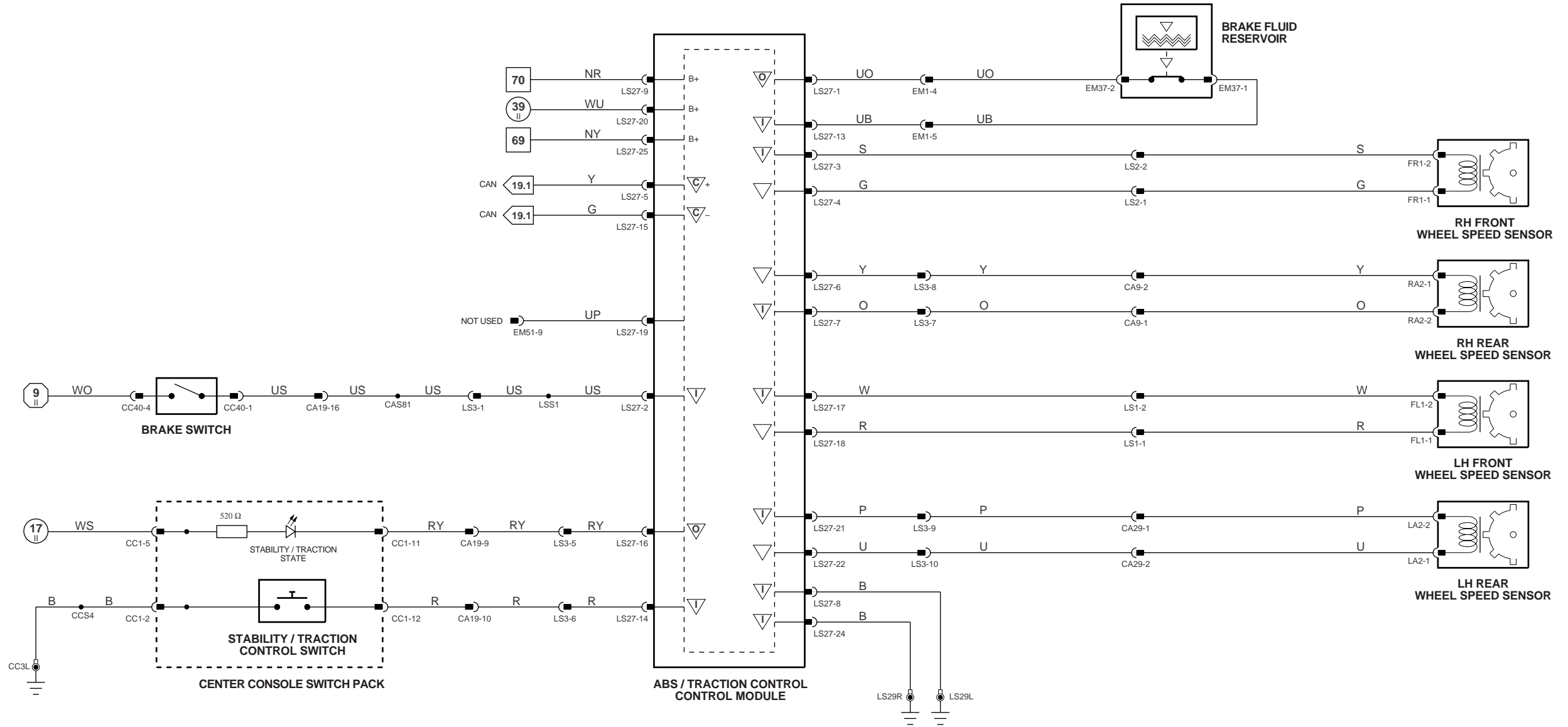
7 - 47 Fig. 01.2  
 48 - 82 Fig. 01.3

5 - 44 Fig. 01.4  
 45 - 63 Fig. 01.5

1 - 17 Fig. 02.1

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

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



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.

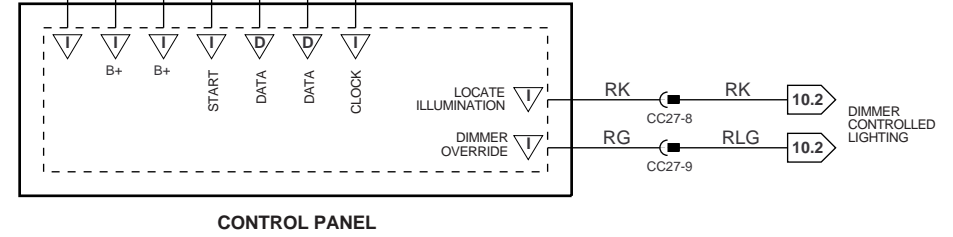
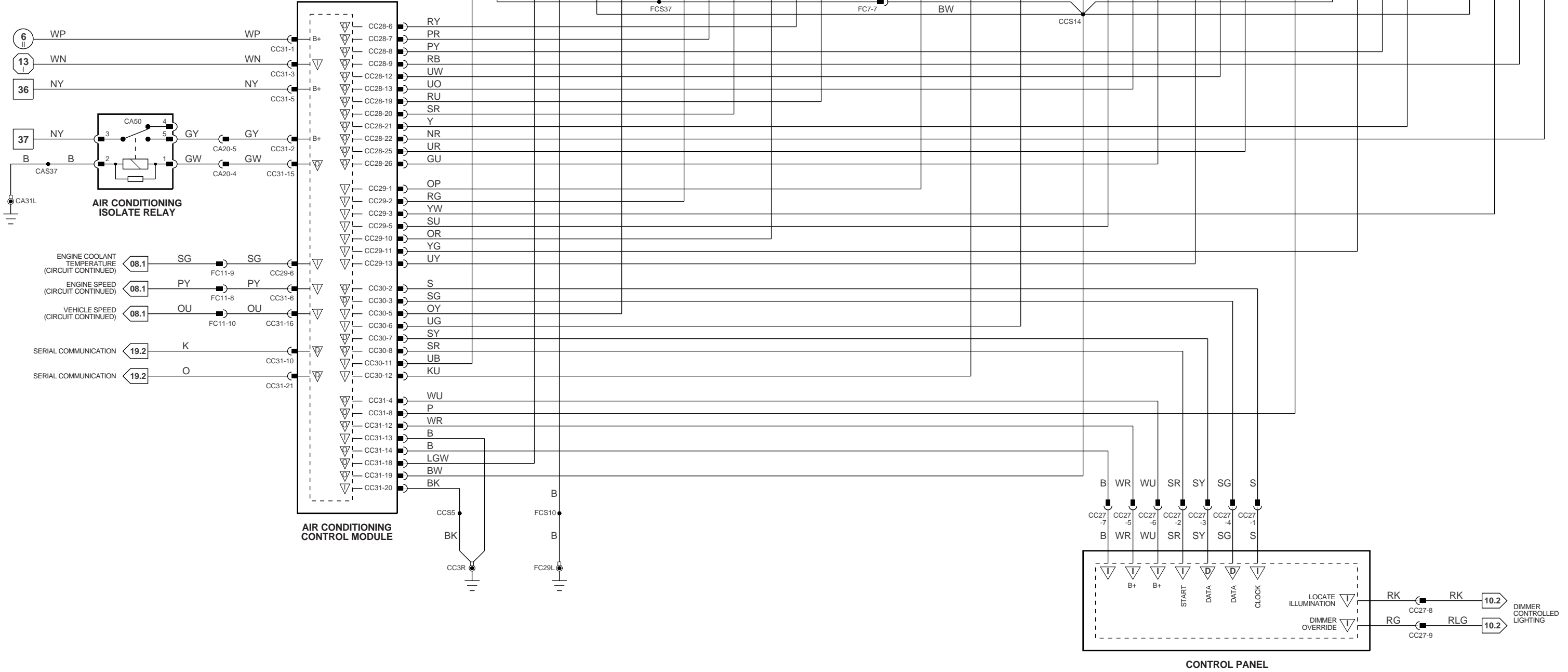
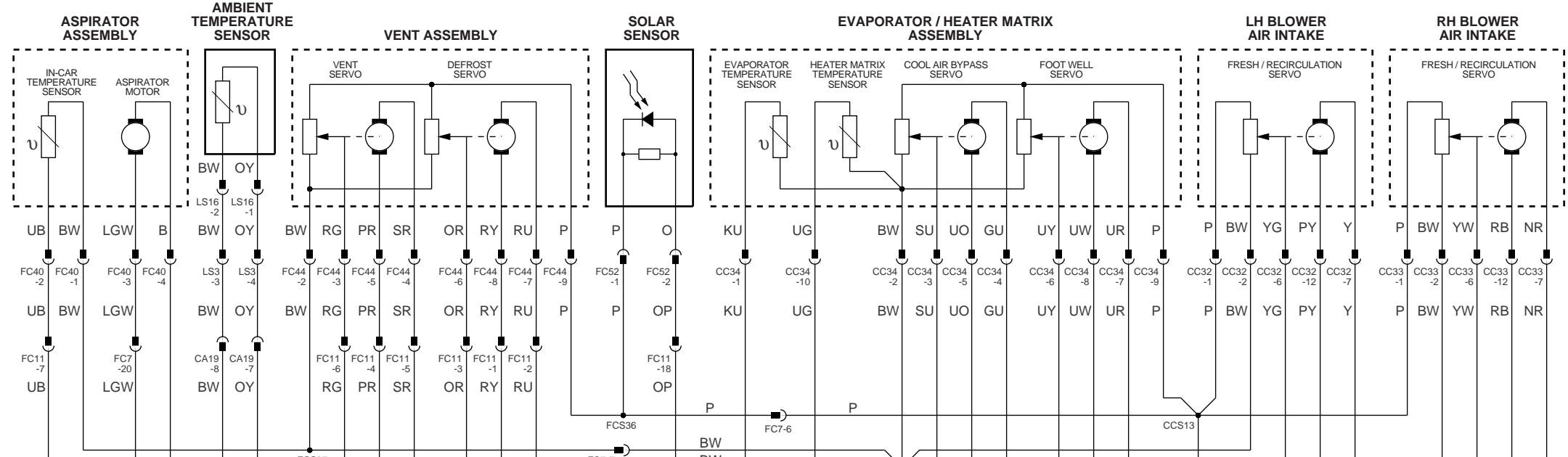
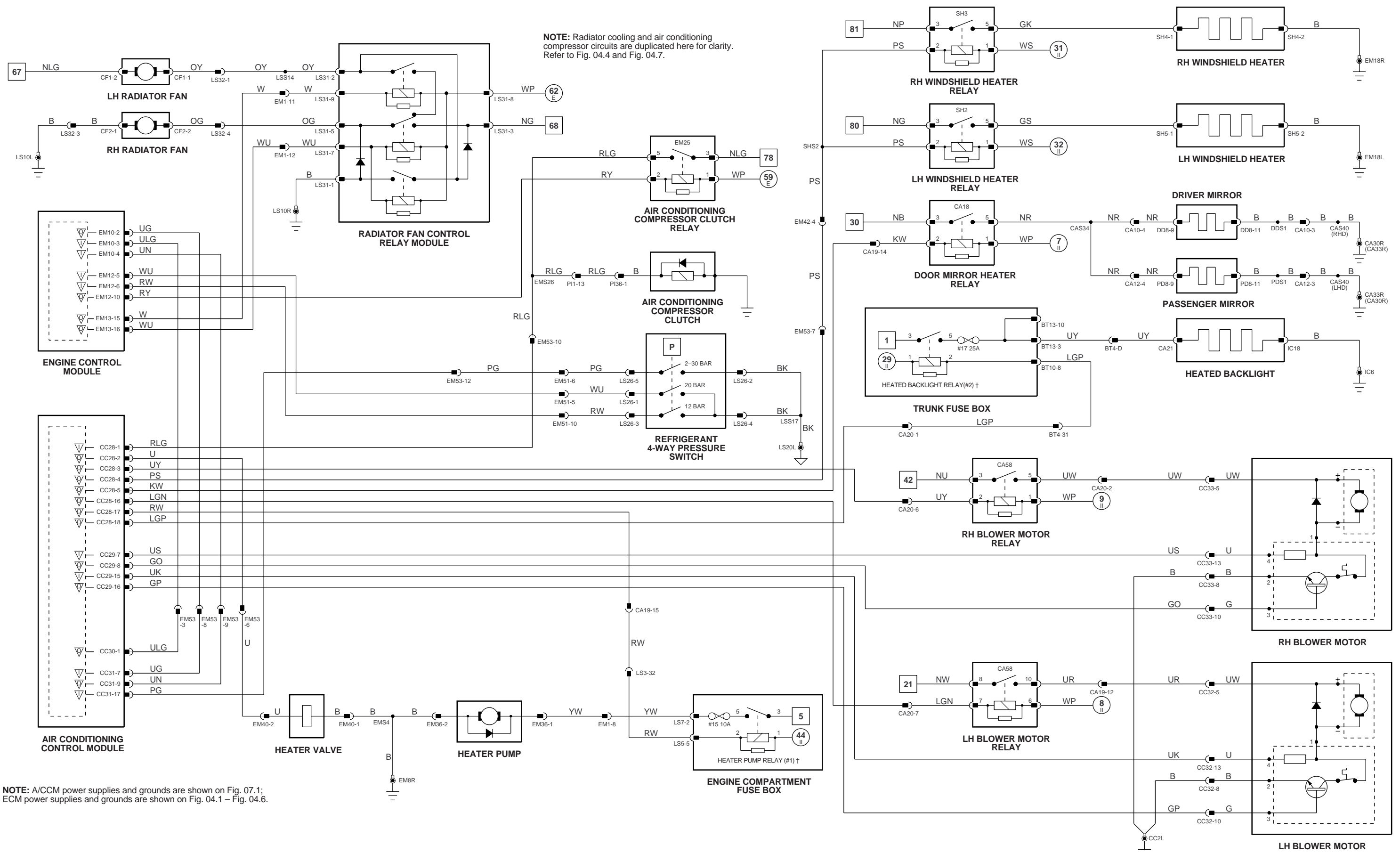


Fig. 01.1	Fig. 01.2	Fig. 01.4	Fig. 02.1	Input	Output	Serial and Encoded Communications
Fig. 01.1	Fig. 01.3	Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network

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



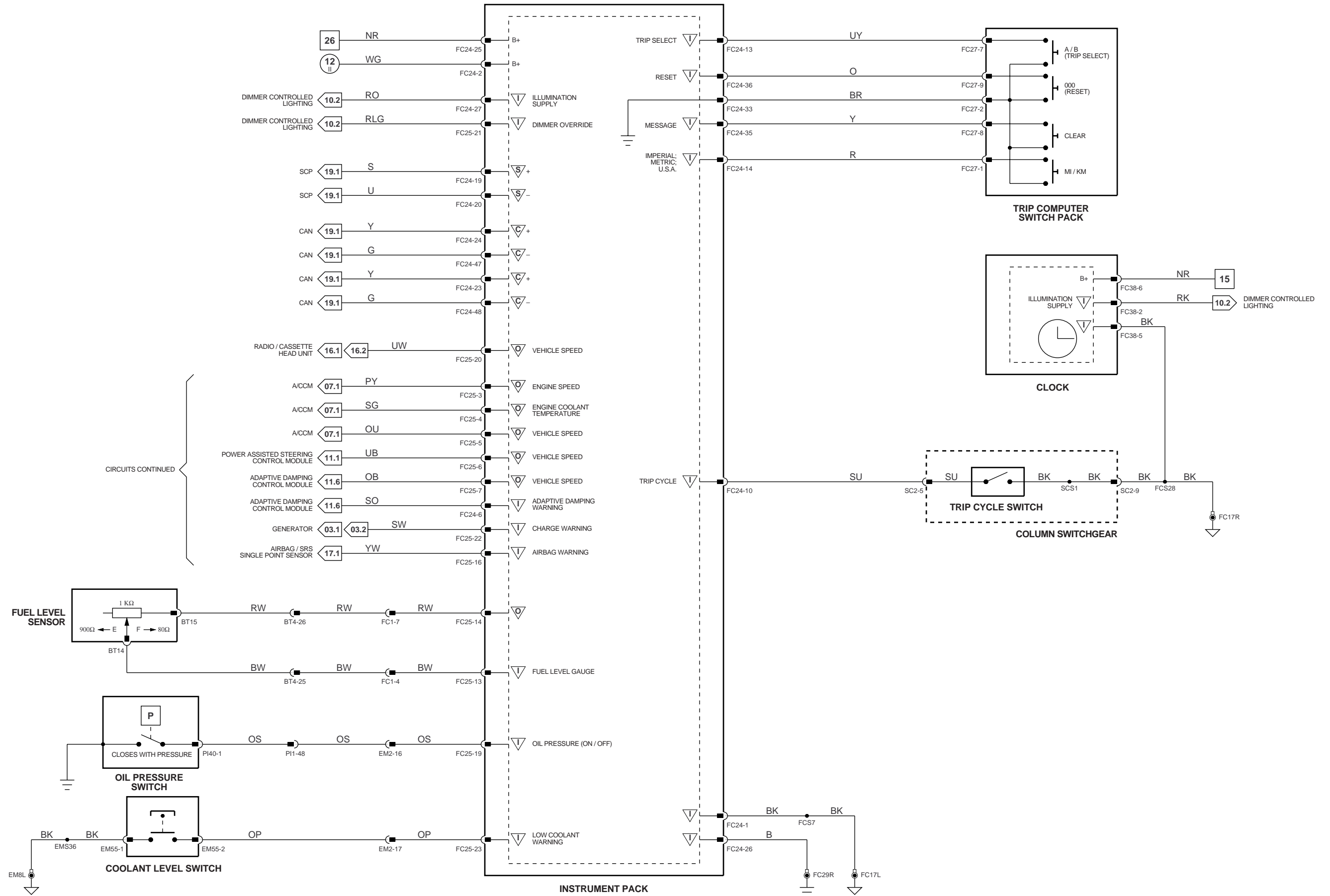
NOTE: A/CCM power supplies and grounds are shown on Fig. 07.1: ECM power supplies and grounds are shown on Fig. 04.1 – Fig. 04.6.

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

† 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.

Fig. 01.1 Fig. 01.1	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<b>VARIANT:</b> All Vehicles <b>VIN RANGE:</b> All <b>DATE OF ISSUE:</b> SEPTEMBER 1997
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CIRCUITS CONTINUED

INSTRUMENT PACK

TRIP COMPUTER SWITCH PACK

CLOCK

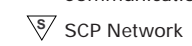
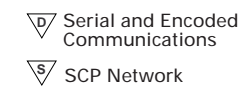
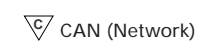
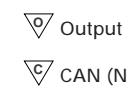
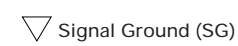
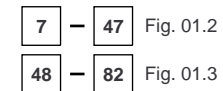
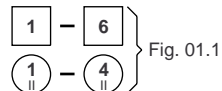
TRIP CYCLE SWITCH

COLUMN SWITCHGEAR

FUEL LEVEL SENSOR

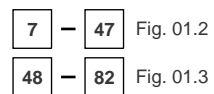
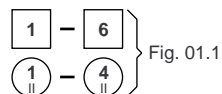
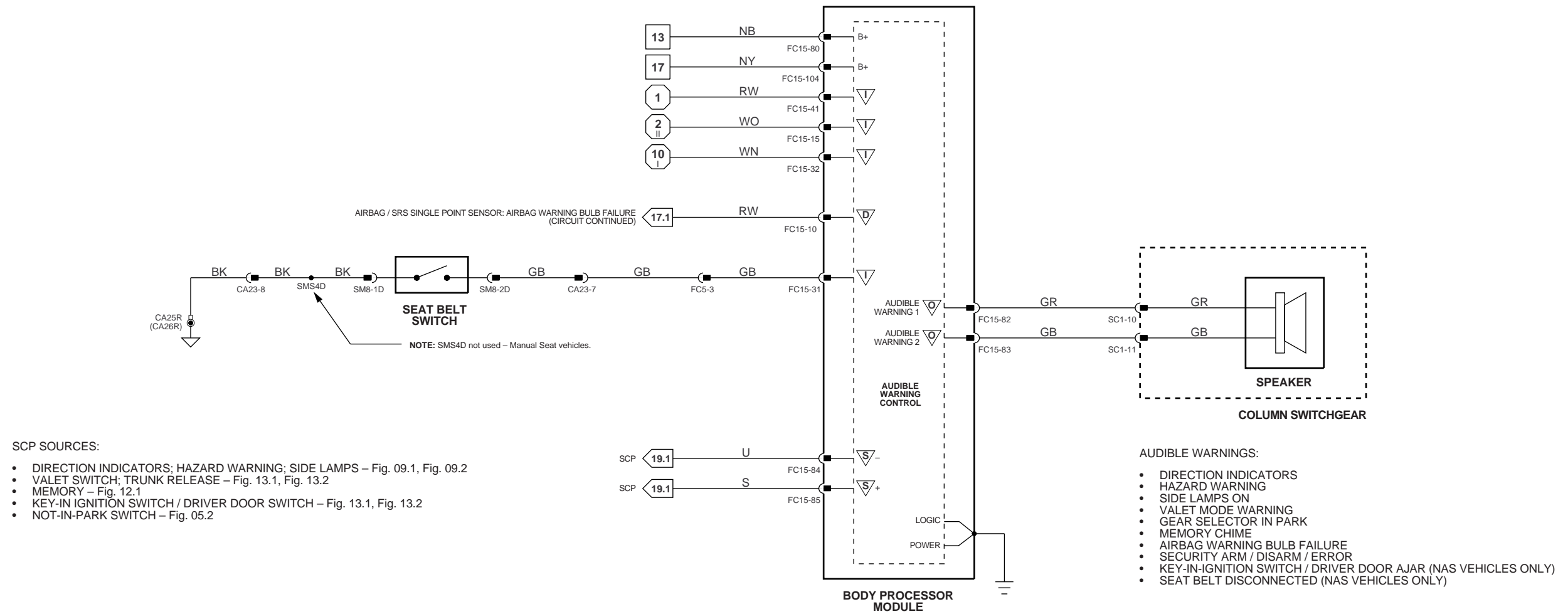
OIL PRESSURE SWITCH

COOLANT LEVEL SWITCH



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





▽ Input

▽ Signal Ground (SG)

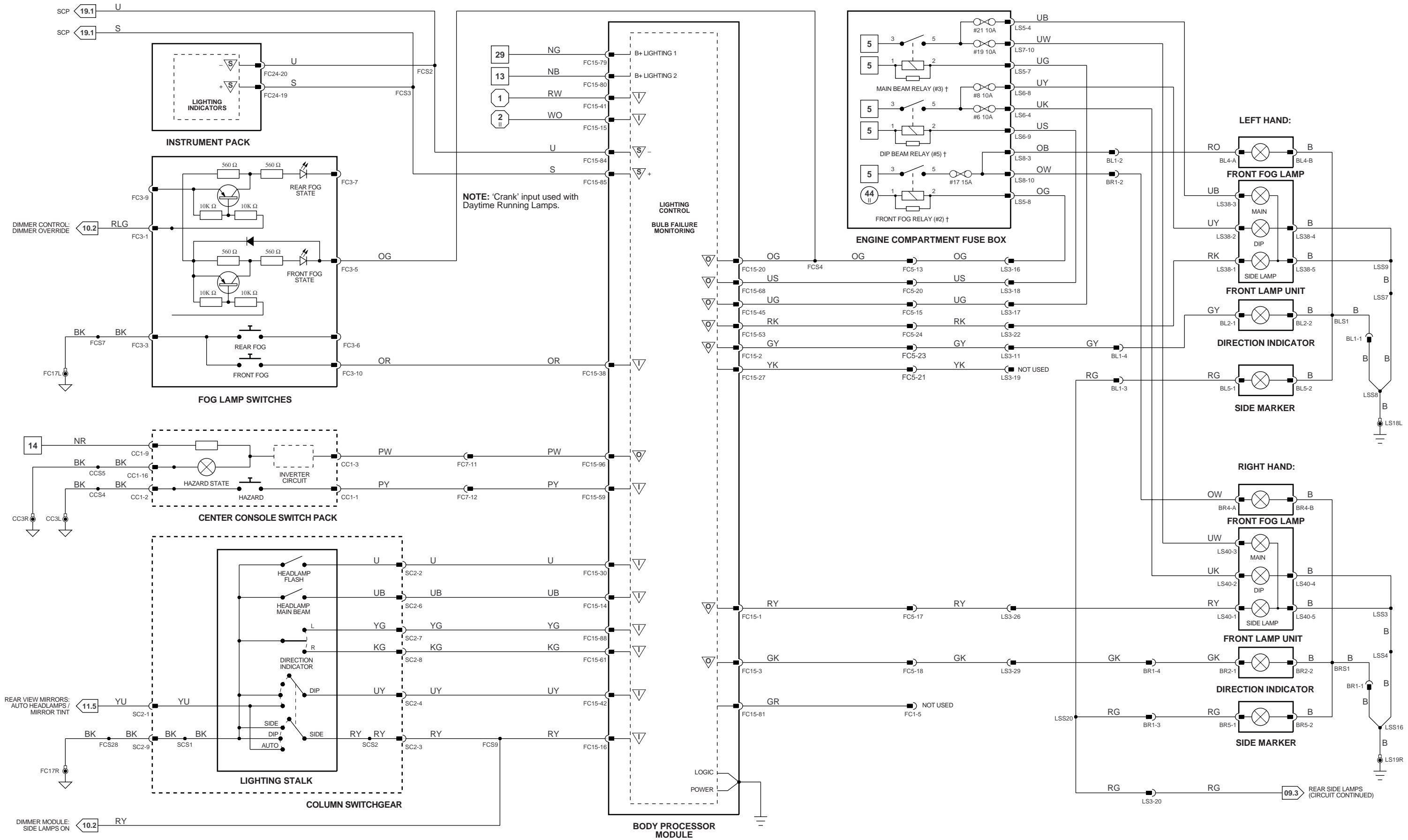
▽ Output

▽ CAN (Network)

▽ Serial and Encoded Communications

▽ SCP Network

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

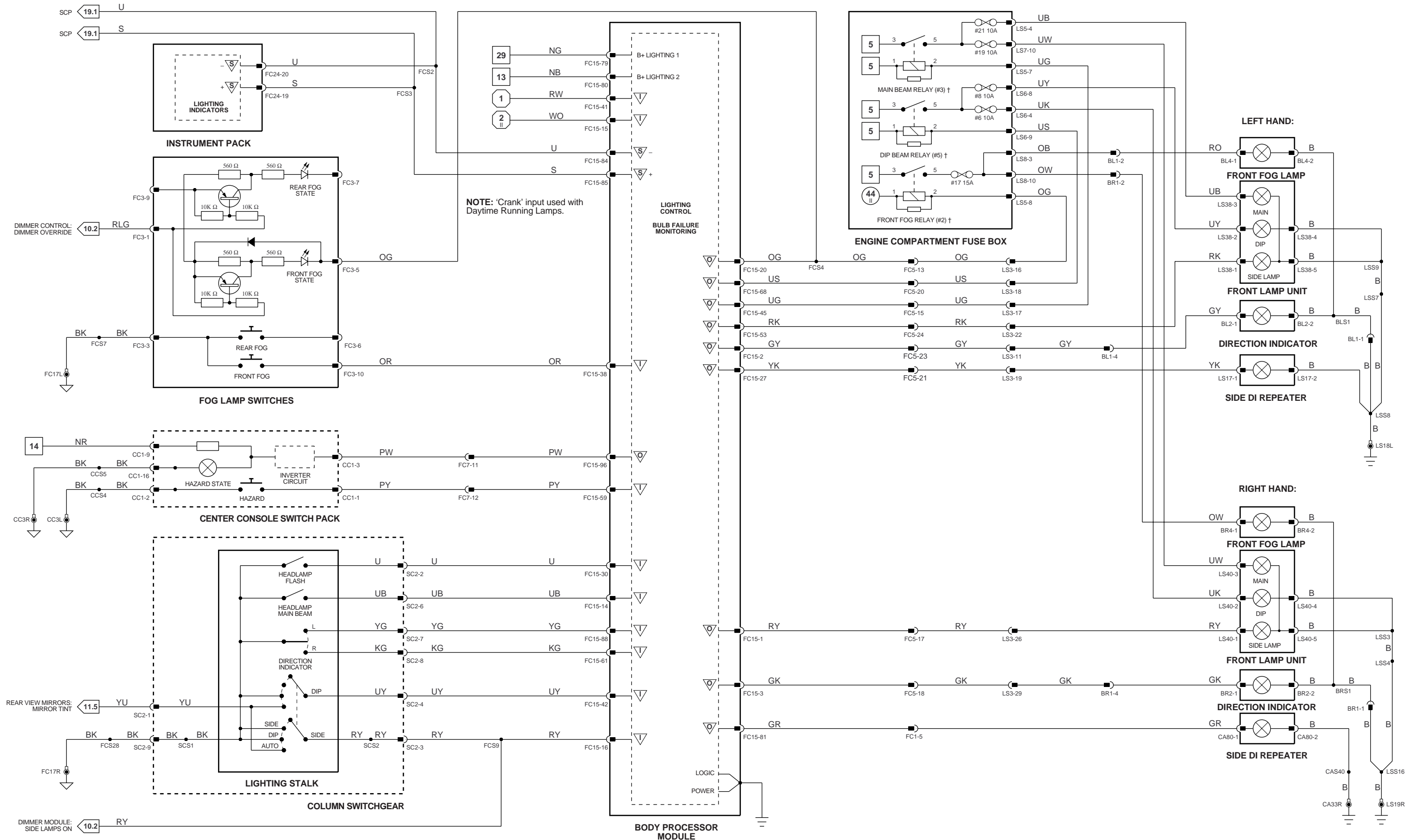


NOTE: 'Crank' input used with Daytime Running Lamps.

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.

-  } Fig. 01.1 -  }	-  Fig. 01.2 -  Fig. 01.3	-  Fig. 01.4 -  Fig. 01.5	-  Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<p>VARIANT: NAS Vehicles          VIN RANGE: All          DATE OF ISSUE: SEPTEMBER 1997</p>
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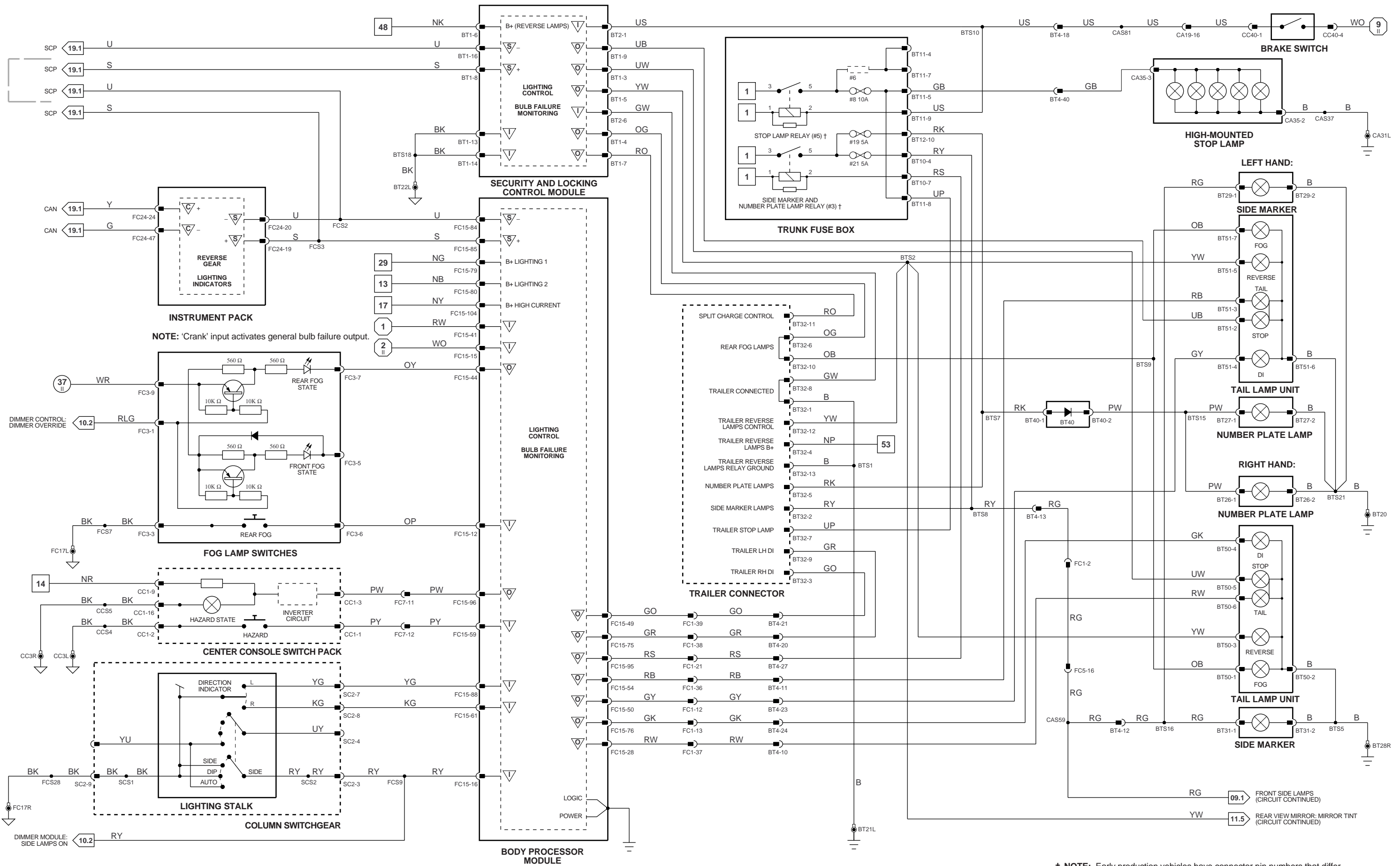


NOTE: 'Crank' input used with Daytime Running Lamps.

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.

Fig. 01.1 Fig. 01.1	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<b>VARIANT:</b> ROW Vehicles <b>VIN RANGE:</b> All <b>DATE OF ISSUE:</b> SEPTEMBER 1997
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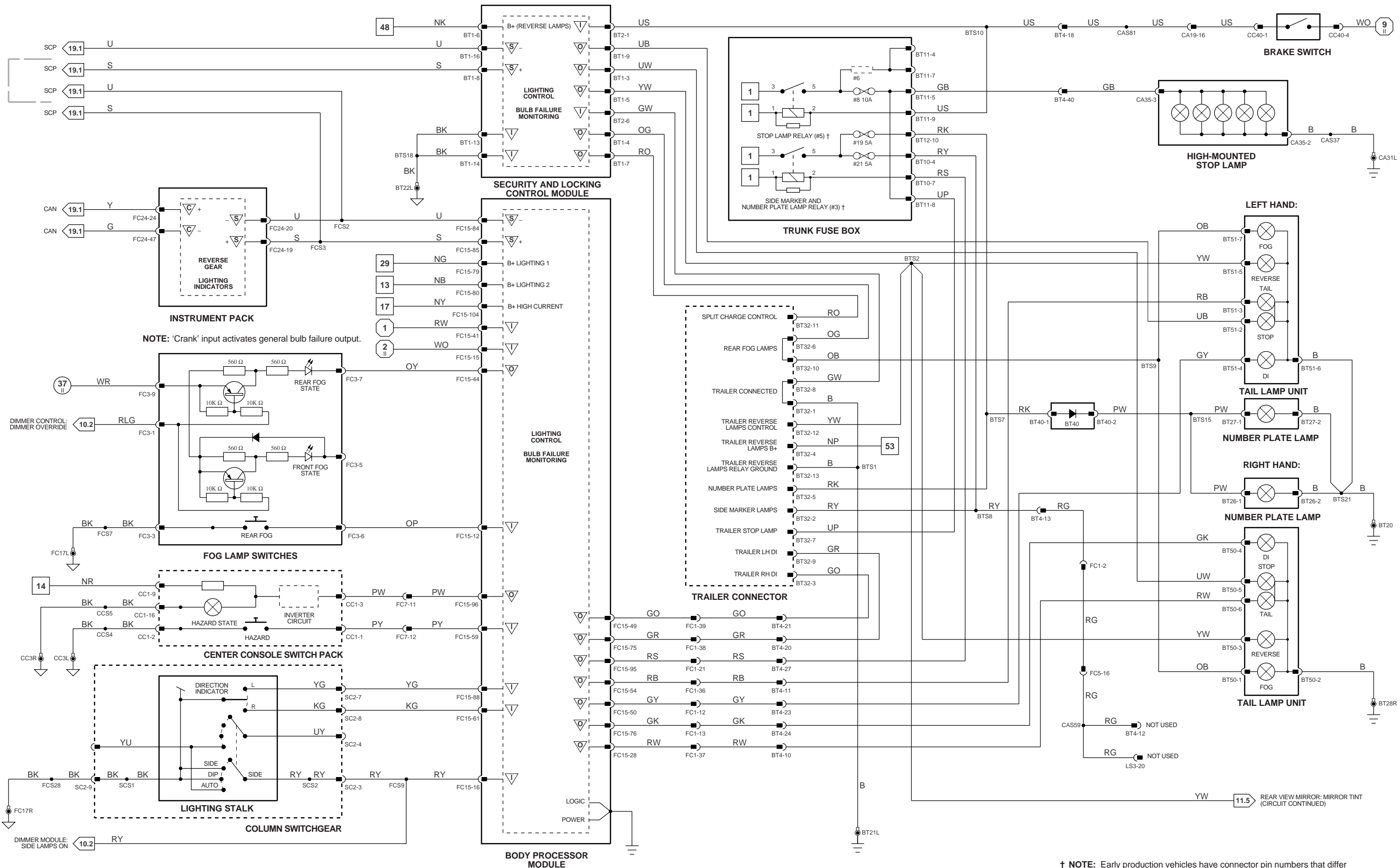


NOTE: 'Crank' input activates general bulb failure output.

† 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.

Fig. 01.1	Fig. 01.2	Fig. 01.4	Fig. 02.1	Input	Output	Serial and Encoded Communications
Fig. 01.1	Fig. 01.3	Fig. 01.5		Signal Ground (SG)	CAN (Network)	SCP Network

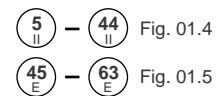
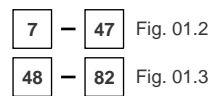
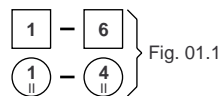
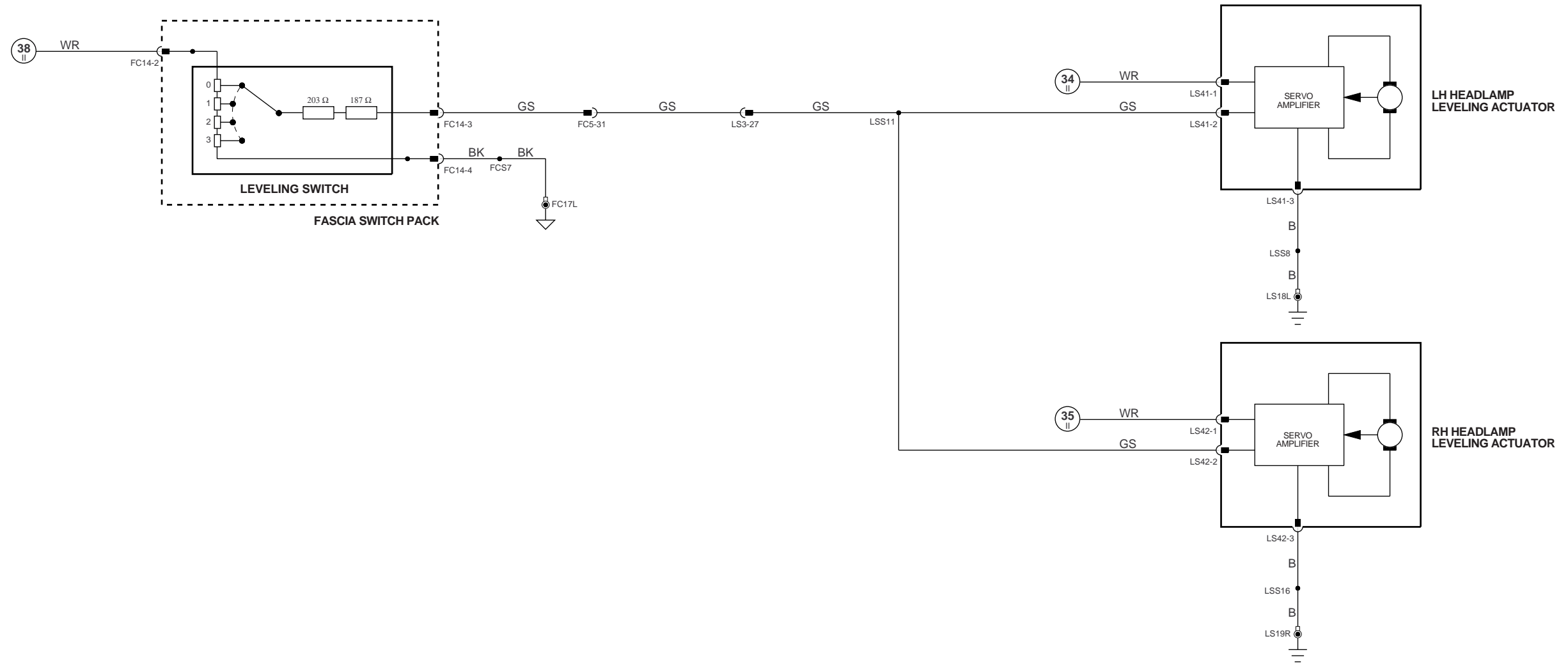
VARIANT: NAS Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997



NOTE: 'Crank' input activates general bulb failure output.

† 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.

Fig. 01.1 Fig. 01.1	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<b>VARIANT:</b> ROW Vehicles <b>VIN RANGE:</b> All <b>DATE OF ISSUE:</b> SEPTEMBER 1997
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▽ Input

▽ Output

▽ Serial and Encoded Communications

▽ Signal Ground (SG)

▽ CAN (Network)

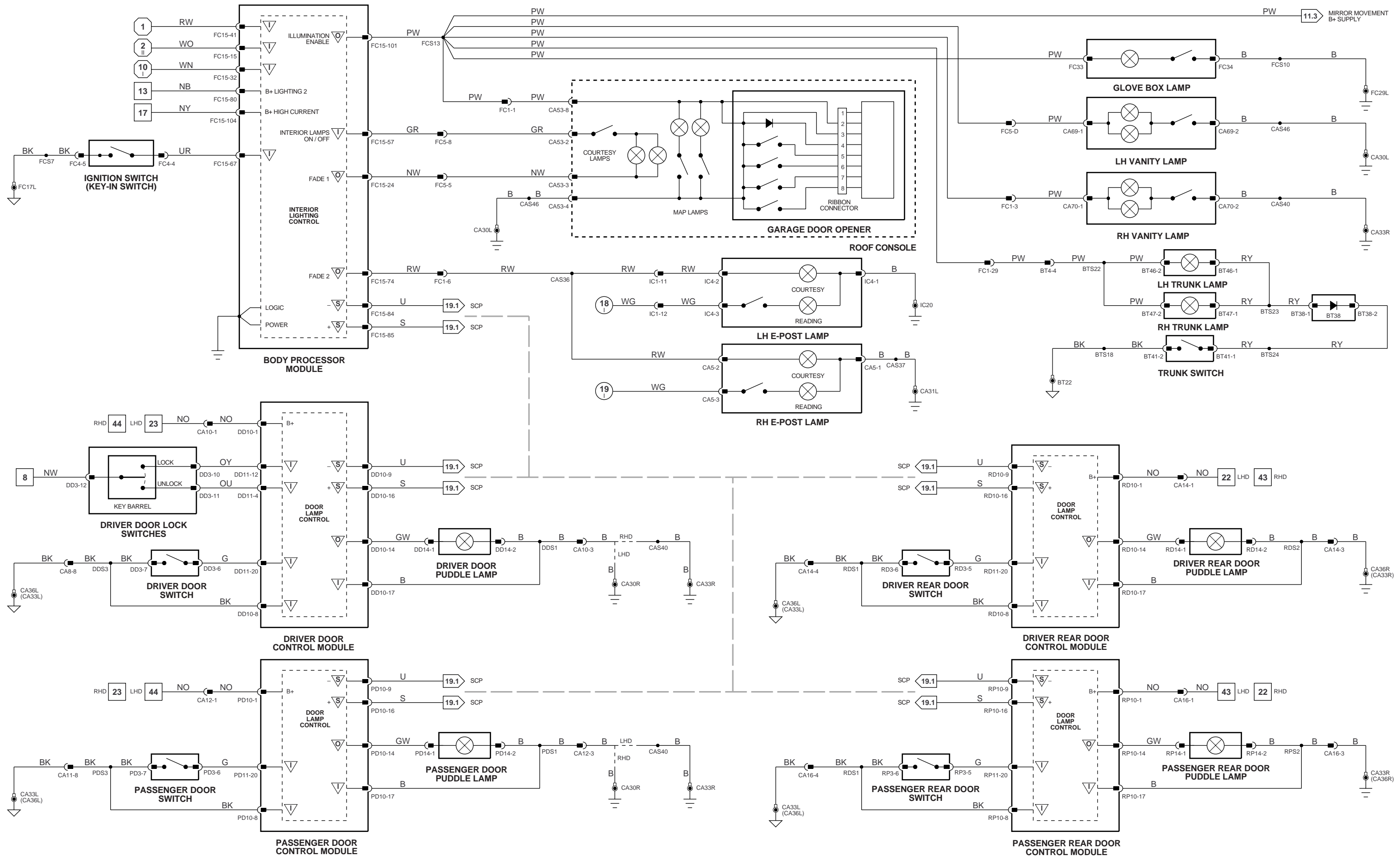
▽ SCP Network

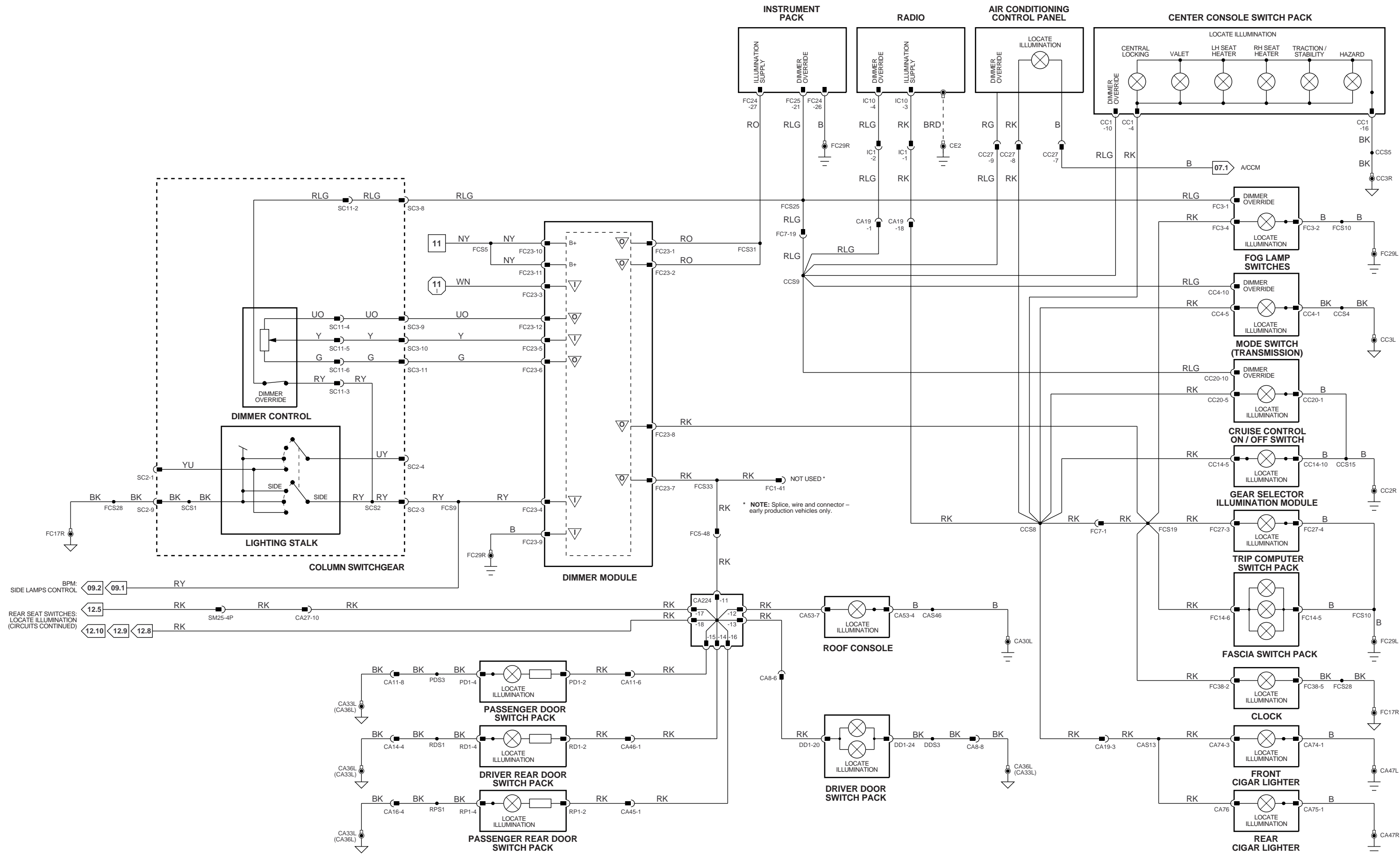
VARIANT: Headlamp Leveling Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997





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



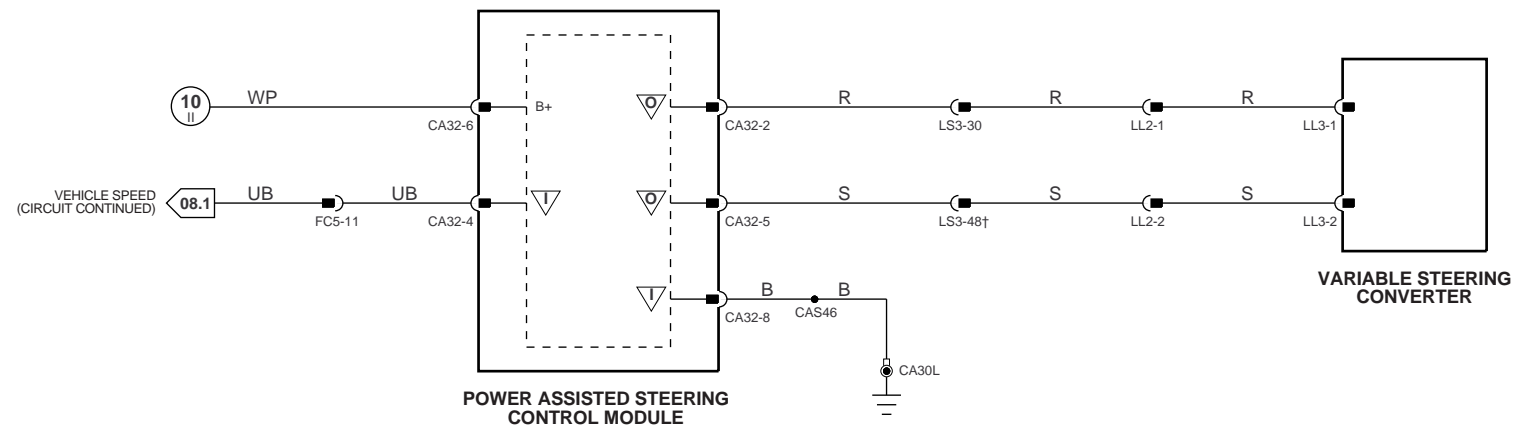


\* NOTE: Splice, wire and connector - early production vehicles only.

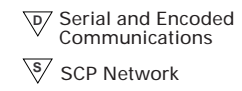
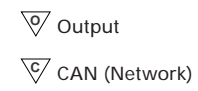
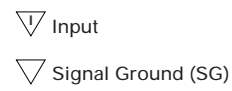
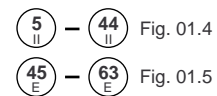
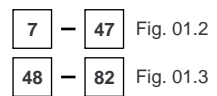
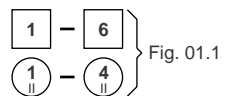
Fig. 01.1	Fig. 01.2	Fig. 01.4	Fig. 02.1	Input	Output	Serial and Encoded Communications
				Signal Ground (SG)	CAN (Network)	SCP Network

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

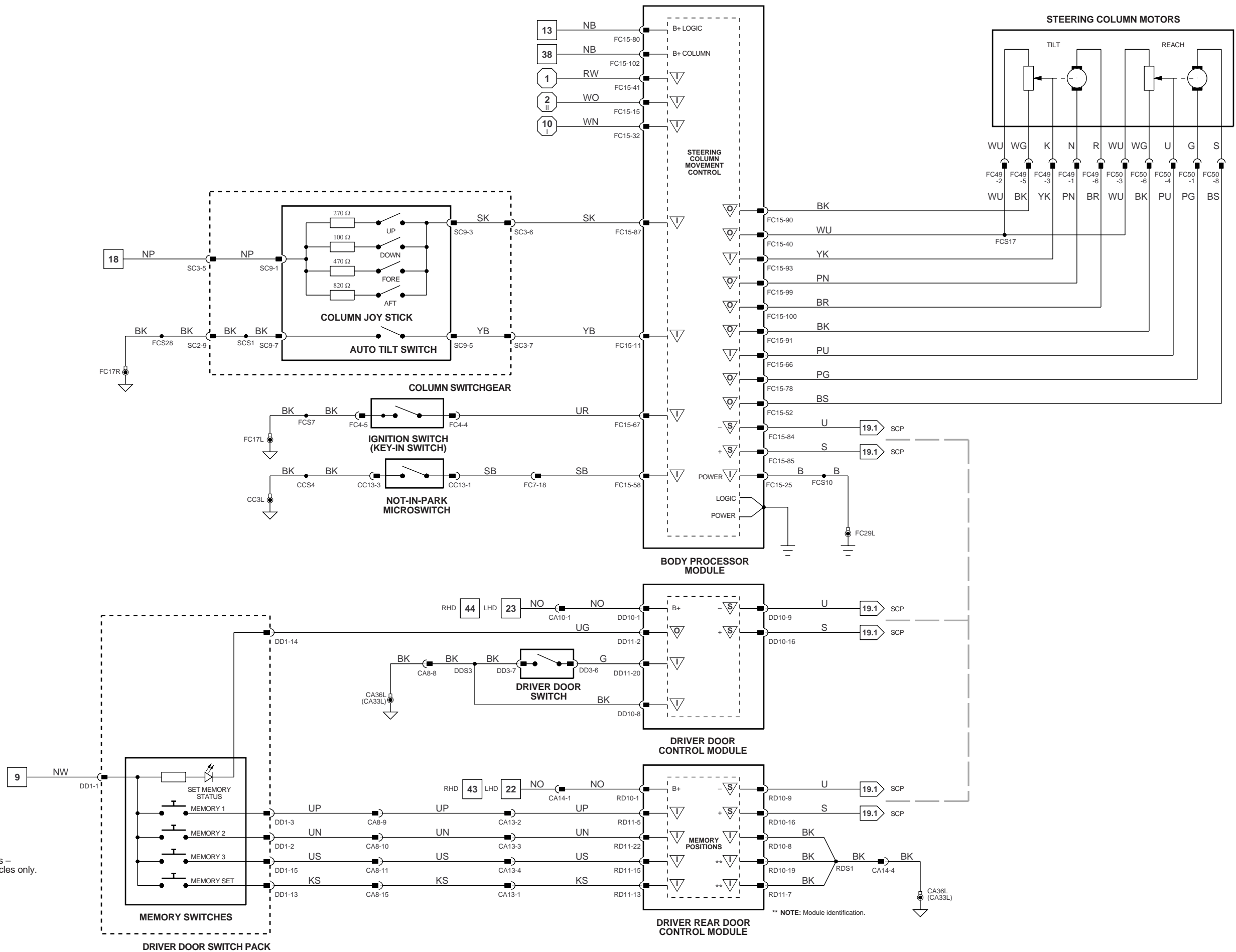




† NOTE: Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

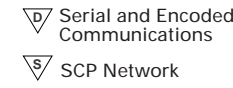
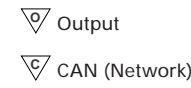
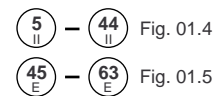
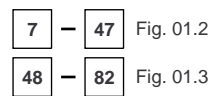
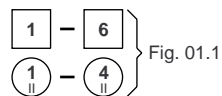


VARIANT: All Vehicles  
VIN RANGE: All  
DATE OF ISSUE: SEPTEMBER 1997

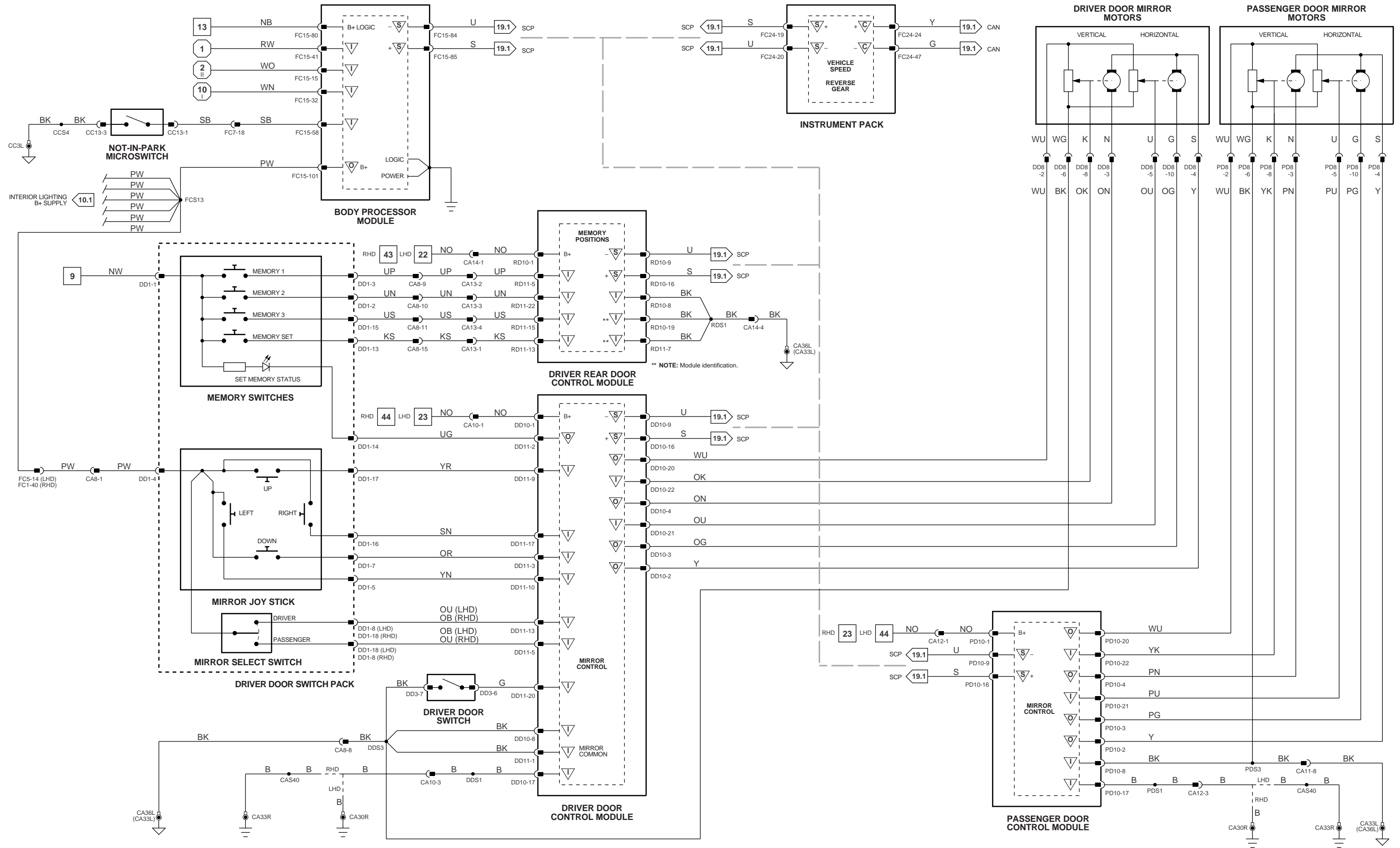


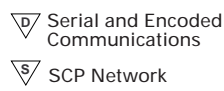
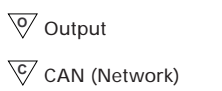
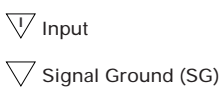
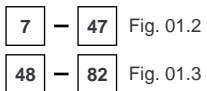
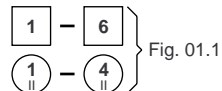
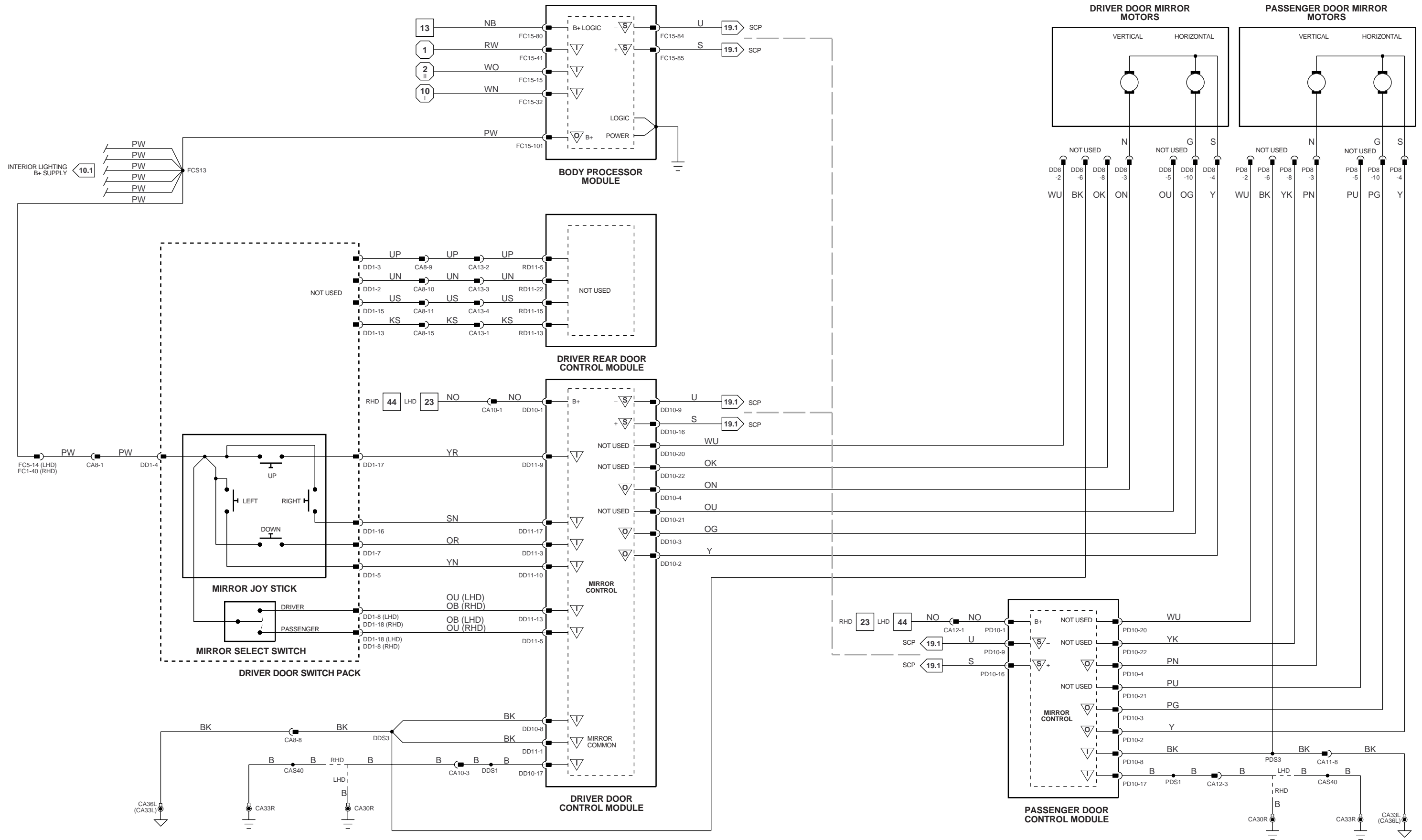
NOTE: Memory switches – driver memory seat vehicles only.

\*\* NOTE: Module identification.



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

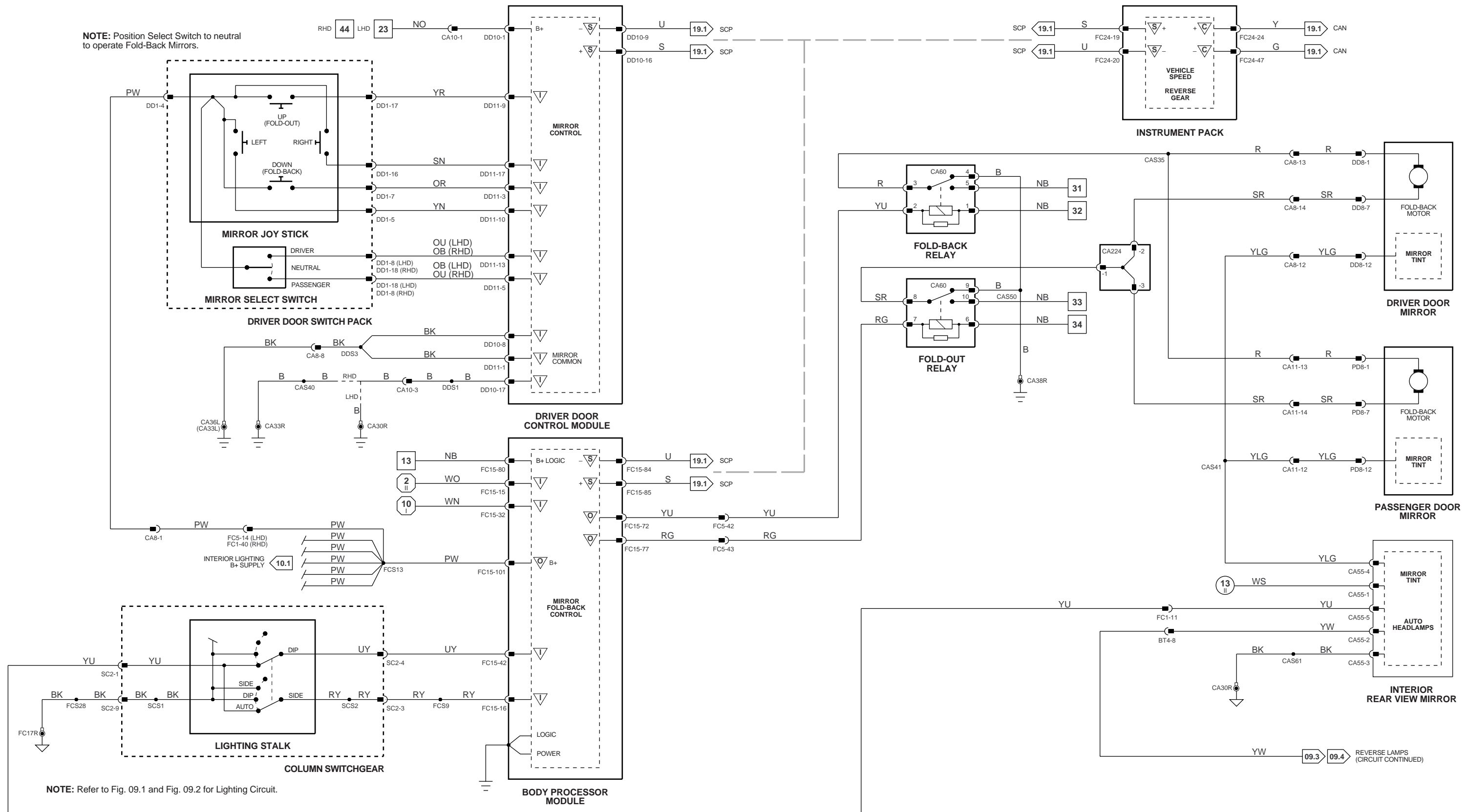




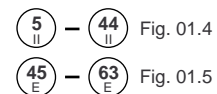
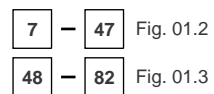
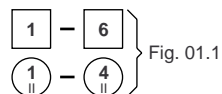
VARIANT: Non-Memory Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997



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



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



▽ Input

▽ Output

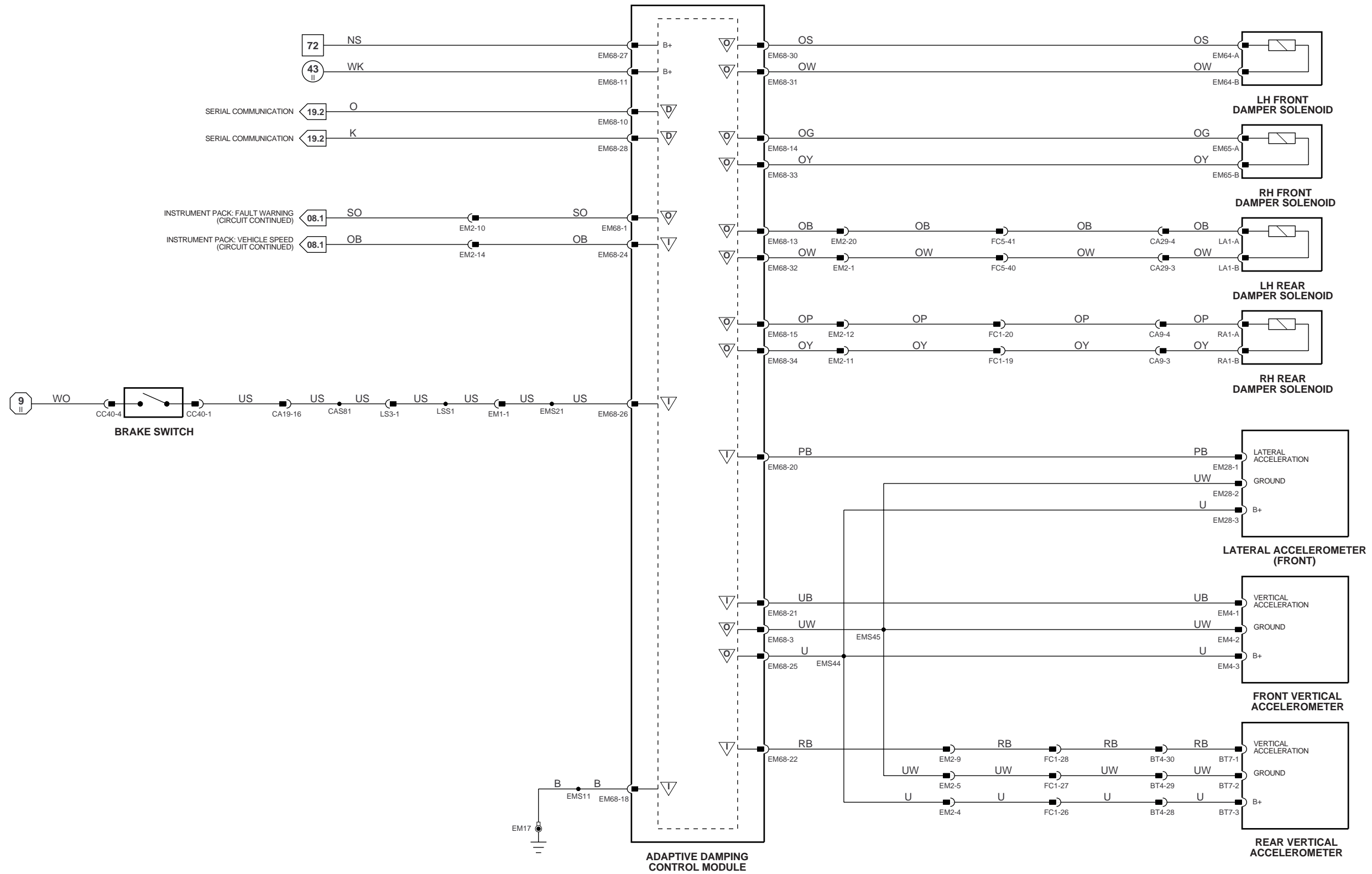
▽ Serial and Encoded Communications

▽ Signal Ground (SG)

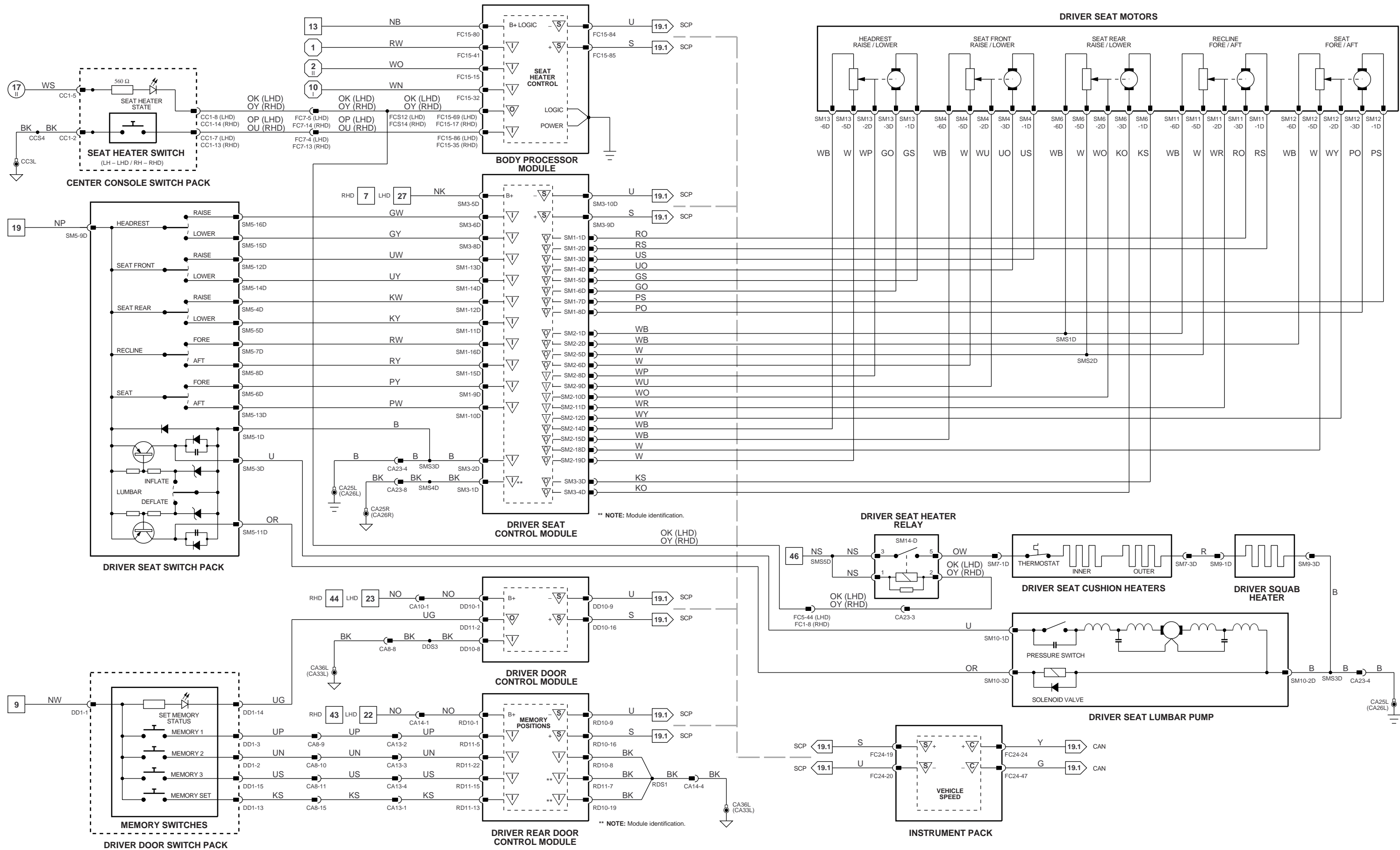
▽ CAN (Network)

▽ SCP Network

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

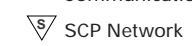
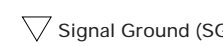
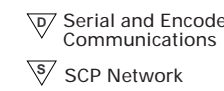
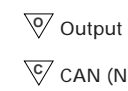
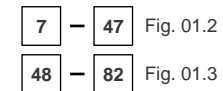
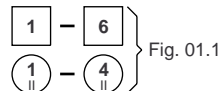


VARIANT: Adaptive Damping Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997

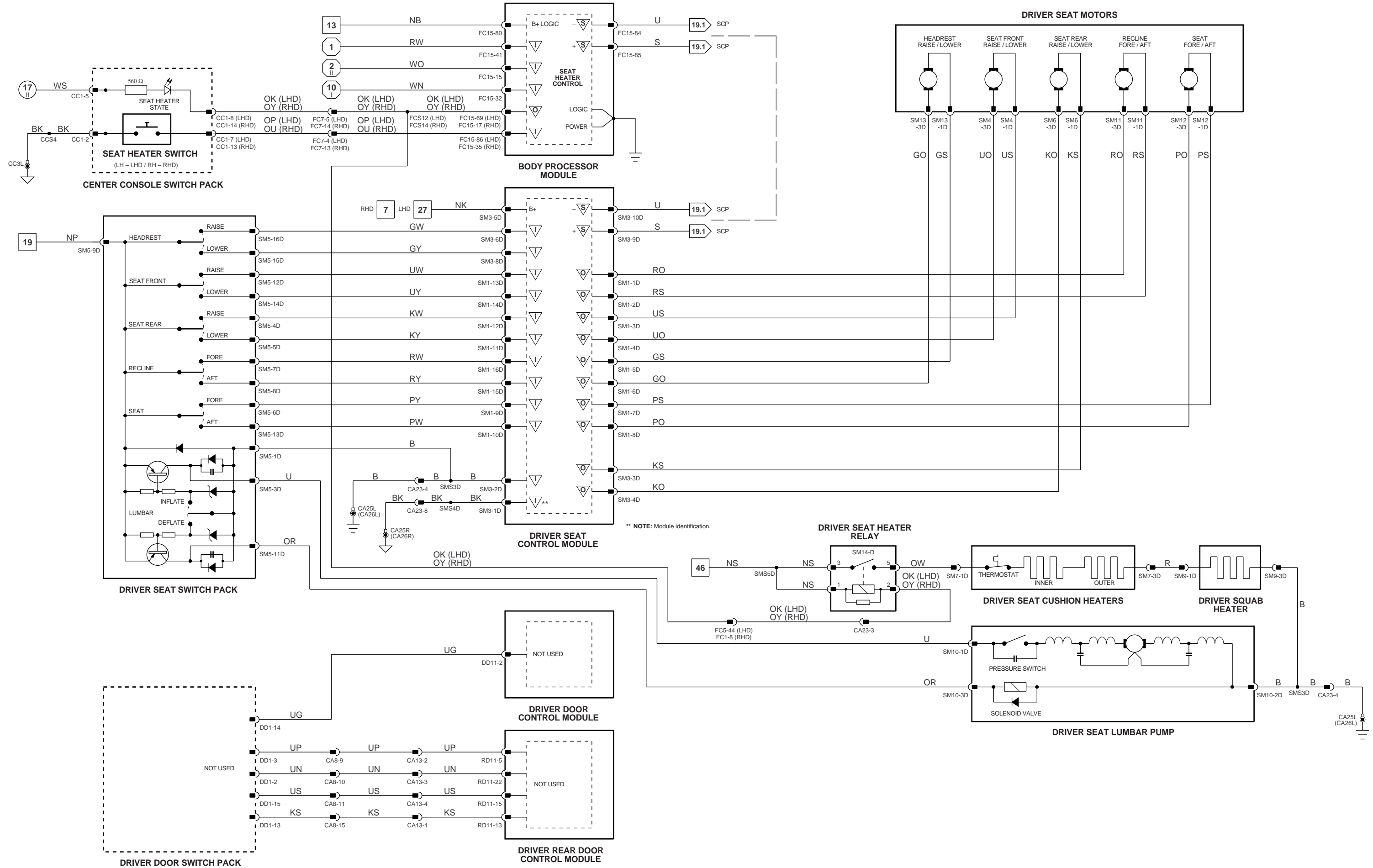


\*\* NOTE: Module identification.

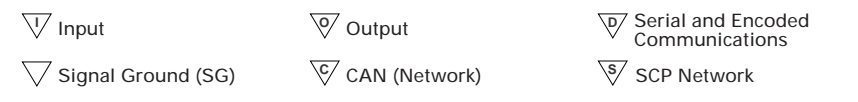
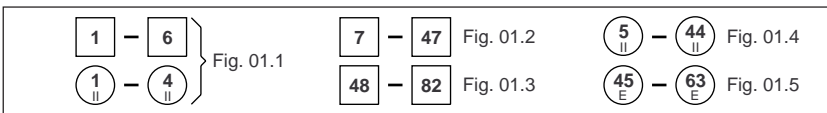
\*\* NOTE: Module identification.



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

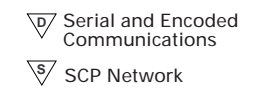
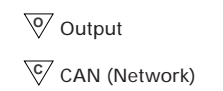
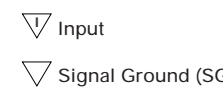
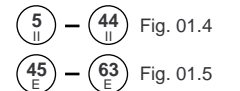
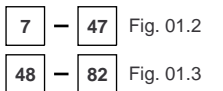
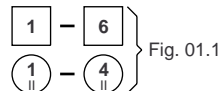
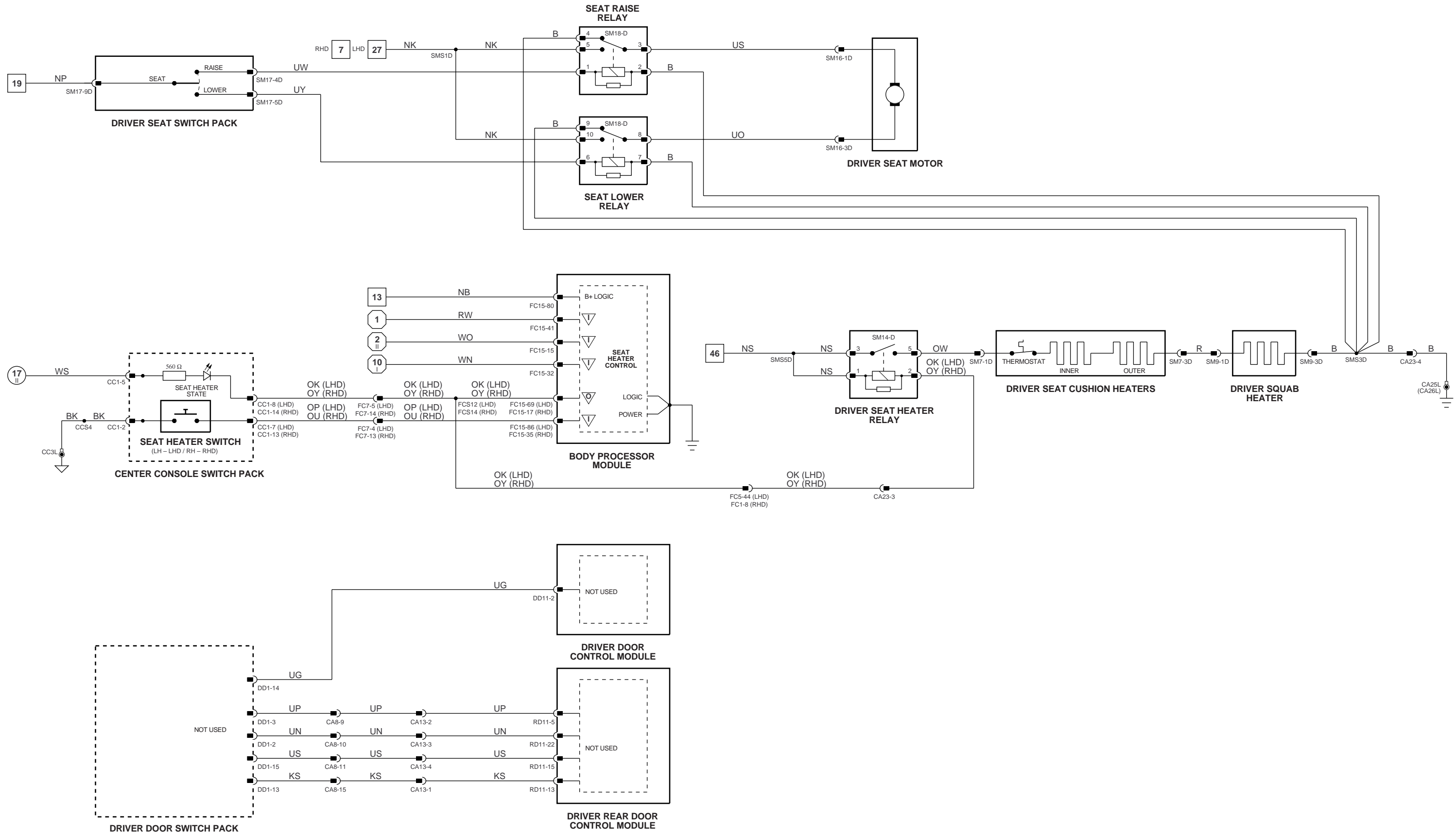


\*\* NOTE: Module identification.

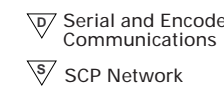
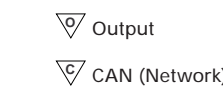
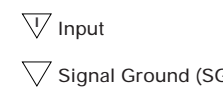
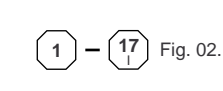
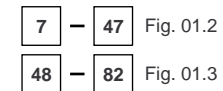
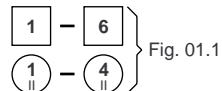
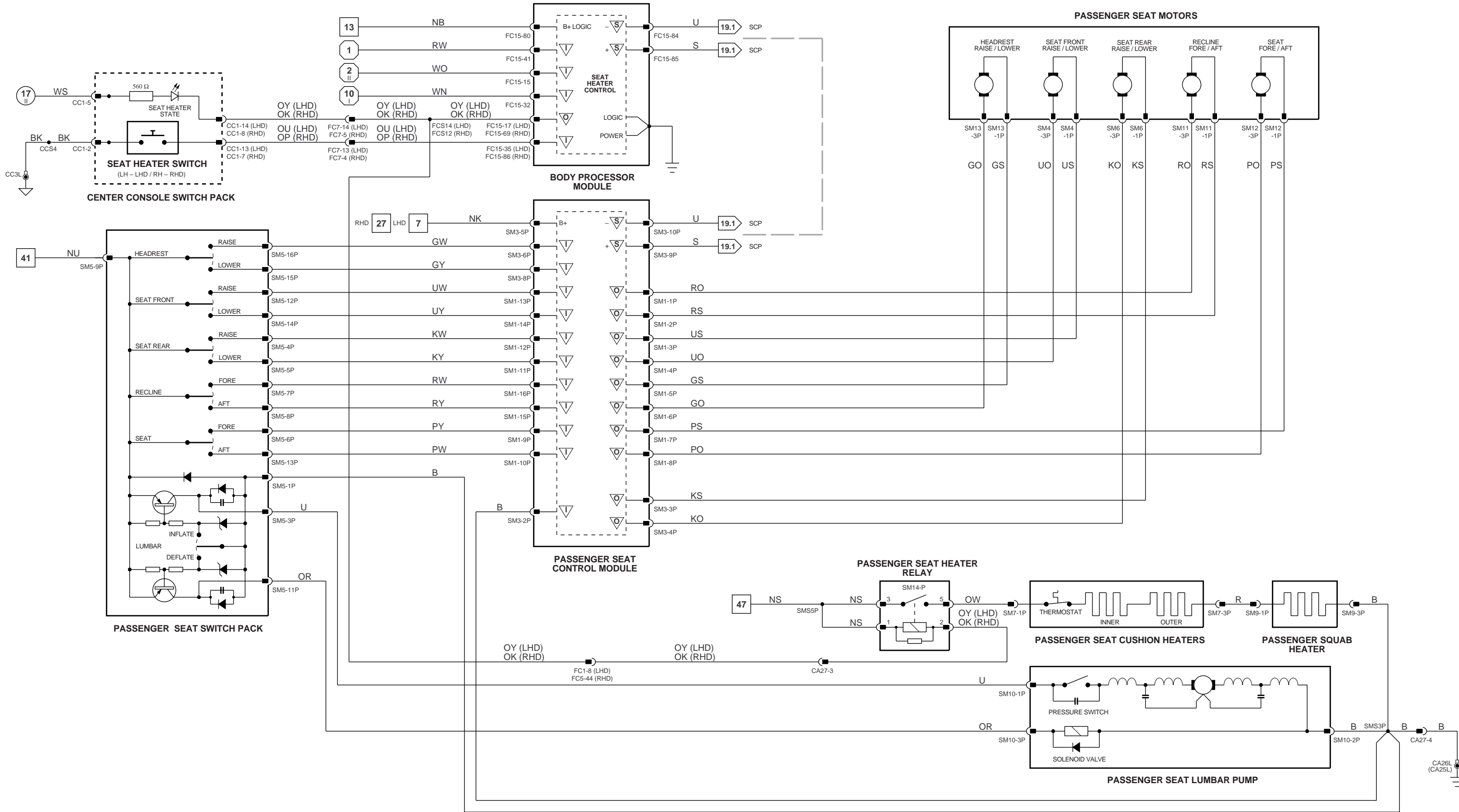


VARIANT: Driver 5-Way Powered Seat Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997

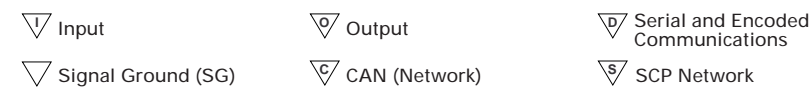
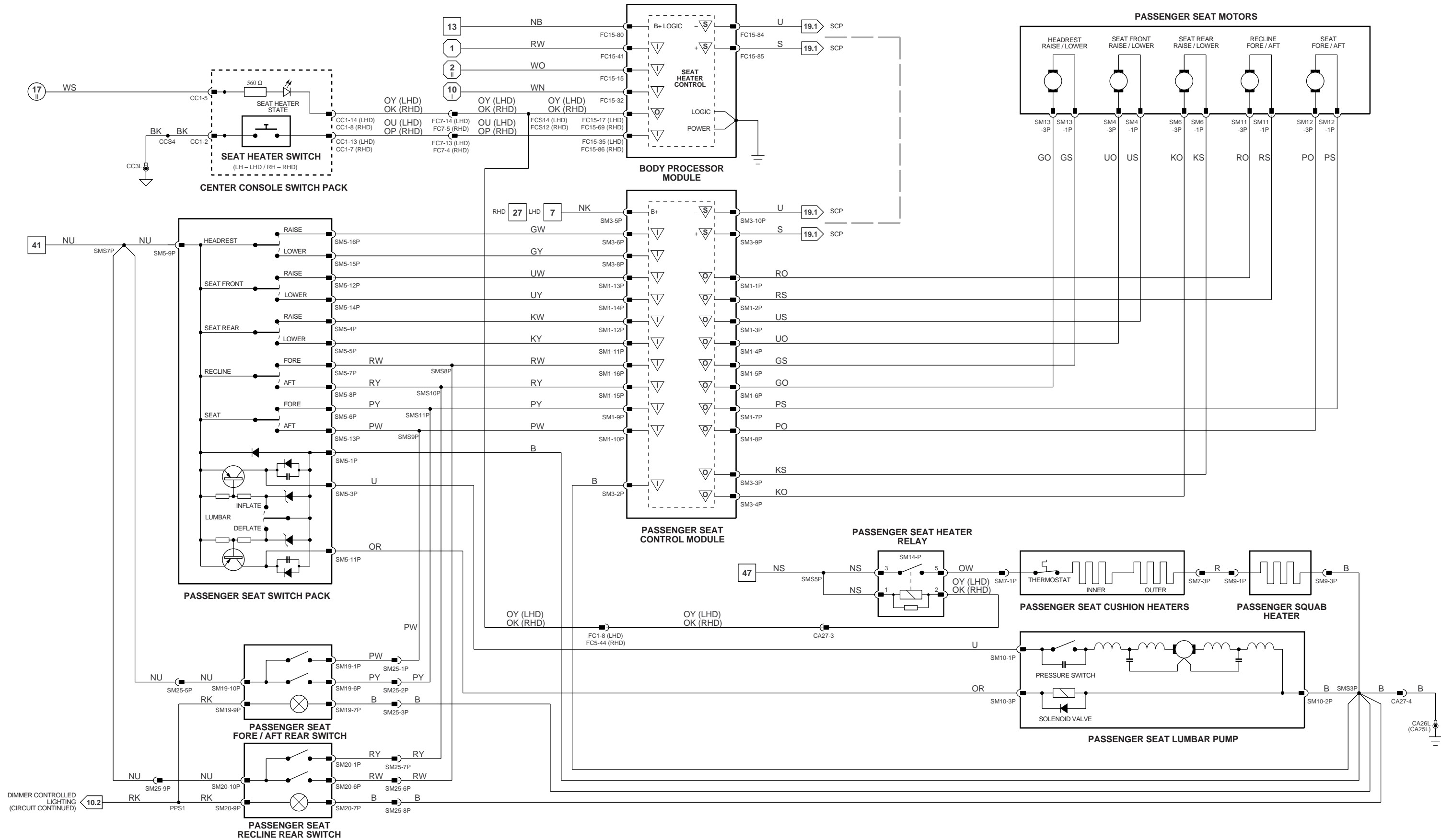




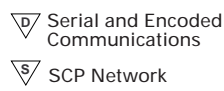
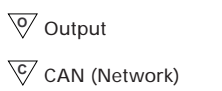
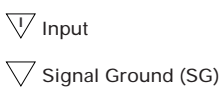
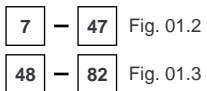
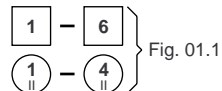
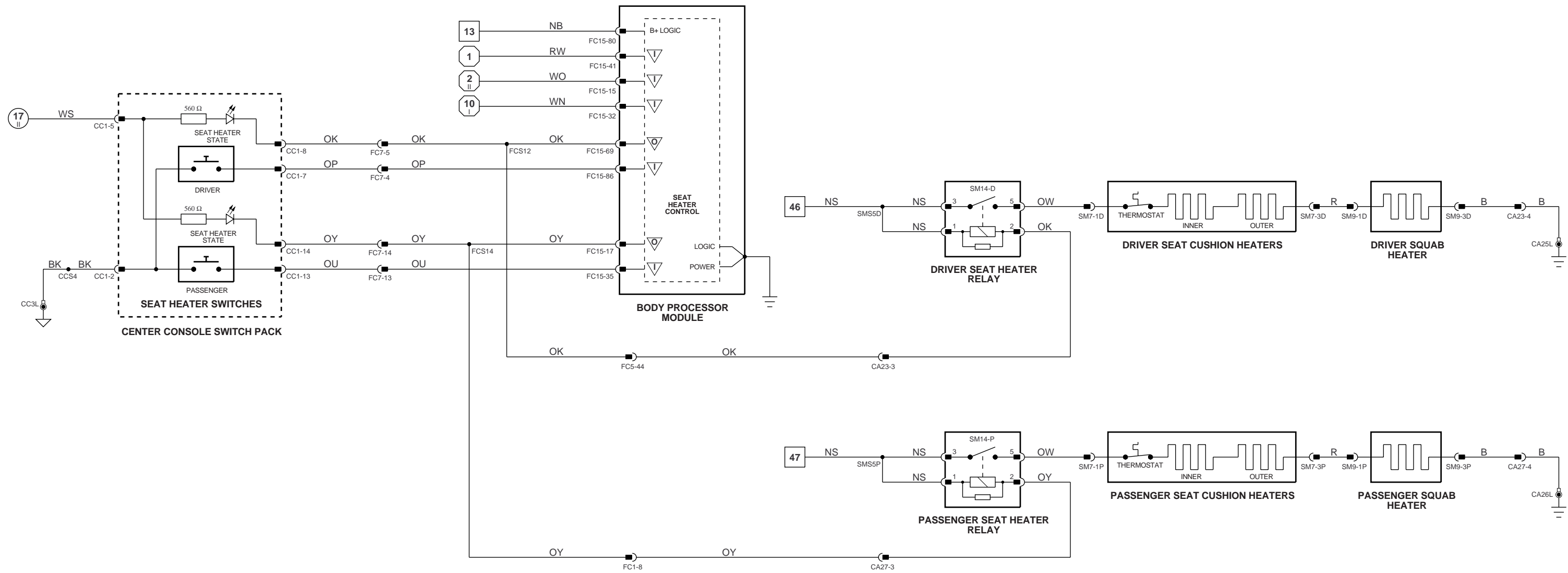
VARIANT: Driver Raise / Lower Seat Vehicles  
VIN RANGE: All  
DATE OF ISSUE: SEPTEMBER 1997



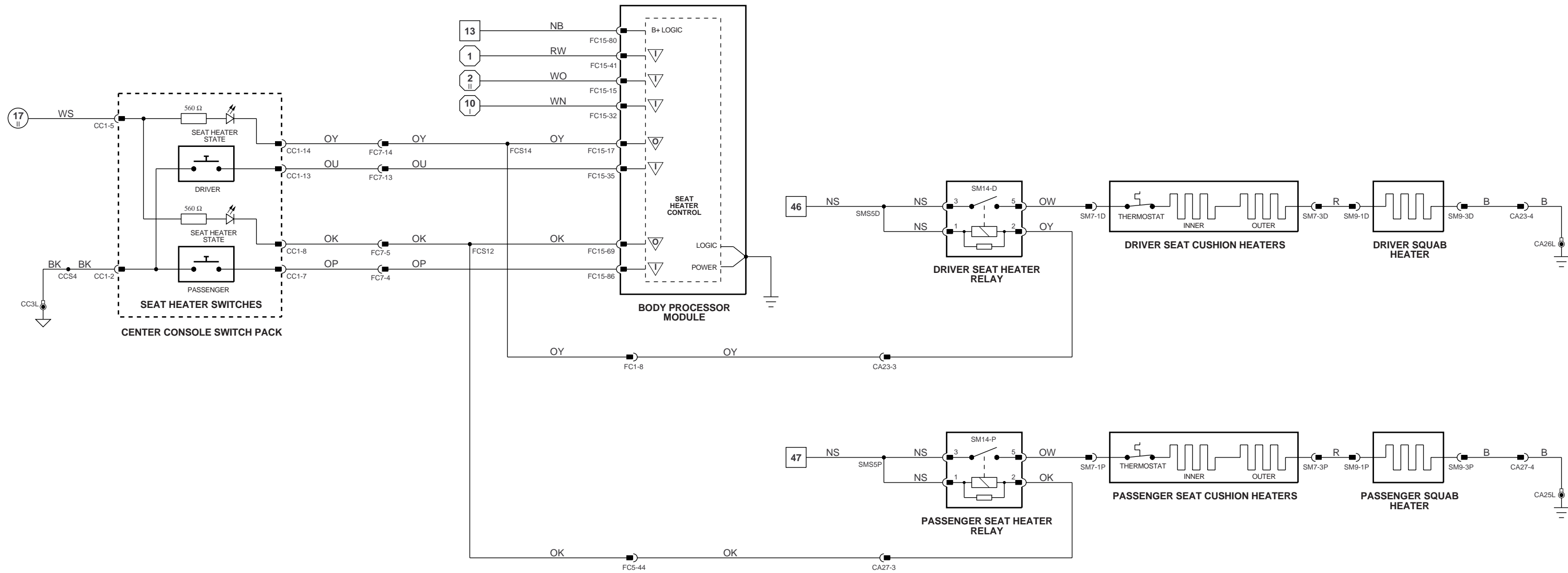
VARIANT: Passenger 5-Way Powered Seat Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997



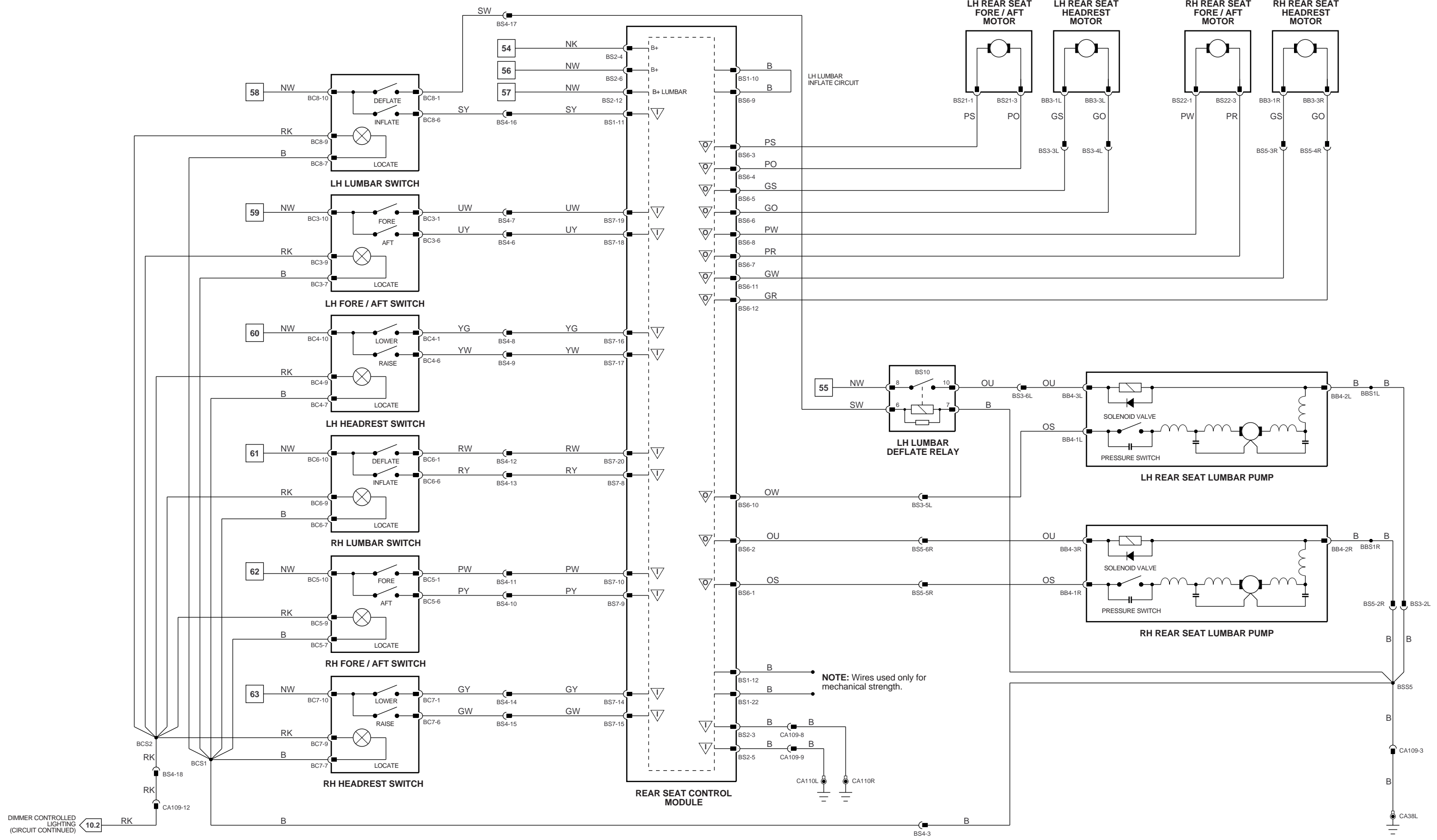
VARIANT: LWB Powered Rear Seat Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997

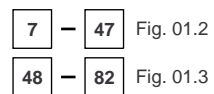
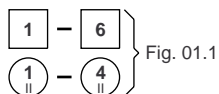
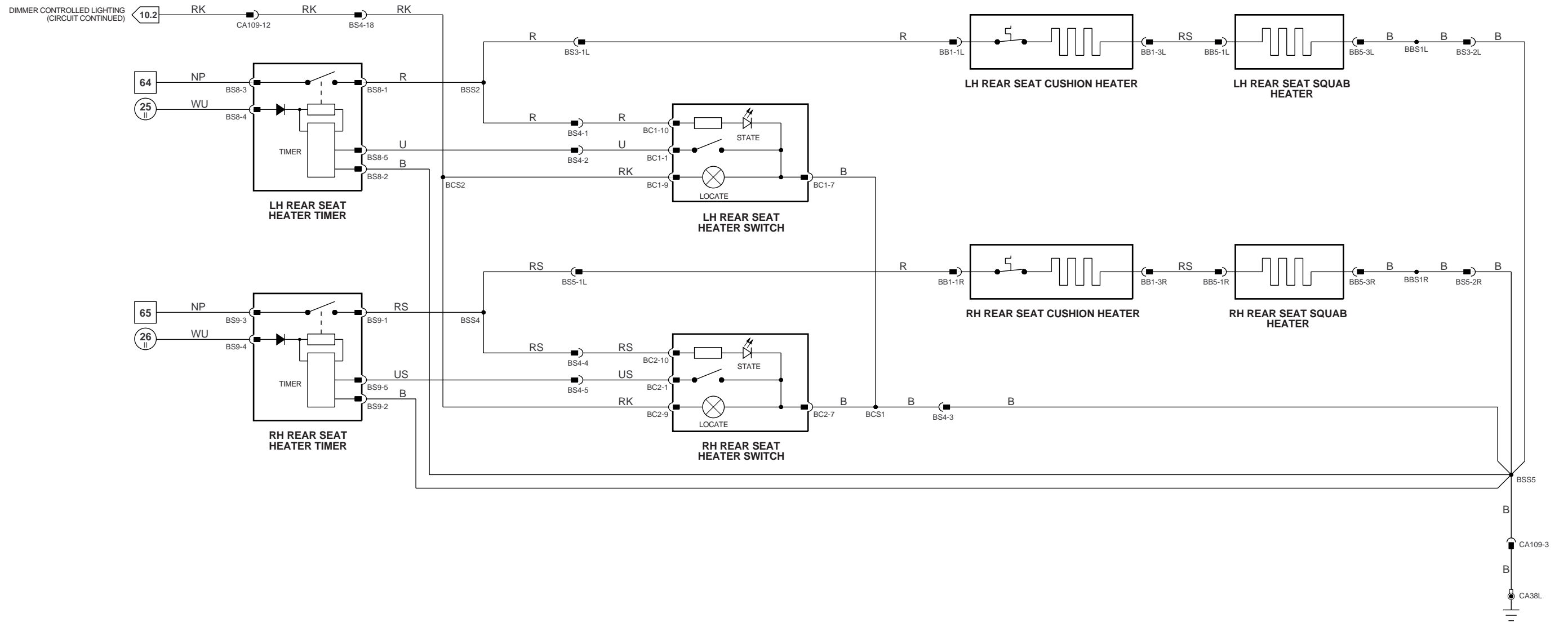


VARIANT: Heaters Only Front Seats LHD Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997



-  } Fig. 01.1 -  }	-  Fig. 01.2 -  Fig. 01.3	-  Fig. 01.4 -  Fig. 01.5	-  Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<p>VARIANT: Heaters Only Front Seats RHD Vehicles  VIN RANGE: All  DATE OF ISSUE: SEPTEMBER 1997</p>
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▽ Input

▽ Signal Ground (SG)

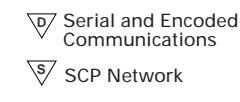
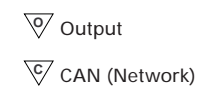
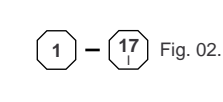
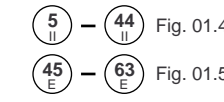
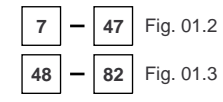
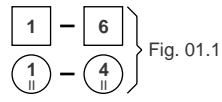
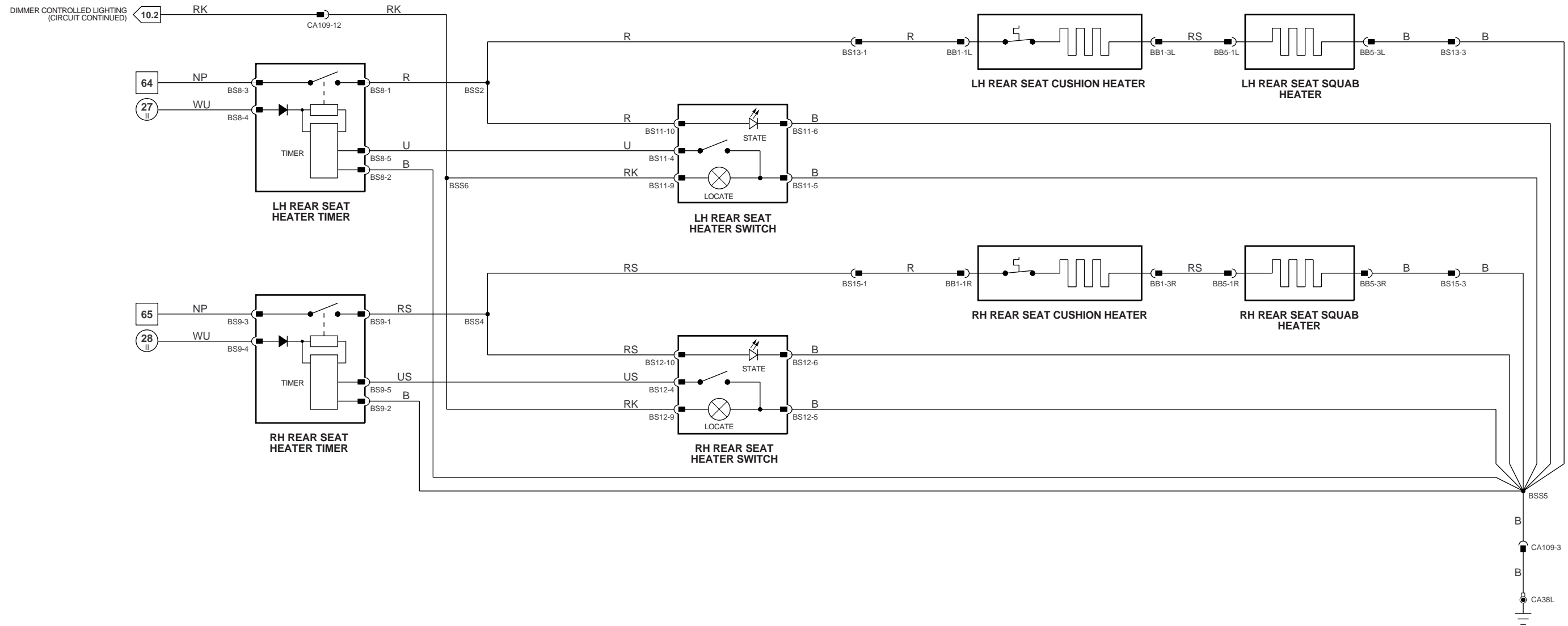
▽ Output

▽ CAN (Network)

▽ Serial and Encoded Communications

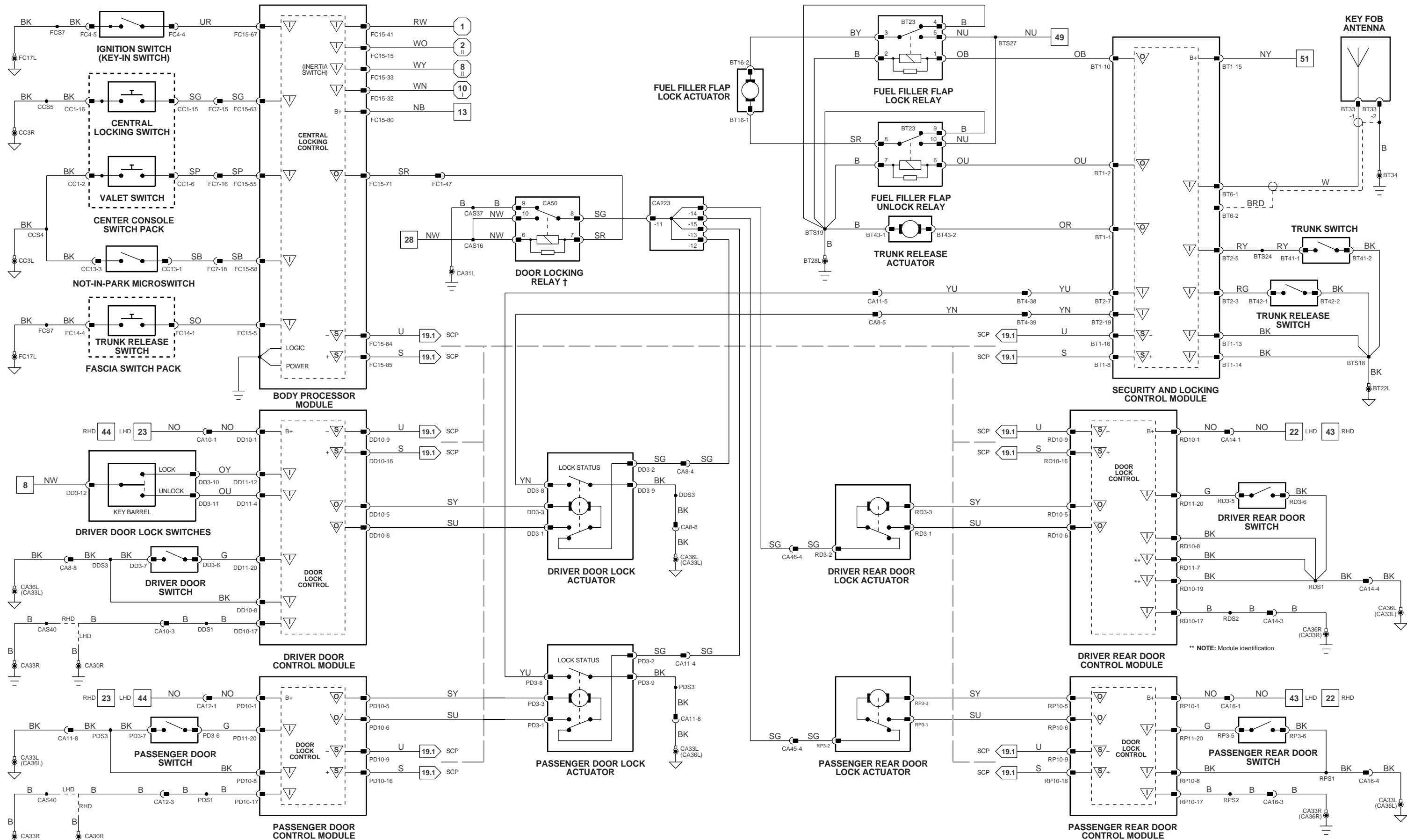
▽ SCP Network

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



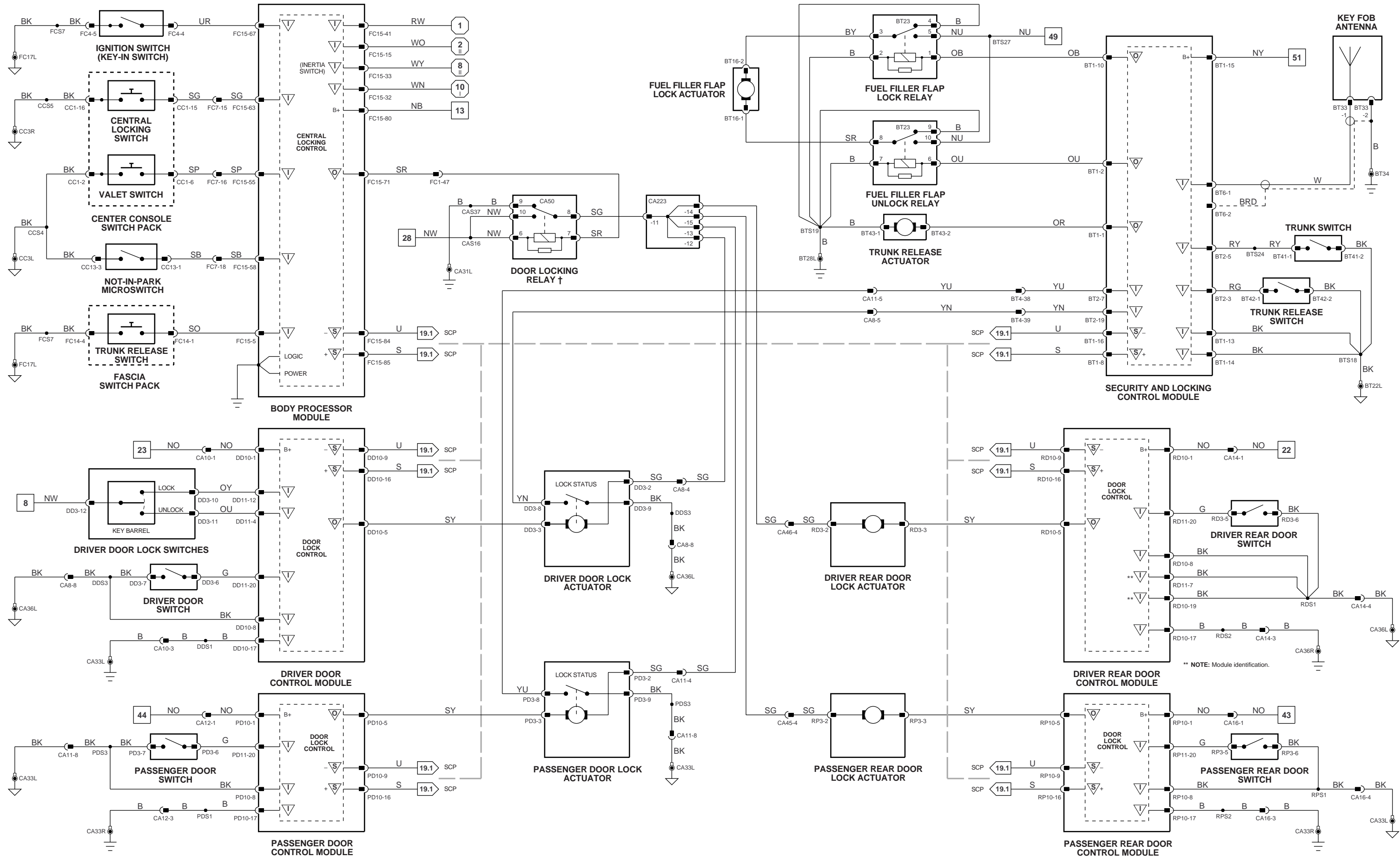
VARIANT: Heaters Only Rear Seat Vehicles  
VIN RANGE: All  
DATE OF ISSUE: SEPTEMBER 1997





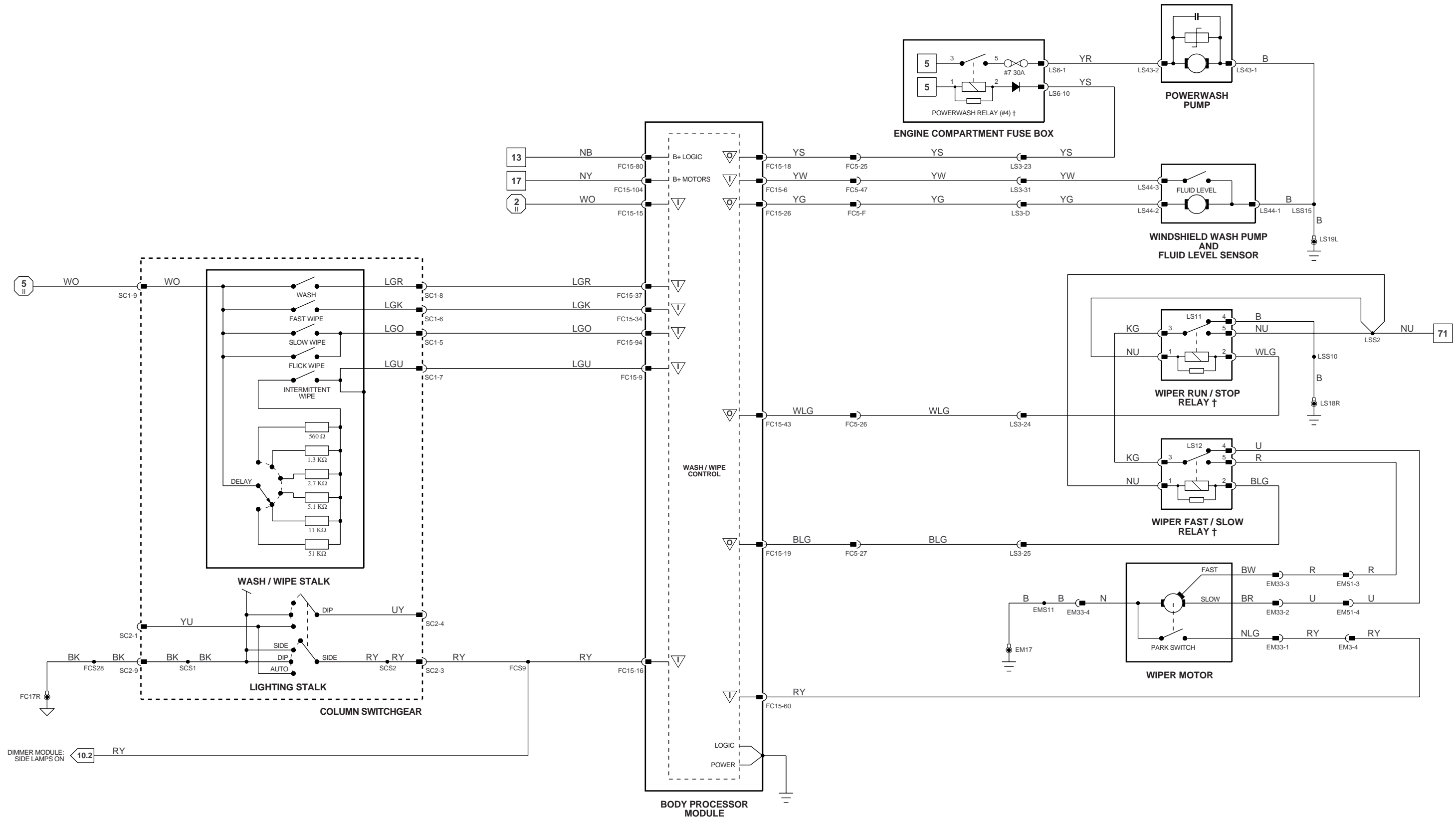
† NOTE: Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

Fig. 01.1 Fig. 01.1	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<p>VARIANT: ROW Vehicles          VIN RANGE: All          DATE OF ISSUE: SEPTEMBER 1997</p>
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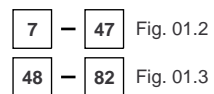
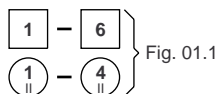


† NOTE: Early production vehicles have connector pin numbers that differ from the volume production pin numbers shown. Use the wire color code for pin identification on early production vehicles.

Fig. 01.1 Fig. 01.1	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Signal Ground (SG)	Output CAN (Network)	Serial and Encoded Communications SCP Network	<p>VARIANT: NAS Vehicles          VIN RANGE: All          DATE OF ISSUE: SEPTEMBER 1997</p>
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† 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.



▽ Input

▽ Output

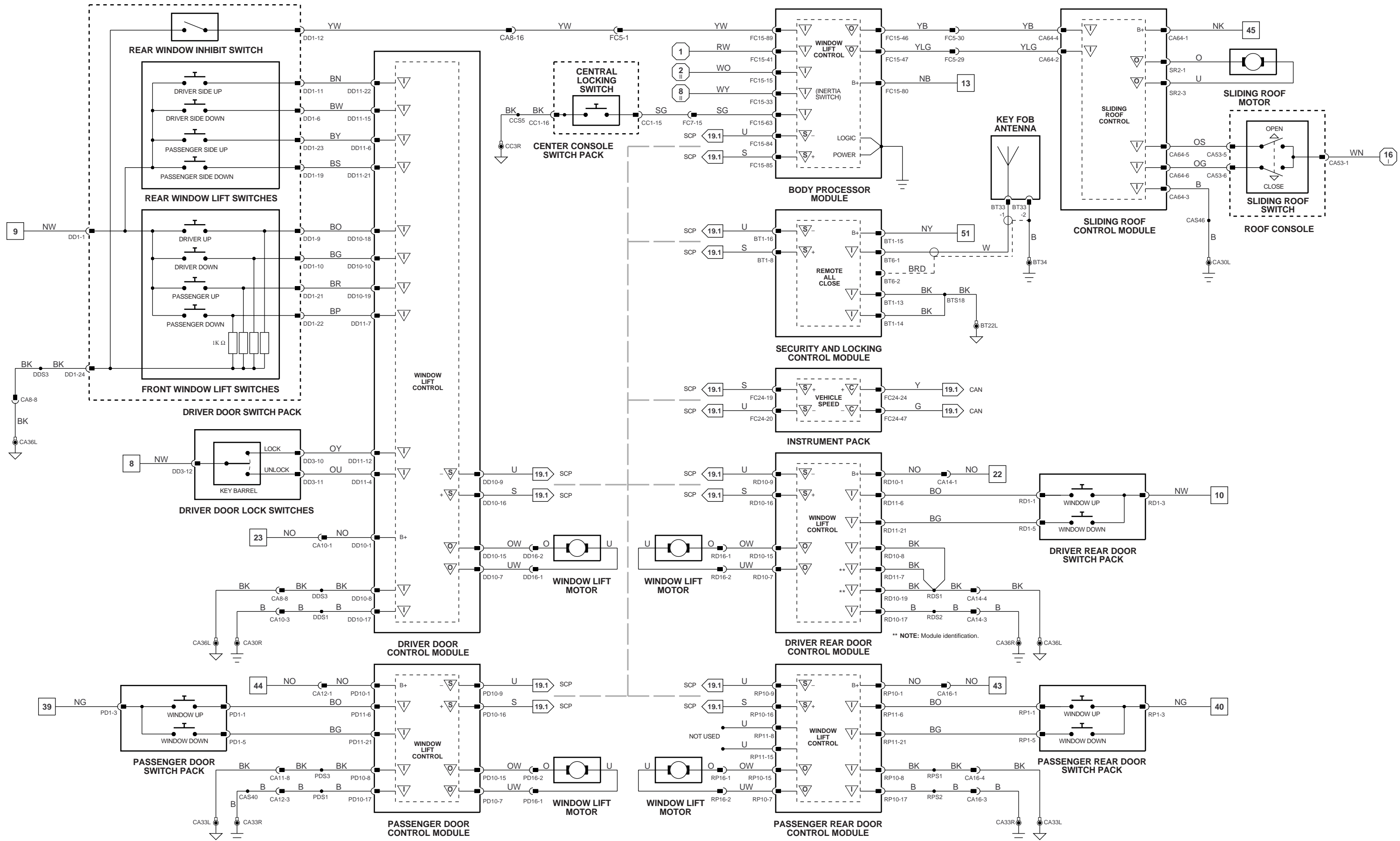
▽ Serial and Encoded Communications

▽ Signal Ground (SG)

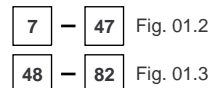
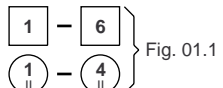
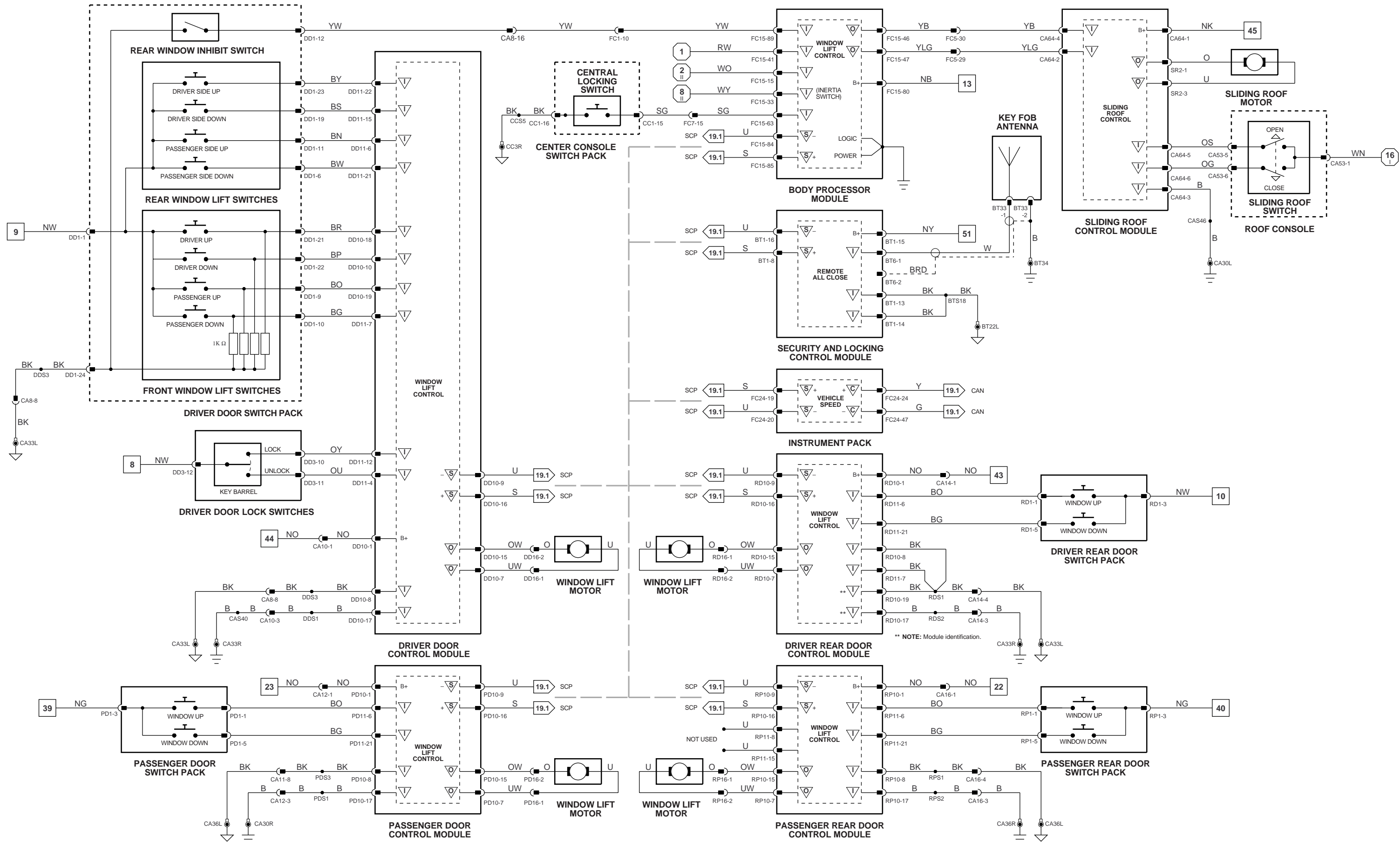
▽ CAN (Network)

▽ SCP Network

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



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



▽ Input

▽ Output

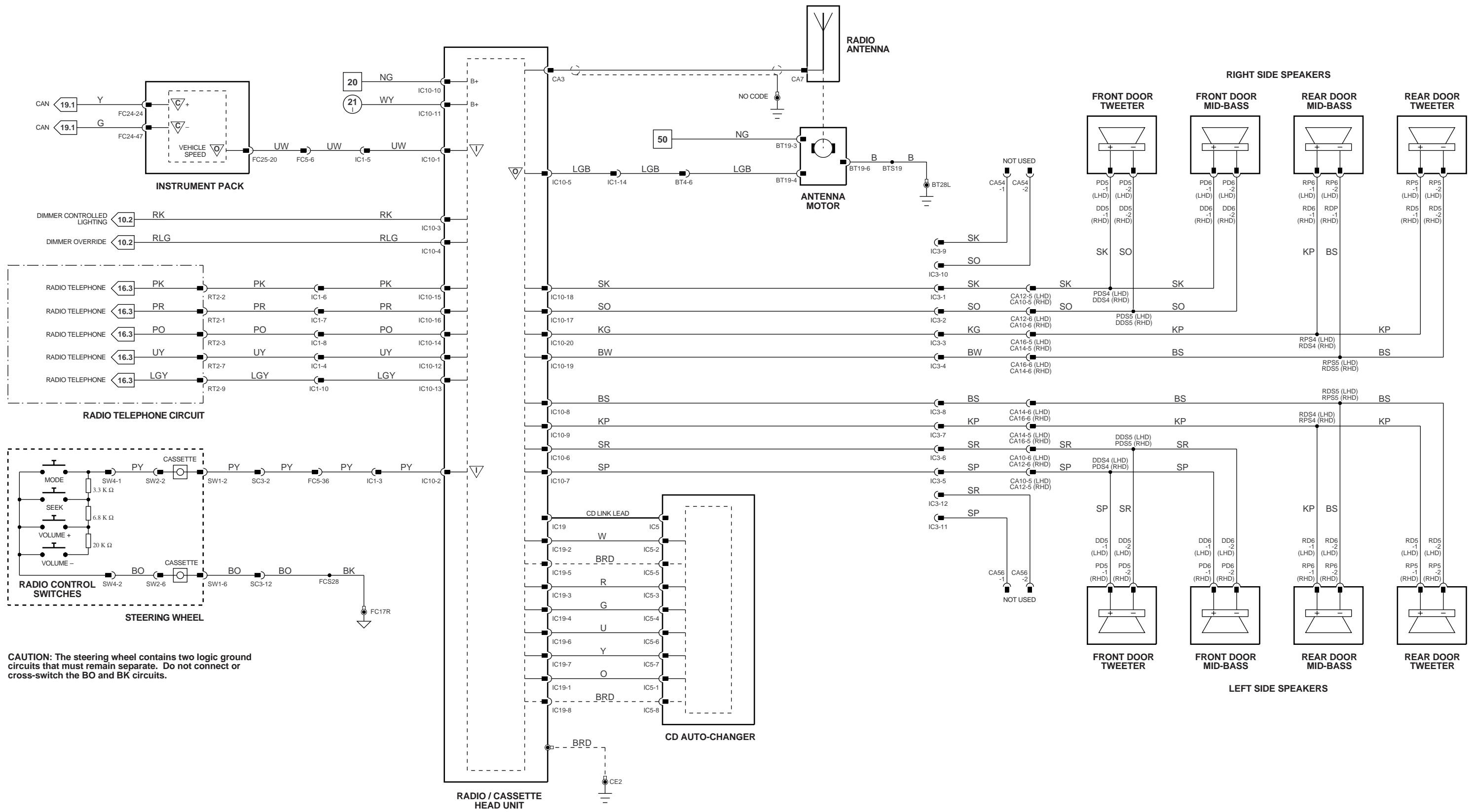
▽ Serial and Encoded Communications

▽ Signal Ground (SG)

▽ CAN (Network)

▽ SCP Network

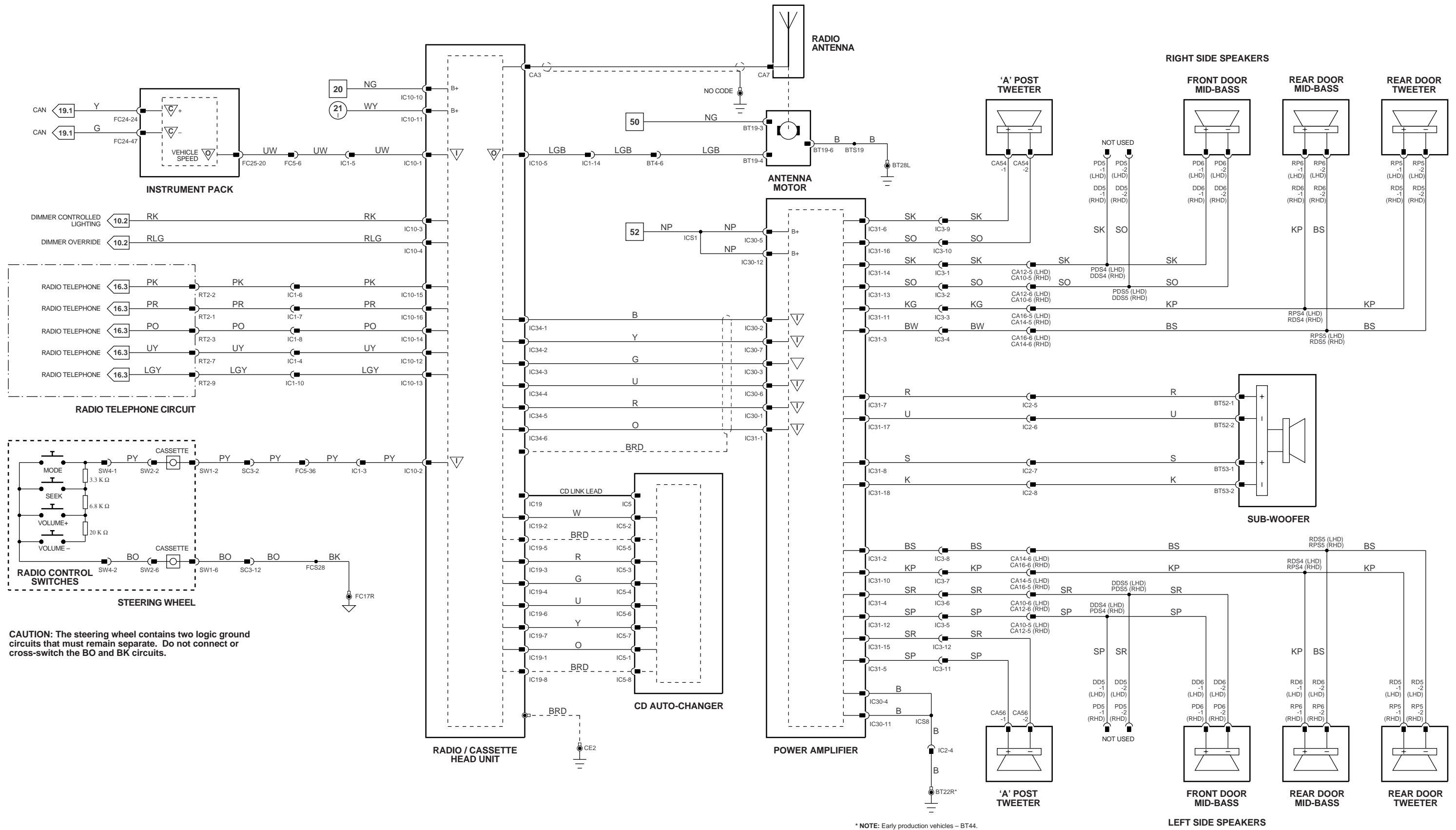
VARIANT: RHD Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997



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

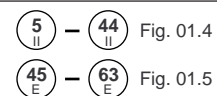
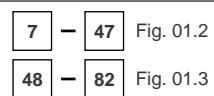
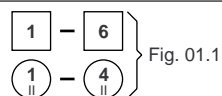
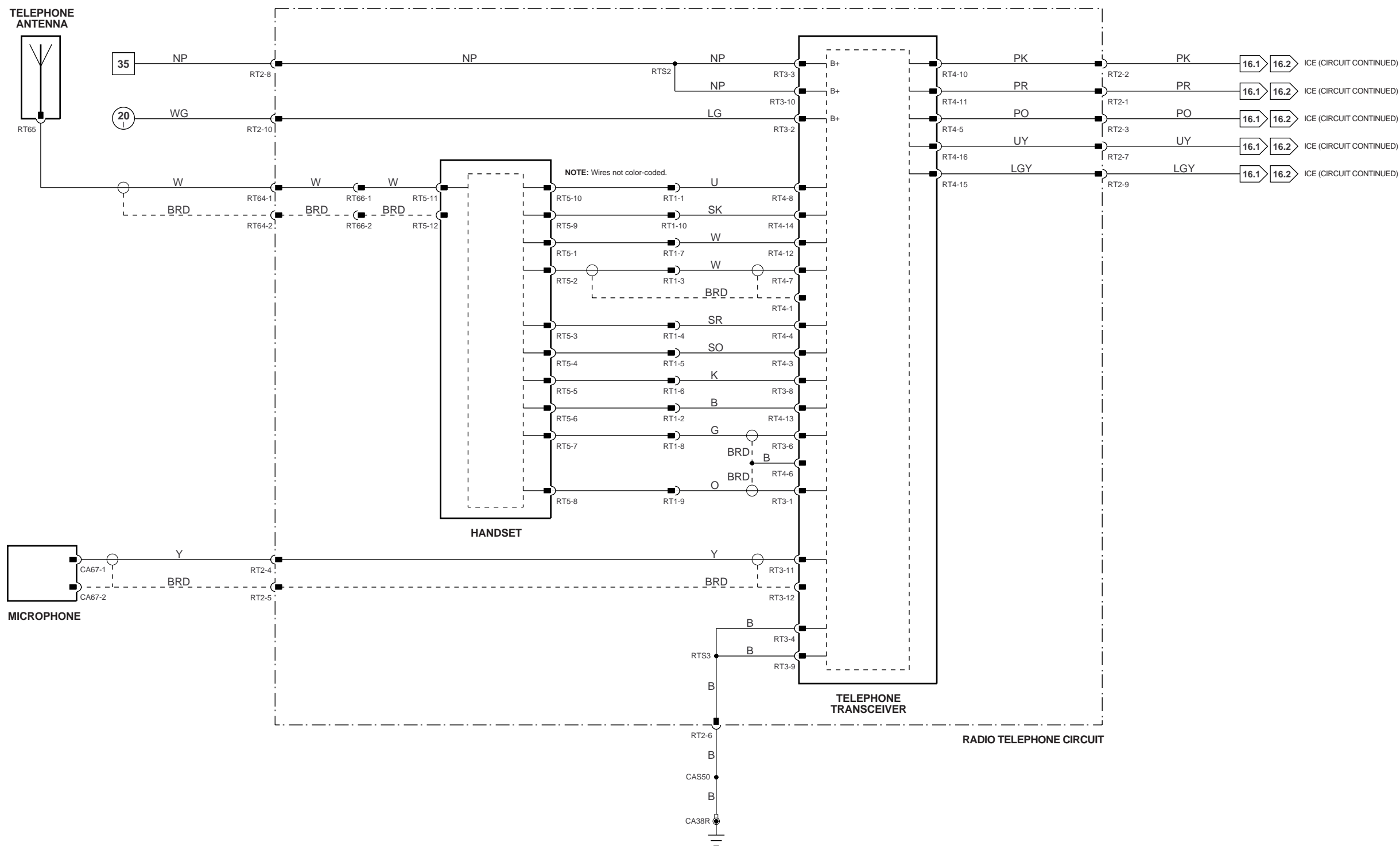
	<p>Fig. 01.1: 1-6, 1-4</p> <p>Fig. 01.2: 7-47</p> <p>Fig. 01.3: 48-82</p> <p>Fig. 01.4: 5-44</p> <p>Fig. 01.5: 45-63</p> <p>Fig. 02.1: 1-17</p>	<p>VARIANT: Standard ICE Vehicles</p> <p>VIN RANGE: All</p> <p>DATE OF ISSUE: SEPTEMBER 1997</p>
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\* NOTE: Early production vehicles - BT44.

						<p>VARIANT: Premium ICE Vehicles VIN RANGE: All DATE OF ISSUE: SEPTEMBER 1997</p>
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▽ Input

▽ Signal Ground (SG)

▽ Output

▽ CAN (Network)

▽ Serial and Encoded Communications

▽ SCP Network

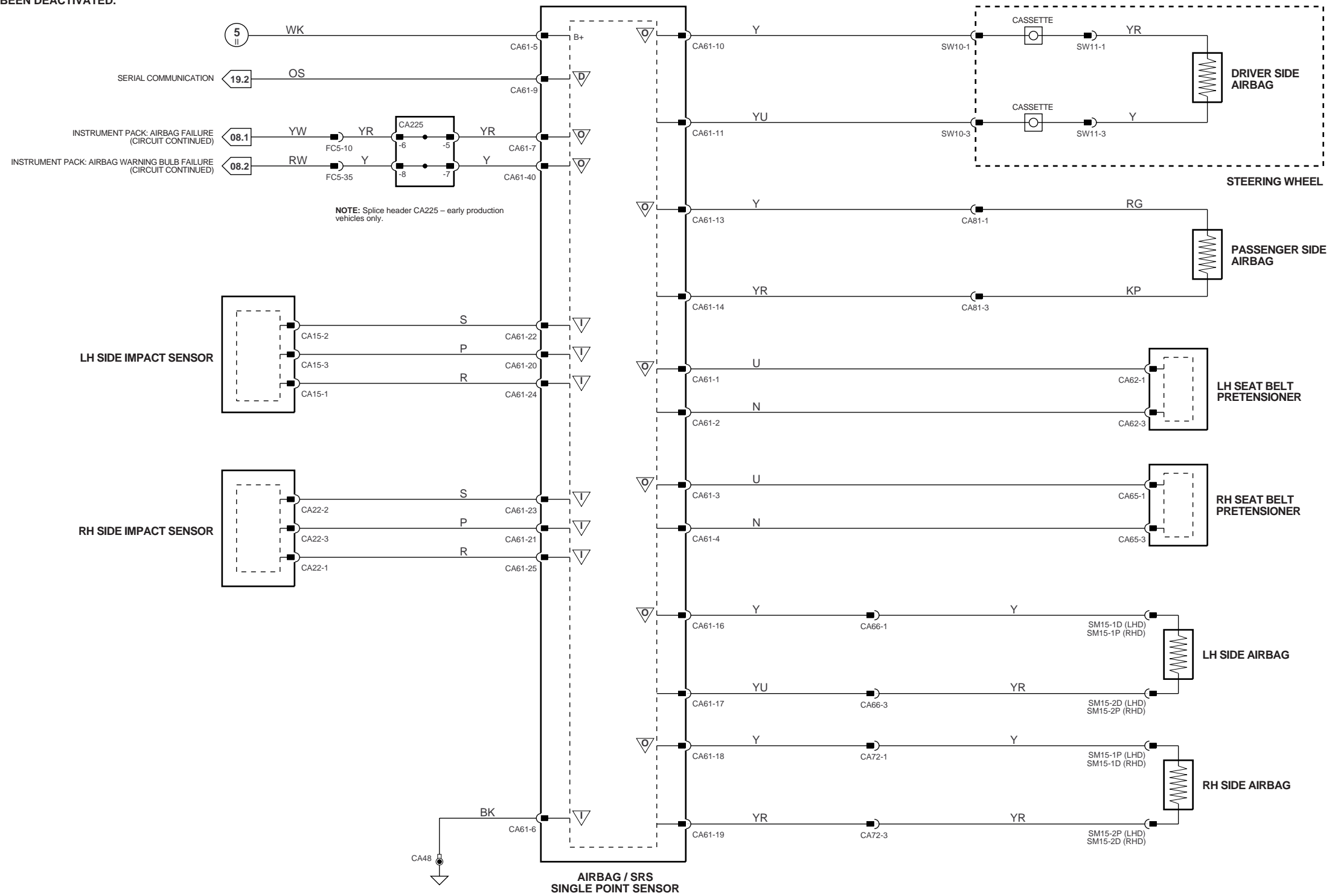
VARIANT: All Vehicles  
 VIN RANGE: All  
 DATE OF ISSUE: SEPTEMBER 1997



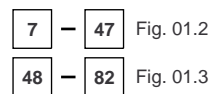
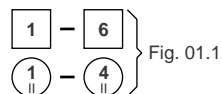


CAUTION: Do not substitute another fuse value for the 10A battery fuse.

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.



▽ Input

▽ Signal Ground (SG)

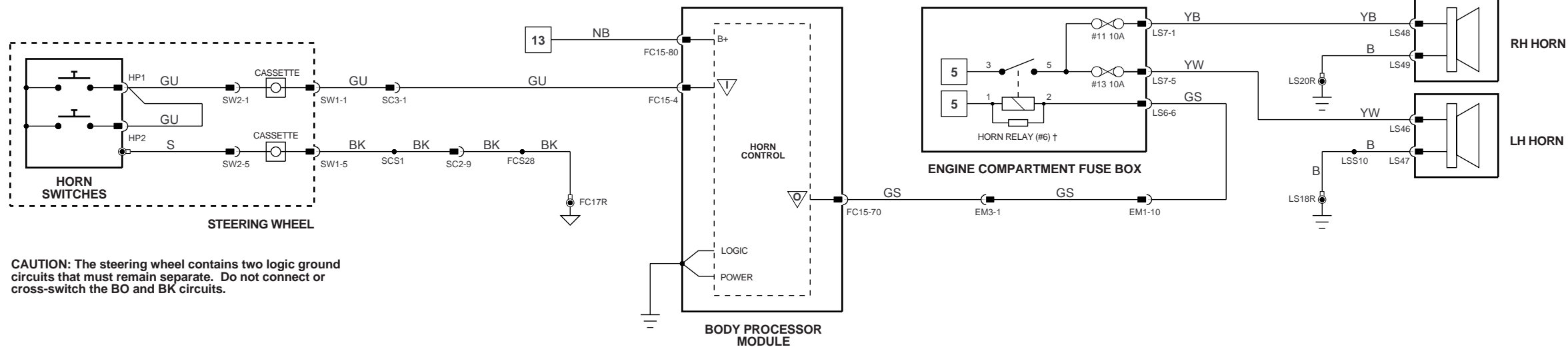
▽ Output

▽ CAN (Network)

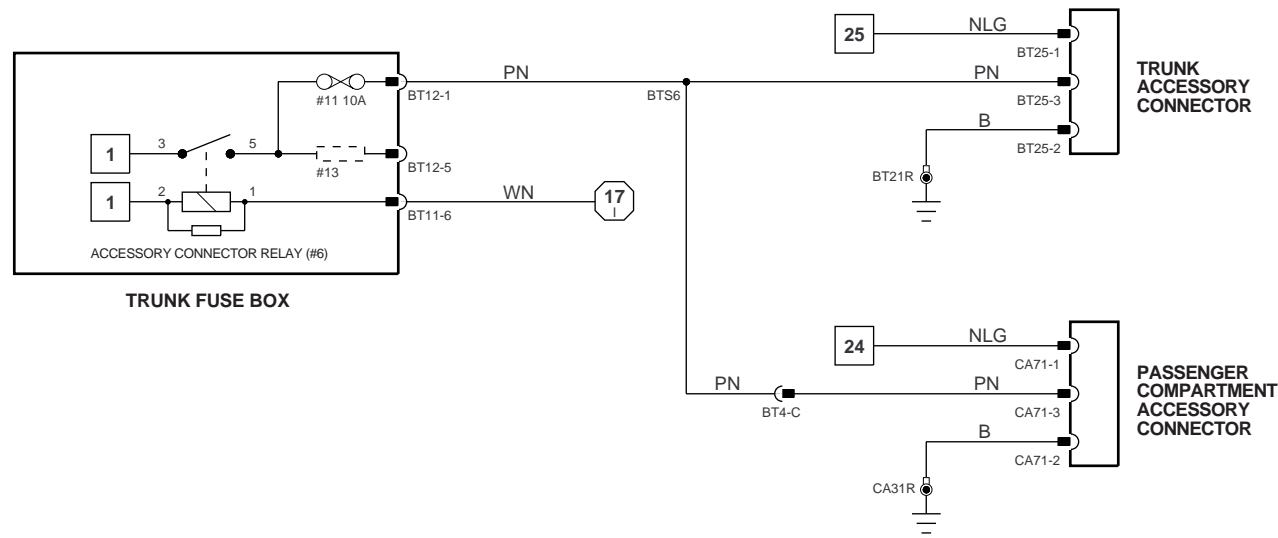
▽ Serial and Encoded Communications

▽ SCP Network

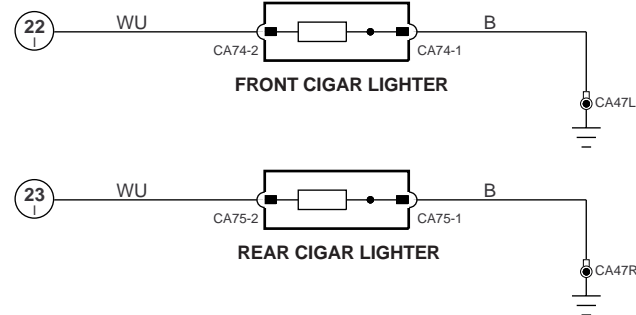
VARIANT: All Vehicles  
VIN RANGE: All  
DATE OF ISSUE: SEPTEMBER 1997



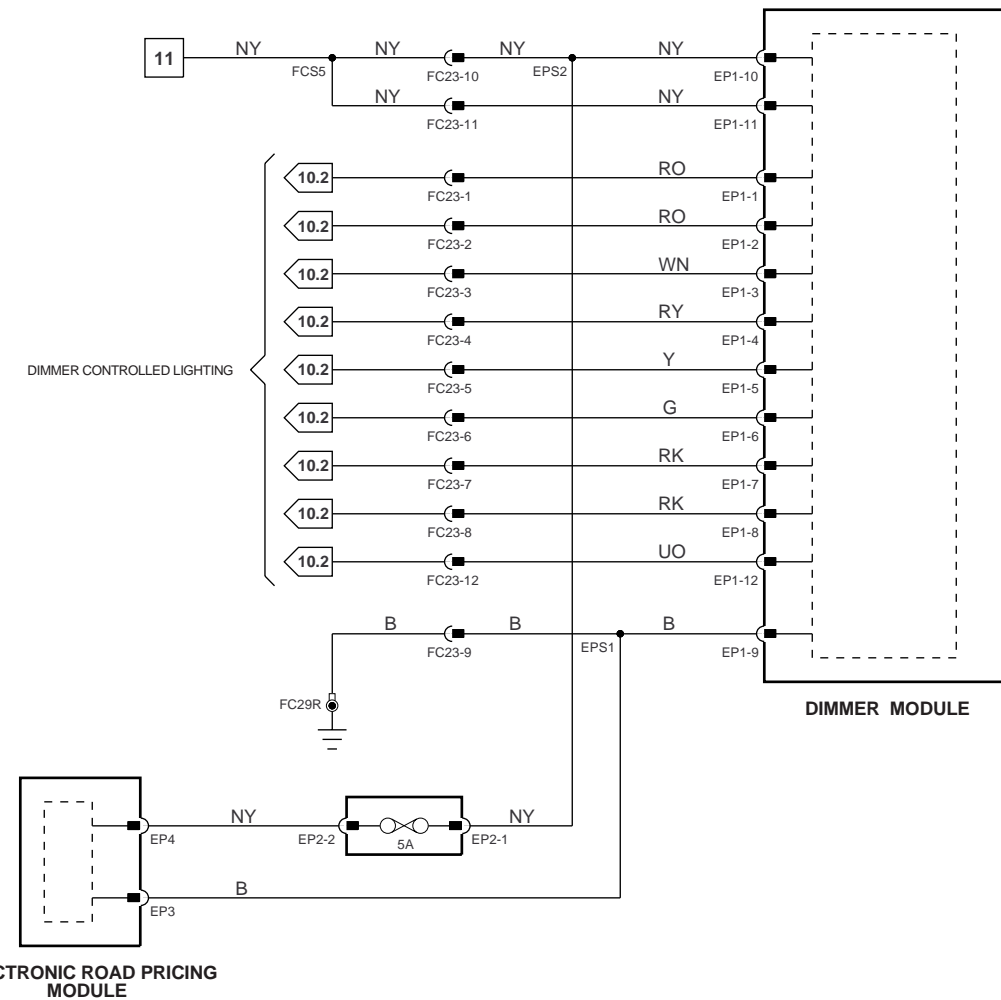
### HORNS



### ACCESSORY CONNECTORS

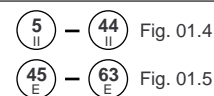
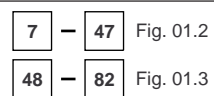
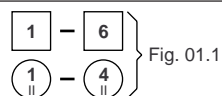


### CIGAR LIGHTERS



### 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.



▽ Input

▽ Signal Ground (SG)

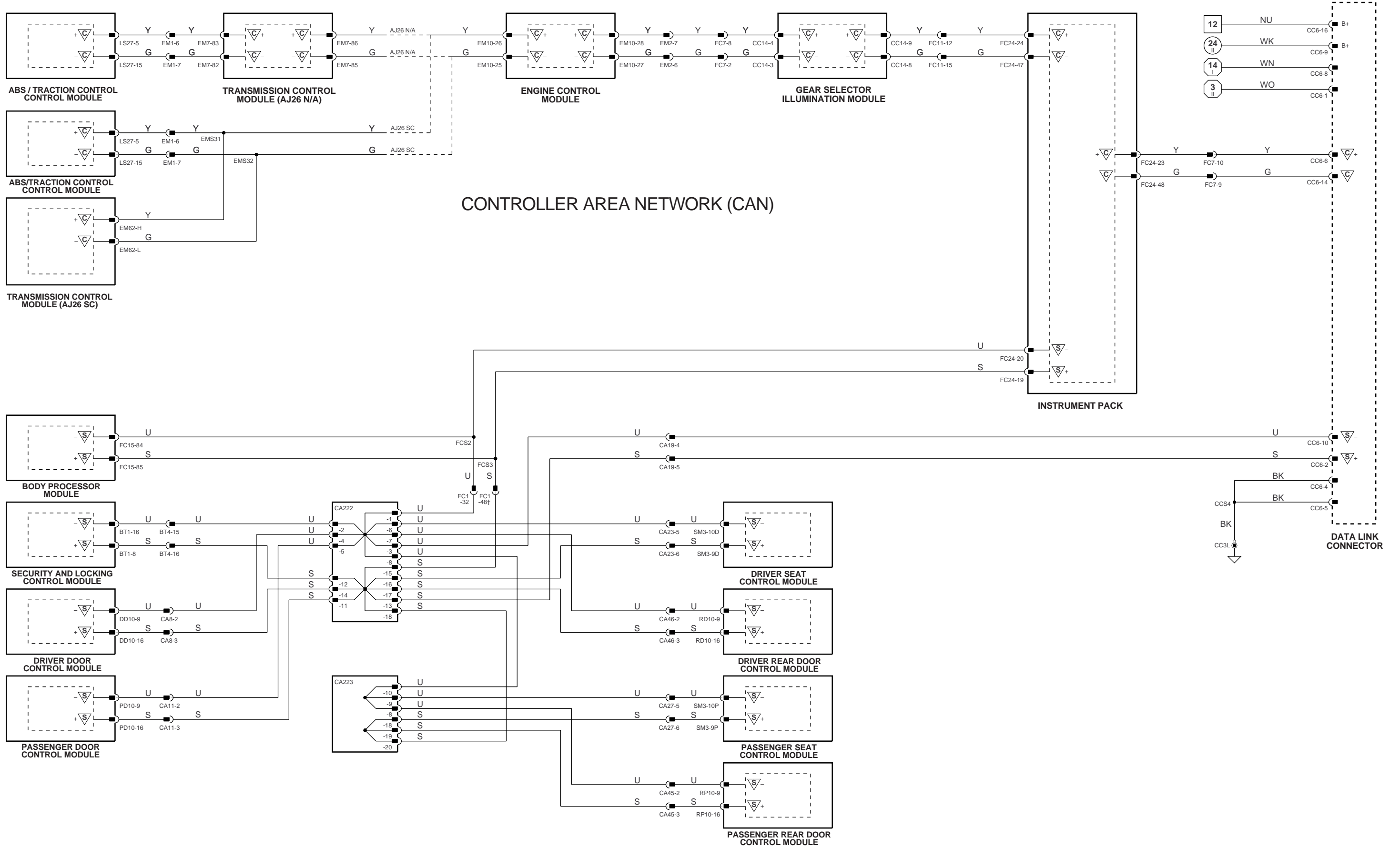
▽ Output

▽ CAN (Network)

▽ Serial and Encoded Communications

▽ SCP Network

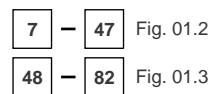
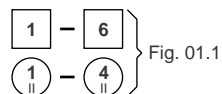
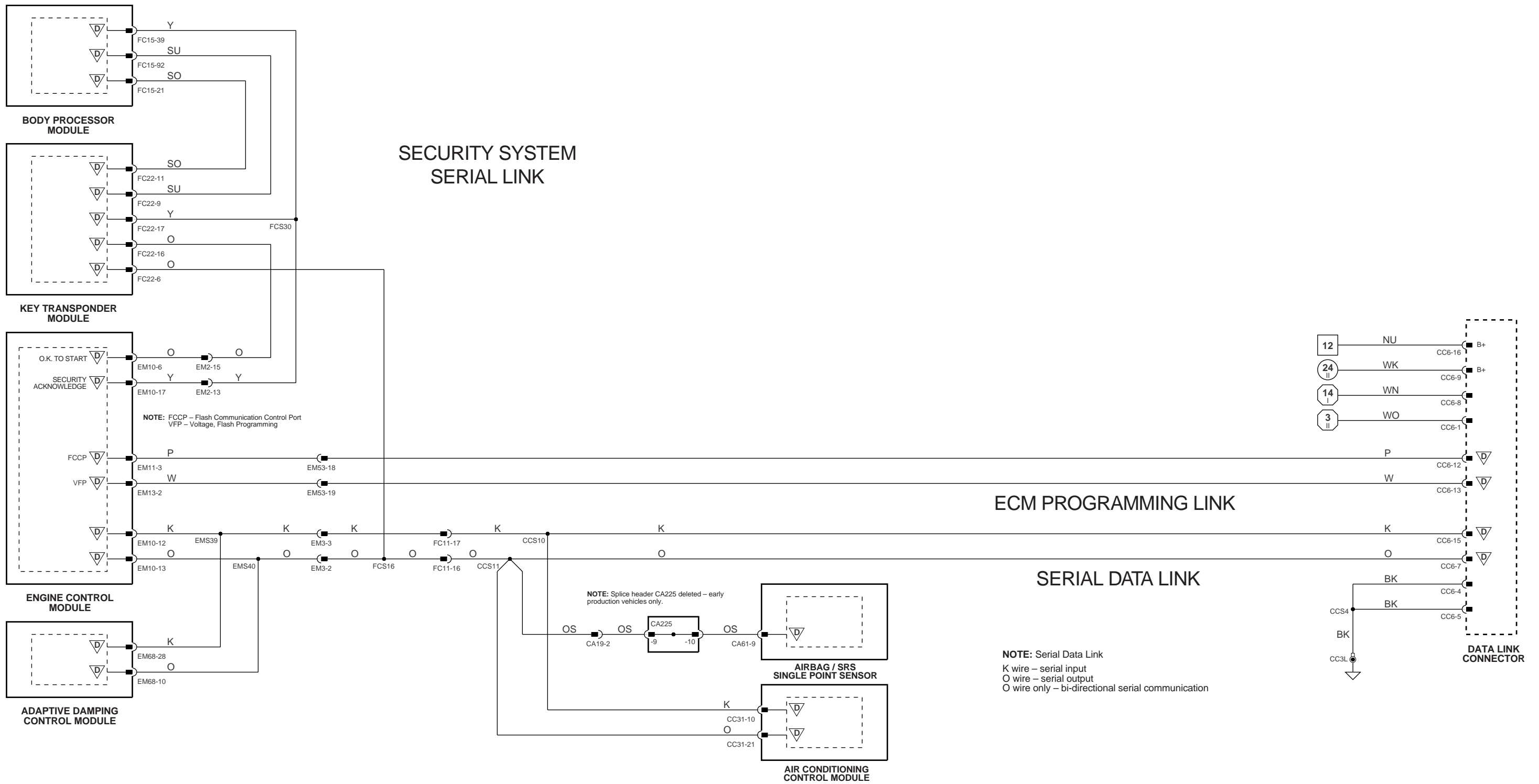
VARIANT: All Vehicles  
VIN RANGE: All  
DATE OF ISSUE: SEPTEMBER 1997



STANDARD CORPORATE PROTOCOL NETWORK (SCP)

† 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.

Fig. 01.1 	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	▽ Input ▽ Signal Ground (SG)	▽ Output ▽ CAN (Network)	▽ Serial and Encoded Communications ▽ SCP Network	<b>VARIANT:</b> All Vehicles <b>VIN RANGE:</b> All <b>DATE OF ISSUE:</b> SEPTEMBER 1997
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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		

**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 EEEEC / 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)



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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

**Fig. 01.2****COMPONENTS****Component**

FUSE BOX - LH HEELBOARD

FUSE BOX - RH HEELBOARD

SPLICE HEADER - CA222

SPLICE HEADER - CA223

SPLICE HEADER - CA224

**Connector / Type / Color**CA1 / 10-WAY U.T.A. FUSE BOX / NATURAL  
CA2 / 10-WAY U.T.A. FUSE BOX / BLACK  
ST15 / EYELETCA41 / 10-WAY U.T.A. FUSE BOX / NATURAL  
CA42 / 10-WAY U.T.A. FUSE BOX / BLACK  
ST13 / EYELET  
ST14 / EYELET

CA222 / 20-WAY SUMITOMO SPLICE HEADER / GREY

CA223 / 20-WAY SUMITOMO SPLICE HEADER / BLACK

CA224 / 20-WAY SUMITOMO SPLICE HEADER / GREEN

**Location / Access**

LH HEELBOARD / HEELBOARD COVER

RH HEELBOARD / HEELBOARD COVER

RH HEELBOARD / HEELBOARD COVER

RH HEELBOARD / HEELBOARD COVER

LH HEELBOARD / HEELBOARD COVER

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

**HARNESSTO-HARNESSTO 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**

<b>Component</b>	<b>Connector / Type / Color</b>	<b>Location / Access</b>
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**

<b>Connector</b>	<b>Type / Color</b>	<b>Location / Access</b>
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
LS9	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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.



**Fig. 01.5**

**COMPONENTS**

<b>Component</b>	<b>Connector / Type / Color</b>	<b>Location / Access</b>
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

**HARNESSTO-HARNESSTCONNECTORS**

<b>Connector</b>	<b>Type / Color</b>	<b>Location / Access</b>
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
P11	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**

<b>Component</b>	<b>Connector / Type / Color</b>	<b>Location / Access</b>
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**

<b>Connector</b>	<b>Type / Color</b>	<b>Location / Access</b>
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**

<b>Ground</b>	<b>Location / Type</b>
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, HARNESES, 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		
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)		

**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 EEEEC / 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
BT66	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)



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.

**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)

**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 / 18-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)**



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, HARNESSSES, 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 - 1600 Hz	
C EM10-26	CAN NETWORK	15 - 1500 Hz	
C EM10-27	CAN NETWORK	15 - 1800 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	O2S / 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:

<b>I</b> Input	<b>D</b> Serial and encoded communications	<b>B+</b> Battery voltage	<b>KHz</b> Frequency x 1000
<b>O</b> Output	<b>C</b> CAN (Network)	<b>V</b> Voltage (DC)	<b>MS</b> Milliseconds
<b>SG</b> Signal Ground	<b>S</b> SCP Network	<b>Hz</b> Frequency	<b>MV</b> 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 UNDER VEHICLE / RH REAR
CANISTER CLOSE VALVE	CV1 / 2-WAY YAZAKI 90 / BLACK	ENGINE / REAR OF BED PLATE
CKPS: CRANKSHAFT POSITION SENSOR	PI17 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE COMPARTMENT / 'B' BANK CYLINDER HEAD, REAR
CMPS: CAMSHAFT POSITION SENSOR	PI15 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
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 / REAR OF ENGINE TOP HOSE
ECTS: ENGINE COOLANT TEMPERATURE SENSOR	PI4 / 2-WAY ECONOSEAL E J2 / GREY	ENGINE COMPARTMENT / BULKHEAD
EVAPP: EVAP CANISTER PURGE VALVE	EM39 / 2-WAY ECONOSEAL J2+ / BLACK	TOP OF FUEL TANK / TRUNK CARPET
FUEL TANK PRESSURE SENSOR	B75 / 3-WAY MULTILOCK 070 / WHITE FP1 / 3-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
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 / REARWARD OF AIR CLEANER
IATS: INTAKE AIR TEMPERATURE SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
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 COMPARTMENT / REARWARD OF AIR CLEANER
MAFS: MASS AIR FLOW SENSOR	PI35 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
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	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
D 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	O2S / 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:

<b>I</b> Input	<b>D</b> Serial and encoded communications	<b>B+</b> Battery voltage	<b>KHz</b> Frequency x 1000
<b>O</b> Output	<b>C</b> CAN (Network)	<b>V</b> Voltage (DC)	<b>MS</b> Milliseconds
<b>SG</b> Signal Ground	<b>S</b> SCP Network	<b>Hz</b> Frequency	<b>MV</b> 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 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
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+
I	EM10-5	IGNITION SWITCHED POWER SUPPLY	B+
D	EM10-6	OK TO START - ENCODED COMMUNICATIONS	
I	EM10-9	BATTERY POWER SUPPLY	B+
I	EM10-10	BRAKE SWITCH	B-
I	EM10-14	PARKING BRAKE SWITCH	B-
D	EM10-12	SERIAL COMMUNICATIONS	GROUND (APPLIED)
D	EM10-13	SERIAL COMMUNICATIONS	
I	EM10-15	PARK / NEUTRAL CONFIRMATION	B+ (P, N)
O	EM10-16	EMS CONTROLLED RELAY ACTIVATE	GROUND (R,D,4,3,2)
D	EM10-17	SECURITY ACKNOWLEDGE	B+
O	EM10-20	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION COMMON REFERENCE GROUND	ENCODED COMMUNICATIONS
O	EM10-21	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS COMMON REFERENCE VOLTAGE	GROUND
I	EM10-22	GROUND	5 V
I	EM10-23	GROUND	GROUND
C	EM10-25	CAN NETWORK	GROUND
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+
I	EM11-6	ENGINE CRANK	GROUND (CRANKING)
O	EM11-8	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS / FUEL TANK PRESSURE SENSOR COMMON REFERENCE VOLTAGE	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
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
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
O	EM12-19	MAFS REFERENCE GROUND	GROUND
SG	EM12-22	O2S / HO2S COMMON SHIELD	GROUND
D	EM13-2	ECM PROGRAMMING	
O	EM13-11	VACUUM SWITCHING VALVE #3 ACTIVATE	GROUND
O	EM13-12	VACUUM SWITCHING VALVE #1 ACTIVATE	GROUND
O	EM13-13	VACUUM SWITCHING VALVE #2 ACTIVATE	GROUND
O	EM13-14	THROTTLE MOTOR POWER RELAY ACTIVATE	GROUND
I	EM13-17	'B' BANK KNOCK SENSOR FEEDBACK	B+
I	EM13-18	'A' BANK KNOCK SENSOR FEEDBACK	B+
I	EM13-19	CKPS SIGNAL	B+
I	EM13-20	CMPS SIGNAL	0 KHz = NO KNOCK, 2 - 20 KHz = KNOCK
I	EM13-27	CMPS / CKPS / KNOCK SENSORS COMMON SHIELD	0 KHz = NO KNOCK, 2 - 20 KHz = KNOCK
I	EM13-28	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz
SG	EM13-29	CMPS SIGNAL GROUND	5 Hz @ IDLE
I	EM14-1	THROTTLE MOTOR POWER SUPPLY	GROUND
I	EM14-2	THROTTLE MOTOR POWER SUPPLY	GROUND
I	EM14-3	IGNITION SWITCHED POWER SUPPLY	GROUND
I	EM14-4	GROUND	GROUND
O	EM14-5	THROTTLE MOTOR POWER SUPPLY	GROUND
O	EM14-6	THROTTLE MOTOR POWER SUPPLY	GROUND
I	EM14-7	GROUND	GROUND
I	EM14-8	GROUND	GROUND
I	EM14-9	GROUND	GROUND
I	EM14-10	GROUND	GROUND
O	EM14-11	THROTTLE MOTOR POWER SUPPLY	GROUND
O	EM14-12	THROTTLE MOTOR POWER SUPPLY	GROUND
O	EM15-1	UPSTREAM 'B' BANK HO2S HEATER GROUND	GROUND
O	EM15-2	UPSTREAM 'A' BANK HO2S HEATER GROUND	GROUND
O	EM15-3	EVAP VALVE ACTIVATE	GROUND (VALVE OPEN)
O	EM15-8	VARIABLE VALVE TIMING SOLENOID 'B' BANK	B+
O	EM15-9	VARIABLE VALVE TIMING SOLENOID 'A' BANK	B+
I	EM15-11	GROUND	B+
I	EM15-12	GROUND	GROUND
I	EM15-22	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 / 28-WAY MULTILOCK 040 / GREY EM11 / 18-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	PI16 / 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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

## CONTROL MODULE PIN OUT INFORMATION

### AIR CONDITIONING CONTROL MODULE

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

### ENGINE CONTROL MODULE

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

## Fig. 04.4

### COMPONENTS

Component	Connector / Type / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH AIR CONDITIONING CONTROL MODULE	PI36 / 1-WAY SUMITOMO 90 A TYPE / BLACK CC28 / 26-WAY MULTILOCK 47 / GREY CC29 / 16-WAY MULTILOCK 47 / GREY CC30 / 12-WAY MULTILOCK 47 / GREY CC31 / 22-WAY MULTILOCK 47 / GREY	ENGINE COMPARTMENT / A/C COMPRESSOR RH SIDE OF TRANSMISSION TUNNEL / GLOVE BOX ASSEMBLY
BRAKE CANCEL SWITCH CRUISE CONTROL ON / OFF SWITCH CRUISE CONTROL SWITCHES (STEERING WHEEL) ENGINE CONTROL MODULE	CC40 / 4-WAY MULTILOCK 070 / WHITE CC20 / 10-WAY AMP MICRO QUAD LOCK / NATURAL SW3 / 3-WAY EPC / BLACK / WHITE 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	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY CENTER CONSOLE ASSEMBLY CENTER OF STEERING WHEEL ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
FUEL INJECTOR – 1A FUEL INJECTOR – 1B FUEL INJECTOR – 2A FUEL INJECTOR – 2B FUEL INJECTOR – 3A FUEL INJECTOR – 3B FUEL INJECTOR – 4A FUEL INJECTOR – 4B FUEL PUMP FUZE BOX – TRUNK	PI17 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI11 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI8 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI12 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI9 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI13 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI10 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI14 / 2-WAY AMP JUNIOR POWER TIMER / BLACK BT9 / 4-WAY SUMITOMO DL90 / NATURAL BT10 / 10-WAY U.T.A. FUZE BOX / NATURAL BT11 / 10-WAY U.T.A. FUZE BOX / BLACK BT12 / 10-WAY U.T.A. FUZE BOX / GREEN BT13 / 10-WAY U.T.A. FUZE BOX / BLUE BT64 / EYELET	ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL ENGINE COMPARTMENT / INTAKE MANIFOLD / FUEL RAIL TOP OF FUEL TANK / TRUNK CARPET TRUNK ELECTRICAL CARRIER
IGNITION COIL – 1A IGNITION COIL – 1B IGNITION COIL – 2A IGNITION COIL – 2B IGNITION COIL – 3A IGNITION COIL – 3B IGNITION COIL – 4A IGNITION COIL – 4B IGNITION MODULE – 1 IGNITION MODULE – 2 RADIATOR FAN CONTROL RELAY MODULE RADIATOR FAN – LH RADIATOR FAN – RH REFRIGERANT 4-WAY PRESSURE SWITCH	PI18 / 2-WAY YAZAKI 90 / BLACK PI22 / 2-WAY YAZAKI 90 / BLACK PI19 / 2-WAY YAZAKI 90 / BLACK PI23 / 2-WAY YAZAKI 90 / BLACK PI20 / 2-WAY YAZAKI 90 / BLACK PI24 / 2-WAY YAZAKI 90 / BLACK PI21 / 2-WAY YAZAKI 90 / BLACK PI25 / 2-WAY YAZAKI 90 / BLACK EM27 / 12-WAY IGNITION POWER MODULE / BLACK EM29 / 12-WAY IGNITION POWER MODULE / BLACK LS31 / 8-WAY TRW / BLACK CF1 / 2-WAY REINSHAGEN / BLACK CF2 / 2-WAY REINSHAGEN / BLACK LS26 / 6-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / CAMSHAFT COVER ENGINE COMPARTMENT / CAMSHAFT COVER ENGINE COMPARTMENT / CAMSHAFT COVER ENGINE COMPARTMENT / CAMSHAFT COVER ENGINE COMPARTMENT / CAMSHAFT COVER ENGINE COMPARTMENT / CAMSHAFT COVER ENGINE COMPARTMENT / CAMSHAFT COVER ENGINE COMPARTMENT / CAMSHAFT COVER ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE ENGINE COMPARTMENT / ADJACENT TO LH CRUSH TUBE ENGINE COMPARTMENT / BELOW LH FAN ENGINE COMPARTMENT / BELOW RH FAN 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 FUZE 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

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.

### 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, HARNESSSES, 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		
I EM10-15	PARK / NEUTRAL CONFIRMATION	GROUND (APPLIED)	B+
O EM10-16	FMS CONTROL LED RELAY ACTIVATE	B+ (P, N)	GROUND (R,D,4,3,2)
D EM10-17	SECURITY ACKNOWLEDGE	GROUND	B+
O EM10-20	IATS / ECTS / TPS / MECHANICAL GUARD POSITION / PEDAL POSITION COMMON REFERENCE GROUND	ENCODED COMMUNICATIONS	
O EM10-21	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS COMMON REFERENCE VOLTAGE	GROUND	GROUND
I EM10-22	GROUND	5 V	5 V
I EM10-23	GROUND	GROUND	GROUND
C EM10-25	CAN NETWORK	GROUND	GROUND
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	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	GROUND	GROUND
I EM11-13	FUEL TANK PRESSURE SENSOR COMMON REFERENCE GROUND	GROUND	
I SG EM11-14	MECHANICAL GUARD POSITION FEEDBACK	0.5 V = IDLE; 4.75 V = WOT	GROUND
I EM11-15	MECHANICAL GUARD POSITION / PEDAL POSITION / TPS SHIELD	GROUND	GROUND
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	O2S / 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:

<b>I</b> Input	<b>D</b> Serial and encoded communications	<b>B+</b> Battery voltage	<b>KHz</b> Frequency x 1000
<b>O</b> Output	<b>C</b> CAN (Network)	<b>V</b> Voltage (DC)	<b>MS</b> Milliseconds
<b>SG</b> Signal Ground	<b>S</b> SCP Network	<b>Hz</b> Frequency	<b>MV</b> 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, HARNESSSES, 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	
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	O2S / 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:

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

**GROUNDINGS**

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 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+

## Fig. 04.7

### COMPONENTS

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

### 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	EM11 / 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		

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.

### 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, HARNESES, 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+	GROUND
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.**

**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)**



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

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**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.

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**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.**

**Fig. 05.2**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
DUAL LINEAR SWITCH	CCR / 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

**HARNESSTO-HARNESSTO 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)**



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.**

## 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.

## Fig. 05.3

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	RUI 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)



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.

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## 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	
I 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.**

**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)



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.

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## CONTROL MODULE PIN OUT INFORMATION

### AIR CONDITIONING CONTROL MODULE

Pin	Description	Active	Inactive
O	CC28-6	DEFROST VENT SERVO MOTOR	B+
O	CC28-7	CENTER VENT SERVO MOTOR	B+
O	CC28-8	LH FRESH / RECIRCULATION VENT MOTOR	B+
O	CC28-9	RH FRESH / RECIRCULATION VENT MOTOR	B+
O	CC28-12	FOOTWELL VENT SERVO MOTOR	B+
O	CC28-13	COOL AIR BYPASS VENT SERVO MOTOR	B+
O	CC28-19	DEFROST VENT SERVO MOTOR	B+
O	CC28-20	CENTER VENT SERVO MOTOR	B+
O	CC28-21	LH FRESH / RECIRCULATION VENT SERVO MOTOR	B+
O	CC28-22	RH FRESH / RECIRCULATION VENT SERVO MOTOR	B+
O	CC28-25	FOOTWELL SERVO MOTOR	B+
O	CC28-26	COOL AIR BYPASS SERVO MOTOR	B+
I	CC29-1	SOLAR SENSOR FEEDBACK	0.75 V - 4.75 V; INCREASING WITH SOLAR LOAD
I	CC29-2	CENTER VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN
I	CC29-3	RH FRESH / RECIRCULATION VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN
I	CC29-5	COOL AIR BYPASS VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN
I	CC29-6	ENGINE COOLANT TEMPERATURE	2.5 V @ 90° C; DECREASING WITH TEMPERATURE
I	CC29-10	DEFROST VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN
I	CC29-11	LH FRESH / RECIRCULATION VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN
I	CC29-13	FOOTWELL VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN
O	CC30-2	CLOCK	B+ (1.45 Hz)
D	CC30-3	SERIAL DATA OUTPUT TO CONTROL PANEL	
I	CC30-5	AMBIENT TEMPERATURE SENSOR FEEDBACK	2.18 V @ 25° C; DECREASING WITH TEMPERATURE
I	CC30-6	HEATER MATRIX TEMPERATURE SENSOR FEEDBACK	2.25 V @ 20° C; DECREASING WITH TEMPERATURE
D	CC30-7	SERIAL DATA INPUT FROM CONTROL PANEL	
O	CC30-8	START	B+ (MOMENTARY)
I	CC30-11	IN CAR TEMPERATURE SENSOR FEEDBACK	3.25 V @ 0° C; DECREASING WITH TEMPERATURE
I	CC30-12	EVAPORATOR TEMPERATURE SENSOR FEEDBACK	3.25 V @ 0° C; DECREASING WITH TEMPERATURE
I	CC31-1	IGNITION SWITCHED POWER SUPPLY	B+
I	CC31-2	ISOLATE RELAY CONTROLLED BATTERY POWER SUPPLY	B+
I	CC31-3	IGNITION SWITCHED GROUND	0 V
O	CC31-4	CONTROL PANEL BATTERY POWER SUPPLY	B+
I	CC31-5	BATTERY POWER SUPPLY	B+
I	CC31-6	ENGINE SPEED SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz
O	CC31-8	POTENTIOMETER COMMON REFERENCE VOLTAGE	5 V
D	CC31-10	SERIAL COMMUNICATIONS INPUT	
O	CC31-12	CONTROL PANEL BATTERY POWER SUPPLY	B+
I	CC31-13	GROUND	0 V
O	CC31-14	CONTROL PANEL GROUND SUPPLY	0 V
O	CC31-15	ISOLATE RELAY ACTIVE	B+
I	CC31-16	VEHICLE SPEED SIGNAL	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+
O	CC31-18	ASPIRATOR MOTOR POWER SUPPLY	B+
O	CC31-19	POTENTIOMETER COMMON REFERENCE GROUND	0 V
I	CC31-20	GROUND	0 V
D	CC31-21	SERIAL COMMUNICATIONS OUTPUT	

### AIR CONDITIONING CONTROL PANEL

Pin	Description	Active	Inactive
I	CC27-1	CLOCK	B+ (1.45 KHz)
I	CC27-2	START	B+
D	CC27-3	SERIAL DATA OUTPUT TO A/C CONTROL MODULE	
D	CC27-4	SERIAL DATA INPUT FROM A/C CONTROL MODULE	
I	CC27-5	IGNITION SWITCHED POWER SUPPLY	B+
I	CC27-6	BATTERY POWER SUPPLY	B+
I	CC27-7	CONTROL PANEL GROUND SUPPLY	GROUND
I	CC27-8	LOCATE ILLUMINATION SUPPLY	B+
I	CC27-9	DIMMER OVERRIDE REQUEST	GROUND

**Fig. 07.1**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
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
AIR CONDITIONING CONTROL PANEL	CC27 / 12-WAY MULTILOCK 040 / BLUE	CENTER CONSOLE
AIR INTAKE - LH BLOWER	CC32 / 15-WAY SUMITOMO 90 HYBRID / GREEN	LH SIDE FASCIA GLOVE BOX
AIR INTAKE - RH BLOWER	CC33 / 15-WAY SUMITOMO 90 HYBRID / GREEN	RH SIDE FASCIA GLOVE BOX
AMBIENT TEMPERATURE SENSOR	LS16 / 2-WAY YAZAKI 92 / BLACK	ADJACENT TO RADIATOR / BUMPER UNDER TRAY
ASPIRATOR ASSEMBLY	FC40 / 4-WAY MULTILOCK 070 / WHITE	DRIVER SIDE KNEE BOLSTER
EVAPORATOR / HEATER MATRIX ASSEMBLY	CC34 / 12-WAY MULTILOCK 040 / BLACK	LH SIDE OF TRANSMISSION TUNNEL / LH DASH LINER
SOLAR SENSOR	FC52 / 2-WAY MULTILOCK 070 / GREY	WINDSHIELD CENTER VENT
VENT ASSEMBLY	FC44 / 12-WAY MULTILOCK 040 / BLACK	FASCIA - CENTER

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
AIR CONDITIONING ISOLATE RELAY	VIOLET	CA50 / VIOLET	LH HEELBOARD RELAYS / HEELBOARD COVER

### 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
CA20	20-WAY MULTILOCK 070 / YELLOW	RH 'A' POST CONNECTOR MOUNTING BRACKET / 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

### GROUNDS

Ground	Location / Type
CA31L	EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD
CC3R	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)



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, HARNESES, GROUND, 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 CC28-2	HEATER VALVE ACTIVE	B+	0 V
O CC28-3	RH BLOWER MOTOR RELAY ACTIVE	0 V	B+
O CC28-4	LH / RH WINDSHIELD HEATER RELAYS ACTIVATE	0 V	B+
O CC28-5	DOOR MIRROR HEATER RELAY ACTIVATE	0 V	B+
O CC28-16	LH BLOWER MOTOR RELAY ACTIVE	B+	0 V
O CC28-17	HEATER PUMP RELAY ACTIVATE	0 V	B+
O CC28-18	HEATED BACKLIGHT RELAY ACTIVATE	0 V	B+
I CC29-7	RH BLOWER SPEED FEEDBACK	7.6 V = LOW SPEED	0.83 V = HIGH SPEED
O CC29-8	RH BLOWER SPEED CONTROL DRIVE SIGNAL	1.3 V = LOW SPEED	0 V = HIGH SPEED
I CC29-15	LH BLOWER SPEED FEEDBACK	7.6 V = LOW SPEED	0.83 V = HIGH SPEED
O CC29-16	LH BLOWER SPEED CONTROL DRIVE SIGNAL	1.3 V = LOW SPEED	0 V = HIGH SPEED
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 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)	
O EM12-10	AIR CONDITIONING COMPRESSOR RELAY ACTIVATE	GROUND	B+
O EM13-15	SERIES (LOW) SPEED FAN ACTIVATE	GROUND	B+
O EM13-16	PARALLEL (HIGH) SPEED FAN ACTIVATE	GROUND	B+

## Fig. 07.2

### COMPONENTS

Component	Connector / Type / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH AIR CONDITIONING CONTROL MODULE	PI36 / 1-WAY SUMITOMO 90 A TYPE / BLACK CC28 / 26-WAY MULTILOCK 47 / GREY CC29 / 16-WAY MULTILOCK 47 / GREY CC30 / 12-WAY MULTILOCK 47 / GREY CC31 / 22-WAY MULTILOCK 47 / GREY	ENGINE COMPARTMENT / A/C COMPRESSOR RH SIDE OF TRANSMISSION TUNNEL / GLOVE BOX ASSEMBLY
AIR CONDITIONING CONTROL PANEL BLOWER MOTOR - LH BLOWER MOTOR - RH DOOR MIRROR - DRIVER DOOR MIRROR - PASSENGER ENGINE CONTROL MODULE	CC27 / 12-WAY MULTILOCK 040 / BLUE CC32 / 15-WAY SUMITOMO 90 HYBRID / GREEN CC33 / 15-WAY SUMITOMO 90 HYBRID / GREEN DD8 / 12-WAY MULTILOCK 040 / BLACK PD8 / 12-WAY MULTILOCK 040 / BLACK 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	CENTER CONSOLE LH SIDE FASCIA GLOVE BOX RH SIDE FASCIA GLOVE BOX DRIVER DOOR PASSENGER DOOR ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
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 - 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
HEATED BACKLIGHT	CA21 / LUCAR - LOCKING POSILOK MKI IC18 / LUCAR	INSIDE 'E' POST / 'E' POST UPPER TRIM BEHIND LEFT HAND REAR QUARTER PANEL
HEATER PUMP HEATER VALVE RADIATOR FAN CONTROL RELAY MODULE RADIATOR FAN - LH RADIATOR FAN - RH REFRIGERANT 4-WAY PRESSURE SWITCH WINDSHIELD HEATER - LH WINDSHIELD HEATER - RH	EM36 / 2-WAY ECONOSEAL III LC / BLACK EM40 / 2-WAY ECONOSEAL III LC / WHITE LS31 / 8-WAY TRV / BLACK CF1 / 2-WAY REINSHAGEN / BLACK CF2 / 2-WAY REINSHAGEN / BLACK LS26 / 6-WAY ECONOSEAL III LC / BLACK SH4 / 2-WAY AMP SERIES 187C / GREY SH5 / 2-WAY AMP SERIES 187C / GREY	ENGINE COMPARTMENT / LEFT HAND REAR ENGINE COMPARTMENT / LEFT HAND REAR ENGINE COMPARTMENT / LEFT HAND REAR ENGINE COMPARTMENT / ADJACENT TO LH CRUSH TUBE ENGINE COMPARTMENT / BELOW LH FAN ENGINE COMPARTMENT / BELOW RH FAN ENGINE COMPARTMENT / ADJACENT TO LH SIDE OF RADIATOR CONNECTOR ADJACENT TO HOOD LATCH CONNECTOR ADJACENT TO HOOD LATCH

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH RELAY	BROWN	EM25 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
BLOWER MOTOR RELAY - LH	BLUE	CA88 / BLUE	RH HEELBOARD RELAYS / HEELBOARD COVER
BLOWER MOTOR RELAY - RH	BLUE	CA88 / BLUE	RH HEELBOARD RELAYS / HEELBOARD COVER
DOOR MIRROR HEATER RELAY	BLUE	CA18 / BLUE	RH HEELBOARD RELAYS / HEELBOARD COVER
HEATED BACKLIGHT RELAY (#2)	BROWN	BUS	RELAY #2, TRUNK FUSE BOX / TRUNK
HEATER PUMP RELAY (#1)	BROWN	BUS	RELAY #1, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT
WINDSHIELD HEATER RELAY - LH	BLACK	SH2 / BLACK	FRONT BULKHEAD RELAYS / ENGINE COMPARTMENT
WINDSHIELD HEATER RELAY - RH	BLACK	SH3 / BLACK	FRONT BULKHEAD RELAYS / ENGINE COMPARTMENT

### HARNESSTO-HARNESSTO 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 HARNESSTO GAITER
CA12	8-WAY MULTILOCK 070 / YELLOW	PASSENGER 'A' POST / DOOR HARNESSTO 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
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
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER
LS32	4-WAY YAZAKI / GREY	FORWARD OF LH FRONT SUSPENSION ARM
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE

### GROUNDSTO

Ground	Location / Type
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA39R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CC2L	EYELET (PAIR) - DRIVE SHAFT TUNNEL GROUND STUD - LH SIDE
EM8R	EYELET (PAIR) - EMS LH GROUND STUD
EM18L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
EM18R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
IC6	EYELET (SINGLE) - TRUNK / LH FORWARD 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, HARNESSTO, GROUNDSTO, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

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.

**CONTROL MODULE PIN OUT INFORMATION**

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
I FC24-1	GROUND	GROUND	GROUND
I FC24-2	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
I FC24-6	ADAPTIVE DAMPENING WARNING	GROUND	B+
I FC24-10	TRIP CYCLE	GROUND (MOMENTARY)	
I FC24-13	'A/B' TRIP SELECT	GROUND (MOMENTARY)	
I FC24-14	'ML/KM' SELECT	GROUND (MOMENTARY)	
S FC24-19	SCP NETWORK	2 - 1600 Hz	
S FC24-20	SCP NETWORK	2 - 1600 Hz	
C FC24-23	CAN NETWORK	15 - 1500 Hz	
C FC24-24	CAN NETWORK	15 - 1500 Hz	
I FC24-25	BATTERY POWER SUPPLY	B+	B+
I FC24-26	GROUND	GROUND	GROUND
I FC24-27	ILLUMINATION SUPPLY	B+	GROUND
O FC24-33	GROUND REFERENCE	GROUND	GROUND
I FC24-35	'CLEAR' SELECT	GROUND (MOMENTARY)	
I FC24-36	'000' SELECT	GROUND (MOMENTARY)	
C FC24-47	CAN NETWORK	15 - 1500 Hz	
C FC24-48	CAN NETWORK	15 - 1500 Hz	
O FC25-3	ENGINE SPEED	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
O FC25-4	ENGINE COOLANT TEMPERATURE	6 V = 90° C	
O FC25-5	VEHICLE SPEED - A/CCM	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+	
O FC25-6	VEHICLE SPEED - PAS	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+	
O FC25-7	VEHICLE SPEED - ADAPTIVE DAMPING CONTROL MODULE	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+	
I FC25-13	FUEL LEVEL GAUGE FEEDBACK	B+ = EMPTY	0 V = FULL
O FC25-14	FUEL LEVEL GAUGE REFERENCE GROUND	GROUND	GROUND
I FC25-16	AIRBAG MIL	GROUND (DN)	B+
I FC25-19	LOW OIL PRESSURE WARNING	> 3 V = > 3 PSI	B+
O FC25-20	VEHICLE SPEED	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+	
I FC25-21	DIMMER OVERRIDE	GROUND	B+
I FC25-22	CHARGE WARNING	B+	GROUND
I FC25-23	LOW COOLANT WARNING	GROUND	B+

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

**Fig. 08.1**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
ANALOG CLOCK	FC38 / 6-WAY AMP MICRO QUADLOCK / BLACK	CENTER AIR VENT
COOLANT LEVEL SWITCH	EM55 / 2-WAY AMP JUNIOR POWER TIMER / BROWN	ENGINE COMPARTMENT / ON COOLANT RESERVOIR
FUEL LEVEL SENSOR	BT14 / LUCAR - LOCKING POSILOCK MKI BT15 / LUCAR - LOCKING POSILOCK MKI	FUEL TANK SENDER UNIT / TRUNK CARPET
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
OIL PRESSURE SWITCH	PI40 / 1-WAY ECONOSEAL EC J2 / BLACK	ENGINE BLACK / BELOW GENERATOR
TRIP COMPUTER SWITCH PACK	FC27 / 10-WAY AMP MICRO QUAD LOCK / BLACK	FASCIA
TRIP CYCLE SWITCH (COLUMN SWITCHGEAR)	SC2 / 10-WAY MULTILOCK 070 / YELLOW	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
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

**GROUNDS**

Ground	Location / Type
EM8L	EYELET (PAIR) - EMS LH GROUND STUD
FC17L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC29R	EYELET (PAIR) - LH BULKHEAD GROUND STUD / CABIN SIDE

**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.**

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
D FC15-10	SRS AUDIBLE BACKUP	ENCODED COMMUNICATIONS	
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-31	SEAT BELT SWITCH STATUS	GROUND (UNFASTENED)	B+ (FASTENED)
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
O FC15-82	AUDIBLE WARNING SPEAKER	AUDIO OUTPUT	
O FC15-83	AUDIBLE WARNING SPEAKER	AUDIO OUTPUT	
S FC15-84	SCP NETWORK	2 - 1600 Hz	
S FC15-85	SCP NETWORK	2 - 1600 Hz	
I FC15-104	BATTERY SUPPLY VOLTAGE	B+	B+

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

## Fig. 08.2

### COMPONENTS

Component	Connector / Type / Color	Location / Access
AUDIBLE WARNING SPEAKER (COLUMN SWITCHGEAR)	SC1 / 12-WAY MULTILOCK 070 / WHITE	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
SEAT BELT SWITCH	SM8-D / 2-WAY MULTILOCK 070 / BLACK	DRIVER SEAT

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA23	10-WAY MULTILOCK 070 / WHITE	BELOW DRIVER SEAT
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
SC1	12-WAY MULTILOCK 070 / WHITE	COLUMN SWITCHGEAR

### GROUNDS

Ground	Location / Type
CA25R	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26R	EYELET (PAIR) - DRIVER SEAT 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.

**CONTROL MODULE PIN OUT INFORMATION**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
O FC15-1	RH FRONT SIDE LAMP SUPPLY	B+	GROUND
O FC15-2	LH FRONT DI LAMP SUPPLY	B+ (PULSED)	GROUND
O FC15-3	RH FRONT DI LAMP SUPPLY	B+ (PULSED)	GROUND
I FC15-14	HEADLAMP MAIN BEAM REQUEST	GROUND	B+
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-16	SIDE LAMP REQUEST	GROUND	B+
O FC15-20	FRONT FOG LAMP RELAY ACTIVATE	GROUND	B+
I FC15-30	HEADLAMP FLASH REQUEST	GROUND (MOMENTARY)	B+
I FC15-38	FRONT FOG LAMP REQUEST	GROUND	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
I FC15-42	HEADLAMP DIP REQUEST	GROUND (MOMENTARY)	B+
O FC15-45	MAIN BEAM RELAY ACTIVATE	GROUND	B+
O FC15-53	LH FRONT SIDE LAMP SUPPLY	B+	GROUND
I FC15-59	HAZARD LAMP REQUEST	GROUND (MOMENTARY)	B+
I FC15-61	RH DI REQUEST	GROUND	B+
O FC15-68	DIP BEAM RELAY ACTIVATE	GROUND	B+
I FC15-79	BATTERY SUPPLY VOLTAGE	B+	B+
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 FC15-88	LH DI REQUEST	GROUND	B+
O FC15-96	HAZARD LAMP STATUS	GROUND (PULSE)	B+

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
S FC24-19	SCP NETWORK	2 - 1600 Hz	
S FC24-20	SCP NETWORK	2 - 1600 Hz	

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

**Fig. 09.1**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
CENTER CONSOLE SWITCH PACK	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
DIRECTION INDICATOR LAMP - LH FRONT	BL2 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	FRONT BUMPER - LH SIDE
DIRECTION INDICATOR LAMP - RH FRONT	BR2 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	FRONT BUMPER - RH SIDE
FOG LAMP SWITCHES	FC3 / 10-WAY AMP MICRO QUAD LOCK / NATURAL	FASCIA / OUTBOARD OF STEERING COLUMN
FOG LAMP - LH FRONT	RI 4 / 2-WAY DELPHI / PACKARD METRIPACK 280 / GREY	FRONT BUMPER - LH SIDE
FOG LAMP - RH FRONT	BR4 / 2-WAY DELPHI / PACKARD METRIPACK 280 / GREY	FRONT BUMPER - RH SIDE
LAMP UNIT - LH FRONT	LS38 / 6-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / LH FRONT
LAMP UNIT - RH FRONT	LS40 / 6-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / RH FRONT
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
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK SC2 / 10-WAY MULTILOCK 070 / YELLOW	FASCIA
LIGHTING STALK (COLUMN SWITCHGEAR)		COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
SIDE MARKER - LH FRONT	BL5 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	FRONT BUMPER - LH SIDE
SIDE MARKER - RH FRONT	BR5 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	FRONT BUMPER - RH SIDE

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
DIP BEAM RELAY	BROWN	BUS	RELAY #5, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT
FRONT FOG RELAY	BROWN	BUS	RELAY #2, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT
MAIN BEAM RELAY	BROWN	BUS	RELAY #3, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
BL1	4-WAY AUGAT 1.6 / BLACK	BEHIND LEFT HAND WHEEL ARCH LINER
BR1	4-WAY AUGAT 1.6 / BLACK	ADJACENT TO BOTTOM OF WASHER FLUID RESERVOIR
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-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
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
CC3R	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
FC17L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
LS18L	EYELET (PAIR) - LH FORWARD GROUND STUD
LS19R	EYELET (PAIR) - RH FORWARD 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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

**CONTROL MODULE PIN OUT INFORMATION**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
O FC15-1	RH FRONT SIDE LAMP SUPPLY	B+	GROUND
O FC15-2	LH FRONT DI LAMP SUPPLY	B+ (PULSED)	GROUND
O FC15-3	RH FRONT DI LAMP SUPPLY	B+ (PULSED)	GROUND
I FC15-14	HEADLAMP MAINBEAM REQUEST	GROUND	B+
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-16	SIDE LAMP REQUEST	GROUND	B+
O FC15-20	FRONT FOG LAMP RELAY ACTIVATE	GROUND	B+
O FC15-27	LH SIDE DI REPEATER LAMP SUPPLY (ROW ONLY)	B+ (PULSED)	GROUND
I FC15-30	HEADLAMP FLASH REQUEST	GROUND (MOMENTARY)	B+
I FC15-38	FRONT FOG LAMP REQUEST	GROUND	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
I FC15-42	HEADLAMP DIP REQUEST	GROUND (MOMENTARY)	B+
O FC15-45	MAIN BEAM RELAY ACTIVATE	GROUND	B+
O FC15-53	LH FRONT SIDE LAMP SUPPLY	B+	GROUND
I FC15-59	HAZARD LAMP REQUEST	GROUND (MOMENTARY)	B+
I FC15-61	RH DI REQUEST	GROUND	B+
O FC15-68	DIP BEAM RELAY ACTIVATE	GROUND	B+
I FC15-79	BATTERY SUPPLY VOLTAGE	B+	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	R+
O FC15-81	RH SIDE DI REPEATER LAMP SUPPLY (ROW ONLY)	B+ (PULSED)	GROUND
S FC15-84	SCP NETWORK	2 - 1600 Hz	
S FC15-85	SCP NETWORK	2 - 1600 Hz	
I FC15-88	LH DI REQUEST	GROUND	B+
O FC15-96	HAZARD LAMP STATUS	GROUND (PULSE)	B+

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
S FC24-19	SCP NETWORK	2 - 1600 Hz	
S FC24-20	SCP NETWORK	2 - 1600 Hz	

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

**Fig. 09.2**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
CENTER CONSOLE SWITCH PACK	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
DIRECTION INDICATOR LAMP - LH FRONT	BL2 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	FRONT BUMPER - LH SIDE
DIRECTION INDICATOR LAMP - RH FRONT	BR2 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	FRONT BUMPER - RH SIDE
FOG LAMP SWITCHES	FC3 / 10-WAY AMP MICRO QUAD LOCK / NATURAL	FASCIA / OUTBOARD OF STEERING COLUMN
HOG LAMP - LH FRONT	BL4 / 2-WAY DELPHI / PACKARD METRIPACK 280 / GREY	FRONT BUMPER - LH SIDE
FOG LAMP - RH FRONT	BR4 / 2-WAY DELPHI / PACKARD METRIPACK 280 / GREY	FRONT BUMPER - RH SIDE
FRONT LAMP UNIT - LH	LS38 / 6-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / LH FRONT
FRONT LAMP UNIT - RH	LS40 / 6-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / RH FRONT
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
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
LIGHTING STALK (COLUMN SWITCHGEAR)	FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK SC2 / 10-WAY MULTILOCK 070 / YELLOW	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
SIDE DI REPEATER - LH	LS17 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	BEHIND LEFT HAND WHEEL ARCH LINER
SIDE DI REPEATER - RH	CA80 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	BEHIND RIGHT HAND WHEEL ARCH LINER

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
DIP BEAM RELAY	BROWN	BUS	RELAY #6, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT
FRONT FOG RELAY	BROWN	BUS	RELAY #2, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT
MAIN BEAM RELAY	BROWN	BUS	RELAY #3, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
BL1	4-WAY AUGAT 1.6 / BLACK	BEHIND LEFT HAND WHEEL ARCH LINER
BR1	4-WAY AUGAT 1.6 / BLACK	ADJACENT TO BOTTOM OF WASHER FLUID RESERVOIR
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-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
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
CC3R	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
FC17L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
LS18L	EYELET (PAIR) - LH FORWARD GROUND STUD
LS19R	EYELET (PAIR) - RH FORWARD GROUND STUD

**CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)**



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

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

**CONTROL MODULE PIN OUT INFORMATION**

**Fig. 09.3**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
I	FC15-12	REAR FOG LAMP REQUEST	B+
I	FC15-15	IGNITION SWITCHED GROUND	GROUND
I	FC15-16	SIDE LAMP REQUEST	GROUND
O	FC15-28	RH TAIL LAMP SUPPLY	B+
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)
O	FC15-44	REAR FOG LAMP STATUS	GROUND
O	FC15-49	TRAILER RH DI LAMP SUPPLY	B- (PULSED)
O	FC15-50	LH DI LAMP SUPPLY	B- (PULSED)
O	FC15-54	LH TAIL LAMP SUPPLY	B+
I	FC15-59	HAZARD LAMP REQUEST	GROUND (MOMENTARY)
I	FC15-61	RH DI REQUEST	GROUND
O	FC15-75	TRAILER LH DI LAMP SUPPLY	B+ (PULSED)
O	FC15-76	RH DI LAMP SUPPLY	B+ (PULSED)
I	FC15-79	BATTERY SUPPLY VOLTAGE	B+
I	FC15-80	BATTERY SUPPLY VOLTAGE	B+
S	FC15-84	SCP NETWORK	2 - 1600 Hz
S	FC15-85	SCP NETWORK	2 - 1600 Hz
I	FC15-88	LH DI REQUEST	GROUND
O	FC15-95	SIDE MARKER & NUMBER PLATE LAMP RELAY ACTIVATE	GROUND
O	FC15-96	HAZARD LAMP STATUS	GROUND (PULSE)
I	FC15-104	BATTERY SUPPLY VOLTAGE	B+

**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

**SECURITY AND LOCKING CONTROL MODULE**

Pin	Description	Active	Inactive
O	BT1-3	RH STOP LAMP SUPPLY	B+
O	BT1-4	REAR FOG LAMP SUPPLY	B+
O	BT1-5	REVERSE LAMP SUPPLY	B+
I	BT1-6	BATTERY SUPPLY	B+
O	BT1-7	SPLIT CHARGE CONTROL	
S	BT1-8	SCP NETWORK	2 - 1600 Hz
O	BT1-9	LH STOP LAMP SUPPLY	B+
I	BT1-13	LOGIC GROUND	GROUND
I	BT1-14	LOGIC GROUND	GROUND
S	BT1-16	SCP NETWORK	2 - 1600 Hz
I	BT2-1	BRAKE SWITCH STATUS	GROUND (BRAKE ON)
I	BT2-6	TRAILER CONNECTION STATUS	GROUND (TRAILER PRESENT)

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

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CENTER CONSOLE SWITCH PACK	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
DIODE (BT40) - NUMBER PLATE	BT40 / 2-WAY DIODE MODULE ASSEMBLY	ADJACENT TO BATTERY / BATTERY COVER
FOG LAMP SWITCHES	FC3 / 10-WAY AMP MICRO QUAD LOCK / NATURAL	FASCIA / OUTBOARD OF STEERING COLUMN
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 MOUNTED STOP LAMP	CA35 / 2-WAY YAZAKI / NATURAL	BACKLIGHT
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK SC2 / 10-WAY MULTILOCK 070 / YELLOW	FASCIA
LIGHTING STALK (COLUMN SWITCHGEAR)		COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
NUMBER PLATE LAMP - LH	BT27 / 2-WAY AMP POSILOK II / BLACK	BEHIND TRUNK LID LINER
NUMBER PLATE LAMP - RH	BT26 / 2-WAY AMP POSILOK II / BLACK	BEHIND TRUNK LID LINER
REAR SIDE MARKER - LH	BT29 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	TRUNK LH SIDE / TRUNK CARPET
REAR SIDE MARKER - RH	BT31 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	TRUNK RH SIDE / TRUNK CARPET
SECURITY AND LOCKING CONTROL MODULE	BT1 / 16-WAY FORD 2.8 TIMER / BLACK BT2 / 26-WAY FORD IDC / BLACK BT6 / 1-WAY COAXIAL CONNECTOR	BELOW TRUNK FUSE BOX
TAIL LAMP UNIT - LH	BT51 / 7-WAY FRAM - FORD 2.8 TIMER / BLACK	TRUNK LH SIDE / REAR LAMP COVER
TAIL LAMP UNIT - RH	BT50 / 7-WAY FRAM - FORD 2.8 TIMER / BLACK	TRUNK RH SIDE / REAR LAMP COVER
TRAILER CONNECTOR	BT32 / 14-WAY MULTILOCK 070 / YELLOW	ABOVE TRUNK FUSE BOX

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
STOP LAMP RELAY	BROWN	BUS	RELAY #5, TRUNK FUSE BOX / TRUNK
SIDE MARKER AND NUMBER PLATE LAMP RELAY	BROWN	BUS	RELAY #3, TRUNK FUSE BOX / TRUNK

**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
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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

**GROUNDS**

Ground	Location / Type
BT20	EYELET (SINGLE) - TRUNK / RH REAR GROUND STUD
BT20	EYELET (SINGLE) - TRUNK / RH REAR GROUND STUD
BT21L	EYELET (PAIR) - TRUNK / RH REAR GROUND STUD
BT22L	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD
CA31L	EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
CC3R	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
FC17L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) - EMS 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:

<b>I</b> Input	<b>D</b> Serial and encoded communications	<b>B+</b> Battery voltage	<b>KHz</b> Frequency x 1000
<b>O</b> Output	<b>C</b> CAN (Network)	<b>V</b> Voltage (DC)	<b>MS</b> Milliseconds
<b>SG</b> Signal Ground	<b>S</b> SCP Network	<b>Hz</b> Frequency	<b>MV</b> 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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.**

**CONTROL MODULE PIN OUT INFORMATION**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
I FC15-12	REAR FOG LAMP REQUEST	GROUND	B+
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-16	SIDE LAMP REQUEST	GROUND	B+
O FC15-28	RH TAIL LAMP SUPPLY	B+	GROUND
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-44	REAR FOG LAMP STATUS	GROUND	B+
O FC15-49	TRAILER RH DI LAMP SUPPLY	B+ (PULSED)	GROUND
O FC15-50	LH DI LAMP SUPPLY	B+ (PULSED)	GROUND
O FC15-54	LH TAIL LAMP SUPPLY	B+	GROUND
I FC15-59	HAZARD LAMP REQUEST	GROUND (MOMENTARY)	B+
J FC15-61	RH DI REQUEST	GROUND	B+
O FC15-75	TRAILER LH DI LAMP SUPPLY	B+ (PULSED)	GROUND
O FC15-76	RH DI LAMP SUPPLY	B+ (PULSED)	GROUND
I FC15-79	BATTERY SUPPLY VOLTAGE	B+	B+
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 FC15-88	LH DI REQUEST	GROUND	B+
O FC15-95	SIDE MARKER & NUMBER PLATE LAMP RELAY ACTIVATE	GROUND	B+
O FC15-96	HAZARD LAMP STATUS	GROUND (PULSE)	B+
I FC15-104	BATTERY SUPPLY VOLTAGE	B+	B+

**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	

**SECURITY AND LOCKING CONTROL MODULE**

Pin	Description	Active	Inactive
O BT1-3	RH STOP LAMP SUPPLY	B+	GROUND
O BT1-4	REAR FOG LAMP SUPPLY	B+	GROUND
O BT1-5	REVERSE LAMP SUPPLY	B+	GROUND
I BT1-6	BATTERY SUPPLY	B+	B+
O BT1-7	SPLIT CHARGE CONTROL		
S BT1-8	SCP NETWORK	2 - 1600 Hz	
O BT1-9	LH STOP LAMP SUPPLY	B+	GROUND
I BT1-13	LOGIC GROUND	GROUND	GROUND
I BT1-14	LOGIC GROUND	GROUND	GROUND
S BT1-16	SCP NETWORK	2 - 1600 Hz	
I BT2-1	BRAKE SWITCH STATUS	GROUND (BRAKE ON)	B+
I BT2-6	TRAILER CONNECTION STATUS	GROUND (TRAILER PRESENT)	B+ (NO TRAILER)

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

**Fig. 09.4**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
CENTER CONSOLE SWITCH PACK	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
DIODE (BT40) - NUMBER PLATE	BT40 / 2-WAY DIODE MODULE ASSEMBLY	ADJACENT TO BATTERY / BATTERY COVER
FOG LAMP SWITCHES	FC3 / 10-WAY AMP MICRO QUAD LOCK / NATURAL	FASCIA / OUTBOARD OF STEERING COLUMN
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 BT84 / EYELET	TRUNK ELECTRICAL CARRIER
HIGH MOUNTED STOP LAMP	CA35 / 2-WAY YAZAKI / NATURAL	BACKLIGHT
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
LIGHTING STALK (COLUMN SWITCHGEAR)	SC2 / 10-WAY MULTILOCK 070 / YELLOW	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
NUMBER PLATE LAMP - LH	BT27 / 2-WAY AMP POSILOK II / BLACK	BEHIND TRUNK LID LINER
NUMBER PLATE LAMP - RH	BT26 / 2-WAY AMP POSILOK II / BLACK	BEHIND TRUNK LID LINER
SECURITY AND LOCKING CONTROL MODULE	BT1 / 16-WAY FORD 2.8 TIMER / BLACK BT2 / 26-WAY FORD IDC / BLACK BT6 / 1-WAY COAXIAL CONNECTOR	BELOW TRUNK FUSE BOX
TAIL LAMP UNIT - LH	BT51 / 7-WAY FRAM - FORD 2.8 TIMER / BLACK	TRUNK LH SIDE / REAR LAMP COVER
TAIL LAMP UNIT - RH	BT50 / 7-WAY FRAM - FORD 2.8 TIMER / BLACK	TRUNK RH SIDE / REAR LAMP COVER
TRAILER CONNECTOR	BT32 / 14-WAY MULTILOCK 070 / YELLOW	ABOVE TRUNK FUSE BOX

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
STOP LAMP RELAY	BROWN	BUS	RELAY #5, TRUNK FUSE BOX / TRUNK
SIDE MARKER AND NUMBER PLATE LAMP RELAY	BROWN	BUS	RELAY #3, TRUNK FUSE BOX / TRUNK

**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
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
FC7	26-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

**GROUNDS**

Ground	Location / Type
BT20	EYELET (SINGLE) - TRUNK / RH REAR GROUND STUD
BT20	EYELET (SINGLE) - TRUNK / RH REAR GROUND STUD
BT21L	EYELET (PAIR) - TRUNK / RH REAR GROUND STUD
BT22L	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD
CA31L	EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
CC3R	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
FC17L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) - EMS 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:

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

**Fig. 09.5****COMPONENTS**

<b>Component</b>	<b>Connector / Type / Color</b>	<b>Location / Access</b>
HEADLAMP LEVELING ACTUATOR - LH	LF41 / 3-WAY REINSHAGEN / BLACK	ENGINE COMPARTMENT / LH HEADLAMP
HEADLAMP LEVELING ACTUATOR - RH	LF42 / 3-WAY REINSHAGEN / BLACK	ENGINE COMPARTMENT / RH HEADLAMP
HEADLAMP LEVELING SWITCH (FASCIA SWITCH PACK)	FC14 / 6-WAY JAE IL-AG5 / GREEN	FASCIA SWITCH PACK

**HARNESSTO-HARNESSTO CONNECTORS**

<b>Connector</b>	<b>Type / Color</b>	<b>Location / Access</b>
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER

**GROUNDS**

<b>Ground</b>	<b>Location / Type</b>
FC17L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
LS18L	EYELET (PAIR) - LH FORWARD GROUND STUD
LS19R	EYELET (PAIR) - RH FORWARD 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

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I DD10-1	BATTERY POWER SUPPLY	B+	B+
I DD10-8	LOGIC GROUND	GROUND	GROUND
S DD10-9	SCP NETWORK	2 - 1600 Hz	
O DD10-14	DRIVER DOOR PUDDLE LAMP SUPPLY	B+	GROUND
S DD10-16	SCP NETWORK	2 - 1600 Hz	
I DD10-17	POWER GROUND	GROUND	GROUND
I DD11-4	DRIVER DOOR LOCK BARREL UNLOCK REQUEST	B+ (MOMENTARY)	GROUND
I DD11-12	DRIVER DOOR LOCK BARREL LOCK REQUEST	B+ (MOMENTARY)	GROUND
I DD11-20	DRIVER DOOR SWITCH	GROUND (DOOR OPEN)	B+

### DRIVER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RD10-1	BATTERY POWER SUPPLY	B+	B+
I RD10-8	LOGIC GROUND	GROUND	GROUND
S RD10-9	SCP NETWORK	2 - 1600 Hz	
O RD10-14	PASSENGER DOOR PUDDLE LAMP SUPPLY	B+ (LIGHT ON)	GROUND
S RD10-16	SCP NETWORK	2 - 1600 Hz	
I RD10-17	POWER GROUND	GROUND	GROUND
I RD11-20	DRIVER REAR DOOR SWITCH	GROUND (DOOR OPEN)	B+

### PASSENGER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I PD10-1	BATTERY POWER SUPPLY	B+	B+
I PD10-8	LOGIC GROUND	GROUND	GROUND
S PD10-9	SCP NETWORK	2 - 1600 Hz	
O PD10-14	PASSENGER DOOR PUDDLE LAMP SUPPLY	B+ (LIGHT ON)	GROUND
S PD10-16	SCP NETWORK	2 - 1600 Hz	
I PD10-17	POWER GROUND	GROUND	GROUND
I PD11-20	PASSENGER DOOR SWITCH	GROUND (DOOR OPEN)	B+

### PASSENGER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RP10-1	BATTERY POWER SUPPLY	B+	B+
I RP10-8	LOGIC GROUND	GROUND	GROUND
S RP10-9	SCP NETWORK	2 - 1600 Hz	
O RP10-14	PASSENGER DOOR PUDDLE LAMP SUPPLY	B+ (LIGHT ON)	GROUND
S RP10-16	SCP NETWORK	2 - 1600 Hz	
I RP10-17	POWER GROUND	GROUND	GROUND
I RP11-20	PASSENGER REAR DOOR SWITCH	GROUND (DOOR OPEN)	B+

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-24	COURTESY LAMP SUPPLY	B+	GROUND
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-57	COURTESY LAMP ACTIVATE REQUEST	GROUND (MOMENTARY)	B+
I FC15-67	KEY IN IGNITION	GROUND (KEY IN)	B+ (KEY OUT)
O FC15-74	COURTESY LAMP SUPPLY	B+	GROUND
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
S FC15-84	SCP NETWORK	2 - 1600 Hz	
S FC15-85	SCP NETWORK	2 - 1600 Hz	
O FC15-101	ILLUMINATION BATTERY SUPPLY VOLTAGE	B+	B+
I FC15-104	BATTERY SUPPLY VOLTAGE	B+	B+

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. 10.1

## COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER	PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER REAR	RP10 / 22-WAY FORD 2.8 TIMER / BLUE RP11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK SWITCHES - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - DRIVER REAR	RD3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - PASSENGER	PD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - PASSENGER REAR	RP3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
'E' POST LAMP - LH	IC4 / 4-WAY MULTILOCK 040 / BLACK	LH 'E' POST / 'E' POST TRIM
'E' POST LAMP - RH	CA5 / 4-WAY MULTILOCK 040 / BLACK	RH 'E' POST / 'E' POST TRIM
GARAGE DOOR OPENER	CA53 / 8-WAY MULTILOCK 040 / BLACK	ROOF CONSOLE
GLOVE BOX LAMP	FC33 / LUCAR - STRAIGHT - 2.8 FC34 / LUCAR - STRAIGHT - 2.8	GLOVE BOX
IGNITION SWITCH (KEY-IN SWITCH)	FC4 / 6-WAY MULTILOCK 070 / WHITE	STEERING COLUMN
PUDDLE LAMP - DRIVER REAR DOOR	RD14 / 2-WAY AMP JUNIOR TIMER / BLACK	DOOR CASING / TRIM PANEL
PUDDLE LAMP - DRIVER DOOR	DD14 / 2-WAY AMP JUNIOR TIMER / BLACK	DOOR CASING / TRIM PANEL
PUDDLE LAMP - DRIVER PASSENGER	PD14 / 2-WAY AMP JUNIOR TIMER / BLACK	DOOR CASING / TRIM PANEL
PUDDLE LAMP - PASSENGER REAR DOOR	RP14 / 2-WAY AMP JUNIOR TIMER / BLACK	DOOR CASING / TRIM PANEL
TRUNK LAMP - LH	BT46 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	TRUNK LH SIDE / TRUNK CARPET
TRUNK LAMP - RH	BT47 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	TRUNK RH SIDE / TRUNK CARPET
TRUNK SWITCH	BT41 / 2-WAY AUGAT 1.6 / BLACK	BEHIND TRUNK LID LINER
VANITY LAMP - LH	CA69 / 2-WAY MULTILOCK 070 / WHITE	LH SUN VISOR
VANITY LAMP - RH	CA70 / 2-WAY MULTILOCK 070 / WHITE	RH SUN VISOR

## HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER '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
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

## GROUNDS

Ground	Location / Type
CA30L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA31L	EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA36R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
FC17L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC29L	EYELET (PAIR) - LH BULKHEAD GROUND STUD / CABIN SIDE
IC20	EYELET (SINGLE) - TRUNK / LH FORWARD GROUND STUD

## CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)



## CONTROL MODULE PIN OUT INFORMATION

### DIMMER MODULE

Pin	Description	Active	Inactive
FC23-1	INSTRUMENT PACK ILLUMINATION BULB SUPPLY	B+ (LIGHTS ON)	GROUND
FC23-2	INSTRUMENT PACK ILLUMINATION BULB SUPPLY	B+ (LIGHTS ON)	GROUND
FC23-3	IGNITION SWITCHED GROUND SUPPLY	GROUND	
FC23-4	SIDE LAMPS ON REQUEST	GROUND	
FC23-5	DIMMER POTENTIOMETER FEEDBACK VOLTAGE	1.3 V – DIM; 4 V – BRIGHT	
FC23-6	DIMMER POTENTIOMETER REFERENCE GROUND	GROUND	GROUND
FC23-7	GENERAL ILLUMINATION BULB SUPPLY	B+ (LIGHTS ON)	GROUND
FC23-8	GENERAL ILLUMINATION BULB SUPPLY	B+ (LIGHTS ON)	GROUND
FC23-9	GROUND SUPPLY	GROUND	GROUND
FC23-10	BATTERY POWER SUPPLY	B+	B+
FC23-11	BATTERY POWER SUPPLY	B+	B+
FC23-12	DIMMER POTENTIOMETER REFERENCE VOLTAGE	4 V	0 V

### INSTRUMENT PACK

Pin	Description	Active	Inactive
FC24-26	GROUND	GROUND	GROUND
FC24-27	ILLUMINATION SUPPLY	B+	GROUND
FC25-21	DIMMER OVERRIDE	GROUND	B+

## Fig. 10.2

### COMPONENTS

Component	Connector / Type / Color	Location / Access
AIR CONDITIONING CONTROL PANEL	CC27 / 12-WAY MULTILOCK 040 / BLUE	CENTER CONSOLE
CENTER CONSOLE SWITCH PACK	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
CIGAR LIGHTER – FRONT	CA74 / 3-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
CIGAR LIGHTER – REAR	CA75 / 2-WAY CIGAR LIGHTER / YELLOW CA76 / LUCAR – LOCKING POSILOCK MKI	REAR CENTER CONSOLE VENT
ANALOG CLOCK	FC38 / 6-WAY AMP MICRO QUADLOCK / BLACK	CENTER AIR VENT
CRUISE CONTROL ON / OFF SWITCH	CC20 / 10-WAY AMP MICRO QUAD LOCK / NATURAL	CENTER CONSOLE ASSEMBLY
DIMMER CONTROL	SC11 / 6-WAY MULTILOCK 070 / WHITE	COLUMN SWITCHGEAR
DIMMER MODULE	FC23 / 12-WAY MULTILOCK 040 / BLACK	BELOW INSTRUMENT PACK
FASCIA SWITCH PACK	FC14 / 6-WAY JAE IL-AG6 / GREEN	FASCIA SWITCH PACK
FOG LAMP SWITCHES	FC3 / 10-WAY AMP MICRO QUAD LOCK / NATURAL	FASCIA / OUTBOARD OF STEERING COLUMN
GEAR SELECTOR ILLUMINATION MODULE	CC14 / 10-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
LIGHTING STALK (COLUMN SWITCHGEAR)	SC2 / 10-WAY MULTILOCK 070 / YELLOW	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
MODE SWITCH (TRANSMISSION)	CC4 / 10-WAY AMP MICRO QUAD LOCK / BLACK	CENTER CONSOLE ASSEMBLY
RADIO / CASSETTE HEAD UNIT	CA3 / COAXIAL CONNECTOR IC10 / 20-WAY MULTILOCK 070 / WHITE IC19 / CD AUTOCHANGER DATA CABLE	CENTER CONSOLE
ROOF CONSOLE	CA53 / 8-WAY MULTILOCK 040 / BLACK	ROOF CONSOLE
SPLICE HEADER – CA224	CA224 / 20-WAY SUMITOMO SPLICE HEADER / GREEN	LH HEELBOARD / HEELBOARD COVER
SWITCH PACK – DRIVER DOOR	DD1 / 26-WAY MOS-26 / YELLOW	DOOR TRIM PANEL
SWITCH PACK – DRIVER REAR DOOR	RD1 / 5-WAY LAG / GREEN	DOOR TRIM PANEL
SWITCH PACK – PASSENGER DOOR	PD1 / 26-WAY MOS-26 / YELLOW	DOOR TRIM PANEL
SWITCH PACK – PASSENGER REAR DOOR	RP1 / 5-WAY LAG / GREEN	DOOR TRIM PANEL
TRIP COMPUTER SWITCH PACK	FC27 / 10-WAY AMP MICRO QUAD LOCK / BLACK	FASCIA

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	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
CA27	10-WAY MULTILOCK 070 / WHITE	BELOW PASSENGER SEAT
CA45	6-WAY MULTILOCK 070 / WHITE	PASSENGER 'B/C' POST / DOOR HARNESS GAITER
CA46	4-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
SC3	12-WAY MULTILOCK 070 / GREY	ADJACENT TO STEERING COLUMN MOTOR
SM25-P	10-WAY MULTILOCK 070 / WHITE	BEHIND PASSENGER SEAT BACK FINISHER

### GROUNDS

Ground	Location / Type
CA30L	EYELET (PAIR) – LH 'A' POST GROUND SCREW
CA33L	EYELET (PAIR) – RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) – LH 'A' POST GROUND SCREW
CA47L	EYELET (PAIR) – DRIVE SHAFT TUNNEL GROUND STUD – RH SIDE
CA47R	EYELET (PAIR) – DRIVE SHAFT TUNNEL GROUND STUD – RH SIDE
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
FC17R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
FC29L	EYELET (PAIR) – LH BULKHEAD GROUND STUD / CABIN SIDE
FC29R	EYELET (PAIR) – LH BULKHEAD GROUND STUD / CABIN SIDE

### 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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

**CONTROL MODULE PIN OUT INFORMATION**

**POWER ASSISTED STEERING CONTROL MODULE**

Pin	Description	Active	Inactive
O CA32-2	TRANSDUCER NEGATIVE	2 V @ IDLE DECREASING WITH VEHICLE SPEED	
I CA32-4	VEHICLE SPEED	B+ @ 10 MPH (16 KM/H) = 20 Hz, 20 MPH (32 KM/H) = 40 Hz	
O CA32-5	TRANSDUCER POSITIVE	9 V @ IDLE INCREASING WITH VEHICLE SPEED	
I CA32-6	IGNITION SWITCHED POWER SUPPLY	B+	0 V
I CA32-8	GROUND	0 V	0 V

**Fig. 11.1**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
POWER ASSISTED STEERING CONTROL MODULE	CA32 / 9-WAY RISTS / BLACK / RED	LOWER LH 'A' POST / LOWER 'A' POST FINISHER
VARIABLE STEERING CONVERTER	LL3 / 2-WAY AMP JUNIOR POWER TIMER / NATURAL	STEERING RACK / CONTROL VALVE

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
LL2	2-WAY AUGAT 1.6 / BLACK	BELOW CHASSIS RAIL / LH SIDE
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER

**GROUNDS**

Ground	Location / Type
CA30L	EYELET (PAIR) - LH 'A' POST GROUND SCREW

**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, HARNESES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-11	AUTO TILT REQUEST	GROUND	B+
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-25	GROUND SUPPLY	GROUND	GROUND
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-40	COLUMN MOTOR POTENTIOMETER REFERENCE VOLTAGE	5V	
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-52	COLUMN REACH MOTOR SUPPLY	B+	GROUND
I FC15-58	NOT IN PARK MICROSWITCH STATUS	GROUND (PARK)	B+ (NOT IN PARK)
I FC15-66	COLUMN REACH MOTOR POTENTIOMETER FEEDBACK	0.5 V = OUT, 4 V = IN	
I FC15-67	KEY IN IGNITION	GROUND (KEY IN)	B+ (KEY OUT)
O FC15-78	COLUMN REACH MOTOR SUPPLY	B+	GROUND
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 FC15-87	COLUMN MOVEMENT REQUEST	UP = 10.1V, DOWN = 12.1V, RETRACT = 8.5V, EXTEND = 6.8V	
O FC15-90	COLUMN TILT MOTOR POTENTIOMETER REFERENCE GROUND	GROUND	GROUND
O FC15-91	COLUMN REACH MOTOR POTENTIOMETER REFERENCE GROUND	GROUND	GROUND
I FC15-93	COLUMN TILT MOTOR POTENTIOMETER FEEDBACK	UP = 4V, DOWN = 0.5V	
O FC15-99	COLUMN TILT MOTOR SUPPLY	B+	GROUND
O FC15-100	COLUMN TILT MOTOR SUPPLY	B+	GROUND
I FC15-102	BATTERY SUPPLY VOLTAGE	B+	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I DD10-1	BATTERY POWER SUPPLY	B+	B+
I DD10-8	LOGIC GROUND	GROUND	GROUND
S DD10-9	SCP NETWORK	2 - 1600 Hz	
S DD10-16	SCP NETWORK	2 - 1600 Hz	
O DD11-2	SEAT MEMORY STATUS LED	GROUND (LED ON)	B+
I DD11-20	DRIVER DOOR SWITCH	GROUND (DOOR OPEN)	B+

### DRIVER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RD10-1	BATTERY POWER SUPPLY	B+	B+
I RD10-8	LOGIC GROUND	GROUND	GROUND
S RD10-9	SCP NETWORK	2 - 1600 Hz	
S RD10-16	SCP NETWORK	2 - 1600 Hz	
I RD10-19	MODULE IDENTIFICATION	GROUND	GROUND
I RD11-5	MEMORY 1	B+	GROUND
I RD11-7	MODULE IDENTIFICATION	GROUND	GROUND
I RD11-13	MEMORY SET	B+	GROUND
I RD11-15	MEMORY 3	B+	GROUND
I RD11-22	MEMORY 2	B+	GROUND

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

Fig. 11.2

### COMPONENTS

Component	Connector / Type / Color	Location / Access
AUTO TILT SWITCH (COLUMN SWITCHGEAR)	SC9 / 8-WAY GROTE AND HARTMAN MDK / BLACK	COLUMN SWITCHGEAR
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
COLUMN JOYSTICK (COLUMN SWITCHGEAR)	SC9 / 8-WAY GROTE AND HARTMAN MDK / BLACK	COLUMN SWITCHGEAR
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
IGNITION SWITCH (KEY-IN SWITCH)	FC4 / 8-WAY MULTILOCK 070 / WHITE	STEERING COLUMN
MEMORY SWITCHES (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
NOT-IN-PARK MICROSWITCH	CC13 / 3-WAY MULTILOCK 070 / YELLOW	CENTER CONSOLE ASSEMBLY
STEERING COLUMN MOTORS	FC49 / 6-WAY MULTILOCK 070 / WHITE FC50 / 8-WAY MULTILOCK 070 / YELLOW	STEERING COLUMN

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA13	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA14	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDS

Ground	Location / Type
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
FC17L	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
H-C17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC29L	EYELET (PAIR) - LH BULKHEAD GROUND STUD / CABIN SIDE

### 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.

## 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+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
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	B+
S FC15-85	SCP NETWORK	2 - 1600 Hz	B+
O FC15-101	ILLUMINATION BATTERY SUPPLY VOLTAGE	B+	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I DD10-1	BATTERY POWER SUPPLY	B+	B+
O DD10-2	DRIVER DOOR MIRROR VERTICAL / HORIZONTAL MOTOR COMMON SUPPLY	B+ = LEFT / DOWN; GROUND = RIGHT / UP	B+
O DD10-3	DRIVER DOOR MIRROR HORIZONTAL MOVEMENT MOTOR	B+ = RIGHT	B+
O DD10-4	DRIVER DOOR MIRROR VERTICAL MOVEMENT MOTOR	B+ = UP	B+
I DD10-8	LOGIC GROUND	GROUND	GROUND = LEFT GROUND = DOWN GROUND
S DD10-9	SCP NETWORK	2 - 1600 Hz	B+
S DD10-16	SCP NETWORK	2 - 1600 Hz	B+
I DD10-17	POWER GROUND	GROUND	B+
O DD10-20	DRIVER DOOR MIRROR POTENTIOMETER COMMON REFERENCE VOLTAGE	B+	B+
I DD10-21	DRIVER DOOR MIRROR POTENTIOMETER HORIZONTAL POSITION FEEDBACK	1 V = LEFT; 8 V = RIGHT	B+
I DD10-22	DRIVER DOOR MIRROR POTENTIOMETER VERTICAL POSITION FEEDBACK	1 V = DOWN; 8 V = UP	B+
I DD11-1	MIRROR COMMON GROUND	GROUND	GROUND
O DD11-2	SEAT MEMORY STATUS LED	GROUND (LED ON)	B+
I DD11-3	LH VERTICAL MOVEMENT REQUEST	B+ = DOWN	B+
I DD11-5	PASSENGER MIRROR SELECT	B+	B+
I DD11-9	RH VERTICAL MOVEMENT REQUEST	B+ = DOWN	B+
I DD11-10	LH HORIZONTAL MOVEMENT REQUEST	B+ = LEFT	B+
I DD11-13	DRIVER MIRROR SELECT	B+	B+
I DD11-17	RH HORIZONTAL MOVEMENT REQUEST	B+ = LEFT	B+
I DD11-20	DRIVER DOOR SWITCH	GROUND (DOOR OPEN)	B+

### DRIVER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RD10-1	BATTERY POWER SUPPLY	B+	B+
I RD10-8	LOGIC GROUND	GROUND	B+
S RD10-9	SCP NETWORK	2 - 1600 Hz	B+
S RD10-16	SCP NETWORK	2 - 1600 Hz	B+
I RD10-19	MODULE IDENTIFICATION	GROUND	B+
I RD11-5	MEMORY 1	B+	B+
I RD11-7	MODULE IDENTIFICATION	GROUND	B+
I RD11-13	MEMORY SET	B+	B+
I RD11-15	MEMORY 3	B+	B+
I RD11-22	MEMORY 2	B+	B+

### INSTRUMENT PACK

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

### PASSENGER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I PD10-1	BATTERY POWER SUPPLY	B+	B+
O PD10-2	PASSENGER DOOR MIRROR VERTICAL / HORIZONTAL MOVEMENT MOTORS COMMON	B+ = LEFT / DOWN	B+
O PD10-3	PASSENGER DOOR MIRROR HORIZONTAL MOVEMENT MOTOR	B+ = RIGHT	B+
O PD10-4	PASSENGER DOOR MIRROR VERTICAL MOVEMENT MOTOR	B+ = UP	B+
I PD10-8	LOGIC GROUND	GROUND	B+
S PD10-9	SCP NETWORK	2 - 1600 Hz	B+
S PD10-16	SCP NETWORK	2 - 1600 Hz	B+
I PD10-17	POWER GROUND	GROUND	B+
O PD10-20	PASSENGER DOOR MIRROR POTENTIOMETER COMMON REFERENCE VOLTAGE	B+	B+
I PD10-21	PASSENGER DOOR MIRROR POTENTIOMETER HORIZONTAL POSITION FEEDBACK VOLTAGE	1 V = LEFT; 8 V = RIGHT	B+
I PD10-22	PASSENGER DOOR MIRROR POTENTIOMETER VERTICAL POSITION FEEDBACK VOLTAGE	1 V = DOWN; 8 V = UP	B+

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. 11.3

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER	PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR MIRROR MOTORS - DRIVER	DD8 / 12-WAY MULTILOCK 040 / BLACK	DRIVER DOOR
DOOR MIRROR MOTORS - PASSENGER	PD8 / 12-WAY MULTILOCK 040 / BLACK	PASSENGER DOOR
DOOR SWITCH - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK DD1 / 26-WAY MOS-26 / YELLOW	FASCIA DOOR TRIM PANEL
MEMORY SWITCHES (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
MIRROR JOYSTICK (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
MIRROR SELECT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
NOT-IN-PARK MICROSWITCH	CC13 / 3-WAY MULTILOCK 070 / YELLOW	CENTER CONSOLE ASSEMBLY

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA12	8-WAY MULTILOCK 070 / YELLOW	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA13	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA14	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDS

Ground	Location / Type
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE

### CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)



## 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+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
S FC15-84	SCP NETWORK	2 - 1600 Hz	
S FC15-85	SCP NETWORK	2 - 1600 Hz	
O FC15-101	ILLUMINATION BATTERY SUPPLY VOLTAGE	B+	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I DD10-1	BATTERY POWER SUPPLY	B+	
O DD10-2	DRIVER DOOR MIRROR VERTICAL / HORIZONTAL MOTOR COMMON SUPPLY	B+ = LEFT / DOWN; GROUND = RIGHT / UP	
O DD10-3	DRIVER DOOR MIRROR HORIZONTAL MOVEMENT MOTOR	B+ = RIGHT	GROUND = LEFT
O DD10-4	DRIVER DOOR MIRROR VERTICAL MOVEMENT MOTOR	B+ = UP	GROUND = DOWN
I DD10-8	LOGIC GROUND	GROUND	GROUND
S DD10-9	SCP NETWORK	2 - 1600 Hz	
S DD10-16	SCP NETWORK	2 - 1600 Hz	
I DD10-17	POWER GROUND	GROUND	GROUND
I DD11-1	MIRROR COMMON GROUND	GROUND	GROUND
I DD11-3	LH VERTICAL MOVEMENT REQUEST	B+ = DOWN	GROUND = UP
I DD11-5	PASSENGER MIRROR SELECT	B+	GROUND
I DD11-9	RH VERTICAL MOVEMENT REQUEST	B+ = DOWN	GROUND = UP
I DD11-10	LH HORIZONTAL MOVEMENT REQUEST	B+ = LEFT	GROUND = RIGHT
I DD11-13	DRIVER MIRROR SELECT	B+	GROUND
I DD11-17	RH HORIZONTAL MOVEMENT REQUEST	B+ = LEFT	GROUND = RIGHT

### PASSENGER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I PD10-1	BATTERY POWER SUPPLY	B+	
O PD10-2	PASSENGER DOOR MIRROR VERTICAL / HORIZONTAL MOVEMENT MOTORS COMMON	B+ = LEFT / DOWN	GROUND = RIGHT / UP
O PD10-3	PASSENGER DOOR MIRROR HORIZONTAL MOVEMENT MOTOR	B+ = RIGHT	GROUND
O PD10-4	PASSENGER DOOR MIRROR VERTICAL MOVEMENT MOTOR	B+ = UP	GROUND
I PD10-8	LOGIC GROUND	GROUND	GROUND
S PD10-9	SCP NETWORK	2 - 1600 Hz	
S PD10-16	SCP NETWORK	2 - 1600 Hz	
I PD10-17	POWER GROUND	GROUND	GROUND

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

Fig. 11.4

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER	PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR MIRROR MOTORS - DRIVER	DD8 / 12-WAY MULTILOCK 040 / BLACK	DRIVER DOOR
DOOR MIRROR MOTORS - PASSENGER	PD8 / 12-WAY MULTILOCK 040 / BLACK	PASSENGER DOOR
MIRROR JOYSTICK (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
MIRROR SELECT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA12	8-WAY MULTILOCK 070 / YELLOW	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA13	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA14	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
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

### GROUNDS

Ground	Location / Type
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW

### 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.

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-16	SIDE LAMP REQUEST	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-42	HEADLAMP DIP REQUEST	GROUND (MOMENTARY)	B+
O FC15-72	MIRROR FOLDBACK RELAY ACTIVATE	GROUND	B+
O FC15-77	MIRROR FOLD OUT RELAY ACTIVATE	GROUND	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
S FC15-84	SCP NETWORK	2 - 1600 Hz	B+
S FC15-86	SCP NETWORK	2 - 1600 Hz	B+
O FC15-101	ILLUMINATION BATTERY SUPPLY VOLTAGE	B+	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I DD10-1	BATTERY POWER SUPPLY	B+	B+
I DD10-8	LOGIC GROUND	GROUND	GROUND
S DD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
S DD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I DD10-17	POWER GROUND	GROUND	GROUND
I DD11-1	MIRROR COMMON GROUND	GROUND	GROUND
I DD11-3	FOLD-BACK REQUEST	B+ = DOWN	GROUND = UP
I DD11-5	PASSENGER MIRROR SELECT	B+	GROUND
I DD11-9	FOLD-OUT REQUEST	B+ = DOWN	GROUND = UP
I DD11-10	LH HORIZONTAL MOVEMENT REQUEST	B+ = LEFT	GROUND = RIGHT
I DD11-13	DRIVER MIRROR SELECT	B+	GROUND
I DD11-17	RH HORIZONTAL MOVEMENT REQUEST	B+ = LEFT	GROUND = RIGHT

### 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.

**Fig. 11.5**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR MIRROR - DRIVER	DD8 / 12-WAY MULTILOCK 040 / BLACK	DRIVER DOOR
DOOR MIRROR - PASSENGER	PD8 / 12-WAY MULTILOCK 040 / BLACK	PASSENGER DOOR
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
INTERIOR REAR VIEW MIRROR	CA55 / 6-WAY MULTILOCK 070 / YELLOW	WINDSHIELD / IN FRONT OF ROOF CONSOLE
LIGHTING STALK (COLUMN SWITCHGEAR)	SC2 / 10-WAY MULTILOCK 070 / YELLOW	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
MIRROR JOYSTICK (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
MIRROR SELECT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
SPLICE HEADER - CA224	CA224 / 20-WAY SUMITOMO SPLICE HEADER / GREEN	LH HEELBOARD / HEELBOARD COVER

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
FOLD-BACK RELAY	VIOLET	CA60 / VIOLET	LH HEELBOARD RELAYS / HEELBOARD COVER
FOLD-OUT RELAY	VIOLET	CA60 / VIOLET	LH HEELBOARD RELAYS / 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
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / DOOR HARNESS GAITER
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

### GROUNDS

Ground	Location / Type
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA38R	EYELET (PAIR) - LH HEELBOARD POST GROUND SCREW
FC17R	EYELET (PAIR) - EMS 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, HARNESES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

**CONTROL MODULE PIN OUT INFORMATION**

**ADAPTIVE DAMPING CONTROL MODULE**

Pin	Description	Active	Inactive
O EM68-1	INSTRUMENT PACK ADAPTIVE DAMPENING MIL	GROUND	B+
O EM68-3	ACCELEROMETER COMMON GROUND SUPPLY	GROUND	GROUND
D EM68-10	SERIAL COMMUNICATIONS		
I EM68-11	IGNITION SWITCHED POWER SUPPLY	B+	GROUND
O EM68-13	LH REAR DAMPER BATTERY POWER SUPPLY	B+	B+
O EM68-14	RH FRONT DAMPER BATTERY POWER SUPPLY	B+	B+
O EM68-15	RH REAR DAMPER BATTERY POWER SUPPLY	B+	B+
I EM68-18	GROUND	GROUND	GROUND
I EM68-20	FRONT LATERAL ACCELEROMETER FEEDBACK	< 0.2 V OR > 4.8 V	2.3 – 2.7 V = HARD
I EM68-21	FRONT VERTICAL ACCELEROMETER FEEDBACK	< 0.2 V OR > 4.8 V	2.3 – 2.7 V = HARD
I EM68-22	REAR VERTICAL ACCELEROMETER FEEDBACK	< 0.2 V OR > 4.8 V	2.3 – 2.7 V = HARD
I EM68-24	VEHICLE SPEED SIGNAL	22 Hz @ 10 MPH (16 KM / H); 44 Hz @ 20 MPH (32 KM / H) @ B+	
O EM68-25	ACCELEROMETER COMMON VOLTAGE SUPPLY	5 V	5 V
I EM68-26	BRAKE SWITCH	GROUND	B+
I EM68-27	BATTERY POWER SUPPLY	B+	B+
D EM68-28	SERIAL COMMUNICATIONS		
O EM68-30	LH FRONT DAMPER BATTERY POWER SUPPLY	B+	B+
O EM68-31	LH FRONT DAMPER	GROUND	B+
O EM68-32	LH REAR DAMPER	GROUND	B+
O EM68-33	RH FRONT DAMPER	GROUND	B+
O EM68-34	RH REAR DAMPER	GROUND	B+

**Fig. 11.6**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
ACCELEROMETER – FRONT LATERAL	EM28 / 3-WAY AMP MICRO QUAD LOCK / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ACCELEROMETER – FRONT VERTICAL	EM4 / 3-WAY AMP MICRO QUAD LOCK / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ACCELEROMETER – REAR VERTICAL	BT7 / 3-WAY AMP MICRO QUAD LOCK / BLACK	BELOW FUEL TANK / TRUNK CARPET
ADAPTIVE DAMPING CONTROL MODULE	EM68 / 35-WAY AMP JUNIOR POWER TIMER / BLACK	ADJACENT TO PASSENGER SIDE BLOWER / GLOVE BOX ASSEMBLY
BRAKE SWITCH	CC40 / 4-WAY MULTILOCK 070 / WHITE	ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY
DAMPER SOLENOID – LH FRONT	EM64 / 2-WAY DELPHI / REINSHAGEN / BLACK	ENGINE COMPARTMENT / LEFT HAND SIDE
DAMPER SOLENOID – LH REAR	LA1 / 2-WAY DELPHI / REINSHAGEN / BLACK	REAR AXLE / LH REAR DAMPER SOLENOID
DAMPER SOLENOID – RH FRONT	EM65 / 2-WAY DELPHI / REINSHAGEN / BLACK	ENGINE COMPARTMENT / RIGHT HAND SIDE
DAMPER SOLENOID – RH REAR	RA1 / 2-WAY DELPHI / REINSHAGEN / BLACK	REAR AXLE / RH REAR DAMPER SOLENOID

**HARNESSTO-HARNESSTO CONNECTORS**

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
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
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
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
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER

**GROUNDS**

Ground	Location / Type
FM17	EYELET (SINGLE) – EMS 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.



## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-16	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
S FC15-84	SCP NETWORK	2 - 1600 Hz	B+
S FC15-85	SCP NETWORK	2 - 1600 Hz	B+
I FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I DD10-1	BATTERY POWER SUPPLY	B+	B+
I DD10-8	LOGIC GROUND	GROUND	B+
S DD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
S DD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
O DD11-2	SEAT MEMORY STATUS LED	GROUND (LED ON)	B+

### DRIVER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RD10-1	BATTERY POWER SUPPLY	B+	B+
I RD10-8	LOGIC GROUND	GROUND	B+
S RD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
S RD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I RD10-19	MODULE IDENTIFICATION	GROUND	GROUND
I RD11-5	MEMORY 1	B+	GROUND
I RD11-7	MODULE IDENTIFICATION	GROUND	GROUND
I RD11-13	MEMORY SET	B+	GROUND
I RD11-15	MEMORY 3	B+	GROUND
I RD11-22	MEMORY 2	B+	GROUND

### DRIVER SEAT CONTROL MODULE

Pin	Description	Active	Inactive
O SM1-1D	DRIVER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SM1-2D	DRIVER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SM1-3D	DRIVER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SM1-4D	DRIVER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SM1-5D	DRIVER HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SM1-6D	DRIVER HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SM1-7D	DRIVER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
O SM1-8D	DRIVER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
I SM1-9D	DRIVER SEAT CUSHION FORE MOVEMENT REQUEST	B+	GROUND
I SM1-10D	DRIVER SEAT CUSHION AFT MOVEMENT REQUEST	B+	GROUND
I SM1-11D	DRIVER SEAT CUSHION LOWER REAR MOVEMENT REQUEST	B+	GROUND
I SM1-12D	DRIVER SEAT CUSHION RAISE REAR MOVEMENT REQUEST	B+	GROUND
I SM1-13D	DRIVER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST	B+	GROUND
I SM1-14D	DRIVER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST	B+	GROUND
I SM1-15D	DRIVER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST	B+	GROUND
I SM1-16D	DRIVER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST	B+	GROUND
O SM2-1D	DRIVER SEAT CUSHION REAR / SQUAB RECLINE MOTOR POT. REF. GROUND	GROUND	GROUND
O SM2-2D	DRIVER SEAT CUSHION FORE / AFT MOTOR POT. REFERENCE GROUND	GROUND	GROUND
O SM2-5D	DRIVER SEAT CUSHION REAR / SQUAB RECLINE MOTOR POT. REF. VOLTAGE	5V	GROUND
O SM2-6D	DRIVER SEAT CUSHION FRONT MOTOR POT. REFERENCE VOLTAGE	5V	GROUND
I SM2-8D	DRIVER SEAT HEADREST MOTOR POTENTIOMETER FEEDBACK	10 V = UP, 1 V = DOWN	GROUND
I SM2-9D	DRIVER SEAT CUSHION FRONT MOTOR POTENTIOMETER FEEDBACK	10 V = UP, 1 V = DOWN	GROUND
I SM2-10D	DRIVER SEAT CUSHION REAR MOTOR POTENTIOMETER FEEDBACK	10 V = UP, 1 V = DOWN	GROUND
I SM2-11D	DRIVER SEAT SQUAB RECLINE MOTOR POTENTIOMETER FEEDBACK	9 V = FORE, 2 V = AFT	GROUND
I SM2-12D	DRIVER SEAT CUSHION FORE / AFT MOTOR POTENTIOMETER FEEDBACK	2 V = FORE, 10 V = AFT	GROUND
O SM2-14D	DRIVER SEAT HEADREST MOTOR POTENTIOMETER REFERENCE GROUND	GROUND	GROUND
O SM2-15D	DRIVER SEAT CUSHION FRONT MOTOR POTENTIOMETER REFERENCE GROUND	GROUND	GROUND
O SM2-18D	DRIVER SEAT CUSHION FORE / AFT MOTOR POT. REFERENCE VOLTAGE	5V	GROUND
O SM2-19D	DRIVER SEAT HEADREST MOTOR POTENTIOMETER REFERENCE VOLTAGE	5V	GROUND
I SM3-1D	MODULE IDENTIFICATION	GROUND (DRIVER)	GROUND
I SM3-2D	POWER GROUND	GROUND	GROUND
O SM3-3D	DRIVER SEAT RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SM3-4D	DRIVER SEAT RAISE / LOWER MOTOR SUPPLY	B+	GROUND
I SM3-5D	BATTERY POWER SUPPLY	B+	GROUND
I SM3-6D	DRIVER SEAT HEADREST RAISE MOVEMENT REQUEST	B+	GROUND
I SM3-8D	DRIVER SEAT HEADREST LOWER MOVEMENT REQUEST	B+	GROUND
S SM3-9D	SCP NETWORK	2 - 1600 Hz	GROUND
S SM3-10D	SCP NETWORK	2 - 1600 Hz	GROUND

### INSTRUMENT PACK

Pin	Description	Active	Inactive
S FC24-19	SCP NETWORK	2 - 1600 Hz	GROUND
S FC24-20	SCP NETWORK	2 - 1600 Hz	GROUND
C FC24-24	CAN NETWORK	15 - 1500 Hz	GROUND
C FC24-47	CAN NETWORK	15 - 1500 Hz	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. 12.1

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK DD1 / 26-WAY MQS-26 / YELLOW	FASCIA DOOR TRIM PANEL
MEMORY SWITCHES (DRIVER DOOR SWITCH PACK)	SM1-D / 16-WAY FORD 2.8 TIMER / BLACK SM2-D / 26-WAY FORD IDC / BLACK SM3-D / 10-WAY FORD 2.8 TIMER / BLACK SM7-D / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT / UNDER DRIVER SEAT
SEAT CUSHION HEATERS - DRIVER	SM10-D / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT HEATER SWITCH (CENTER CONSOLE SWITCH PACK)	SM4-D / 6-WAY MULTILOCK 070 / GREY SM6-D / 6-WAY MULTILOCK 070 / YELLOW SM11-D / 6-WAY MULTILOCK 070 / WHITE SM12-D / 6-WAY MULTILOCK 070 / WHITE SM13-D / 6-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT / UNDER
SEAT LUMBAR PUMP - DRIVER	SM9-D / 3-WAY MULTILOCK 070 / GREY	DRIVER SEAT
SEAT MOTORS - DRIVER	SM5-D / 16-WAY MULTILOCK 040 / BLACK	DRIVER SEAT
SEAT SQUAB HEATERS - DRIVER		
SWITCH PACK - DRIVER SEAT		

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - DRIVER	BROWN	SM14-D / BROWN	FRONT SEAT RELAYS / UNDER SEAT

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA13	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA14	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA23	10-WAY MULTILOCK 070 / WHITE	BELOW DRIVER 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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDS

Ground	Location / Type
CA25L	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA25R	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26L	EYELET (PAIR) - DRIVER SEAT GROUND STUD
CA26R	EYELET (PAIR) - DRIVER SEAT GROUND STUD
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD 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.

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND	B+
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 FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)	B+

### DRIVER SEAT CONTROL MODULE

Pin	Description	Active	Inactive
O SM1-1D	DRIVER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B-	GROUND
O SM1-2D	DRIVER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B-	GROUND
O SM1-3D	DRIVER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B-	GROUND
O SM1-4D	DRIVER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B-	GROUND
O SM1-5D	DRIVER HEADREST RAISE / LOWER MOTOR SUPPLY	B-	GROUND
O SM1-6D	DRIVER HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SM1-7D	DRIVER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B-	GROUND
O SM1-8D	DRIVER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B-	GROUND
I SM1-9D	DRIVER SEAT CUSHION FORE MOVEMENT REQUEST	B+	GROUND
I SM1-10D	DRIVER SEAT CUSHION AFT MOVEMENT REQUEST	B+	GROUND
I SM1-11D	DRIVER SEAT CUSHION LOWER REAR MOVEMENT REQUEST	B-	GROUND
I SM1-12D	DRIVER SEAT CUSHION RAISE REAR MOVEMENT REQUEST	B-	GROUND
I SM1-13D	DRIVER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST	B-	GROUND
I SM1-14D	DRIVER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST	B-	GROUND
I SM1-15D	DRIVER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST	B-	GROUND
I SM1-16D	DRIVER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST	B-	GROUND
I SM3-1D	MODULE IDENTIFICATION	GROUND (DRIVER)	
I SM3-2D	POWER GROUND	GROUND	GROUND
O SM3-3D	DRIVER SEAT RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SM3-4D	DRIVER SEAT RAISE / LOWER MOTOR SUPPLY	B+	GROUND
I SM3-5D	BATTERY POWER SUPPLY	B-	B+
I SM3-6D	DRIVER SEAT HEADREST RAISE MOVEMENT REQUEST	B+	GROUND
I SM3-8D	DRIVER SEAT HEADREST LOWER MOVEMENT REQUEST	B+	GROUND
S SM3-9D	SCP NETWORK	2 - 1600 Hz	
S SM3-10D	SCP NETWORK	2 - 1600 Hz	

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

Fig. 12.2

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
SEAT CONTROL MODULE - DRIVER	SM1-D / 16-WAY FORD 2.8 TIMER / BLACK SM2-D / 26-WAY FORD IDC / BLACK SM3-D / 10-WAY FORD 2.8 TIMER / BLACK	DRIVER SEAT / UNDER
SEAT CUSHION HEATERS - DRIVER	SM7-D / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT HEATER SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
SEAT LUMBAR PUMP - DRIVER	SM10-D / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT MOTORS - DRIVER	SM4-D / 6-WAY MULTILOCK 070 / GREY SM6-D / 6-WAY MULTILOCK 070 / YELLOW SM11-D / 6-WAY MULTILOCK 070 / WHITE SM12-D / 6-WAY MULTILOCK 070 / WHITE SM13-D / 6-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT / UNDER
SEAT SQUAB HEATERS - DRIVER	SM9-D / 3-WAY MULTILOCK 070 / GREY	DRIVER SEAT
SWITCH PACK - DRIVER SEAT	SM5-D / 16-WAY MULTILOCK 040 / BLACK	DRIVER SEAT

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - DRIVER	BROWN	SM14-D / BROWN	FRONT SEAT RELAYS / UNDER SEAT

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA13	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA23	10-WAY MULTILOCK 070 / WHITE	BELOW DRIVER 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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUND

Ground	Location / Type
CA25L	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26R	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26L	EYELET (PAIR) - DRIVER SEAT GROUND STUD
CA26R	EYELET (PAIR) - DRIVER SEAT GROUND STUD
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE

### 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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
I FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)	B+

**Fig. 12.3**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
SEAT CUSHION HEATERS - DRIVER	SM7-D / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT HEATER SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
SEAT MOTOR - DRIVER (RAISE / LOWER ONLY)	SM16-D / 6-WAY MULTILOCK 070 / GREY	DRIVER SEAT / UNDER
SEAT SQUAB HEATERS - DRIVER	SM9-D / 3-WAY MULTILOCK 070 / GREY	DRIVER SEAT
SWITCH PACK - DRIVER SEAT (RAISE / LOWER ONLY)	SM17-D / 16-WAY MULTILOCK 040 / BLACK	DRIVER SEAT / UNDER

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - DRIVER	BROWN	SM14-D / BROWN	FRONT SEAT RELAYS / UNDER SEAT
SEAT RAISE RELAY	VIOLET	SM18-D / VIOLET	FRONT SEAT RELAYS / UNDER SEAT
SEAT LOWER RELAY	VIOLET	SM18-D / VIOLET	FRONT SEAT RELAYS / UNDER SEAT

### HARNESSTO-HARNESSTO CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA13	6-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA23	10-WAY MULTILOCK 070 / WHITE	BELOW DRIVER 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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDS

Ground	Location / Type
CA25L	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26L	EYELET (PAIR) - DRIVER SEAT GROUND STUD
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE

### 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.

**CONTROL MODULE PIN OUT INFORMATION**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
S FC15-84	SCP NETWORK	2 - 1600 Hz	B+
S FC15-85	SCP NETWORK	2 - 1600 Hz	B+
I FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)	B+

**PASSENGER SEAT CONTROL MODULE**

Pin	Description	Active	Inactive
O SM1-1P	PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SM1-2P	PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SM1-3P	PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SM1-4P	PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SM1-5P	PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SM1-6P	PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SM1-7P	PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
O SM1-8P	PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
I SM1-9P	PASSENGER SEAT CUSHION FORE MOVEMENT REQUEST	B+	GROUND
I SM1-10P	PASSENGER SEAT CUSHION AFT MOVEMENT REQUEST	B+	GROUND
I SM1-11P	PASSENGER SEAT CUSHION LOWER REAR MOVEMENT REQUEST	B+	GROUND
I SM1-12P	PASSENGER SEAT CUSHION RAISE REAR MOVEMENT REQUEST	B+	GROUND
I SM1-13P	PASSENGER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST	B+	GROUND
I SM1-14P	PASSENGER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST	B+	GROUND
I SM1-15P	PASSENGER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST	B+	GROUND
I SM1-16P	PASSENGER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST	B+	GROUND
I SM3-2P	COMMON GROUND SUPPLY	GROUND	GROUND
O SM3-3P	PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY	B+	GROUND
O SM3-4P	PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY	B+	GROUND
I SM3-5P	BATTERY SUPPLY	B+	B+
I SM3-6P	PASSENGER SEAT HEADREST RAISE MOVEMENT REQUEST	B+	GROUND
I SM3-8P	PASSENGER SEAT HEADREST LOWER MOVEMENT REQUEST	B+	GROUND
S SM3-9P	SCP NETWORK	2 - 1600 Hz	GROUND
S SM3-10P	SCP NETWORK	2 - 1600 Hz	GROUND

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

**Fig. 12.4**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
SEAT CONTROL MODULE - PASSENGER	SM1-P / 16-WAY FORD 2.8 TIMER / BLACK SM3-P / 10-WAY FORD 2.8 TIMER / BLACK	PASSENGER SEAT / UNDER
SEAT CUSHION HEATERS - PASSENGER	SM7-P / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT
SEAT HEATER SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
SEAT LUMBAR PUMP - PASSENGER	SM10-P / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT
SEAT MOTORS - PASSENGER	SM4-P / 6-WAY MULTILOCK 070 / GREY SM6-P / 6-WAY MULTILOCK 070 / YELLOW SM11-P / 6-WAY MULTILOCK 070 / WHITE SM12-P / 6-WAY MULTILOCK 070 / WHITE SM13-P / 6-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT / UNDER
SEAT SQUAB HEATERS - PASSENGER	SM9-P / 3-WAY MULTILOCK 070 / GREY	PASSENGER SEAT
SWITCH PACK - PASSENGER SEAT	SM5-P / 16-WAY MULTILOCK 040 / BLACK	PASSENGER SEAT

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - PASSENGER	BROWN	SM14-P / BROWN	FRONT SEAT RELAYS / UNDER SEAT

**HARNESSTO-HARNESSTO CONNECTORS**

Connector	Type / Color	Location / Access
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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

**GROUNDS**

Ground	Location / Type
CA25L	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26L	EYELET (PAIR) - DRIVER SEAT GROUND STUD
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE

**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.**

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
S FC15-84	SCP NETWORK	2 - 1600 Hz	B+
S FC15-85	SCP NETWORK	2 - 1600 Hz	B+
I FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)	B+

### PASSENGER SEAT CONTROL MODULE

Pin	Description	Active	Inactive
O SM1-1P	PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SM1-2P	PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B-	GROUND
O SM1-3P	PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B-	GROUND
O SM1-4P	PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SM1-5P	PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY	B-	GROUND
O SM1-6P	PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SM1-7P	PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
O SM1-8P	PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
I SM1-9P	PASSENGER SEAT CUSHION FORE MOVEMENT REQUEST	B+	GROUND
I SM1-10P	PASSENGER SEAT CUSHION AFT MOVEMENT REQUEST	B+	GROUND
I SM1-11P	PASSENGER SEAT CUSHION LOWER REAR MOVEMENT REQUEST	B+	GROUND
I SM1-12P	PASSENGER SEAT CUSHION RAISE REAR MOVEMENT REQUEST	B+	GROUND
I SM1-13P	PASSENGER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST	B+	GROUND
I SM1-14P	PASSENGER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST	B+	GROUND
I SM1-15P	PASSENGER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST	B+	GROUND
I SM1-16P	PASSENGER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST	B+	GROUND
I SM3-2P	COMMON GROUND SUPPLY	GROUND	GROUND
O SM3-3P	PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY	B+	GROUND
O SM3-4P	PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY	B+	GROUND
I SM3-5P	BATTERY SUPPLY	B+	B+
I SM3-6P	PASSENGER SEAT HEADREST RAISE MOVEMENT REQUEST	B+	GROUND
I SM3-8P	PASSENGER SEAT HEADREST LOWER MOVEMENT REQUEST	B+	GROUND
S SM3-9P	SCP NETWORK	2 - 1600 Hz	GROUND
S SM3-10P	SCP NETWORK	2 - 1600 Hz	GROUND

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

**Fig. 12.5**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
FORE / AFT SWITCH - PASSENGER REAR	SM19-P / 10-WAY AMP MICRO QUAD LOCK / BLACK	PASSENGER SEAT / REAR
RECLINE SWITCH - PASSENGER REAR	SM20-P / 10-WAY AMP MICRO QUAD LOCK / BLACK	PASSENGER SEAT / REAR
SEAT CONTROL MODULE - PASSENGER	SM1-P / 16-WAY FORD 2.8 TIMER / BLACK SM3-P / 10-WAY FORD 2.8 TIMER / BLACK	PASSENGER SEAT / UNDER
SEAT CUSHION HEATERS - PASSENGER	SM7-P / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT
SEAT HEATER SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
SEAT LUMBAR PUMP - PASSENGER	SM10-P / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT
SEAT MOTORS - PASSENGER	SM4-P / 6-WAY MULTILOCK 070 / GREY SM6-P / 6-WAY MULTILOCK 070 / YELLOW SM11-P / 6-WAY MULTILOCK 070 / WHITE SM12-P / 6-WAY MULTILOCK 070 / WHITE SM13-P / 6-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT / UNDER
SEAT SQUAB HEATERS - PASSENGER	SM9-P / 3-WAY MULTILOCK 070 / GREY	PASSENGER SEAT
SWITCH PACK - PASSENGER SEAT	SM5-P / 16-WAY MULTILOCK 040 / BLACK	PASSENGER SEAT

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - PASSENGER	BROWN	SM14-P / BROWN	FRONT SEAT RELAYS / UNDER SEAT

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
SM25-P	10-WAY MULTILOCK 070 / WHITE	BEHIND PASSENGER SEAT BACK FINISHER

### GROUNDINGS

Ground	Location / Type
CA25L	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26L	EYELET (PAIR) - DRIVER SEAT GROUND STUD
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE

### 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, HARNESSSES, GROUNDINGS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
I FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)	B+

**Fig. 12.6**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
SEAT CUSHION HEATERS - DRIVER	SM7-D / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT CUSHION HEATERS - PASSENGER	SM7-P / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT
SEAT HEATER SWITCHES (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
SEAT SQUAB HEATERS - DRIVER	SM9-D / 3-WAY MULTILOCK 070 / GREY	DRIVER SEAT
SEAT SQUAB HEATERS - PASSENGER	SM9-P / 3-WAY MULTILOCK 070 / GREY	PASSENGER SEAT

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - DRIVER	BROWN	SM14-D / BROWN	FRONT SEAT RELAYS / UNDER SEAT
SEAT HEATER RELAY - PASSENGER	BROWN	SM14-P / BROWN	FRONT SEAT RELAYS / UNDER SEAT

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDS

Ground	Location / Type
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
CA25L	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26L	EYELET (PAIR) - DRIVER SEAT 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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

**CONTROL MODULE PIN OUT INFORMATION**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
O FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
I FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)	B+

**Fig. 12.7**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
SEAT CUSHION HEATERS - DRIVER	SM7-D / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT CUSHION HEATERS - PASSENGER	SM7-P / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT
SEAT HEATER SWITCHES (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
SEAT SQUAB HEATERS - DRIVER	SM9-D / 3-WAY MULTILOCK 070 / GREY	DRIVER SEAT
SEAT SQUAB HEATERS - PASSENGER	SM9-P / 3-WAY MULTILOCK 070 / GREY	PASSENGER SEAT

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - DRIVER	BROWN	SM14-D / BROWN	FRONT SEAT RELAYS / UNDER SEAT
SEAT HEATER RELAY - PASSENGER	BROWN	SM14-P / BROWN	FRONT SEAT RELAYS / UNDER SEAT

**HARNESSTO-HARNESSTO CONNECTORS**

Connector	Type / Color	Location / Access
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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

**GROUNDS**

Ground	Location / Type
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
CA25L	EYELET (PAIR) - PASSENGER SEAT GROUND STUD
CA26L	EYELET (PAIR) - DRIVER SEAT 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.**

**CONTROL MODULE PIN OUT INFORMATION**

**REAR SEAT CONTROL MODULE**

Pin	Description	Active	Inactive
I BS1-11	LH LUMBAR SWITCH INFLATE	B+	0 V
I BS2-3	GROUND	GROUND	GROUND
I BS2-4	BATTERY POWER SUPPLY	B+	B+
I BS2-5	GROUND	GROUND	GROUND
I BS2-6	BATTERY POWER SUPPLY	B+	B+
I BS2-12	BATTERY POWER SUPPLY	B+	B+
O BS6-1	RH REAR SEAT LUMBAR PUMP FEED	B+	B+
O BS6-2	RH REAR SEAT LUMBER DEFLATE SOLENOID VALVE	B+	0 V
O BS6-3	LH REAR SEAT MOTOR - FORE / AFT MOTOR	B+	0 V
O BS6-4	LH REAR SEAT MOTOR - FORE / AFT MOTOR	B+	0 V
O BS6-5	LH REAR SEAT - HEADREST MOTOR	B+	0 V
O BS6-6	LH REAR SEAT - HEADREST MOTOR	B+	0 V
O BS6-7	RH REAR SEAT MOTOR - FORE / AFT MOTOR	B+	0 V
O BS6-8	RH REAR SEAT MOTOR - FORE / AFT MOTOR	B+	0 V
O BS6-10	LH REAR SEAT LUMBAR PUMP FEED	B+	B+
O BS6-11	RH REAR SEAT - HEADREST MOTOR	B+	0 V
O BS6-12	RH REAR SEAT - HEADREST MOTOR	B+	0 V
I BS7-8	RH LUMBAR SWITCH - INFLATE REQUEST	B+	0 V
I BS7-9	RH FORE / AFT SWITCH - AFT REQUEST	B+	0 V
I BS7-10	RH FORE / AFT SWITCH - FORE REQUEST	B+	0 V
I BS7-14	RH HEADREST SWITCH - LOWER REQUEST	B+	0 V
I BS7-15	RH HEADREST SWITCH - RAISE REQUEST	B+	0 V
I BS7-16	LH HEADREST SWITCH - LOWER REQUEST	B+	0 V
I BS7-17	LH HEADREST SWITCH - RAISE REQUEST	B+	0 V
I BS7-18	LH FORE / AFT SWITCH - AFT REQUEST	B+	0 V
I BS7-19	LH FORE / AFT SWITCH - FORE REQUEST	B+	0 V
I BS7-20	RH LUMBAR SWITCH - DEFLATE REQUEST	B+	0 V

**Fig. 12.8**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
SEAT CONTROL MODULE - REAR	BS1 / 22-WAY MULTILOCK 47 / BLUE BS2 / 12-WAY MULTILOCK 47 / BLUE BS6 / 12-WAY MULTILOCK 47 / WHITE BS7 / 22-WAY MULTILOCK 47 / WHITE	BELOW REAR CENTER CONSOLE
SEAT FORE / AFT MOTOR - LH REAR	BS21 / 3-WAY MULTILOCK 070 / WHITE	BELOW SEAT CUSHION
SEAT FORE / AFT MOTOR - RH REAR	BS22 / 3-WAY MULTILOCK 070 / WHITE	BELOW SEAT CUSHION
SEAT FORE / AFT SWITCH - LH REAR	BC3 / 10-WAY AMP MICRO QUAD LOCK / BLACK	REAR CENTER CONSOLE SWITCH PACK
SEAT FORE / AFT SWITCH - RH REAR	BC5 / 10-WAY AMP MICRO QUAD LOCK / BLACK	REAR CENTER CONSOLE SWITCH PACK
SEAT HEADREST MOTOR - LH REAR	BB3-L / 6-WAY MULTILOCK 070 / YELLOW	REAR SEAT
SEAT HEADREST MOTOR - RH REAR	BB3-R / 6-WAY MULTILOCK 070 / YELLOW	REAR SEAT
SEAT HEADREST SWITCH - LH REAR	BC4 / 10-WAY AMP MICRO QUAD LOCK / BLACK	REAR CENTER CONSOLE SWITCH PACK
SEAT HEADREST SWITCH - RH REAR	BC7 / 10-WAY AMP MICRO QUAD LOCK / BLACK	REAR CENTER CONSOLE SWITCH PACK
SEAT LUMBAR PUMP - LH REAR	BB4-L / 3-WAY MULTILOCK 070 / YELLOW	REAR SEAT
SEAT LUMBAR PUMP - RH REAR	BB4-R / 3-WAY MULTILOCK 070 / YELLOW	REAR SEAT
SEAT LUMBAR SWITCH - LH REAR	BC8 / 10-WAY AMP MICRO QUAD LOCK / BLACK	REAR CENTER CONSOLE SWITCH PACK
SEAT LUMBAR SWITCH - RH REAR	BC6 / 10-WAY AMP MICRO QUAD LOCK / BLACK	REAR CENTER CONSOLE SWITCH PACK

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
LUMBAR DEFLATE RELAY - LH	BLUE	BS10 / BLUE	RH HEELBOARD RELAYS / HEELBOARD COVER

**HARNESSTO-HARNESSTO CONNECTORS**

Connector	Type / Color	Location / Access
BS3	6-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION
BS4	20-WAY MULTILOCK 070 / WHITE	BELOW REAR CENTER CONSOLE SEAT SWITCHES
BS5	6-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION
CA109	12-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION

**GROUNDS**

Ground	Location / Type
CA38L	EYELET (PAIR) - LH HEELBOARD POST GROUND SCREW
CA110L	EYELET (PAIR) - LH HEELBOARD POST GROUND SCREW
CA110R	EYELET (PAIR) - LH HEELBOARD POST GROUND SCREW

**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.**



**Fig. 12.9****COMPONENTS****Component**

SEAT CUSHION HEATER - LH REAR  
 SEAT CUSHION HEATER - RH REAR  
 SEAT HEATER SWITCH - LH REAR (LWB VEHICLES)  
 SEAT HEATER SWITCH - RH REAR (LWB VEHICLES)  
 SEAT HEATER TIMER - LH REAR  
 SEAT HEATER TIMER - RH REAR  
 SQUAB HEATER - LH REAR  
 SQUAB HEATER - RH REAR

**Connector / Type / Color**

BB1-L / 3-WAY MULTILOCK 070 / YELLOW  
 BB1-R / 3-WAY MULTILOCK 070 / YELLOW  
 BC1 / 10-WAY AMP MICRO QUAD LOCK / BLACK  
 BC2 / 10-WAY AMP MICRO QUAD LOCK / BLACK  
 BS8 / 5-WAY RELAY BASE / BROWN  
 BS9 / 5-WAY RELAY BASE / BROWN  
 BB5-L / 3-WAY MULTILOCK 070 / GREY  
 BB5-R / 3-WAY MULTILOCK 070 / GREY

**Location / Access**

REAR SEAT  
 REAR SEAT  
 REAR CENTER CONSOLE SWITCH PACK  
 REAR CENTER CONSOLE SWITCH PACK  
 RH HEELBOARD / HEELBOARD COVER  
 RH HEELBOARD / HEELBOARD COVER  
 REAR SEAT  
 REAR SEAT

**HARNESS-TO-HARNESS CONNECTORS****Connector****Type / Color**

BS3 6-WAY MULTILOCK 070 / WHITE  
 BS4 20-WAY MULTILOCK 070 / WHITE  
 BS5 6-WAY MULTILOCK 070 / WHITE  
 CA109 12-WAY MULTILOCK 070 / WHITE

**Location / Access**

BELOW REAR SEAT CUSHION  
 BELOW REAR CENTER CONSOLE SEAT SWITCHES  
 BELOW REAR SEAT CUSHION  
 BELOW REAR SEAT CUSHION

**GROUNDS****Ground****Location / Type**

CA38L EYELET (PAIR) - LH HEELBOARD POST GROUND SCREW

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

**Fig. 12.10****COMPONENTS****Component**

SEAT CUSHION HEATER – LH REAR  
 SEAT CUSHION HEATER – RH REAR  
 SEAT HEATER SWITCH – LH REAR  
 SEAT HEATER SWITCH – RH REAR  
 SEAT HEATER TIMER – LH REAR  
 SEAT HEATER TIMER – RH REAR  
 SQUAB HEATER – LH REAR  
 SQUAB HEATER – RH REAR

**Connector / Type / Color**

BB1-L / 3-WAY MULTILOCK 070 / YELLOW  
 BB1-R / 3-WAY MULTILOCK 070 / YELLOW  
 BS11 / 10-WAY AMP MICRO QUAD LOCK / BLACK  
 BS12 / 10-WAY AMP MICRO QUAD LOCK / NATURAL  
 BS8 / 5-WAY RELAY BASE / BROWN  
 BS9 / 5-WAY RELAY BASE / BROWN  
 BB5-L / 3-WAY MULTILOCK 070 / GREY  
 BB5-R / 3-WAY MULTILOCK 070 / GREY

**Location / Access**

REAR SEAT  
 REAR SEAT  
 BEHIND REAR CENTER CONSOLE SWITCH PACK  
 BEHIND REAR CENTER CONSOLE SWITCH PACK  
 RH HEELBOARD / HEELBOARD COVER  
 RH HEELBOARD / HEELBOARD COVER  
 REAR SEAT  
 REAR SEAT

**HARNESS-TO-HARNESS CONNECTORS****Connector****Type / Color****Location / Access**

BS13	3-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION
BS15	3-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION
CA109	12-WAY MULTILOCK 070 / WHITE	BELOW REAR SEAT CUSHION

**GROUNDS****Ground****Location / Type**

CA38L EYELET (PAIR) – LH HEELBOARD POST GROUND SCREW

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-5	TRUNK RELEASE REQUEST	GROUND (MOMENTARY)	B+
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-33	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
I FC15-55	VALET REQUEST	GROUND (MOMENTARY)	B+
I FC15-58	NOT IN PARK MICROSWITCH STATUS	GROUND (PARK)	B+ (NOT IN PARK)
I FC15-63	CENTRAL LOCKING REQUEST	GROUND (MOMENTARY)	B+
I FC15-67	KEY IN IGNITION	GROUND (KEY IN)	B+ (KEY OUT)
O FC15-71	DOOR LOCKING RELAY ACTIVATE	GROUND (PULSE)	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
S FC15-84	SCP NETWORK	2 - 1600 Hz	B+
S FC15-85	SCP NETWORK	2 - 1600 Hz	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I DD10-1	BATTERY POWER SUPPLY	B+	B+
O DD10-5	DRIVERS DOOR LOCK ACTUATOR MOTOR UNLOCK	B+	B+
O DD10-6	DRIVERS DOOR LOCK ACTUATOR MOTOR LOCK	B+	B+
I DD10-8	LOGIC GROUND	GROUND	GROUND
I DD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
S DD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I DD10-17	POWER GROUND	GROUND	GROUND
I DD11-4	DRIVER DOOR LOCK BARREL UNLOCK REQUEST	B+ (MOMENTARY)	GROUND
I DD11-12	DRIVER DOOR LOCK BARREL LOCK REQUEST	B+ (MOMENTARY)	GROUND
I DD11-20	DRIVER DOOR SWITCH	GROUND (DOOR OPEN)	B+

### DRIVER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RD10-1	BATTERY POWER SUPPLY	B+	B+
O RD10-5	DRIVER REAR DOOR LOCK ACTUATOR MOTOR UNLOCK	B+	B+
O RD10-6	DRIVER REAR DOOR LOCK ACTUATOR MOTOR LOCK	B+	B+
I RD10-8	LOGIC GROUND	GROUND	GROUND
S RD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
S RD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I RD10-17	POWER GROUND	GROUND	GROUND
I RD10-19	MODULE IDENTIFICATION	GROUND	GROUND
I RD11-7	MODULE IDENTIFICATION	GROUND	GROUND
I RD11-20	DRIVER REAR DOOR SWITCH	GROUND (DOOR OPEN)	B+

### PASSENGER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I PD10-1	BATTERY POWER SUPPLY	B+	B+
O PD10-5	PASSENGER DOOR LOCK ACTUATOR MOTOR UNLOCK	B+	B+
O PD10-6	PASSENGER DOOR LOCK ACTUATOR MOTOR LOCK	B+	B+
I PD10-8	LOGIC GROUND	GROUND	GROUND
S PD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
S PD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I PD10-17	POWER GROUND	GROUND	GROUND
I PD11-20	PASSENGER DOOR SWITCH	GROUND (DOOR OPEN)	B+

### PASSENGER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RP10-1	BATTERY POWER SUPPLY	B+	B+
O RP10-5	PASSENGER REAR DOOR LOCK ACTUATOR MOTOR UNLOCK	B+	B+
O RP10-6	PASSENGER REAR DOOR LOCK ACTUATOR MOTOR LOCK	B+	B+
I RP10-8	LOGIC GROUND	GROUND	GROUND
S RP10-9	SCP NETWORK	2 - 1600 Hz	GROUND
S RP10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I RP10-17	POWER GROUND	GROUND	GROUND
I RP11-20	PASSENGER REAR DOOR SWITCH	GROUND (DOOR OPEN)	B+

### SECURITY AND LOCKING CONTROL MODULE

Pin	Description	Active	Inactive
O BT1-1	TRUNK RELEASE ACTUATOR ACTIVATE	B+ (PULSE)	GROUND
O BT1-2	FUEL FILLER FLAP UNLOCK RELAY ACTIVATE	B+ (PULSE)	GROUND
S BT1-8	SCP NETWORK	2 - 1600 Hz	B+
O BT1-10	FUEL FILLER FLAP LOCK RELAY ACTIVATE	B+	GROUND
I BT1-13	LOGIC GROUND	GROUND	GROUND
I BT1-14	LOGIC GROUND	GROUND	GROUND
I BT1-15	BATTERY POWER SUPPLY	B+	B+
S BT1-16	SCP NETWORK	2 - 1600 Hz	B+
I BT2-3	TRUNK RELEASE REQUEST	GROUND (MOMENTARY)	B+
I BT2-5	TRUNK SECURITY SWITCH STATUS	GROUND (INTRUSION)	B+ (SECURE)
I BT2-7	DRIVER DOOR LOCK STATUS		
I BT2-19	PASSENGER DOOR LOCK STATUS		
I BT6-1	KEY FOB ANTENNA		
I BT6-2	KEY FOB ANTENNA SHIELD	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. 13.1**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
CENTRAL LOCKING SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER	PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER REAR	RP10 / 22-WAY FORD 2.8 TIMER / BLUE RP11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK ACTUATOR - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK ACTUATOR - DRIVER REAR	RD3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK ACTUATOR - PASSENGER	PD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK ACTUATOR - PASSENGER REAR	RP3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK SWITCHES - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - DRIVER REAR	RD3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - PASSENGER	PD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - PASSENGER REAR	RP3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
FUEL FILLER FLAP LOCK ACTUATOR	BT16 / 2-WAY LABINAL / NATURAL	TRUNK / LH FRONT
IGNITION SWITCH (KEY-IN SWITCH)	FC4 / 8-WAY MULTILOCK 070 / WHITE	STEERING COLUMN
KEY FOB ANTENNA	BT33 / 1-WAY COAXIAL CONNECTOR	TOP OF BACKLIGHT
NOT-IN-PARK MICROSWITCH	CC13 / 3-WAY MULTILOCK 070 / YELLOW	CENTER CONSOLE ASSEMBLY
SECURITY AND LOCKING CONTROL MODULE	BT1 / 16-WAY FORD 2.8 TIMER / BLACK BT2 / 26-WAY FORD IDC / BLACK BT6 / 1-WAY COAXIAL CONNECTOR	BELOW TRUNK FUSE BOX
SPLICE HEADER - CA223	CA223 / 20-WAY SUMITOMO SPLICE HEADER / BLACK	RH HEELBOARD / HEELBOARD COVER
TRUNK RELEASE ACTUATOR	BT43 / 2-WAY LABINAL / BROWN	BEHIND TRUNK LID LINER
TRUNK RELEASE SWITCH	BT42 / 2-WAY MULTILOCK 040 / GREEN	BEHIND TRUNK LID LINER
TRUNK RELEASE SWITCH (FASCIA SWITCH PACK)	FC14 / 6-WAY JAE IL AG5 / GREEN	FASCIA SWITCH PACK
TRUNK SWITCH	BT41 / 2-WAY AUGAT 1.6 / BLACK	BEHIND TRUNK LID LINER
VALET SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
DOOR LOCKING RELAY	VIOLET	CA50 / VIOLET	LH HEELBOARD RELAYS / HEELBOARD COVER
FUEL FILLER FLAP LOCK RELAY	VIOLET	BT23 / VIOLET	TRUNK RELAYS / TRUNK
FUEL FILLER FLAP UNLOCK RELAY	VIOLET	BT23 / VIOLET	TRUNK RELAYS / TRUNK

### HARNESSTO-HARNESSTO CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER '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
CA45	6-WAY MULTILOCK 070 / WHITE	PASSENGER 'B/C' POST / DOOR HARNESS GAITER
CA46	4-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDS

Ground	Location / Type
BT22L	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD
BT28L	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD (RH FORWARD - EARLY PRODUCTION VEHICLES)
BT34	EYELET (SINGLE) - KEY FOB ANTENNA GROUND / BACKLIGHT / CENTER
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA31L	EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA36R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
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.

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
FC15-5	TRUNK RELEASE REQUEST	GROUND (MOMENTARY)	B+
FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
FC15-32	IGNITION SWITCHED GROUND	GROUND	B+
FC15-33	IGNITION SWITCHED GROUND	GROUND	B+
FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
FC15-56	VALET REQUEST	GROUND (MOMENTARY)	B+
FC15-58	NOT IN PARK MICROSWITCH STATUS	GROUND (PARK)	B- (NOT IN PARK)
FC15-83	CENTRAL LOCKING REQUEST	GROUND (MOMENTARY)	B-
FC15-67	KEY IN IGNITION	GROUND (KEY IN)	B- (KEY OUT)
FC15-71	DOOR LOCKING RELAY ACTIVATE	GROUND (PULSE)	B-
FC15-80	BATTERY SUPPLY VOLTAGE	B+	B-
FC15-84	SCP NETWORK	2 - 1600 Hz	B-
FC15-85	SCP NETWORK	2 - 1600 Hz	B-

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
DD10-1	BATTERY POWER SUPPLY	B+	B+
DD10-5	DRIVERS DOOR LOCK ACTUATOR MOTOR UNLOCK	B+	GROUND
DD10-8	LOGIC GROUND	GROUND	GROUND
DD10-9	SCP NETWORK	2 - 1600 Hz	
DD10-16	SCP NETWORK	2 - 1600 Hz	
DD10-17	POWER GROUND	GROUND	GROUND
DD11-4	DRIVER DOOR LOCK BARREL UNLOCK REQUEST	B+ (MOMENTARY)	GROUND
DD11-12	DRIVER DOOR LOCK BARREL LOCK REQUEST	B+ (MOMENTARY)	GROUND
DD11-20	DRIVER DOOR SWITCH	GROUND (DOOR OPEN)	B+

### DRIVER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
RD10-1	BATTERY POWER SUPPLY	B+	B+
RD10-5	DRIVER REAR DOOR LOCK ACTUATOR MOTOR UNLOCK	B+	GROUND
RD10-8	LOGIC GROUND	GROUND	GROUND
RD10-9	SCP NETWORK	2 - 1600 Hz	
RD10-16	SCP NETWORK	2 - 1600 Hz	
RD10-17	POWER GROUND	GROUND	GROUND
RD10-19	MODULE IDENTIFICATION	GROUND	GROUND
RD11-7	MODULE IDENTIFICATION	GROUND	GROUND
RD11-20	DRIVER REAR DOOR SWITCH	GROUND (DOOR OPEN)	B+

### PASSENGER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
PD10-1	BATTERY POWER SUPPLY	B+	B+
PD10-5	PASSENGER DOOR LOCK ACTUATOR MOTOR UNLOCK	B+	GROUND
PD10-8	LOGIC GROUND	GROUND	GROUND
PD10-9	SCP NETWORK	2 - 1600 Hz	
PD10-16	SCP NETWORK	2 - 1600 Hz	
PD10-17	POWER GROUND	GROUND	GROUND
PD11-20	PASSENGER DOOR SWITCH	GROUND (DOOR OPEN)	B+

### PASSENGER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
RP10-1	BATTERY POWER SUPPLY	B+	B+
RP10-5	PASSENGER REAR DOOR LOCK ACTUATOR MOTOR UNLOCK	B+	GROUND
RP10-8	LOGIC GROUND	GROUND	GROUND
RP10-9	SCP NETWORK	2 - 1600 Hz	
RP10-16	SCP NETWORK	2 - 1600 Hz	
RP10-17	POWER GROUND	GROUND	GROUND
RP11-20	PASSENGER REAR DOOR SWITCH	GROUND (DOOR OPEN)	B+

### SECURITY AND LOCKING CONTROL MODULE

Pin	Description	Active	Inactive
BT1-1	TRUNK RELEASE ACTUATOR ACTIVATE	B+ (PULSE)	GROUND
BT1-2	FUEL FILLER FLAP UNLOCK RELAY ACTIVATE	B+ (PULSE)	GROUND
BT1-8	SCP NETWORK	2 - 1600 Hz	
BT1-10	FUEL FILLER FLAP LOCK RELAY ACTIVATE	B+	GROUND
BT1-13	LOGIC GROUND	GROUND	GROUND
BT1-14	LOGIC GROUND	GROUND	GROUND
BT1-15	BATTERY POWER SUPPLY	B+	B+
BT1-16	SCP NETWORK	2 - 1600 Hz	B-
BT2-3	TRUNK RELEASE REQUEST	GROUND (MOMENTARY)	B+
BT2-5	TRUNK SECURITY SWITCH STATUS	GROUND (INTRUSION)	B- (SECURE)
BT2-7	DRIVER DOOR LOCK STATUS		
BT2-19	PASSENGER DOOR LOCK STATUS		
BT6-1	KEY FOB ANTENNA		
BT6-2	KEY FOB ANTENNA SHIELD	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. 13.2

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
CENTRAL LOCKING SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER	PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER REAR	RP10 / 22-WAY FORD 2.8 TIMER / BLUE RP11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK ACTUATOR - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK ACTUATOR - DRIVER REAR	RD3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK ACTUATOR - PASSENGER	PD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK ACTUATOR - PASSENGER REAR	RP3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK SWITCHES - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - DRIVER	DD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - DRIVER REAR	RD3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - PASSENGER	PD3 / 13-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
DOOR SWITCH - PASSENGER REAR	RP3 / 6-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
FUEL FILLER FLAP LOCK ACTUATOR	BT16 / 2-WAY LABINOL / NATURAL	TRUNK / LH FRONT
IGNITION SWITCH (KEY-IN SWITCH)	FC4 / 8-WAY MULTILOCK 070 / WHITE	STEERING COLUMN
KEY FOB ANTENNA	BT33 / 1-WAY COAXIAL CONNECTOR	TOP OF BACKLIGHT
NOT-IN-PARK MICROSWITCH	CC13 / 3-WAY MULTILOCK 070 / YELLOW	CENTER CONSOLE ASSEMBLY
SECURITY AND LOCKING CONTROL MODULE	BT1 / 16-WAY FORD 2.8 TIMER / BLACK BT2 / 26-WAY FORD IDC / BLACK BT6 / 1-WAY COAXIAL CONNECTOR	BELOW TRUNK FUSE BOX
SPLICE HEADER - CA223	CA223 / 20-WAY SUMITOMO SPLICE HEADER / BLACK	RH HEELBOARD / HEELBOARD COVER
TRUNK RELEASE ACTUATOR	BT43 / 2-WAY LABINAL / BROWN	BEHIND TRUNK LID LINER
TRUNK RELEASE SWITCH	BT42 / 2-WAY MULTILOCK 040 / GREEN	BEHIND TRUNK LID LINER
TRUNK RELEASE SWITCH (FASCIA SWITCH PACK)	FC14 / 6-WAY JAE IL-AG5 / GREEN	FASCIA SWITCH PACK
TRUNK SWITCH	BT41 / 2-WAY AUGAT 1.6 / BLACK	BEHIND TRUNK LID LINER
VALET SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
DOOR LOCKING RELAY	VIOLET	CA50 / VIOLET	LH HEELBOARD RELAYS / HEELBOARD COVER
FUEL FILLER FLAP LOCK RELAY	VIOLET	BT23 / VIOLET	TRUNK RELAYS / TRUNK
FUEL FILLER FLAP UNLOCK RELAY	VIOLET	BT23 / VIOLET	TRUNK RELAYS / TRUNK

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA12	8-WAY MULTILOCK 070 / YELLOW	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA14	8-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
CA16	6-WAY MULTILOCK 070 / WHITE	PASSENGER 'B/C' POST / DOOR HARNESS GAITER
CA45	6-WAY MULTILOCK 070 / WHITE	PASSENGER 'B/C' POST / DOOR HARNESS GAITER
CA46	4-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDINGS

Ground	Location / Type
BT22L	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD
BT28L	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD (RH FORWARD - EARLY PRODUCTION VEHICLES)
BT34	EYELET (SINGLE) - KEY FOB ANTENNA GROUND / BACKLIGHT / CENTER
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA31L	EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA36R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
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, HARNESES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

**CONTROL MODULE PIN OUT INFORMATION**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
I FC15-6	WASHER FLUID LEVEL SENSOR		B+ (EMPTY)
I FC15-9	VARIABLE INTERMITTENT WIPE REQUEST		
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-16	SIDE LAMP REQUEST	GROUND	B+
O FC15-18	POWER WASH RELAY ACTIVATE	GROUND	B+
O FC15-19	WIPER FAST / SLOW RELAY ACTIVATE	GROUND (FAST)	B+ (SLOW)
O FC15-26	WINDSHIELD WASHER PUMP ACTIVATE	B+	GROUND
I FC15-34	FAST WIPE SPEED REQUEST	GROUND	B+
I FC15-37	PROGRAMMED WASH REQUEST	GROUND (MOMENTARY)	B+
O FC15-43	WIPER RUN / STOP RELAY ACTIVATE	GROUND	B+
I FC15-60	WIPER MOTOR PARK SWITCH STATUS	GROUND (PARKED)	B+ (NOT PARKED)
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
I FC15-94	SLOW / FLICK WIPE REQUEST	GROUND	B+
I FC15-104	BATTERY SUPPLY VOLTAGE	B+	B+

**Fig. 14.1**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
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
LIGHTING STALK (COLUMN SWITCHGEAR)	SC2 / 10-WAY MULTILOCK 070 / YELLOW	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
POWER WASH PUMP	LS43 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	RIGHT FRONT QUARTER PANEL / WASHER FLUID CONTAINER
WASH / WIPE STALK (COLUMN SWITCHGEAR)	SC1 / 12-WAY MULTILOCK 070 / WHITE	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
WINDSHIELD WASH PUMP AND FLUID LEVEL SENSOR	LS44 / 3-WAY AUGAT 1.6 / BLACK	RIGHT FRONT QUARTER PANEL / WASHER FLUID CONTAINER
WIPER MOTOR	EM33 / 4-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / BULKHEAD

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
WIPER RUN / STOP RELAY	BLACK	LS11 / BLACK	ENGINE COMPARTMENT FRONT RELAYS / ENGINE COMPARTMENT
WIPER FAST / SLOW RELAY	BLACK	LS11 / BLACK	ENGINE COMPARTMENT FRONT RELAYS / ENGINE COMPARTMENT
POWERWASH RELAY	BROWN	BUS	RELAY #4, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
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
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
LS3	54-WAY THROUGH PANEL CONNECTOR / BLACK	LH 'A' POST / LOWER 'A' POST FINISHER

**GROUNDS**

Ground	Location / Type
EM17	EYELET (SINGLE) - EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
LS18R	EYELET (PAIR) - LH FORWARD GROUND STUD
LS19L	EYELET (PAIR) - RH FORWARD 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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-23	IGNITION SWITCHED GROUND	GROUND	B+
I FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
O FC15-46	DRIVER DOOR - SLIDING ROOF GLOBAL CLOSE REQUEST	GROUND (MOMENTARY)	B+
O FC15-47	CENTRAL LOCKING SWITCH - SLIDING ROOF GLOBAL OPEN REQUEST	GROUND (MOMENTARY)	B+
I FC15-63	CENTRAL LOCKING REQUEST	GROUND (MOMENTARY)	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
I FC15-84	SCP NETWORK	2 - 1600 Hz	B+
S FC15-85	SCP NETWORK	2 - 1600 Hz	B+
I FC15-89	REAR WINDOW INHIBIT REQUEST	GROUND	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I DD10-1	BATTERY POWER SUPPLY	B+	B-
O DD10-7	WINDOW LIFT MOTOR DOWN SUPPLY	B+	GROUND
I DD10-8	LOGIC GROUND	GROUND	GROUND
S DD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
O DD10-10	DRIVER DOOR SWITCH PACK DRIVER WINDOW DOWN REQUEST	GROUND (MOMENTARY)	B-
O DD10-15	DRIVER DOOR WINDOW LIFT MOTOR UP SUPPLY	B+	GROUND
S DD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I DD10-17	POWER GROUND	GROUND	GROUND
I DD10-18	DRIVER DOOR SWITCH PACK DRIVER WINDOW UP REQUEST	GROUND (MOMENTARY)	GROUND
I DD10-19	DRIVER DOOR SWITCH PACK PASSENGER WINDOW UP REQUEST	GROUND (MOMENTARY)	GROUND
I DD11-4	DRIVER DOOR LOCK BARREL UNLOCK REQUEST	B+ (MOMENTARY)	GROUND
I DD11-6	DRIVER DOOR SWITCH PACK PASSENGER REAR WINDOW UP REQUEST	GROUND (MOMENTARY)	GROUND
I DD11-7	DRIVER DOOR SWITCH PACK PASSENGER WINDOW DOWN REQUEST	B+ (MOMENTARY)	GROUND
I DD11-12	DRIVER DOOR LOCK BARREL LOCK REQUEST	B+ (MOMENTARY)	GROUND
I DD11-15	DRIVER DOOR SWITCH PACK DRIVER REAR WINDOW DOWN REQUEST	GROUND (MOMENTARY)	B+
I DD11-21	DRIVER DOOR SWITCH PACK PASSENGER REAR WINDOW DOWN REQUEST	B+ (MOMENTARY)	GROUND
I DD11-22	DRIVER DOOR SWITCH PACK DRIVER REAR WINDOW UP REQUEST	GROUND (MOMENTARY)	GROUND

### DRIVER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RD10-1	BATTERY POWER SUPPLY	B+	B-
O RD10-7	DRIVER REAR WINDOW LIFT MOTOR DOWN SUPPLY	B+	GROUND
I RD10-8	LOGIC GROUND	GROUND	GROUND
S RD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
O RD10-15	DRIVER REAR WINDOW LIFT MOTOR UP SUPPLY	B+	GROUND
S RD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I RD10-17	POWER GROUND	GROUND	GROUND
I RD10-19	MODULE IDENTIFICATION	GROUND	GROUND
I RD11-6	DRIVER REAR DOOR SWITCH PACK WINDOW UP REQUEST	GROUND (MOMENTARY)	GROUND
I RD11-7	MODULE IDENTIFICATION	GROUND	GROUND
I RD11-21	DRIVER REAR DOOR SWITCH PACK WINDOW DOWN REQUEST	B+ (MOMENTARY)	GROUND

### PASSENGER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I PD10-1	BATTERY POWER SUPPLY	B+	B-
O PD10-7	PASSENGER WINDOW LIFT MOTOR DOWN SUPPLY	B+	GROUND
I PD10-8	LOGIC GROUND	GROUND	GROUND
S PD10-9	SCP NETWORK	2 - 1600 Hz	GROUND
O PD10-15	PASSENGER WINDOW LIFT MOTOR UP SUPPLY	B+	GROUND
S PD10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I PD10-17	POWER GROUND	GROUND	GROUND
I PD11-6	PASSENGER DOOR SWITCH PACK WINDOW UP REQUEST	GROUND (MOMENTARY)	GROUND
I PD11-21	PASSENGER DOOR SWITCH PACK WINDOW DOWN REQUEST	B+ (MOMENTARY)	GROUND

### PASSENGER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I RP10-1	BATTERY POWER SUPPLY	B+	B-
O RP10-7	PASSENGER REAR WINDOW LIFT MOTOR DOWN SUPPLY	B+	GROUND
I RP10-8	LOGIC GROUND	GROUND	GROUND
S RP10-9	SCP NETWORK	2 - 1600 Hz	GROUND
O RP10-15	PASSENGER REAR WINDOW LIFT MOTOR UP SUPPLY	B+	GROUND
S RP10-16	SCP NETWORK	2 - 1600 Hz	GROUND
I RP10-17	POWER GROUND	GROUND	GROUND
I RP11-6	PASSENGER REAR DOOR SWITCH PACK WINDOW UP REQUEST	GROUND (MOMENTARY)	GROUND
I RP11-21	PASSENGER REAR DOOR SWITCH PACK WINDOW DOWN REQUEST	B+ (MOMENTARY)	GROUND

### SECURITY AND LOCKING CONTROL MODULE

Pin	Description	Active	Inactive
S BT1-8	SCP NETWORK	2 - 1600 Hz	B-
I BT1-13	LOGIC GROUND	GROUND	GROUND
I BT1-14	LOGIC GROUND	GROUND	GROUND
I BT1-15	BATTERY POWER SUPPLY	B+	B-
S BT1-16	SCP NETWORK	2 - 1600 Hz	B-
I BT6-1	KEY FOB ANTENNA		
I BT6-2	KEY FOB ANTENNA SHIELD	GROUND	GROUND

### SLIDING ROOF CONTROL MODULE

Pin	Description	Active	Inactive
I CA64-1	BATTERY SUPPLY	B+	B-
I CA64-2	CENTRAL LOCKING SWITCH - SLIDING ROOF GLOBAL CLOSE REQUEST	GROUND (MOMENTARY)	B+
I CA64-3	GROUND SUPPLY	GROUND (MOMENTARY)	GROUND
I CA64-4	DRIVER DOOR - SLIDING ROOF GLOBAL CLOSE REQUEST	GROUND	B+
I CA64-5	SLIDING ROOF SWITCH OPEN REQUEST	GROUND (MOMENTARY)	B+
I CA64-6	SLIDING ROOF SWITCH CLOSE REQUEST	GROUND (MOMENTARY)	B+
O SR2-1	SLIDING ROOF MOTOR SUPPLY	B+	GROUND
O SR2-3	SLIDING ROOF MOTOR 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. 15.1

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
CENTRAL LOCKING SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER	PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER REAR	RP10 / 22-WAY FORD 2.8 TIMER / BLUE RP11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK SWITCHES - DRIVER INSTRUMENT PACK	DD3 / 13-WAY ECONOSEAL III LC / BLACK FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	DOOR CASING / TRIM PANEL FASCIA
KEY FOB ANTENNA	BT33 / 1-WAY COAXIAL CONNECTOR	TOP OF BACKLIGHT
REAR WINDOW INHIBIT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MGS-26 / YELLOW	DOOR TRIM PANEL
SECURITY AND LOCKING CONTROL MODULE	BT1 / 16-WAY FORD 2.8 TIMER / BLACK BT2 / 26-WAY FORD IDC / BLACK BT6 / 1-WAY COAXIAL CONNECTOR	BELOW TRUNK FUSE BOX
SLIDING ROOF CONTROL MODULE	CA64 / 6-WAY MULTILOCK 070 / WHITE	ROOF CONSOLE
SLIDING ROOF MOTOR	SR2 / 3-WAY MULTILOCK 070 / WHITE	ROOF CONSOLE
SLIDING ROOF SWITCH (ROOF CONSOLE)	CA53 / 8-WAY MULTILOCK 040 / BLACK	ROOF CONSOLE
SWITCH PACK - DRIVER REAR DOOR	RD1 / 5-WAY LAG / GREEN	DOOR TRIM PANEL
SWITCH PACK - PASSENGER DOOR	PD1 / 26-WAY MGS-26 / YELLOW	DOOR TRIM PANEL
SWITCH PACK - PASSENGER REAR DOOR	RP1 / 5-WAY LAG / GREEN	DOOR TRIM PANEL
WINDOW LIFT MOTOR - DRIVER	DD15 / 2-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
WINDOW LIFT MOTOR - DRIVER REAR	RD18 / 2-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
WINDOW LIFT MOTOR - PASSENGER	PD16 / 2-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
WINDOW LIFT MOTOR - PASSENGER REAR	RP16 / 2-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
WINDOW LIFT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MGS-26 / YELLOW	DOOR TRIM PANEL

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER '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
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDS

Ground	Location / Type
BT22L	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD
BT34	EYELET (SINGLE) - KEY FOB ANTENNA GROUND / BACKLIGHT / CENTER
CA30L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA33L	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CC3R	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE

### CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)



## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
FC15-15	IGNITION SWITCHED GROUND	GROUND	B+
FC15-33	IGNITION SWITCHED GROUND	GROUND	B+
FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)	B+
FC15-46	DRIVER DOOR - SLIDING ROOF GLOBAL CLOSE REQUEST	GROUND (MOMENTARY)	B+
FC15-47	CENTRAL LOCKING SWITCH - SLIDING ROOF GLOBAL OPEN REQUEST	GROUND (MOMENTARY)	B+
FC15-63	CENTRAL LOCKING REQUEST	GROUND (MOMENTARY)	B+
FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+
FC15-84	SCP NETWORK	2 - 1600 Hz	B+
FC15-85	SCP NETWORK	2 - 1600 Hz	B+
FC15-89	REAR WINDOW INHIBIT REQUEST	GROUND	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
DD10-1	BATTERY POWER SUPPLY	B+	B+
DD10-7	WINDOW LIFT MOTOR DOWN SUPPLY	B+	B+
DD10-8	LOGIC GROUND	GROUND	B+
DD10-9	SCP NETWORK	2 - 1600 Hz	B+
DD10-10	DRIVER DOOR SWITCH PACK DRIVER WINDOW DOWN REQUEST	GROUND (MOMENTARY)	B+
DD10-15	DRIVER DOOR WINDOW LIFT MOTOR UP SUPPLY	B+	B+
DD10-16	SCP NETWORK	2 - 1600 Hz	B+
DD10-17	POWER GROUND	GROUND	B+
DD10-18	DRIVER DOOR SWITCH PACK DRIVER WINDOW UP REQUEST	GROUND (MOMENTARY)	B+
DD10-19	DRIVER DOOR SWITCH PACK PASSENGER WINDOW UP REQUEST	GROUND (MOMENTARY)	B+
DD11-4	DRIVER DOOR LOCK BARREL UNLOCK REQUEST	B+ (MOMENTARY)	B+
DD11-6	DRIVER DOOR SWITCH PACK PASSENGER REAR WINDOW UP REQUEST	GROUND (MOMENTARY)	B+
DD11-7	DRIVER DOOR SWITCH PACK PASSENGER WINDOW DOWN REQUEST	GROUND (MOMENTARY)	B+
DD11-12	DRIVER DOOR LOCK BARREL LOCK REQUEST	B+ (MOMENTARY)	B+
DD11-15	DRIVER DOOR SWITCH PACK DRIVER REAR WINDOW DOWN REQUEST	GROUND (MOMENTARY)	B+
DD11-21	DRIVER DOOR SWITCH PACK PASSENGER REAR WINDOW DOWN REQUEST	B+ (MOMENTARY)	B+
DD11-22	DRIVER DOOR SWITCH PACK DRIVER REAR WINDOW UP REQUEST	GROUND (MOMENTARY)	B+

### DRIVER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
RD10-1	BATTERY POWER SUPPLY	B+	B+
RD10-7	DRIVER REAR WINDOW LIFT MOTOR DOWN SUPPLY	B+	B+
RD10-8	LOGIC GROUND	GROUND	B+
RD10-9	SCP NETWORK	2 - 1600 Hz	B+
RD10-15	DRIVER REAR WINDOW LIFT MOTOR UP SUPPLY	B+	B+
RD10-16	SCP NETWORK	2 - 1600 Hz	B+
RD10-17	POWER GROUND	GROUND	B+
RD10-19	MODULE IDENTIFICATION	GROUND	B+
RD11-6	DRIVER REAR DOOR SWITCH PACK WINDOW UP REQUEST	GROUND (MOMENTARY)	B+
RD11-7	MODULE IDENTIFICATION	GROUND	B+
RD11-21	DRIVER REAR DOOR SWITCH PACK WINDOW DOWN REQUEST	B+ (MOMENTARY)	B+

### PASSENGER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
PD10-1	BATTERY POWER SUPPLY	B+	B+
PD10-7	PASSENGER WINDOW LIFT MOTOR DOWN SUPPLY	B+	B+
PD10-8	LOGIC GROUND	GROUND	B+
PD10-9	SCP NETWORK	2 - 1600 Hz	B+
PD10-15	PASSENGER WINDOW LIFT MOTOR UP SUPPLY	B+	B+
PD10-16	SCP NETWORK	2 - 1600 Hz	B+
PD10-17	POWER GROUND	GROUND	B+
PD11-6	PASSENGER DOOR SWITCH PACK WINDOW UP REQUEST	GROUND (MOMENTARY)	B+
PD11-21	PASSENGER DOOR SWITCH PACK WINDOW DOWN REQUEST	B+ (MOMENTARY)	B+

### PASSENGER REAR DOOR CONTROL MODULE

Pin	Description	Active	Inactive
RP10-1	BATTERY POWER SUPPLY	B+	B+
RP10-7	PASSENGER REAR WINDOW LIFT MOTOR DOWN SUPPLY	B+	B+
RP10-8	LOGIC GROUND	GROUND	B+
RP10-9	SCP NETWORK	2 - 1600 Hz	B+
RP10-15	PASSENGER REAR WINDOW LIFT MOTOR UP SUPPLY	B+	B+
RP10-16	SCP NETWORK	2 - 1600 Hz	B+
RP10-17	POWER GROUND	GROUND	B+
RP11-6	PASSENGER REAR DOOR SWITCH PACK WINDOW UP REQUEST	GROUND (MOMENTARY)	B+
RP11-21	PASSENGER REAR DOOR SWITCH PACK WINDOW DOWN REQUEST	B+ (MOMENTARY)	B+

### SECURITY AND LOCKING CONTROL MODULE

Pin	Description	Active	Inactive
BT1-8	SCP NETWORK	2 - 1600 Hz	B+
BT1-13	LOGIC GROUND	GROUND	B+
BT1-14	LOGIC GROUND	GROUND	B+
BT1-15	BATTERY POWER SUPPLY	B+	B+
BT1-16	SCP NETWORK	2 - 1600 Hz	B+
BT6-1	KEY FOB ANTENNA		B+
BT6-2	KEY FOB ANTENNA SHIELD	GROUND	B+

### SLIDING ROOF CONTROL MODULE

Pin	Description	Active	Inactive
CA64-1	BATTERY SUPPLY	B+	B+
CA64-2	CENTRAL LOCKING SWITCH - SLIDING ROOF GLOBAL CLOSE REQUEST	GROUND (MOMENTARY)	B+
CA64-3	GROUND SUPPLY	GROUND (MOMENTARY)	B+
CA64-4	DRIVER DOOR - SLIDING ROOF GLOBAL CLOSE REQUEST	GROUND	B+
CA64-5	SLIDING ROOF SWITCH OPEN REQUEST	GROUND (MOMENTARY)	B+
CA64-6	SLIDING ROOF SWITCH CLOSE REQUEST	GROUND (MOMENTARY)	B+
SR2-1	SLIDING ROOF MOTOR SUPPLY	B+	B+
SR2-3	SLIDING ROOF MOTOR SUPPLY	B+	B+

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. 15.2

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
CENTRAL LOCKING SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	CENTER CONSOLE SWITCH PACK
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER	PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER REAR	RP10 / 22-WAY FORD 2.8 TIMER / BLUE RP11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR LOCK SWITCHES - DRIVER INSTRUMENT PACK	DD3 / 13-WAY ECONOSEAL III LC / BLACK FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	DOOR CASING / TRIM PANEL FASCIA
KEY FOB ANTENNA	BT33 / 1-WAY COAXIAL CONNECTOR	TOP OF BACKLIGHT
REAR WINDOW INHIBIT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
SECURITY AND LOCKING CONTROL MODULE	BT1 / 16-WAY FORD 2.8 TIMER / BLACK BT2 / 26-WAY FORD IDC / BLACK BT6 / 1-WAY COAXIAL CONNECTOR	BELOW TRUNK FUSE BOX
SLIDING ROOF CONTROL MODULE	CA64 / 6-WAY MULTILOCK 070 / WHITE	ROOF CONSOLE
SLIDING ROOF MOTOR	SR2 / 3-WAY MULTILOCK 070 / WHITE	ROOF CONSOLE
SLIDING ROOF SWITCH (ROOF CONSOLE)	CA63 / 8-WAY MULTILOCK 040 / BLACK	ROOF CONSOLE
SWITCH PACK - DRIVER REAR DOOR	RD1 / 5-WAY LAG / GREEN	DOOR TRIM PANEL
SWITCH PACK - PASSENGER DOOR	PD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL
SWITCH PACK - PASSENGER REAR DOOR	RP1 / 5-WAY LAG / GREEN	DOOR TRIM PANEL
WINDOW LIFT MOTOR - DRIVER	DD16 / 2-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
WINDOW LIFT MOTOR - DRIVER REAR	RD16 / 2-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
WINDOW LIFT MOTOR - PASSENGER	PD16 / 2-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
WINDOW LIFT MOTOR - PASSENGER REAR	RP16 / 2-WAY ECONOSEAL III LC / BLACK	DOOR CASING / TRIM PANEL
WINDOW LIFT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY MQS-26 / YELLOW	DOOR TRIM PANEL

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA10	8-WAY MULTILOCK 070 / YELLOW	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER '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
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
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDS

Ground	Location / Type
DT22L	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD
BT34	EYELET (SINGLE) - KEY FOB ANTENNA GROUND / BACKLIGHT / CENTER
CA30L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA30R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA33L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA33R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CA36L	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA36R	EYELET (PAIR) - RH 'A' POST GROUND SCREW
CC3R	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE

### CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)



## CONTROL MODULE PIN OUT INFORMATION

### INSTRUMENT PACK

Pin	Description	Active	Inactive
C FC24-24	CAN NETWORK	15 – 1500 Hz	
C FC24-47	CAN NETWORK	15 – 1500 Hz	
O FC25-20	VEHICLE SPEED	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+	

### RADIO / CASSETTE HEAD UNIT

Pin	Description	Active	Inactive
I IC10-1	VEHICLE SPEED	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+	
I IC10-2	STEERING WHEEL AUDIO CONTROLS	0 V = MODE, 1.2 V = SEEK, 2.4 V = VOLUME '+', 3.7 V = VOLUME '-'	5V
O IC10-5	ANTENNA UP	B+	GROUND

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

**Fig. 16.1**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
ANTENNA MOTOR	BT19 / 6-WAY YAZAKI TYPE C / WHITE	ANTENNA MOTOR ASSEMBLY / BATTERY COVER
CD AUTO-CHANGER	IC5 / CD AUTOCHANGER DATA CABLE	TRUNK LH SIDE / TRUNK CARPET
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
RADIO / CASSETTE HEAD UNIT	CA3 / COAXIAL CONNECTOR IC10 / 20-WAY MULTILOCK 070 / WHITE IC19 / CD AUTOCHANGER DATA CABLE CA7 / COAXIAL CONNECTOR	CENTER CONSOLE
RADIO ANTENNA	SW4 / 3-WAY EPC / BLACK / WHITE	ANTENNA MOTOR ASSEMBLY / BATTERY COVER
RADIO CONTROL SWITCHES (STEERING WHEEL)	RT2 / 10-WAY MULTILOCK 070 / WHITE	STEERING WHEEL
RADIO TELEPHONE CONNECTOR	CA66 / 2-WAY MULTILOCK 040 / BLACK	BELOW CENTER CONSOLE GLOVE BOX
SPEAKER, 'A' POST TWEETER – LH	CA54 / 2-WAY MULTILOCK 040 / BLACK	LH 'A' POST / UPPER 'A' POST TRIM
SPEAKER, 'A' POST TWEETER – RH	RDR / 2-WAY GROTE & HARTMAN MDK / BLACK	RH 'A' POST / UPPER 'A' POST TRIM
SPEAKER, REAR DOOR MID-BASS – DRIVER SIDE	RP6 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, REAR DOOR MID-BASS – PASSENGER SIDE	RD5 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, REAR DOOR TWEETER – DRIVER SIDE	RP5 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, REAR DOOR TWEETER – PASSENGER SIDE	DD6 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, FRONT DOOR MID-BASS – DRIVER SIDE	PD6 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, FRONT DOOR MID-BASS – PASSENGER SIDE	DD5 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, FRONT DOOR TWEETER – DRIVER SIDE	PD5 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, FRONT DOOR TWEETER – PASSENGER SIDE		

### 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
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
IC1	14-WAY MULTILOCK 070 / WHITE	LH HEELBOARD
IC3	12-WAY MULTILOCK 070 / WHITE	LH HEELBOARD
SC3	12-WAY MULTILOCK 070 / GREY	ADJACENT TO STEERING COLUMN MOTOR

### GROUNDS

Ground	Location / Type
BT28L	EYELET (PAIR) – TRUNK / RH CENTER GROUND STUD (RH FORWARD – EARLY PRODUCTION VEHICLES)
CE2	EYELET (SINGLE) – RADIO GROUND STUD / TRANSMISSION TUNNEL / CENTER
FC17R	EYELET (PAIR) – EMS 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, HARNESES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.



**CONTROL MODULE PIN OUT INFORMATION**

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
C FC24-24	CAN NETWORK	15 – 1500 Hz	
C FC24-47	CAN NETWORK	15 – 1500 Hz	
O FC25-20	VEHICLE SPEED	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+	

**POWER AMPLIFIER**

Pin	Description	Active	Inactive
I IC30-1	RH REAR CHANNEL LOW LEVEL INPUT	0 – 30 Mv	0 Mv
I IC30-2	RH FRONT CHANNEL LOW LEVEL INPUT	0 – 30 Mv	0 Mv
SG IC30-3	SIGNAL GROUND	GROUND	GROUND
I IC30-6	LH REAR CHANNEL LOW LEVEL INPUT	0 – 30 Mv	0 Mv
I IC30-7	LH FRONT CHANNEL LOW LEVEL INPUT	0 – 30 Mv	0 Mv
I IC31-1	AMPLIFIER TRIGGER ON SIGNAL	B+	GROUND

**RADIO / CASSETTE HEAD UNIT**

Pin	Description	Active	Inactive
I IC10-1	VEHICLE SPEED	22 Hz @ 10 MPH (16 KM/H); 44 Hz @ 20 MPH (32 KM/H) @ B+	
I IC10-2	STEERING WHEEL AUDIO CONTROLS	0 V = MODE, 1.2 V = SEEK, 2.4 V = VOLUME '+', 3.7 V = VOLUME '-'	5V
O IC10-5	ANTENNA UP	B+	GROUND

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

**Fig. 16.2**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
ANTENNA MOTOR	BT19 / 6-WAY YAZAKI TYPE C / WHITE	ANTENNA MOTOR ASSEMBLY / BATTERY COVER
CD AUTO-CHANGER	IC5 / CD AUTOCHANGER DATA CABLE	TRUNK LH SIDE / TRUNK CARPET
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
POWER AMPLIFIER	IC30 / 12-WAY MULTILOCK 070 / WHITE IC31 / 18-WAY MULTILOCK 070 / WHITE	TRUNK LH SIDE / TRUNK CARPET
RADIO / CASSETTE HEAD UNIT	CA3 / COAXIAL CONNECTOR IC10 / 20-WAY MULTILOCK 070 / WHITE IC19 / CD AUTOCHANGER DATA CABLE	CENTER CONSOLE
RADIO ANTENNA	CA7 / COAXIAL CONNECTOR	ANTENNA MOTOR ASSEMBLY / BATTERY COVER
RADIO CONTROL SWITCHES (STEERING WHEEL)	SW4 / 3-WAY EPC / BLACK / WHITE	STEERING WHEEL
RADIO TELEPHONE CONNECTOR	RT2 / 10-WAY MULTILOCK 070 / WHITE	BELOW CENTER CONSOLE GLOVE BOX
SPEAKER, 'A' POST TWEETER – LH	CA56 / 2-WAY MULTILOCK 040 / BLACK	LH 'A' POST / UPPER 'A' POST TRIM
SPEAKER, 'A' POST TWEETER – RH	CA54 / 2-WAY MULTILOCK 040 / BLACK	RH 'A' POST / UPPER 'A' POST TRIM
SPEAKER, REAR DOOR MID-BASS – DRIVER SIDE	RD6 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, REAR DOOR MID-BASS – PASSENGER SIDE	RP6 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, REAR DOOR TWEETER – DRIVER SIDE	RD5 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, REAR DOOR TWEETER – PASSENGER SIDE	RP5 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, FRONT DOOR MID-BASS – DRIVER SIDE	DD6 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, FRONT DOOR MID-BASS – PASSENGER SIDE	PD6 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SUBWOOFER	BT52 / 2-WAY GROTE & HARTMAN MDK / BLACK BT53 / 2-WAY GROTE & HARTMAN MDK / BLACK	ABOVE FUEL TANK / TRUNK CARPET

**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
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
IC1	14-WAY MULTILOCK 070 / WHITE	LH HEELBOARD
IC3	12-WAY MULTILOCK 070 / WHITE	LH HEELBOARD
SC3	12-WAY MULTILOCK 070 / GREY	ADJACENT TO STEERING COLUMN MOTOR

**GROUNDS**

Ground	Location / Type
BT22R	EYELET (PAIR) – TRUNK / RH CENTER GROUND STUD
BT28L	EYELET (PAIR) – TRUNK / RH CENTER GROUND STUD (RH FORWARD – EARLY PRODUCTION VEHICLES)
CE2	EYELET (SINGLE) – RADIO GROUND STUD / TRANSMISSION TUNNEL / CENTER
FC17R	EYELET (PAIR) – EMS 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, HARNESSSES, GROUNDS, VEHICLE CONTROL MODULES AND CONTROL MODULE PINS.**

**Fig. 16.3**

**COMPONENTS**

<b>Component</b>	<b>Connector / Type / Color</b>	<b>Location / Access</b>
TELEPHONE ANTENNA	RT64 / COAXIAL CONNECTOR RT65 / COAXIAL CONNECTOR RT66 / COAXIAL CONNECTOR	BELOW CENTER CONSOLE GLOVE BOX HEATED BACKLIGHT / HEADLINING / REAR CENTER CONSOLE
TELEPHONE HANDSET	RT5 / TELEPHONE / PROPRIETARY	CENTER CONSOLE
TELEPHONE MICROPHONE	CA67 / 2-WAY MULTILOCK 040 / BLUE	ROOF CONSOLE
TELEPHONE TRANSCEIVER	RT3 / TELEPHONE / PROPRIETARY RT4 / TELEPHONE / PROPRIETARY	CENTER CONSOLE

**HARNESS-TO-HARNESS CONNECTORS**

<b>Connector</b>	<b>Type / Color</b>	<b>Location / Access</b>
RT1	TELEPHONE / PROPRIETARY	CENTER CONSOLE
RT2	10-WAY MULTILOCK 070 / WHITE	BELOW CENTER CONSOLE GLOVE BOX

**GROUNDS**

<b>Ground</b>	<b>Location / Type</b>
CA38R	EYELET (PAIR) - LH HEELBOARD POST GROUND SCREW

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**

**AIRBAG / SRS SINGLE POINT SENSOR**

Pin	Description	Active	Inactive
O CA61-1	LH SEAT BELT PRETENSIONER POWER SUPPLY	B+	OPEN CIRCUIT
O CA61-2	LH SEAT BELT PRETENSIONER GROUND SUPPLY	GROUND	OPEN CIRCUIT
O CA61-3	RH SEAT BELT PRETENSIONER POWER SUPPLY	B+	OPEN CIRCUIT
O CA61-4	RH SEAT BELT PRETENSIONER GROUND SUPPLY	GROUND	OPEN CIRCUIT
I CA61-5	IGNITION SUPPLY VOLTAGE	B+	GROUND
I CA61-6	GROUND SUPPLY	GROUND	GROUND
O CA61-7	INSTRUMENT PACK 'SRS' MIL	GROUND (NO FAULT)	B+
D CA61-9	DIAGNOSTIC OUTPUT SERIAL OUTPUT	ENCODED COMMUNICATION	B+
O CA61-10	STEERING WHEEL AIRBAG POWER SUPPLY	B+	OPEN CIRCUIT
O CA61-11	STEERING WHEEL AIRBAG GROUND SUPPLY	GROUND	OPEN CIRCUIT
O CA61-13	PASSENGER FASCIA AIRBAG POWER SUPPLY	B+	OPEN CIRCUIT
O CA61-14	PASSENGER FASCIA AIRBAG GROUND SUPPLY	GROUND	OPEN CIRCUIT
O CA61-16	DRIVER SIDE AIRBAG POWER SUPPLY	B+	OPEN CIRCUIT
O CA61-17	DRIVER SIDE AIRBAG GROUND SUPPLY	GROUND	OPEN CIRCUIT
O CA61-18	PASSENGER SIDE AIRBAG POWER SUPPLY	B+	OPEN CIRCUIT
O CA61-19	PASSENGER SIDE AIRBAG GROUND SUPPLY	GROUND	OPEN CIRCUIT
I CA61-20	LH SIDE IMPACT SENSOR GROUND SUPPLY	GROUND	B+
I CA61-21	RH SIDE IMPACT SENSOR GROUND SUPPLY	GROUND	B+
I CA61-22	LH SIDE IMPACT SENSOR STATUS	GROUND (SHORTED)	B+
I CA61-23	RH SIDE IMPACT SENSOR STATUS	GROUND (SHORTED)	B+
I CA61-24	LH SIDE IMPACT SENSOR GROUND SUPPLY STATUS	GROUND (NO FAULT)	GROUND
I CA61-25	RH SIDE IMPACT SENSOR GROUND SUPPLY STATUS	GROUND (NO FAULT)	GROUND
O CA61-40	SRS AUDIBLE BACKUP	ENCODED COMMUNICATIONS	GROUND

**Fig. 17.1**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
AIRBAG / SRS SINGLE POINT SENSOR	CA61 / 50-WAY ELO50 / YELLOW	BELOW CENTER CONSOLE ASSEMBLY
AIRBAG - DRIVER SIDE	SW11 / 3-WAY EPC / BLACK	CENTER OF STEERING WHEEL
AIRBAG - PASSENGER SIDE	CA81 / 3-WAY CARDEL / FORD / GREY	PASSENGER AIR BAG
SEAT BELT PRETENSIONER - LH	CA62 / 2-WAY FORD AIRBAG / YELLOW	INSIDE LH 'B/C' POST / 'B/C' POST TRIM
SEAT BELT PRETENSIONER - RH	CA65 / 2-WAY FORD AIRBAG / YELLOW	INSIDE RH 'B/C' POST / 'B/C' POST TRIM
SIDE AIRBAG - DRIVER	SM16-D / 2-WAY AMPHENOL / YELLOW	DRIVER SEAT / SIDE
SIDE AIRBAG - PASSENGER	SM15-P / 2-WAY AMPHENOL / YELLOW	PASSENGER SEAT / SIDE
SIDE IMPACT SENSOR - LH	CA15 / 3-WAY MOLEX C-GRID / BLACK	INSIDE 'B/C' POST / 'B/C' POST TRIM
SIDE IMPACT SENSOR - RH	CA22 / 3-WAY MOLEX C-GRID / BLACK	INSIDE 'B/C' POST / 'B/C' POST TRIM
SPLICE HEADER - CA225	CA225 / 20-WAY SUMITOMO SPLICE HEADER / NATURAL	LH HEELBOARD / HEELBOARD COVER

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
CA66	3-WAY FORD / CARD / BLACK	BELOW SEAT
CA72	3-WAY FORD / CARD / BLACK	BELOW SEAT
FC5	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW DRIVER SIDE AIR VENT / COIN TRAY
SW10	3-WAY EPC / BLACK	CENTER OF STEERING WHEEL

**GROUNDS**

Ground	Location / Type
CA48	EYELET (SINGLE) - RH HEELBOARD POST GROUND SCREW (AIRBAG ONLY GROUND)

**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.

**CONTROL MODULE PIN OUT INFORMATION**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
I FC15-4	HORN ACTIVATE REQUEST	GROUND (MOMENTARY)	B+
O FC15-70	HORN RELAY ACTIVATE	GROUND (MOMENTARY)	B+
I FC15-80	BATTERY SUPPLY VOLTAGE	B+	B+

**Fig. 18.1**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
CIGAR LIGHTER - FRONT	CA74 / 3-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
CIGAR LIGHTER - REAR	CA75 / 2-WAY CIGAR LIGHTER / YELLOW CA76 / LUCAR - LOCKING POSILOCK MKI	REAR CENTER CONSOLE VENT
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 - 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 BT84 / EYELET	TRUNK ELECTRICAL CARRIER
HORN SWITCHES (STEERING WHEEL)	HP1 / 1-WAY BLADE HP2 / 1-WAY BLADE	CENTER OF STEERING WHEEL
HORN - LH	LS46 / LUCAR - LOCKING POSILOCK MKI LS47 / LUCAR - LOCKING POSILOCK MKI	FORWARD OF RADIATOR - LH SIDE / RADIATOR GRILLE
HORN - RH	LS48 / LUCAR - LOCKING POSILOCK MKI LS49 / LUCAR - LOCKING POSILOCK MKI	FORWARD OF RADIATOR - RH SIDE / RADIATOR GRILLE
PASSENGER COMPARTMENT ACCESSORY CONNECTOR	CA71 / 3-WAY AMP SERIES 250 PIN / BLACK	RH HEELBOARD / HEELBOARD COVER
TRUNK ACCESSORY CONNECTOR	BT25 / 3-WAY AMP SERIES 250 PIN / BLACK	ADJACENT TO BATTERY / BATTERY COVER

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
HORN RELAY	BROWN	BUS	RELAY #6, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT
ACCESSORY CONNECTOR RELAY	BROWN	BUS	RELAY #6, TRUNK FUSE BOX / TRUNK

**HARNESSTO-HARNES 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
SC2	10-WAY MULTILOCK 070 / YELLOW	ADJACENT TO STEERING COLUMN MOTOR
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
BT21R	EYELET (PAIR) - TRUNK / RH REAR GROUND STUD
CA31R	EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD
CA47L	EYELET (PAIR) - DRIVE SHAFT TUNNEL GROUND STUD - RH SIDE
CA47R	EYELET (PAIR) - DRIVE SHAFT TUNNEL GROUND STUD - RH SIDE
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
LS18R	EYELET (PAIR) - LH FORWARD GROUND STUD
LS20R	EYELET (PAIR) - RH FORWARD 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

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## CONTROL MODULE PIN OUT INFORMATION

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

**Fig. 19.1**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
ABS / TRACTION CONTROL CONTROL MODULE	LS27 / 25-WAY AMP / FORD / BLACK	ENGINE COMPARTMENT / BEHIND LH HEADLAMP ASSEMBLY
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DATA LINK CONNECTOR	CC6 / 16-WAY AMP (OBD2) / BLACK	TRANSMISSION TUNNEL
DOOR CONTROL MODULE - DRIVER	DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - DRIVER REAR	RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER	PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
DOOR CONTROL MODULE - PASSENGER REAR	RP10 / 22-WAY FORD 2.8 TIMER / BLUE RP11 / 22-WAY FORD 2.8 TIMER / BLACK	DOOR CASING / TRIM PANEL
ENGINE CONTROL MODULE	EM10 / 28-WAY MULTILOCK 040 / GREY EM11 / 18-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
INSTRUMENT PACK	FC24 / 48-WAY AMP MODULE PCB SIGNAL / BLACK FC25 / 24-WAY AMP MODULE PCB SIGNAL / BLACK	FASCIA
SEAT CONTROL MODULE - DRIVER	SM1-D / 16-WAY FORD 2.8 TIMER / BLACK SM2-D / 26-WAY FORD IDC / BLACK SM3-D / 10-WAY FORD 2.8 TIMER / BLACK	DRIVER SEAT / UNDER
SEAT CONTROL MODULE - PASSENGER	SM1-P / 16-WAY FORD 2.8 TIMER / BLACK SM3-P / 10-WAY FORD 2.8 TIMER / BLACK	PASSENGER SEAT / UNDER
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
TRANSMISSION CONTROL MODULE: AJ26 N/A	EM7 / 88-WAY BOSCH / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
TRANSMISSION CONTROL MODULE: AJ26 SC	EM81 / 18-WAY AMP JUNIOR POWER TIMER / BLACK EM82 / 14-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / BLACK	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA8	20-WAY MULTILOCK 070 / WHITE	DRIVER 'A' POST / DOOR HARNESS GAITER
CA11	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / DOOR HARNESS GAITER
CA19	20-WAY MULTILOCK 070 / YELLOW	LH '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
CA45	6-WAY MULTILOCK 070 / WHITE	PASSENGER 'B/C' POST / DOOR HARNESS GAITER
CA46	4-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
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
FC1	54-WAY THROUGH PANEL CONNECTOR / BLACK	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC7	20-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
FC11	18-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

### GROUND

Ground	Location / Type
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE

### CONTROL MODULE PIN OUT INFORMATION (FOLD OUT PAGE)



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**CONTROL MODULE PIN OUT INFORMATION**

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

**Fig. 19.2**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
ADAPTIVE DAMPING CONTROL MODULE	EM68 / 35-WAY AMP JUNIOR POWER TIMER / BLACK	ADJACENT TO PASSENGER SIDE BLOWER / GLOVE BOX ASSEMBLY
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
AIR CONDITIONING CONTROL PANEL	CC27 / 12-WAY MULTILOCK 040 / BLUE	CENTER CONSOLE
AIRBAG / SRS SINGLE POINT SENSOR	CA61 / 50-WAY ELO50 / YELLOW	BELOW CENTER CONSOLE ASSEMBLY
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DATA LINK CONNECTOR	CC6 / 16-WAY AMP (OBD2) / BLACK	TRANSMISSION TUNNEL
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
KEY TRANSPONDER MODULE	FC22 / 20-WAY MULTILOCK 040 / GREEN	BELOW INSTRUMENT PACK
SPLICE HEADER - CA225	CA225 / 20-WAY SUMITOMO SPLICE HEADER / NATURAL	LH HEELBOARD / HEELBOARD COVER

**HARNESSTO-HARNESSTO CONNECTORS**

Connector	Type / Color	Location / Access
CA19	20-WAY MULTILOCK 070 / YELLOW	LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
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
FC11	18-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

**GROUNDS**

Ground	Location / Type
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD 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.



This Appendix contains a listing of CAN and SCP Network messages.

## Abbreviations

The following abbreviations are used throughout this Appendix

BPM	Body Processor Module
DIAG	Diagnostics
DDCM	Driver Door Control Module
DRDCM	Driver Rear Door Control Module
DSCM	Driver Seat Control Module
INST	Instrument Pack
PDCM	Passenger Door Control Module
PRDCM	Passenger Rear Door Control Module
PSCM	Passenger Seat Control Module
R	Receive
T	Transmit
SLCM	Security and Locking Control Module



## CAN Messages by Node

### Node: Engine Control Module

#### Transmitted by ECM

Message	Usage
CAN traction acknowledge	Confirms torque reduction for traction control
CAN traction control estimated engine torque	Derived from map of engine characteristics
CAN shift energy management estimated engine torque	Derived from map of engine characteristics
CAN throttle position	Throttle valve position
CAN pedal position	Accelerator pedal position, throttle demand
CAN torque reduction acknowledge	Confirms torque reduction for shift energy management
CAN engine speed	Engine speed
CAN brake pedal pressed	Brake switch status
CAN cruise status	Cruise control system status
CAN park brake status	Indicates whether the parking brake is on
CAN OBDII clear fault codes	Request for ABS and TCM to clear their OBDII DTCs
CAN engine coolant temperature	Engine coolant temperature in Celsius
CAN engine OBDII MIL	MIL control for OBDII DTCs
CAN throttle malfunction red	Red throttle malfunction warnings
CAN throttle malfunction amber	Amber throttle malfunction warnings
CAN ECM fault code MIL status	Indicates whether the ECM DTC should switch MIL on
CAN ECM PECUS flag	PECUS programmed status of ECM
CAN engine fault codes	ECM DTCs, including OBDII P and C codes
CAN fuel used	Derived from injector pulse duration
CAN NWM token – ECM	Message for monitoring network status
CAN diagnostic data out – ECM	To external diagnostics device only





## CAN Messages by Node

## Node: Engine Control Module

## Received by ECM

Message	Usage	Source
CAN torque reduction throttle	For traction control – throttle intervention	ABS
CAN fast torque reduction ignition	Fast stability control response – ignition retard	ABS
CAN fast torque reduction cylinder	Fast stability control response – cylinder fuel cut off	ABS
CAN torque reduction request	For shift energy management	TCM
CAN transmission overload	Protects transmission against excessive torque	TCM
CAN transmission input speed	Transmission input shaft speed	TCM
CAN transmission output speed	Transmission output shaft speed	TCM
CAN torque converter slip	Percentage of torque converter slip	TCM
CAN kickdown	Kickdown status	TCM
CAN traction status	Indicates if the traction algorithm is functioning	ABS
CAN vehicle reference speed	Vehicle speed based on a standard wheel size	ABS
CAN ABS fault codes	ABS DTCs, including OBDII P and C codes	ABS
CAN OBDII ABS clear acknowledge	Acknowledgment that OBDII DTCs have been cleared	ABS
CAN ABS fault code MIL status	Indicates whether the ABS DTC should switch MIL on	ABS
CAN ABS malfunction	Malfunction information for ABS and brake systems	ABS
CAN sidelamp status	Side lamp state for idle speed control	INST
CAN dipped beam status	Dipped beam state for idle speed control	INST
CAN main beam status	Main beam state for idle speed control	INST
CAN oil pressure low	Indicates low engine oil pressure	INST
CAN fuel level damped	Indicates 'damped' level of fuel in tank	INST
CAN fuel level raw	Indicates 'raw – undamped' level of fuel in tank	INST
CAN gear position actual	Actual transmission gear state	TCM
CAN torque converter status	Indicates torque converter lockup	TCM
CAN gear position selected	Position of transmission rotary switch	TCM
CAN gear selection fault	Indicates validity of Can gear position selected	TCM
CAN transmission shift map	Dynamic shift program currently selected	TCM
CAN transmission oil temperature	Transmission fluid temperature	TCM
CAN transmission malfunction	Transmission malfunction warning	TCM
CAN TCM fault code MIL status	Indicates whether the TCM DTC should switch MIL on	TCM
CAN OBDII TCM clear acknowledge	Acknowledgment that OBDII DTCs have been cleared	TCM
CAN transmission fault codes	TCM DTCs, including OBDII P and C codes	TCM
CAN left front wheel speed	Left front wheel speed	ABS
CAN right front wheel speed	Right front wheel speed	ABS
CAN left rear wheel speed	Left rear wheel speed	ABS
CAN right rear wheel speed	Right rear wheel speed	ABS
CAN NWM token – TCM	Message for monitoring network status	TCM
CAN NWM token – INST	Message for monitoring network status	INST
CAN NWM token – ABS	Message for monitoring network status	ABS
CAN diagnostic data in – ECM	From external diagnostics device only	DIAG



## CAN Messages by Node

### Node: Transmission Control Module

#### Transmitted by TCM

Message	Usage
CAN torque reduction request	For shift energy management
CAN transmission overload	Protects transmission against excessive torque
CAN transmission input speed	Transmission input shaft speed
CAN transmission output speed	Transmission output shaft speed
CAN torque converter slip	Percentage of torque converter slip
CAN kickdown	Kickdown status
CAN gear position actual	Actual transmission gear state
CAN torque converter status	Indicates torque converter lockup
CAN gear position selected	Position of transmission rotary switch
CAN gear selection fault	Indicates validity of CAN gear position selected
CAN transmission shift map	Dynamic shift program currently selected
CAN transmission oil temperature	Transmission fluid temperature
CAN transmission malfunction	Transmission malfunction warning
CAN TCM PECUS flag	PECUS programmed status of TCM
CAN gear position target	Target gear position for next shift
CAN torque transfer in progress	Indicates torque transfer in progress during gearshift
CAN TCM fault code MIL status	Indicates whether the TCM DTCs should switch MIL on
CAN OBDII TCM clear acknowledge	Acknowledgment that OBDII DTCs have been cleared
CAN transmission fault codes	TCM DTCs, including OBDII P and C codes
CAN NWM token – TCM	Message for monitoring network status
CAN diagnostic data out – TCM	To external diagnostics device only

#### Received by TCM

Message	Usage	Source
CAN traction status	Indicates if the traction control algorithm is functioning	ABS
CAN shift energy management estimated engine torque	Derived from map of engine characteristics	ECM
CAN throttle position	Throttle valve position	ECM
CAN pedal position	Accelerator pedal position, throttle demand	ECM
CAN torque reduction acknowledge	Confirms torque reduction for shift energy management	ECM
CAN engine speed	Engine speed	ECM
CAN brake pedal pressed	Brake switch status	ECM
CAN cruise status	Cruise control system status	ECM
CAN OBDII clear fault codes	Request for ABS and TCM to clear their OBDII DTCs	ECM
CAN engine coolant temperature	Engine coolant temperature in Celsius	ECM
CAN left front wheel speed	Left front wheel speed	ABS
CAN right front wheel speed	Right front wheel speed	ABS
CAN left rear wheel speed	Left rear wheel speed	ABS
CAN right rear wheel speed	Right rear wheel speed	ABS
CAN NWM token– ECM	Message for monitoring network status	ECM
CAN NWM token – INST	Message for monitoring network status	INST
CAN NWM token – ABS	Message for monitoring network status	ABS
CAN diagnostic data in – TCM	From external diagnostics device only	DIAG



## CAN Messages by Node

**Node: Instrument Pack****Transmitted by INST**

Message	Usage
CAN side lamp status	Sidelamp status for idle speed control
CAN dipped beam status	Dipped beam state for idle speed control
CAN main beam status	Main beam state for idle speed control
CAN oil pressure low	Indicates low engine oil pressure
CAN fuel level damped	Indicates 'damped' level of fuel in tank
CAN fuel level raw	Indicates 'raw – undamped' level of fuel in tank
CAN NWM token INST	Message for monitoring network status
CAN diagnostic data out INST	To external diagnostics device only

**Received by INST**

Message	Usage	Source
CAN traction status	Indicates if the traction algorithm is functioning	ABS
CAN ABS PECUS flag	PECUS programmed status of ABS / TC CM	ABS
CAN vehicle reference speed	Vehicle speed based on a standard wheel size	ABS
CAN reference distance traveled	Rolling count – based on a standard wheel size	ABS
CAN ABS malfunction	Malfunction information for ABS and brake systems	ABS
CAN engine speed	Engine speed	ECM
CAN brake pedal pressed	Brake switch status	ECM
CAN park brake status	Indicates whether the parking brake is on	ECM
CAN gear position selected	Position of transmission rotary switch	TCM
CAN gear selection fault	Indicates validity of CAN gear position selected	TCM
CAN transmission oil temperature	Transmission fluid temperature	TCM
CAN transmission malfunction	Transmission malfunction warning	TCM
CAN TCM PECUS flag	PECUS programmed status of TCM	TCM
CAN engine coolant temperature	Engine coolant temperature in Celsius	ECM
CAN engine OBDII MIL	MIL control for OBDII DTCs	ECM
CAN throttle malfunction red	Red throttle malfunction warnings	ECM
CAN throttle malfunction amber	Amber throttle malfunction warnings	ECM
CAN ECM PECUS flag	PECUS programmed status of ECM	ECM
CAN fuel used	Derived from the injector pulse duration	ECM
CAN right rear wheel speed	Rear right wheel speed	ABS
CAN NWM token – ECM	Message for monitoring network status	ECM
CAN NWM token – TCM	Message for monitoring network status	TCM
CAN NWM token – ABS	Message for monitoring network status	ABS
CAN diagnostic data in – INST	From external diagnostics device only	DIAG



## CAN Messages by Node

### Node: ABS / Traction Control Control Module

#### Transmitted by ABS / TCCM

Message	Usage
CAN torque reduction throttle	For traction control – throttle intervention
CAN fast torque reduction ignition	For fast stability control response – ignition retard
CAN fast torque reduction cylinder	For fast stability control response – cylinder fuel cut off
CAN traction status	Indicates if the traction control algorithm is functioning
CAN ABS PECUS flag	PECUS programmed status of ABS / TCCM
CAN vehicle reference speed	Vehicle speed based on a standard wheel size
CAN reference distance traveled	Rolling count – based on a standard wheel size
CAN ABS fault codes	ABS DTCs, including OBDII P and C codes
CAN OBDII ABS clear acknowledge	Acknowledgment that OBDII DTCs have been cleared
CAN ABS fault code MIL status	Indicates whether the ABS DTC should switch MIL on
CAN ABS malfunction	Malfunction information for ABS and brake systems
CAN ABS status	Indicates whether ABS is operating
CAN left front wheel speed	Left front wheel speed
CAN right front wheel speed	Right front wheel speed
CAN left rear wheel speed	Left rear wheel speed
CAN right rear wheel speed	Right rear wheel speed
CAN NWM token – ABS	Message for monitoring network status
CAN diagnostic data out – ABS	From external diagnostics device only

#### Received by ABS / TC CM

Message	Usage	Source
CAN traction acknowledge	Confirms torque reduction for traction control	ECM
CAN traction estimated engine torque	Derived from map of engine characteristics	ECM
CAN transmission input speed	Transmission input shaft speed	TCM
CAN transmission output speed	Transmission output shaft speed	TCM
CAN torque converter slip	Percentage of torque converter slop	TCM
CAN kickdown	Kickdown status	TCM
CAN throttle position	Throttle valve position	ECM
CAN pedal position	Accelerator pedal position, throttle demand	ECM
CAN engine speed	Engine speed	ECM
CAN brake pedal pressed	Brake switch status	ECM
CAN OBDII clear fault codes	Request for ABS and TCM to clear their OBDII DTCs	ECM
CAN gear position actual	Actual transmission gear state	TCM
CAN torque converter status	Indicates torque converter lockup	TCM
CAN transmission shift map	Dynamic shift program currently selected	TCM
CAN transmission malfunction	Transmission malfunction warning	TCM
CAN gear position target	Target gear position for next shift	TCM
CAN torque transfer in progress	Indicates torque transfer in progress during gearshift	TCM
CAN transmission fault codes	TCM DTCs, including OBDII P and C codes	TCM
CAN engine OBDII MIL	MIL control for OBDII DTCs	ECM
CAN throttle malfunction red	Red throttle malfunction warnings	ECM
CAN throttle malfunction amber	Amber throttle malfunction warnings	ECM
CAN ECM fault code MIL status	Indicates whether the ECM DTCs should switch MIL on	ECM
CAN engine DTCs	ECM DTCs, including OBDII P and C codes	ECM
CAN NWM token – ECM	Message for monitoring network status	ECM
CAN NWM token – TCM	Message for monitoring network status	TCM
CAN NWM token – INST	Message for monitoring network status	INST
CAN diagnostic data in – ABS	From external diagnostics device only	DIAG



### CAN Messages by Node

#### Node: Gear Selector Illumination Module (listen Only)

#### Received by Gear Selector Illumination Module

Message	Usage	Source
CAN gear position selected	Gear selector indicator illumination	TCM
CAN gear selection fault		TCM



## CAN Message Matrix

T = Transmit; R = Receive

Message	ABS	ECM	TCM	INST	Gear Selector	DIAG
CAN torque reduction throttle	T .....	R .....				
CAN fast torque reduction ignition	T .....	R .....				
CAN fast torque reduction cylinder	T .....	R .....				
CAN traction acknowledge	R .....	T .....				
CAN traction control estimated engine torque	R .....	T .....				
CAN torque reduction request		R .....	T .....			
CAN transmission overload		R .....	T .....			
CAN transmission input speed	R .....	R .....	T .....			
CAN transmission output speed	R .....	R .....	T .....			
CAN torque converter slip	R .....	R .....	T .....			
CAN kickdown	R .....	R .....	T .....			
CAN traction status	T .....	R .....	R .....	R .....		
CAN ABS PECUS flag	T .....			R .....		
CAN vehicle reference speed	T .....	R .....		R .....		
CAN reference distance traveled	T .....			R .....		
CAN ABS fault codes	T .....	R .....				
CAN OBDII ABS clear acknowledge	T .....	R .....				
CAN ABS fault code MIL status	T .....	R .....				
CAN ABS malfunction	T .....	R .....		R .....		
CAN ABS status	T .....					
CAN shift energy management estimated engine torque		T .....	R .....			
CAN throttle position	R .....	T .....	R .....			
CAN pedal position	R .....	T .....	R .....			
CAN torque reduction acknowledge		T .....	R .....			
CAN engine speed	R .....	T .....	R .....	R .....		
CAN brake pedal pressed	R .....	T .....	R .....	R .....		
CAN cruise status		T .....	*R .....			
CAN park brake status		T .....		*R .....		
CAN OBDII clear fault codes	R .....	T .....	R .....			
CAN side lamp status		R .....		T .....		
CAN dipped beam status		R .....		T .....		
CAN main beam status		R .....		T .....		
CAN oil pressure low		R .....		T .....		
CAN fuel level raw		R .....		T .....		
CAN fuel level damped		R .....		T .....		
CAN gear position actual	R .....	R .....	T .....			
CAN torque converter status	R .....	R .....	T .....			
CAN gear position selected	R .....	R .....	T .....	R .....	R .....	
CAN gear selection fault	R .....	R .....	T .....	R .....	R .....	
CAN transmission shift map	R .....	R .....	T .....			
CAN transmission oil temperature		R .....	T .....	R .....		
CAN transmission malfunction	R .....	R .....	T .....	R .....		
CAN TCM PECUS flag			T .....	R .....		
CAN gear position target **	R .....		T .....			
CAN torque transfer in progress **	R .....		T .....			
CAN TCM fault code MIL status		R .....	T .....			
CAN OBDII TCM clear acknowledge		R .....	T .....			
CAN transmission fault codes	R .....	R .....	T .....			
CAN engine coolant temperature		T .....	R .....	R .....		
CAN engine OBDII MIL	R .....	T .....		R .....		

\* NA engines only

\*\* SC engines only



Message	ABS	ECM	TCM	INST	Gear Selector	DIAG
CAN throttle malfunction red	R .....	T .....		R .....		
CAN throttle malfunction amber	R .....	T .....		R .....		
CAN ECM fault code MIL status	R .....	T .....				
CAN ECM PECUS flag		T .....		R .....		
CAN engine fault codes	R .....	T .....				
CAN fuel used		T .....		R .....		
CAN left front wheel speed	T .....	R .....	R .....			
CAN right front wheel speed	T .....	R .....	R .....			
CAN left rear wheel speed	T .....	R .....	R .....			
CAN right rear wheel speed	T .....	R .....	R .....	R .....		
CAN NWM token - ECM	R .....	T .....	R .....	R .....		
CAN NWM token - TCM	R .....	R .....	T .....	R .....		
CAN NWM token - INST	R .....	R .....	R .....	T .....		
CAN NWM token - ABS	T .....	R .....	R .....	R .....		
CAN diagnostic data in - ECM		R .....				T .....
CAN diagnostic data in - TCM			R .....			T .....
CAN diagnostic data in - INST				R .....		T .....
CAN diagnostic data in - ABS	R .....					T .....
CAN diagnostic data out - ECM		T .....				R .....
CAN diagnostic data out - TCM		T .....		R .....		
CAN diagnostic data out - INST				T .....		R .....
CAN diagnostic data out - ABS	T .....					R .....



SCP Message Matrix

T = Transmit; R = Receive

#	Message Name	INST	BPM	DDCM	PDCM	DSCM	PSCM	DRDCM	PRDCM	SLCM
1	Vehicle speed	T	R	R						
2	Brake pedal pressed	T	R							R
3	Module not programmed	R	T	T	T	T	T	T	T	T
4	Left hand drive vehicle		T	R						R
5	Valet mode OFF		T							R
6	Non-superlocking vehicle		T	R						
7	Trailer disconnected		R							T
8	Right hand drive vehicle		T	R						R
9	Valet mode ON		T							R
10	Superlocking ON		T	R						
11	Trailer connected		R							T
12	Reverse gear selected	T			R					R
13	Not-in-park switch – inactive		T	R	R	R		R		
14	Not-in-park switch – active		T	R	R	R		R		
15	Engine running	T	R							
16	Charging OK	T								R
17	Inertia switch – inactive		T	R	R					
18	Inertia switch – active		T	R	R					
19	Ignition switch status	R	T	R	R	R	R	R	R	R
20	Key not-in-ignition		T	R	R	R	R	R		R
21	Key in-ignition		T	R	R	R	R	R		R
22	Seatbelt telltale OFF	R	T							
23	Low washer fluid warning OFF	R	T							
24	Seatbelt telltale ON	R	T							
25	Low washer fluid warning ON	R	T							
26	Security audible indication		R	T	T					T
27	Remote panic enabled		R	R	R					T
28	Intrusion sensing disabled									
29	Security disarm		R	R	R					T
30	Ignition key invalid		T							R
31	Intrusion breach		T							R
32	Intrusion self-check failure		T							R
33	Intrusion sensing enabled									
34	Security armed		R	R	R					T
35	Ignition key valid		T							R
36	Memory set chime		R					T		
37	Recall memory 1		R	R	R	R		T		
38	Recall memory 2		R	R	R	R		T		
39	Recall memory 3		R	R	R	R		T		
40	Set memory 1		R	R	R	R		T		
41	Set memory 2		R	R	R	R		T		
42	Set memory 3		R	R	R	R		T		
43	Stop memory recall		R	R	R	R		T		
44	Memory LED OFF			R				T		
45	Memory recall cancelled		T	T	T	T		R		
46	Memory LED ON			R				T		
47	Mirror fold-flat		R	T						
48	Mirror fold-out		R	T						
49	Stop mirror			T	R					
50	Driver mirror up			T	R					
51	Passenger mirror up			T	R					
52	Driver mirror down			T	R					
53	Passenger mirror down			T	R					
54	Passenger mirror right			T	R					





#	Message Name	INST	BPM	DDCM	PDCM	DSCM	PSCM	DRDCM	PRDCM	SLCM
55	Passenger mirror left			T	R					
56	Unlock all doors			T/R	T/R			R	R	
57	Unlock fuel filler flap			T						R
58	Remote unlock		R	R	R			R		T
59	Remote trunk release		R							T
60	Lock all doors		R	T	T					
61	Lock fuel filler flap			T						R
62	Superlock all doors			T/R	T/R			R	R	
63	Remote superlock			R	R					T
64	Remote lock			R	R					T
65	Vehicle unlocked		R	T						R
66	Driver front door unlocked			R	R					T
67	Passenger front door unlocked			R	R					T
68	Exterior trunk release disabled		R	T						
69	Driver door lock cylinder status		R	T	R			R	R	R
70	Passenger door lock cylinder status		R	R	T			R	R	R
71	Remote transmitter ID							R		T
72	Vehicle locked		R	T						R
73	Driver front door locked			R	R					T
74	Passenger front door locked			R	R					T
75	Exterior trunk release enabled		R	T						
76	Central locking switch active		T	R	R					R
77	Open trunk		T							R
78	Hood closed	R	T	R	R					R
79	Driver front door closed	R	R	T	R	R		R		R
80	Passenger front door closed	R	R	R	T		R			R
81	Driver rear door closed	R	R	R	R			T		R
82	Passenger rear door closed	R	R	R	R				T	R
83	Trunk closed	R	R	R	R					T
84	Hood ajar	R	T	R	R					R
85	Driver front door ajar	R	R	T	R	R		R		R
86	Passenger front door ajar	R	R	R	T		R			R
87	Driver rear door ajar	R	R	R	R			T		R
88	Passenger rear door ajar	R	R	R	R				T	R
89	Trunk ajar	R	R	R	R					T
90	Exterior trunk release active		R							T
91	Driver seat exit position		T			R				
92	Driver seat entry / exit mode initiated		T			R				
93	Sunroof position status		R	T						
94	Stop global window close		T	R	R			R	R	
95	Stop sunroof close		R	T						
96	Stop passenger front window			T	R					
97	Stop driver rear window			T				R		
98	Stop passenger rear window			T					R	
99	Rear window switches – enable		T					R	R	
100	Open passenger front window			T	R					
101	Open driver rear window			T				R		
102	Open passenger rear window			T					R	
103	Global close windows		T	R	R			R	R	
104	Close driver front window			R						
105	Close sunroof		R	T						
106	Close passenger front window			T	R					
107	Close driver rear window			T				R		

(continued)



SCP Message Matrix

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#	Message Name	INST	BPM	DDCM	PDCM	DSCM	PSCM	DRDCM	PRDCM	SLCM
108	Close passenger rear window									R
109	Inhibit rear window switches		T						R	R
110	Tail lamp failure	R	T							
111	Stop lamp failure	R								T
112	Tail lamps OK	R	T							
113	Stop lamps OK	R								T
114	Rear fog lamps OFF		T							R
115	Remote headlamps OFF		R							T
116	Rear fog lamps ON		T							R
117	Remote headlamps ON		R							T
118	Dip beam OFF	R	T							
119	Side lamps OFF	R	T							
120	Hazard lamps OFF	R	T							
121	Left DI lamps OFF	R	T							
122	Right DI lamps OFF	R	T							
123	Main beam OFF	R	T							
124	Rear fog lamps OFF		R							T
125	Main beam flash disabled		T							R
126	Dip beam ON	R	T							
127	Side lamps ON	R	T							
128	Hazard lamps ON	R	T							
129	Left DI lamps ON	R	T							
130	Right DI lamps ON	R	T							
131	Main beam ON	R	T							
132	Rear fogs status – ON		R							T
133	Main beam flash enabled		T							R
134	Interior lights OFF	R	T							
135	Interior lights ON	R	T							
136	Valet mode message OFF	R	T							
137	Valet mode message	R	T							
138	Wake-up network	T	T	T	T	T	T	T	T	T
139	Network status – awake	T/R	T/R	T/R	T/R	T/R	T/R	T/R	T/R	T/R
140	Entering sleep mode	T/R	T/R	T/R	T/R	T/R	T/R	T/R	T/R	T/R