



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

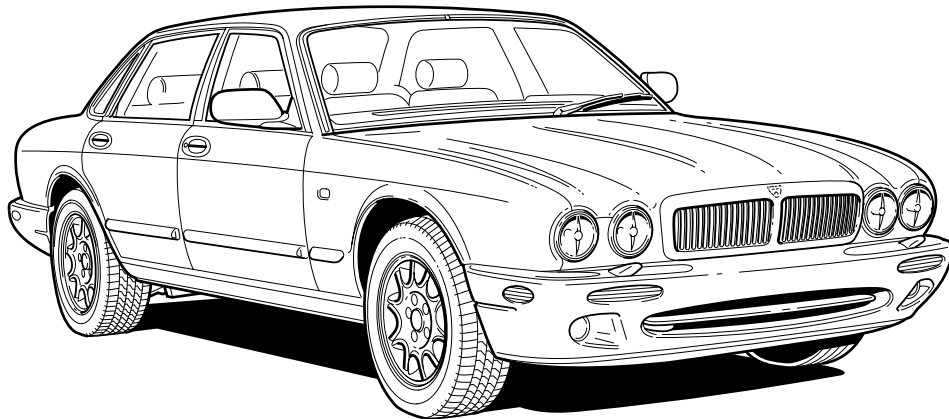


BY APPOINTMENT TO  
HER MAJESTY QUEEN ELIZABETH  
THE QUEEN MOTHER  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



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

# XJ Series Sedan 2000 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

## 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 XJ Series system "architecture" incorporates two data networks: 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	.....	Fig. 20.2
Relay – Fuel Pump 1 .....	Fig. 04.3	Seat Control Module – Rear .....	Fig. 12.7
.....	Fig. 04.6	Seat Cushion Heater – LH Rear & RH Rear .....	Fig. 12.8
Relay – Fuel Pump 2 .....	Fig. 04.6	.....	Fig. 12.9
Relay – Heated Backlight (#2) .....	Fig. 07.2	Seat Cushion Heaters – Driver .....	Fig. 12.1
Relay – Heater Pump (#1) .....	Fig. 07.2	.....	Fig. 12.2
Relay – Horn .....	Fig. 13.3	.....	Fig. 12.3
.....	Fig. 13.4	Seat Cushion Heaters – Passenger .....	Fig. 12.4
.....	Fig. 20.1	.....	Fig. 12.5
Relay – Ignition Coil .....	Fig. 04.3	.....	Fig. 12.6
.....	Fig. 04.6	Seat Fore / Aft Motors – Rear .....	Fig. 12.7
Relay – Intercooler Pump .....	Fig. 04.6	Seat Fore / Aft Switches – Rear .....	Fig. 12.5
Relay – LH Lumbar Deflate .....	Fig. 12.7	.....	Fig. 12.7
Relay – Main Beam .....	Fig. 09.1	Seat Headrest Motors –Rear .....	Fig. 12.7
Relay – O2S Heaters .....	Fig. 04.1	Seat Headrest Switches –Rear .....	Fig. 12.7
.....	Fig. 04.2		
.....	Fig. 04.4		
.....	Fig. 04.5		



Seat Heater Switches (Center Console Switch Pack) .....	Fig. 12.1	Speakers – Rear Door Tweeter .....	Fig. 16.1
.....	Fig. 12.2	.....	Fig. 16.2
.....	Fig. 12.3	Stability / Traction Control Switch .....	Fig. 06.1
.....	Fig. 12.4	Starter Motor .....	Fig. 03.1
.....	Fig. 12.5	.....	Fig. 03.2
.....	Fig. 12.6	Steering Column Motors .....	Fig. 11.1
Seat Heater Switches – Rear (LWB Vehicles) .....	Fig. 12.8	Subwoofer .....	Fig. 16.2
.....	Fig. 12.9	Suppression Module .....	Fig. 03.1
Seat Heater Timers – Rear .....	Fig. 12.8	.....	Fig. 03.2
.....	Fig. 12.9	Switch Pack – Driver Door .....	Fig. 10.2
Seat Lumbar Pump – Driver .....	Fig. 12.1	Switch Pack – Driver Rear Door .....	Fig. 10.2
.....	Fig. 12.2	.....	Fig. 15.1
Seat Lumbar Pump – Passenger .....	Fig. 12.4	Switch Pack – Driver Seat .....	Fig. 12.1
.....	Fig. 12.5	.....	Fig. 12.2
Seat Lumbar Pumps – Rear .....	Fig. 12.7	Switch Pack – Driver Seat (Raise / Lower Only) .....	Fig. 12.3
Seat Lumbar Switches – Rear .....	Fig. 12.7	Switch Pack – Passenger Door .....	Fig. 10.2
Seat Motors – Driver .....	Fig. 12.1	.....	Fig. 15.1
.....	Fig. 12.2	Switch Pack – Passenger Rear Door .....	Fig. 10.2
.....	Fig. 12.3	.....	Fig. 15.1
Seat Motors – Passenger .....	Fig. 12.4	Switch Pack – Passenger Seat .....	Fig. 12.4
.....	Fig. 12.5	.....	Fig. 12.5
Seat Squab Heaters – Driver .....	Fig. 12.1	Telephone Antenna .....	Fig. 17.1
.....	Fig. 12.2	Telephone Handsets .....	Fig. 17.1
.....	Fig. 12.3	Telephone Microphone .....	Fig. 17.1
Seat Squab Heaters – Passenger .....	Fig. 12.4	Throttle Motor .....	Fig. 04.1
.....	Fig. 12.5	.....	Fig. 04.2
.....	Fig. 12.6	.....	Fig. 04.4
Seat Squab Heaters – Rear .....	Fig. 12.8	.....	Fig. 04.5
.....	Fig. 12.9	TPS: Throttle Position Sensors .....	Fig. 04.1
Security Active Indicator (Gear Selector Illumination Module) ..	Fig. 13.3	.....	Fig. 04.2
.....	Fig. 13.4	.....	Fig. 04.4
Security and Locking Control Module .....	Fig. 09.2	.....	Fig. 04.5
.....	Fig. 13.1	Trailer Connector .....	Fig. 09.2
.....	Fig. 13.2	Transit Isolation Device .....	Fig. 01.1
.....	Fig. 13.3	Transmission Control Module: AJ27 N/A .....	Fig. 05.1
.....	Fig. 13.4	.....	Fig. 20.1
.....	Fig. 15.1	.....	Fig. 20.2
Side Airbags .....	Fig. 18.1	Transmission Control Module: AJ27 SC .....	Fig. 05.2
Side DI Repeaters (ROW Only) .....	Fig. 09.1	.....	Fig. 20.1
Side Markers –Front (NAS Only) .....	Fig. 09.1	.....	Fig. 20.2
Sliding Roof Control Module .....	Fig. 15.1	Transmission Rotary Switch .....	Fig. 05.1
Sliding Roof Motor .....	Fig. 15.1	Transmission: AJ27 N/A .....	Fig. 05.1
Sliding Roof Switch (Roof Console) .....	Fig. 15.1	.....	Fig. 05.2
Solar Sensor .....	Fig. 07.1	Transmission: AJ27 SC .....	Fig. 05.2
Speakers – ‘A’ Post Tweeter .....	Fig. 16.1	Trip Computer Switch Pack .....	Fig. 08.1
.....	Fig. 16.2	.....	Fig. 10.2
Speakers – Front Door Mid-Bass .....	Fig. 16.1	Trip Cycle Switch (Column Switchgear) .....	Fig. 08.1
.....	Fig. 16.2	Trunk Accessory Connector .....	Fig. 19.1
Speakers – Front Door Tweeter .....	Fig. 16.1	Trunk Lamps .....	Fig. 10.1
Speakers – Rear Door Mid-Bass .....	Fig. 16.1		
.....	Fig. 16.2		



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

Valet Switch (Center Console Switch Pack) ..... Fig. 13.1  
..... Fig. 13.2  
..... Fig. 13.3  
..... Fig. 13.4

Vanity Lamps ..... Fig. 10.1

Variable Steering Converter ..... Fig. 06.2

Variable Valve Timing Solenoid Valves (VVT Solenoid Valves) .. Fig. 04.1  
..... Fig. 04.2

Vehicle Speed Interface Module ..... Fig. 17.2  
..... Fig. 20.1  
..... Fig. 20.2

Wash / Wipe Stalk (Column Switchgear) ..... Fig. 14.1

Wheel Speed Sensors ..... Fig. 06.1

Window Lift Motors ..... Fig. 15.1

Window Lift Switches (Driver Door Switch Pack) ..... Fig. 15.1

Windshield Heaters ..... Fig. 07.2

Windshield Wash Pump and Fluid Level Sensor ..... Fig. 14.1

Wiper Motor ..... 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
F02-1	NEUTRAL SWITCH (ON/OFF)	GROUND	B+ (P.A.S. 1, 2)
F02-2	IGNITION COMMAND (VSI TRANSPOSER)	ENCODED COMMUNICATIONS	
F02-3	SECURITY KNOWLEDGE	ENCODED COMMUNICATIONS	
F02-4	STARTER/ENGINE KILLER	GROUND (COMMON)	B+
F02-5	STARTER/KEY ACTIVATE	GROUND (COMMON)	B+
F02-6	ACTIVATOR (STARTER/ENGINE)	GROUND (COMMON)	B+
F02-7	ACTIVATOR (STARTER/ENGINE)	GROUND (COMMON)	B+

**ENGINE CONTROL MODULE**

Pin	Description	Active	Inactive
EMU-1	IGNITION COMMAND	B+ (P.A.S.)	GROUND (P.A.S. 2)
EMU-2	SECURITY KNOWLEDGE	ENCODED COMMUNICATIONS	
EMU-3	OR TO START	ENCODED COMMUNICATIONS	
EMU-4	SECURITY KNOWLEDGE	ENCODED COMMUNICATIONS	

**KEY TRANSPOSER MODULE**

Pin	Description	Active	Inactive
KTM-1	IGNITION COMMAND	ENCODED COMMUNICATIONS	
KTM-2	SECURITY KNOWLEDGE	ENCODED COMMUNICATIONS	
KTM-3	OR TO START	ENCODED COMMUNICATIONS	
KTM-4	SECURITY KNOWLEDGE	ENCODED COMMUNICATIONS	

**Fig. 03.1**

Component	Connector / Type / Color	Location / Access
BATTERY	B+ (P.A.S.) (P.A.S. 1, 2) B- (P.A.S. 1, 2)	FROM BATTERY COVER
BODY PROCESSOR MODULE	F02-1 (NEUTRAL SWITCH) F02-2 (IGNITION COMMAND) F02-3 (SECURITY KNOWLEDGE) F02-4 (STARTER/ENGINE KILLER) F02-5 (STARTER/KEY ACTIVATE) F02-6 (ACTIVATOR (STARTER/ENGINE)) F02-7 (ACTIVATOR (STARTER/ENGINE))	REARWARD BULKHEAD/ENGINE BOX ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
GENERATOR	GEN (GENERATOR) GEN+ (GENERATOR)	ENGINE COMPARTMENT / IN FRONT
HIGH POWER PROTECTION MODULE	HPPM (HIGH POWER PROTECTION MODULE) HPPM+ (HIGH POWER PROTECTION MODULE)	TRUNK / REARWARD TO BATTERY
IGNITION SWITCH	IGN (IGNITION SWITCH) IGN+ (IGNITION SWITCH)	IGNITION SWITCH
KEY TRANSPOSER MODULE	KTM-1 (IGNITION COMMAND) KTM-2 (SECURITY KNOWLEDGE) KTM-3 (OR TO START) KTM-4 (SECURITY KNOWLEDGE)	IGNITION SWITCH
REGULATOR	REG (REGULATOR) REG+ (REGULATOR)	REARWARD BULKHEAD
STARTER MOTOR	ST (STARTER MOTOR) ST+ (STARTER MOTOR)	ENGINE COMPARTMENT / IN FRONT
SUPPRESSION MODULE	SM (SUPPRESSION MODULE) SM+ (SUPPRESSION MODULE)	ENGINE COMPARTMENT / REAR RIGHT

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

Connector	Type / Color	Location / Access
EMU	EMU (ENGINE CONTROL MODULE)	REARWARD BULKHEAD / ENGINE BOX
KTM	KTM (KEY TRANSPOSER MODULE)	IGNITION SWITCH
REG	REG (REGULATOR)	REARWARD BULKHEAD
ST	ST (STARTER MOTOR)	ENGINE COMPARTMENT / IN FRONT
SM	SM (SUPPRESSION MODULE)	ENGINE COMPARTMENT / REAR RIGHT

Ground	Location / Type
GEN	ENGINE COMPARTMENT / IN FRONT
GEN+	ENGINE COMPARTMENT / IN FRONT
REG	REARWARD BULKHEAD
REG+	REARWARD BULKHEAD
ST	ENGINE COMPARTMENT / IN FRONT
ST+	ENGINE COMPARTMENT / IN FRONT
SM	ENGINE COMPARTMENT / REAR RIGHT
SM+	ENGINE COMPARTMENT / REAR RIGHT

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

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

I	Input	D	Serial and Encoded Data	BA	Battery Voltage	MHz	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 lead is applied or a switch is ON; "inactive" means a lead is not applied or a switch is OFF.

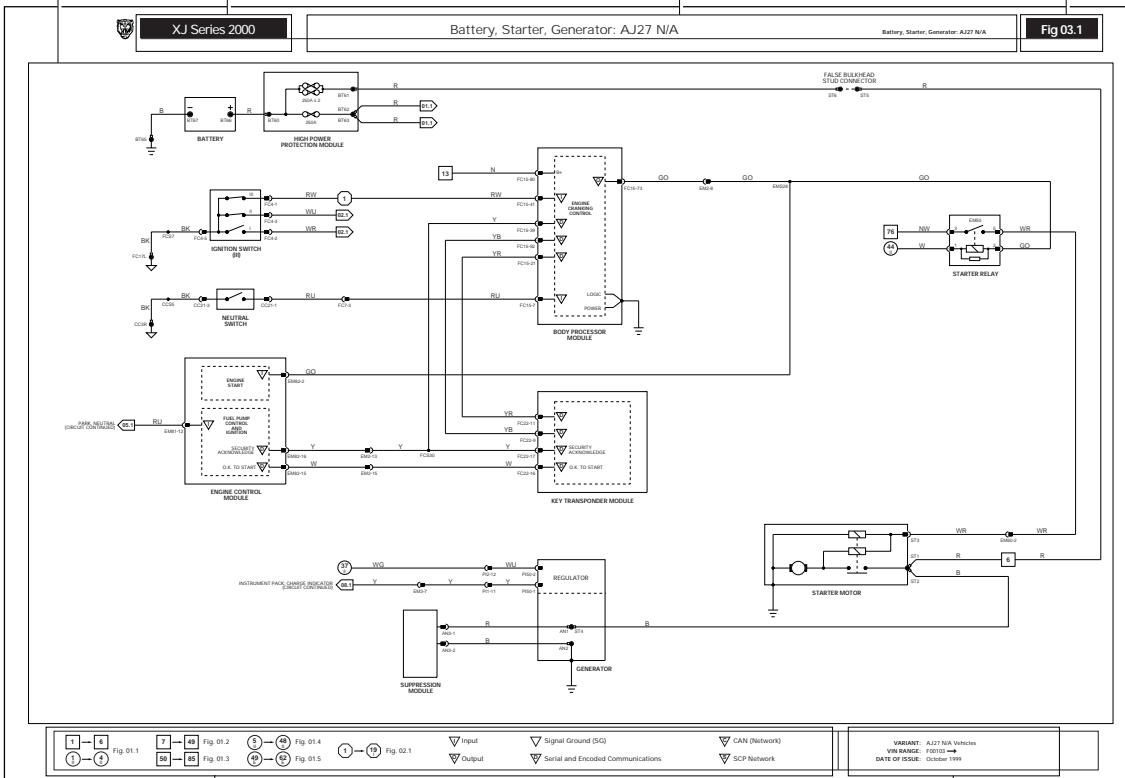
Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

DATE OF ISSUE: October 1999

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.

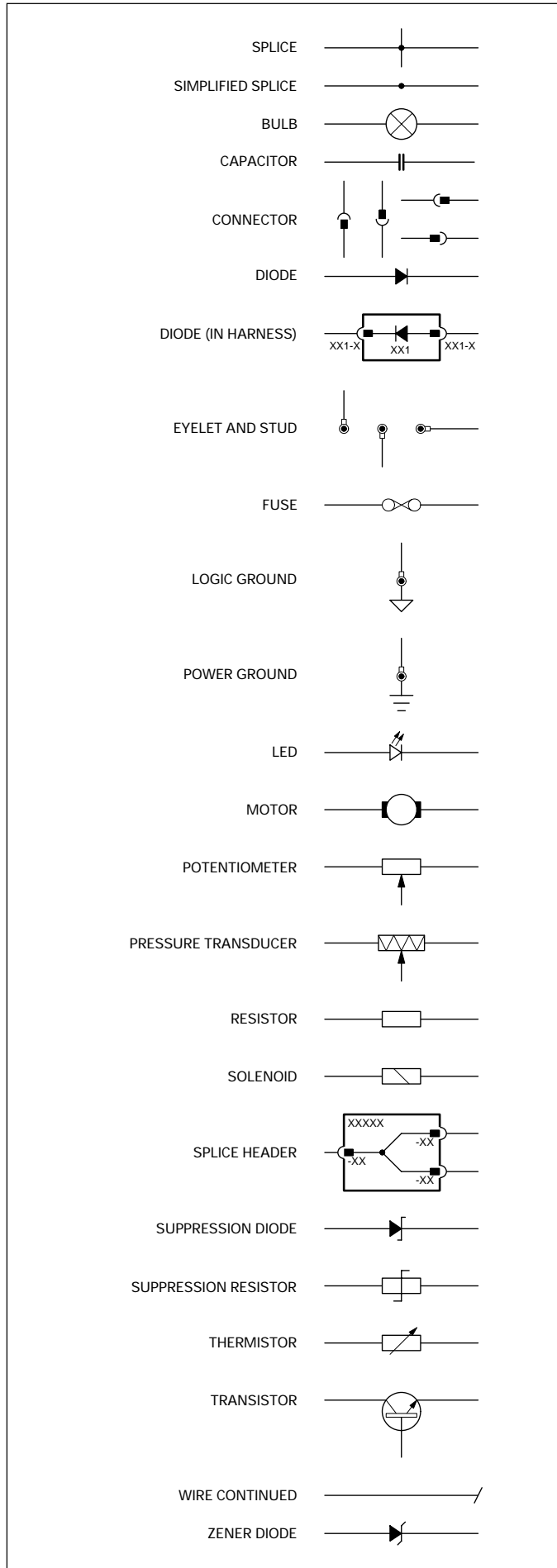
## Control Module Input, Output, Data Link, Signal Ground and Network(s)

 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 color code letters, the first letter indicates the main color and the subsequent letter indicates the tracer color.

### 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
LF	Forward harness
LL	Power steering link 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
SD	Driver seat harness
SH	Windshield heater link harness
SP	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.





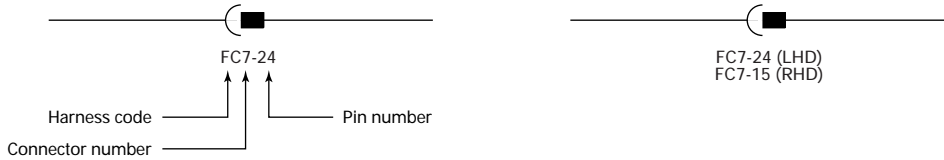
## Harness Component Numbers

### 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).

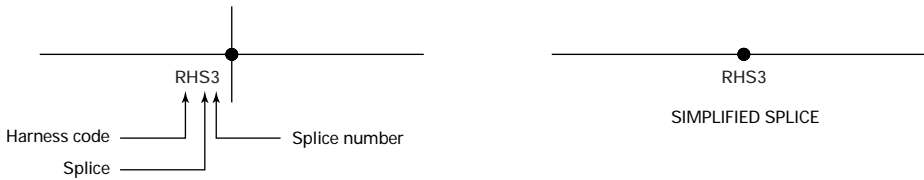


### Splices

HARNESS CODE + S (SPLICE) + SPLICE NUMBER

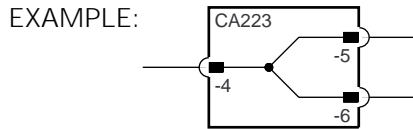
EXAMPLE: RHS3 (no dash is used)

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.



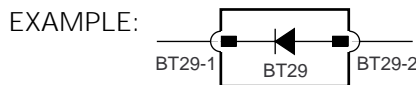
### Splice Headers

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.



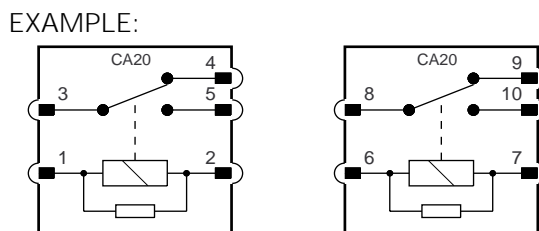
### Diodes

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

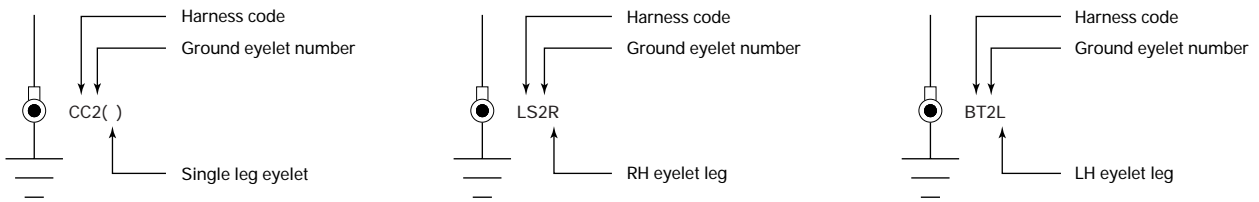
HARNESS CODE + GROUND EYELET NUMBER + EYELET DESIGNATION (L or R where applicable)

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).

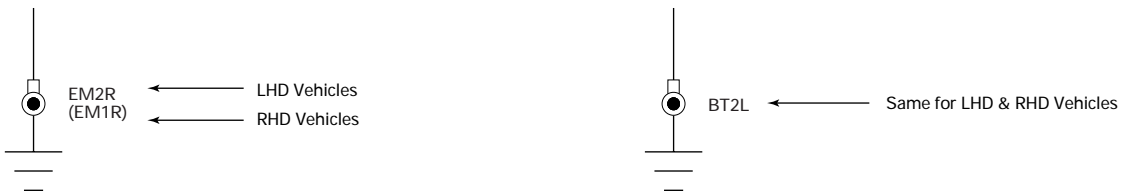


EXAMPLES:



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:

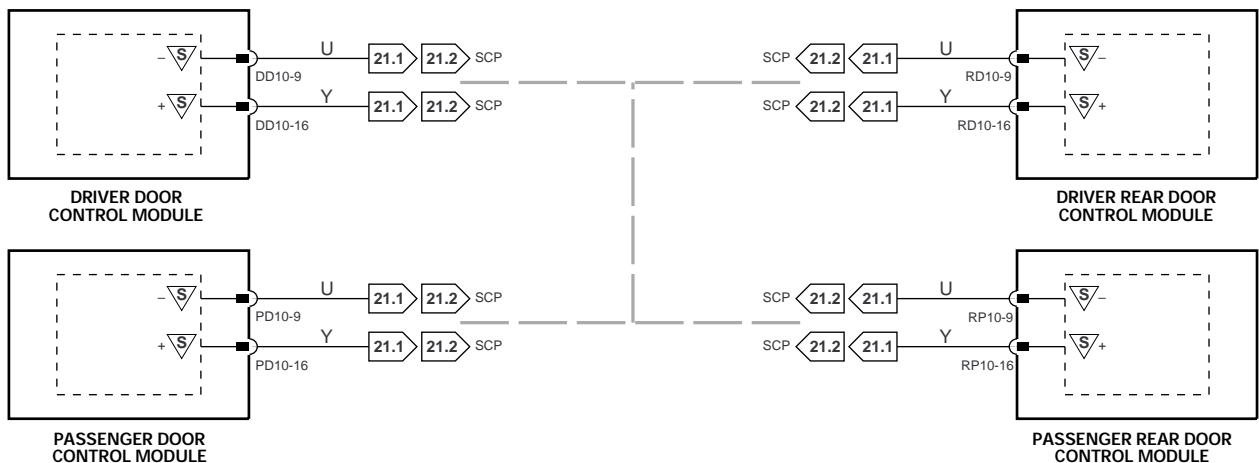


**NOTE:** The XJ Series ground studs are not identified by code. Therefore, multiple eyelets with different harness codes may be connected to a ground stud.

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:

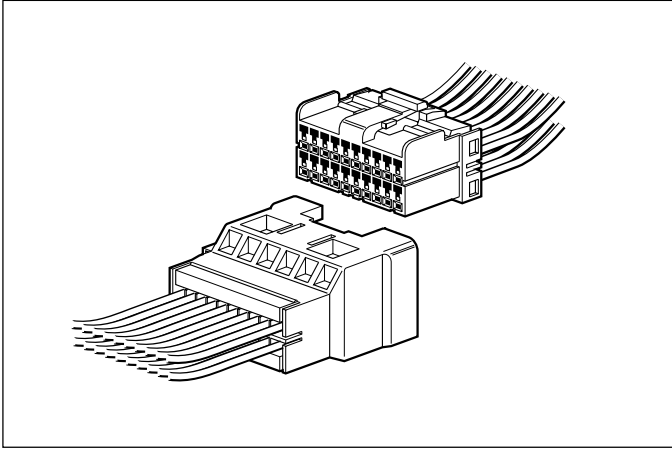




The following connectors are the common harness-to-harness connectors used throughout the vehicle.

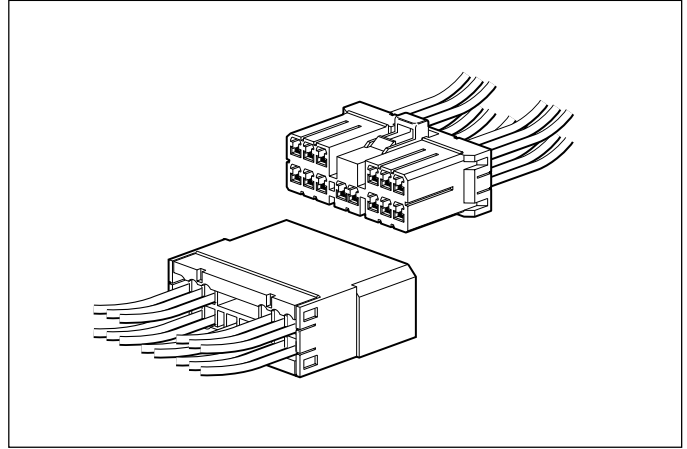
#### Multilock 040

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



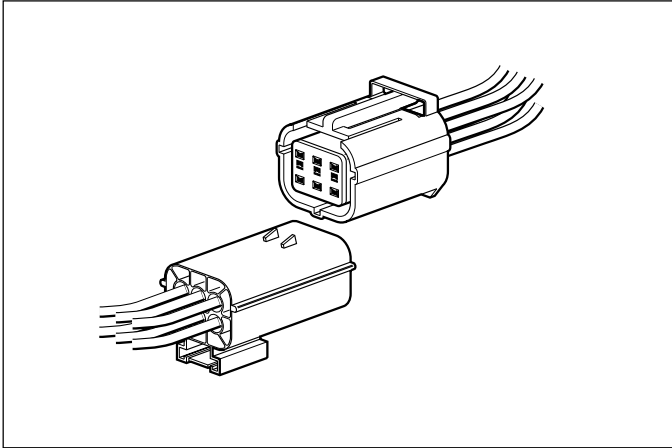
#### Multilock 070

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



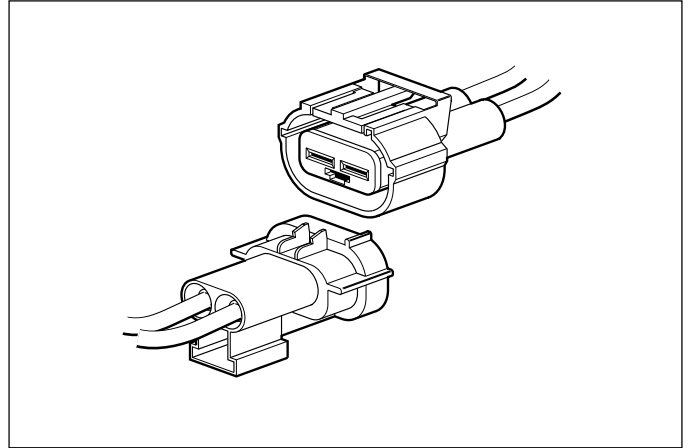
#### Econoseal III LC

Low current sealed connector.



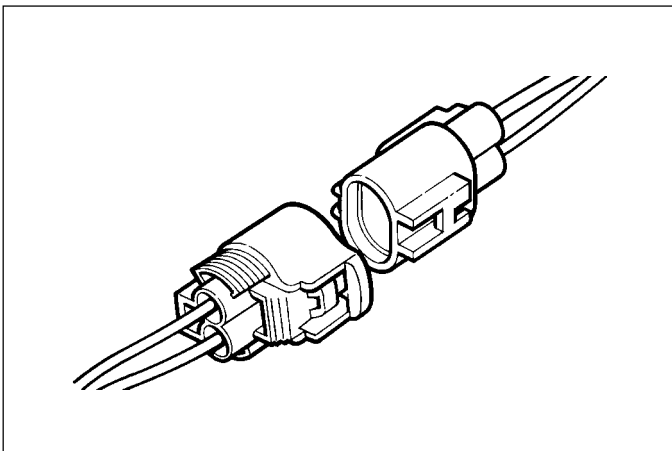
#### Econoseal III HC

High current sealed connector.



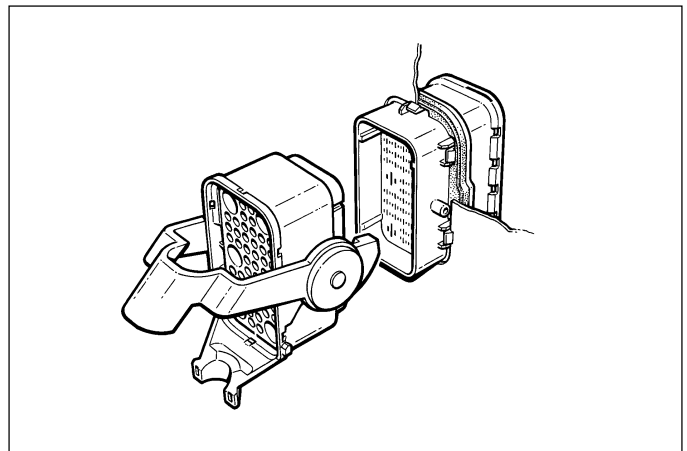
#### Ford Card

Used for SRS only.



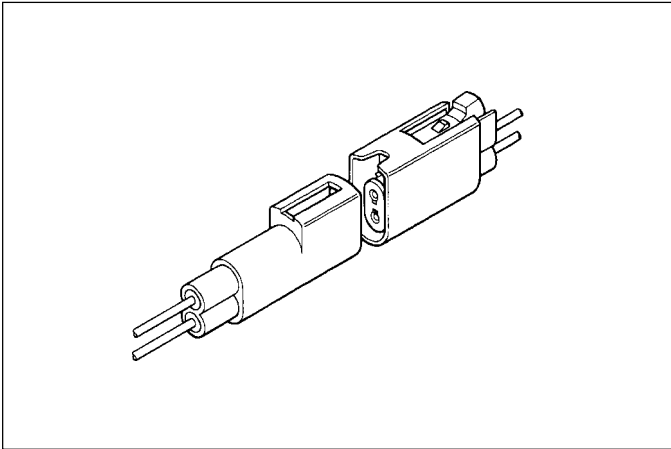
#### Through Panel

54-way connector.

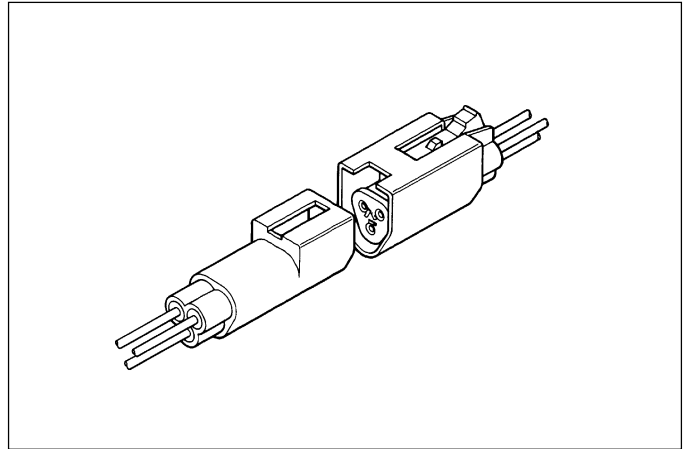




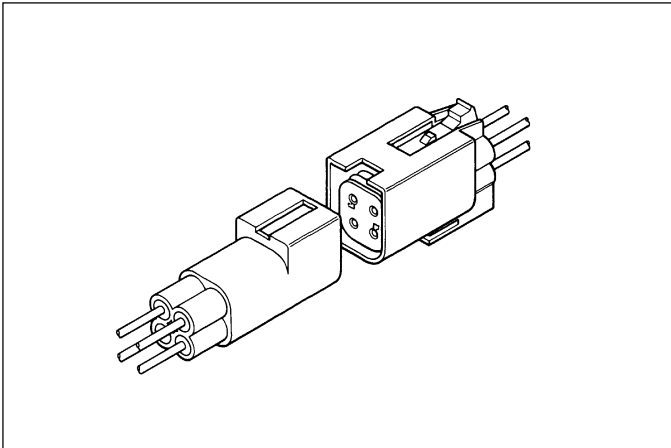
**Augat 1.6**  
2-way connector.



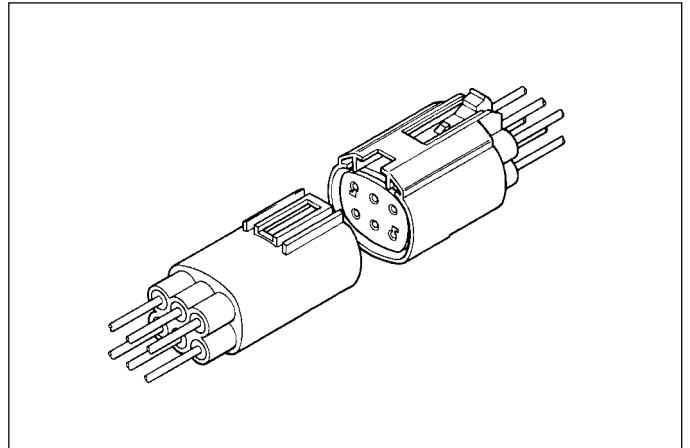
**Augat 1.6**  
3-way connector.



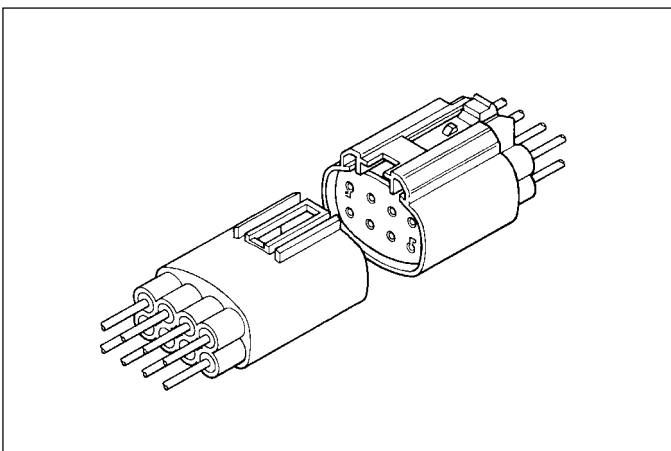
**Augat 1.6**  
4-way connector.

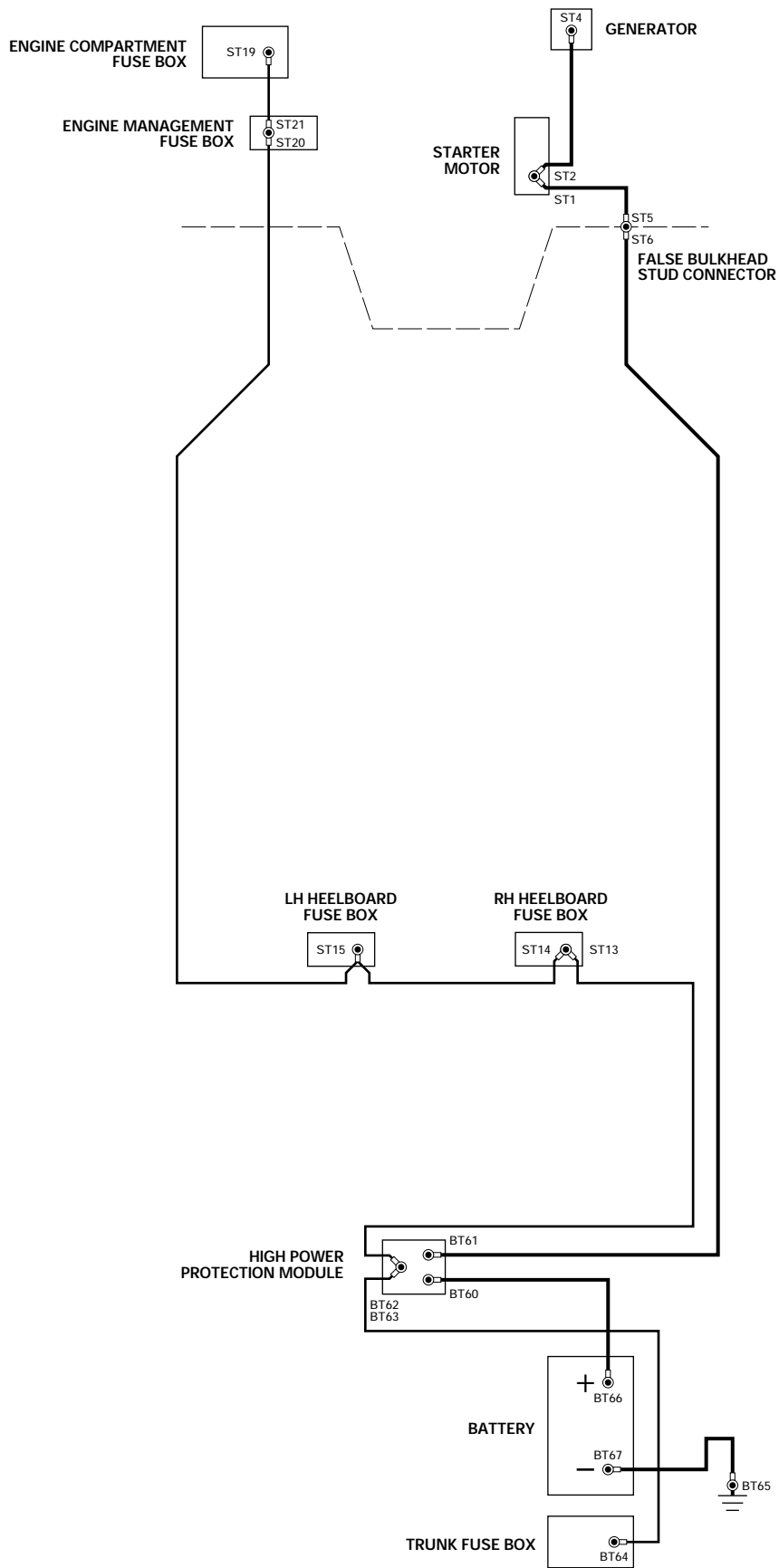


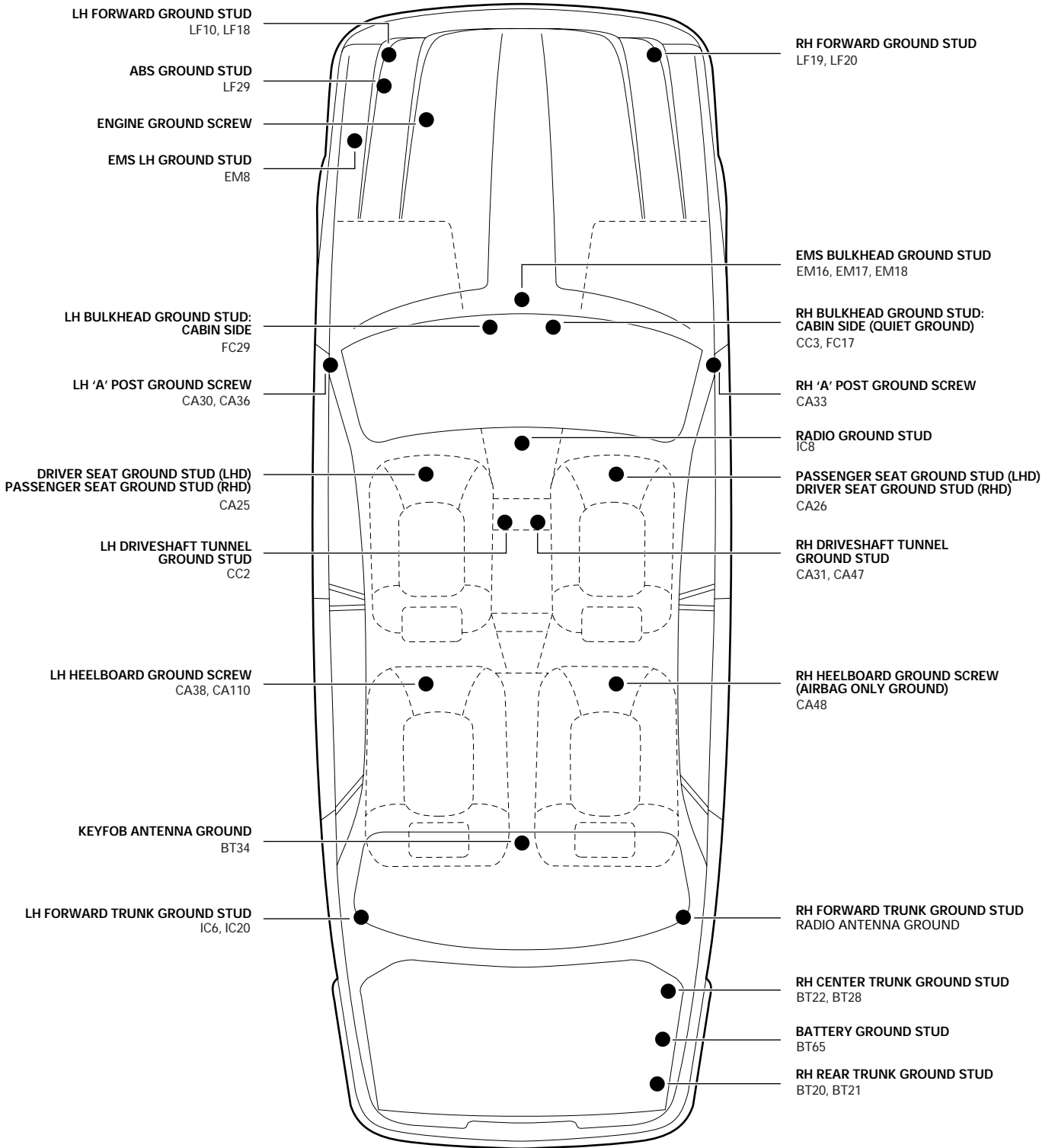
**Augat 1.6**  
6-way connector.



**Augat 1.6**  
8-way connector.



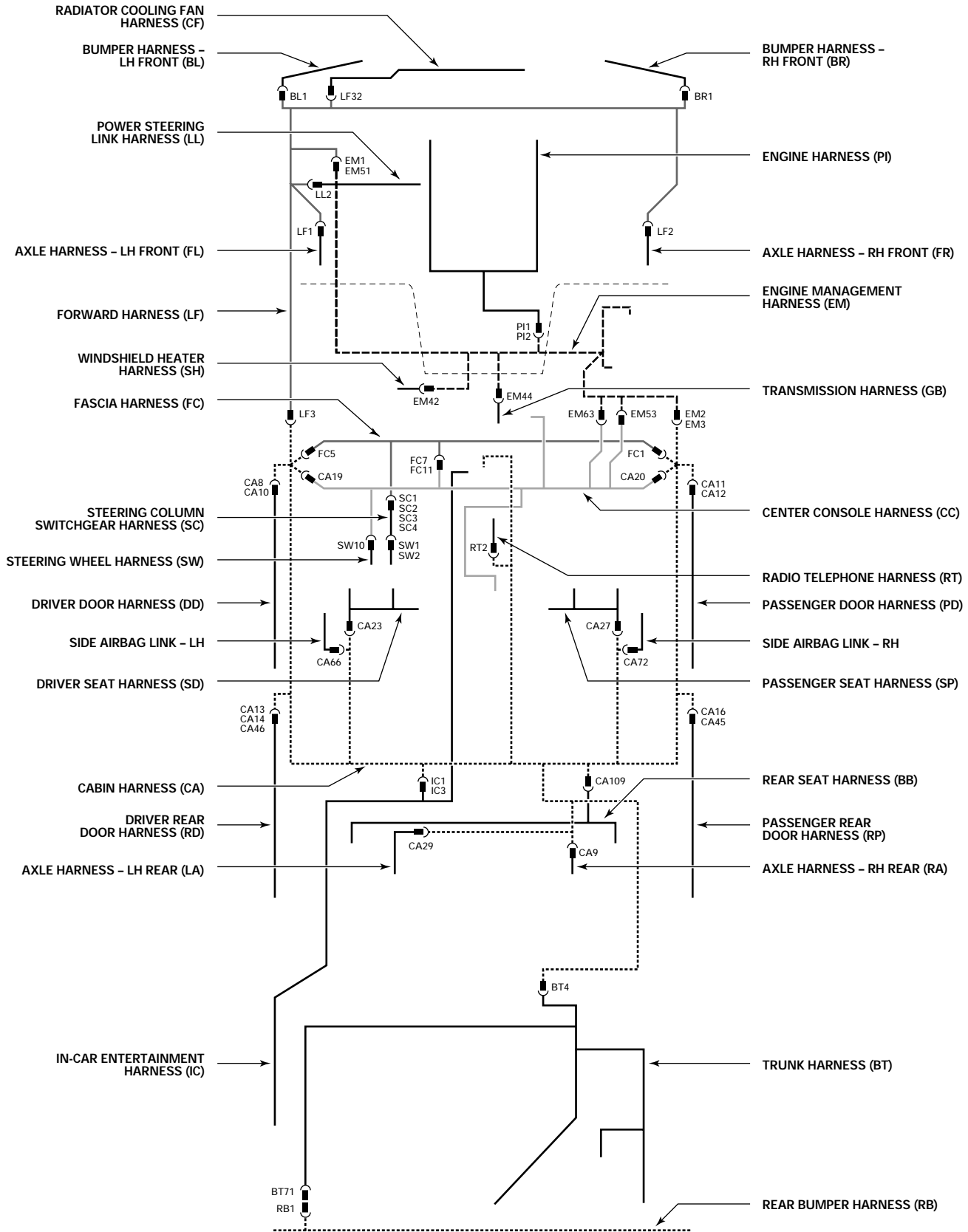






# LHD

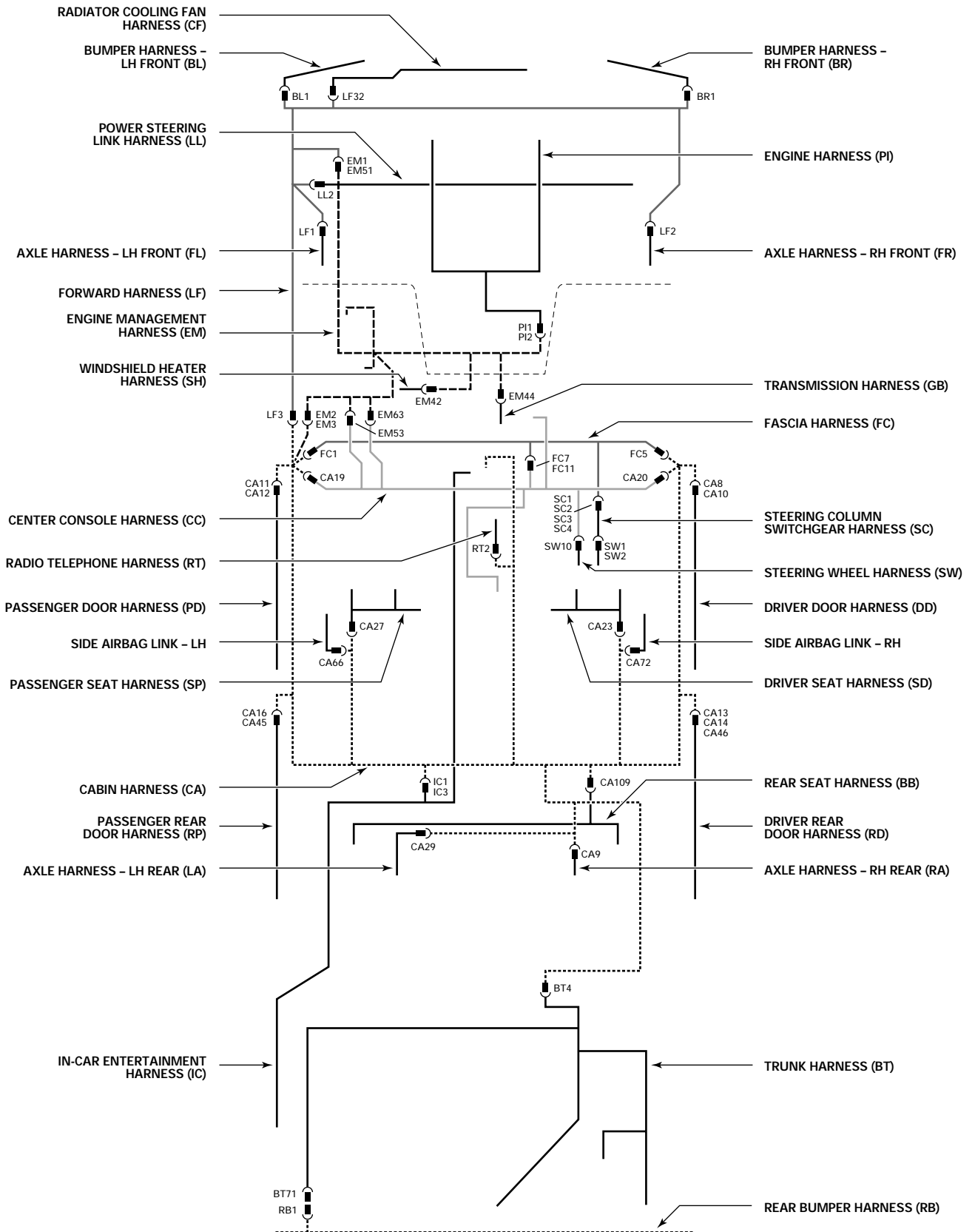
FRONT OF VEHICLE





# RHD

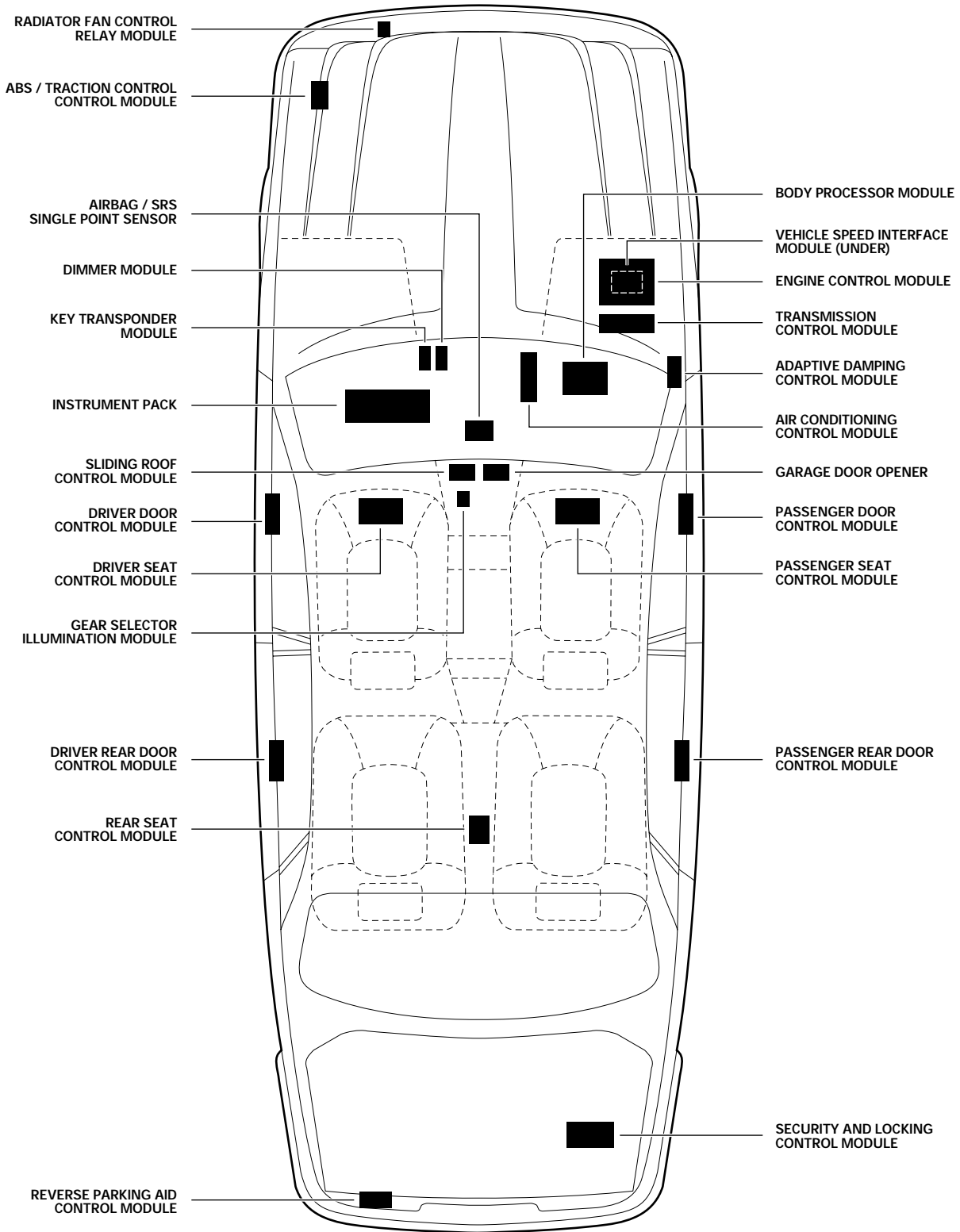
FRONT OF VEHICLE





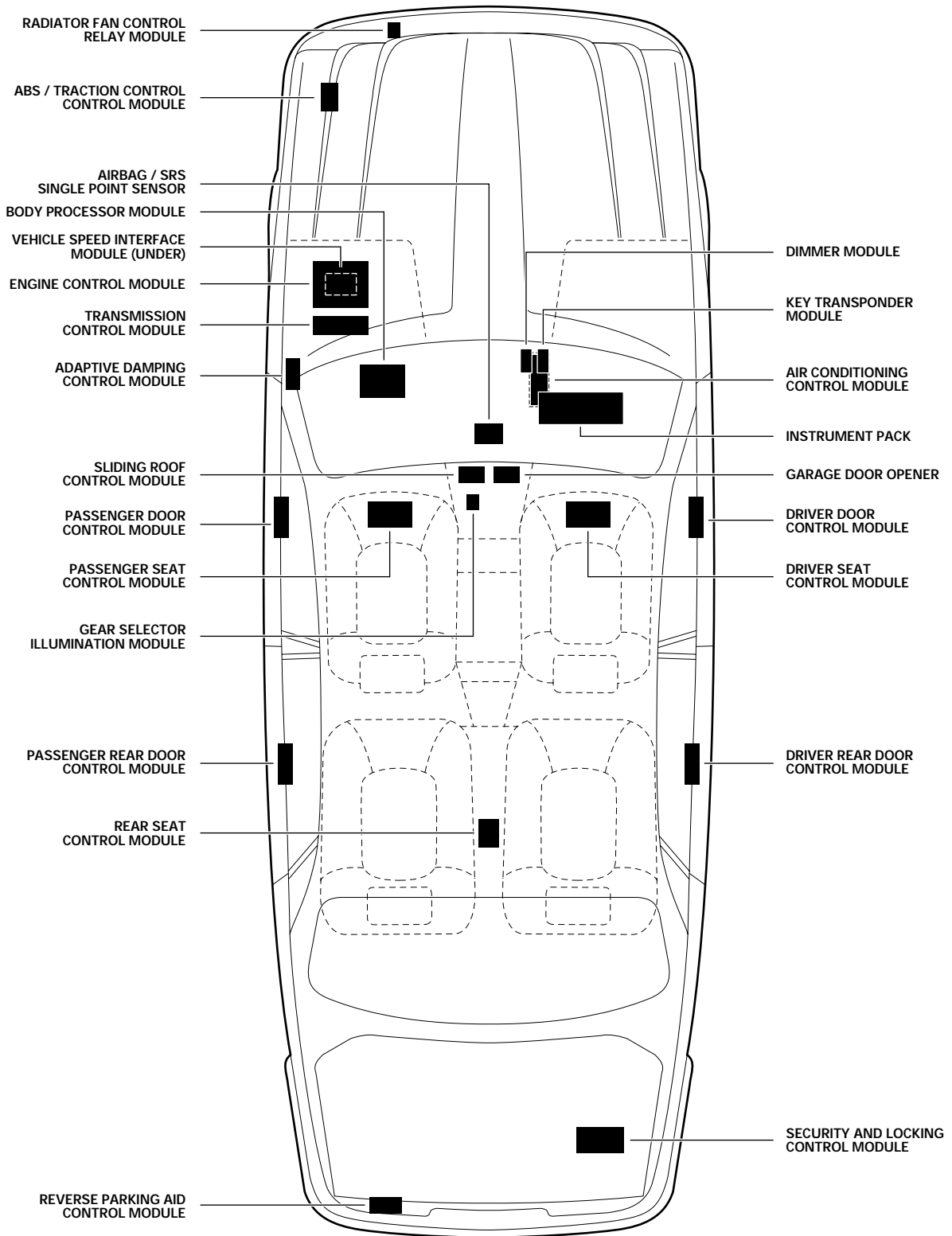


# LHD



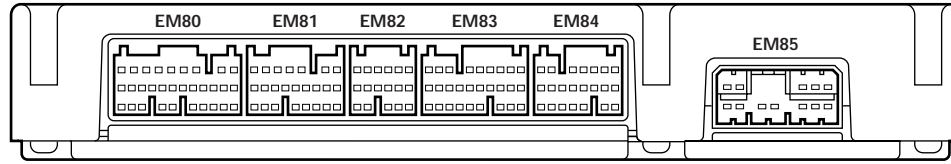


# RHD





ENGINE CONTROL MODULE: AJ27 N/A



EM80 / 31-WAY / NATURAL

9	8	7	6	5	4	3	2	1
GW	GW	R	R	G	G	B	GU*	UY
21	20	19	18	17	16	15	14	13
B	U	W	W	O	YU	YG	—	—
12	11	10	9	8	7	6	5	4
U	UY	WU	—	—	—	—	—	—
31	30	29	28	27	26	25	24	23
B	—	BK	—	U	—	RW	—	—
22	21	20	19	18	17	16	15	14
—	—	—	—	—	—	—	—	—

EM81 / 24-WAY / NATURAL

7	6	5	4	3	2	1
RG	OG	W	WU	U	RW	OY
16	15	14	13	12	11	10
RG*	YG	YR	WU	RU	—	—
9	8	7	6	5	4	3
W	W	Y	W	OG	OG	BG
24	23	22	21	20	19	18
BG	—	OY	BK	—	G	R
17	16	15	14	13	12	11
O	Y	W	UY	WR	—	—

EM82 / 17-WAY / NATURAL

6	5	4	3	2	1
GR	G	R	—	GO	OY
12	11	10	9	8	7
GU	W	Y	W	OG	BG
17	16	15	14	13	12
O	Y	W	UY	WR	—

EM83 / 28-WAY / NATURAL

9	8	7	6	5	4	3	2	1
N	Y	U	BG	OY	WR	RU	—	—
19	18	17	16	15	14	13	12	11
G	B	O	G	G	Y	BG	BR	YG
10	9	8	7	6	5	4	3	2
YG	—	—	—	—	—	—	—	—
28	27	26	25	24	23	22	21	20
GW	BW	BW	Y	Y	N	N	U	NR

EM84 / 22-WAY / NATURAL

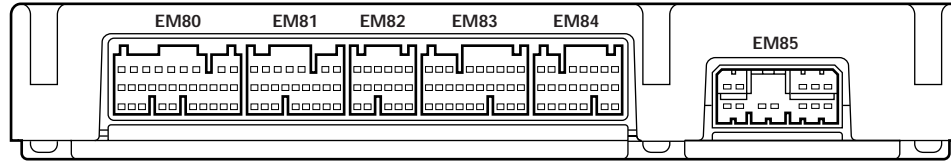
7	6	5	4	3	2	1
U	BW	BW	BO	BO	BG	B
15	14	13	12	11	10	9
UY	BG	BR	GU	GR	GO	GW
8	7	6	5	4	3	2
—	—	—	—	—	—	—
22	21	20	19	18	17	16
B	BO	GB	GW	GO	GU	B

\* Not used - ROW vehicles.

EM85 / 12-WAY / WHITE

5	4	3	2	1
U	—	—	UY	RU
12	11	10	9	8
—	—	—	—	B
—	—	WG	B	B

ENGINE CONTROL MODULE: AJ27 SC



EM80 / 31-WAY / NATURAL

9	8	7	6	5	4	3	2	1
GW	GW	R	R	G	G	B	GU*	UY
21	20	19	18	17	16	15	14	13
B	U	W	W	O	YU	YG	—	—
12	11	10	9	8	7	6	5	4
U	UY	WU	—	—	—	—	—	—
31	30	29	28	27	26	25	24	23
B	—	BK	BW*	U	—	RW	—	—
22	21	20	19	18	17	16	15	14
—	—	—	—	—	—	—	—	—

EM81 / 24-WAY / NATURAL

7	6	5	4	3	2	1
RG	OG	W	WU	U	—	—
16	15	14	13	12	11	10
RG*	YG	YR	WU	RU	—	—
9	8	7	6	5	4	3
W	W	Y	W	OG	OG	BG
24	23	22	21	20	19	18
BG	—	OY	BK	—	G	R
17	16	15	14	13	12	11
O	Y	W	UY	WR	—	—

EM82 / 17-WAY / NATURAL

6	5	4	3	2	1
GR	G	R	WB	GO	OY
12	11	10	9	8	7
GU	W	Y	W	OG	BG
17	16	15	14	13	12
O	Y	W	UY	WR	—

EM83 / 28-WAY / NATURAL

9	8	7	6	5	4	3	2	1
N	Y	P	BG	OY	WR	—	—	—
19	18	17	16	15	14	13	12	11
G	B	O	G	G	S	BG	BR	YG
10	9	8	7	6	5	4	3	2
YG	—	—	—	—	—	—	—	—
28	27	26	25	24	23	22	21	20
GW	BW	BW	Y	Y	N	N	U	NR

EM84 / 22-WAY / NATURAL

7	6	5	4	3	2	1
U	BW	BW	BO	BO	BG	B
15	14	13	12	11	10	9
UY	BG	BR	GU	GR	GO	GW
8	7	6	5	4	3	2
—	—	—	—	—	—	—
22	21	20	19	18	17	16
B	BO	GB	GW	GO	GU	B

\* Not used - ROW vehicles.

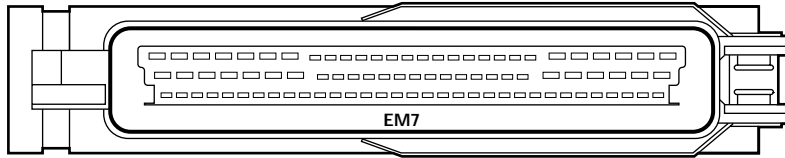
EM85 / 12-WAY / WHITE

5	4	3	2	1
U	YG*	—	UY	RU
12	11	10	9	8
—	—	—	—	B
—	—	YR*	YR*	B

\* Not used - ROW vehicles.



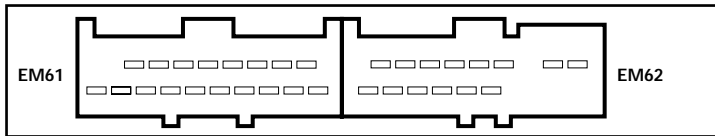
**TRANSMISSION CONTROL MODULE: AJ27 N/A**



**EM7 / 88-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	25	26	27	28					
OY	RU	—	O	OG	B	—	R	W	—	—	RU	OG	N	BRD	U	—	—	—	—	BG	UY	BRD	—	—	NR	—	BW					
29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55						
O	YB	—	YU	YU	B	—	Y	Y	—	—	—	—	G	—	R	RG	—	—	—	—	—	O	RU	RW	WB	WB						
56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	G	Y	—	G	Y	—	—

**TRANSMISSION CONTROL MODULE: AJ27 SC**



**EM61 / 18-WAY / BLACK**

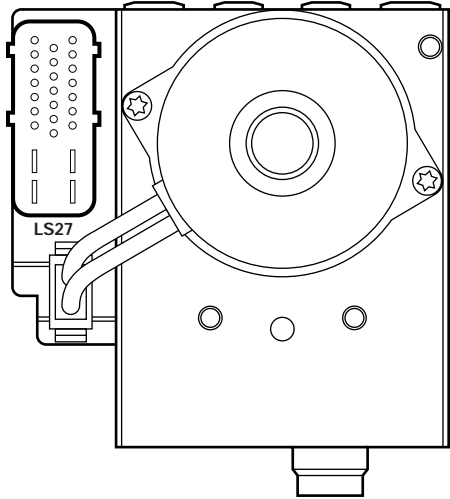
23	24	25	26	27	28	29	30		
—	—	GB	GU	GU	GR	WB	B		
1	2	3	4	5	6	7	8	9	10
—	BW	U	—	—	—	—	—	—	—

**EM62 / 14-WAY / BLACK**

33	34	35	36	37	38	L	H
B	BW	BG	BO	BO	BR	G	Y
12	13	14	15	16	17		
BG	BW	BK	BG	BR	BW		



**ABS / TRACTION CONTROL CONTROL MODULE**



**LS27 / 25-WAY / BLACK**

1 UY	10 —	17 W
2 OG	11 —	18 R
3 Y	12 —	19 O
4 G	13 U	20 WU
5 Y	14 R	21 U
6 Y	15 G	22 U
7 O	16 RW	23 —
8 B	24 B	
9 NR	25 NW	

**ADAPTIVE DAMPING CONTROL MODULE**

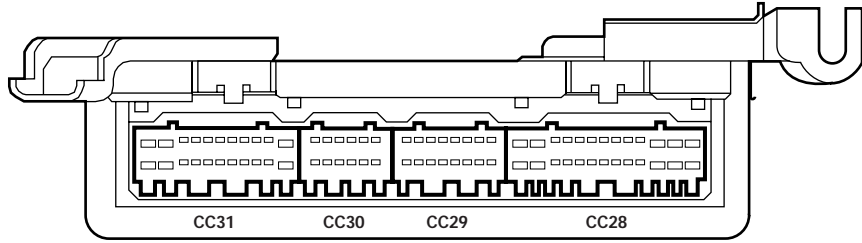


**EM68 / 35-WAY / BLACK**

19 —	20 —	21 —	22 —	23 —	24 —	25 —	26 —	27 —	28 —	29 —	30 —	31 —	32 —	33 —	34 —	35 —	
1 YR	2 —	3 Y	4 —	5 —	6 —	7 —	8 —	9 —	10 O	11 W	12 —	13 O	14 OG	15 OG	16 —	17 —	18 B



### AIR CONDITIONING CONTROL MODULE



CC31 / 22-WAY / GREY

12 WR	13 B	14 B	15 GW	16 OY	17 U	18 GW	19 BW	20 BK	21 O	22 —
1 WU	2 GW	3 WR	4 WU	5 NW	6 RW	7 U	8 U	9 UY	10 W	11 —

CC30 / 12-WAY / GREY

7 Y	8 YR	9 —	10 —	11 U	12 WU
1 UY	2 Y	3 YG	4 —	5 OY	6 U

CC29 / 16-WAY / GREY

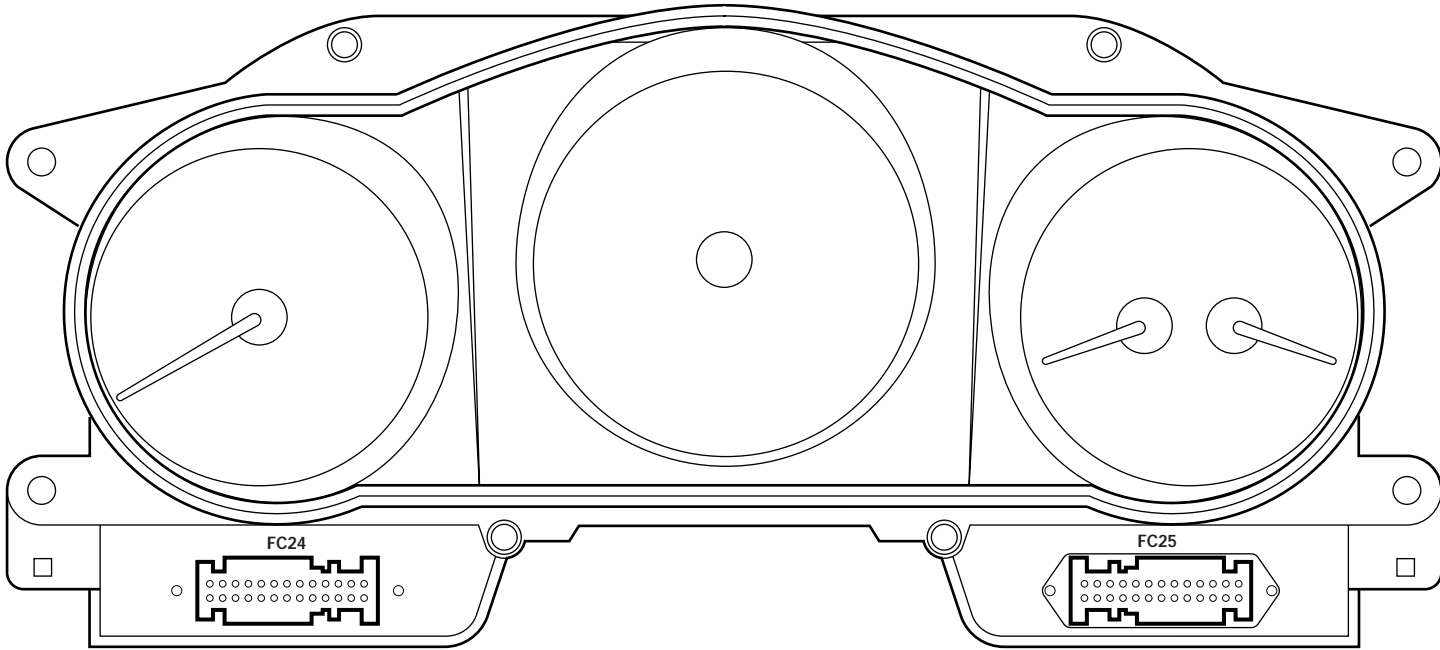
9 —	10 O	11 YG	12 —	13 UY	14 —	15 U	16 GU
1 OG	2 RG	3 Y	4 —	5 YB	6 YG	7 OG	8 GO

CC28 / 26-WAY / GREY

14 —	15 —	16 GR	17 RW	18 GU	19 RU	20 YR	21 Y	22 NR	23 —	24 —	25 O	26 GU
1 RG	2 U	3 UY	4 UY	5 W	6 RW	7 UY	8 RW	9 R	10 —	11 —	12 OY	13 UY



**INSTRUMENT PACK**



**FC24 / 26-WAY / BLACK**

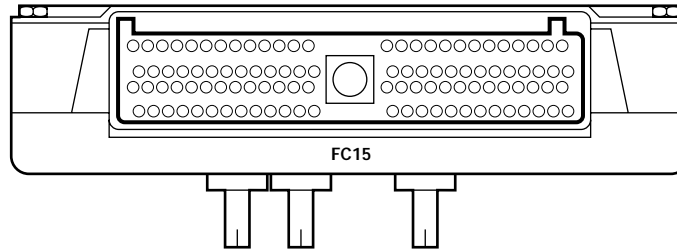
1 WG	2 —	3 YR	4 BK	5 —	6 RU	7 YB	8 UY	9 R	10 Y	11 Y	12 —	13 Y
14 U	15 NR	16 B	17 —	18 Y	19 O	20 —	21 —	22 —	23 G	24 G	25 BR	26 —

**FC25 / 26-WAY / YELLOW**

13 BW	12 —	11 —	10 —	9 —	8 —	7 O	6 U	5 OY	4 YG	3 RW	2 —	1 —
26 —	25 —	24 —	23 OG	22 Y	21 RG	20 OY	19 OY	18 —	17 —	16 Y	15 —	14 RW



### BODY PROCESSOR MODULE

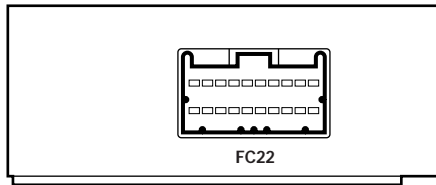


FC15 / 104-WAY / GREY

79 NG	80 N	81 GR	82 GR	83 GB	84 U	85 Y	86 OG	87 YU	88 YG	89 Y	90 BK	91 BK	92 YB	93 Y	94 GW	95 RU	96 GU	97 WU	98 —	99 UY	100 BR	101 RW	102 N	103 —	104 NW
53 R	54 R	55 YU	56 OY*	57 GR	58 YB	59 RW	60 RW	61 WG	62 —	63 YG	64 —	65 —	66 RU	67 O	68 OG	69 O	70 GW	71 YR	72 YU	73 GO	74 RW	75 GR	76 GO	77 RG	78 U
27 Y	28 G	29 Y	30 U	31 GB	32 WR	33 W	34 GO	35 OY	36 —	37 GR	38 O	39 Y	40 WU	41 RW	42 UY	43 WG	44 OY	45 U	46 YB	47 YG	48 OG	49 GO	50 GW	51 RW	52 BW
1 W	2 GW	3 GO	4 GU	5 YR	6 Y	7 RU	8 —	9 GU	10 RW	11 YB	12 OG	13 G*	14 U	15 WU	16 RW	17 OY	18 YB	19 BG	20 OG	21 YR	22 WB	23 WU	24 NW	25 B	26 YG

\* Not used – NAS vehicles.

### KEY TRANSPONDER MODULE

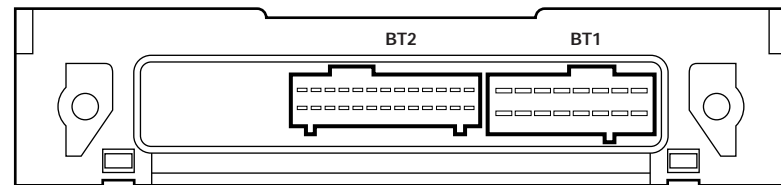


FC22 / 20-WAY / GREEN

10 R*	9 YB	8 OG	7 O	6 O	5 U*	4 NR	3 BRD*	2 BRD*	1 —
20 R*	19 RW*	18 OY*	17 Y	16 W	15 U*	14 WU	13 WR	12 BK	11 YR

\* Not used – NAS vehicles.

### SECURITY AND LOCKING CONTROL MODULE



BT2 / 26-WAY / BLACK

13 —	12 —	11 —	10 —	9 —	8 GW*	7 YU	6 GW	5 RW	4 —	3 RG	2 —	1 OG
26 YR*	25 —	24 —	23 —	22 —	21 —	20 —	19 YR	18 —	17 —	16 —	15 —	14 —

\* Not used – NAS vehicles.

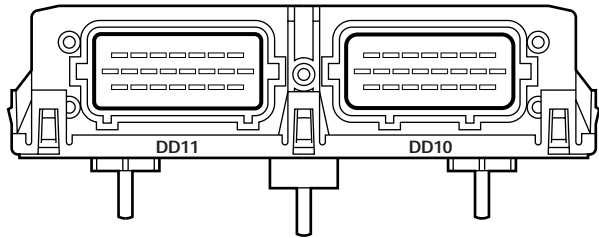
BT1 / 16-WAY / BLACK

8 Y	7 RU	6 NR	5 Y	4 OG	3 OY	2 OY	1 O
16 U	15 NW	14 BK	13 BK	12 —	11 —	10 O	9 U





**DRIVER DOOR CONTROL MODULE**



**DD11 / 22-WAY / BLACK**

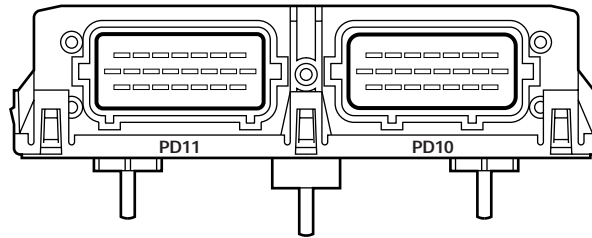
7	6	5	4	3	2	1	
BR	BW	GB	OY	O	U	BK	
15	14	13	12	11	10	9	8
YG	—	OY	GU	—	YR	RG	—
22	21	20	19	18	17	16	—
BO	BW	G	—	—	YR	—	—

**DD10 / 22-WAY / BLUE**

7	6	5	4	3	2	1	
R	YB*	Y	OG	OG	Y	NR	
15	14	13	12	11	10	9	8
OY	GW	—	—	—	BG	U	BK
22	21	20	19	18	17	16	—
O	OY	WU	N	BO	B	Y	—

\* Not used - NAS vehicles.

**PASSENGER DOOR CONTROL MODULE**



**PD11 / 22-WAY / BLACK**

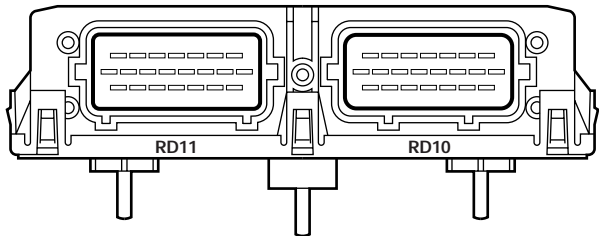
7	6	5	4	3	2	1	
—	BO	—	—	—	—	—	
15	14	13	12	11	10	9	8
U	—	—	—	—	—	—	U
22	21	20	19	18	17	16	—
—	BG	G	—	—	—	—	—

**PD10 / 22-WAY / BLUE**

7	6	5	4	3	2	1	
R	YB*	Y	UY	U	Y	NR	
15	14	13	12	11	10	9	8
OY	GW	—	—	—	—	U	BK
22	21	20	19	18	17	16	—
—	RU	WU	—	—	B	Y	—

\* Not used - NAS vehicles.

**DRIVER REAR DOOR CONTROL MODULE**



**RD11 / 22-WAY / BLACK**

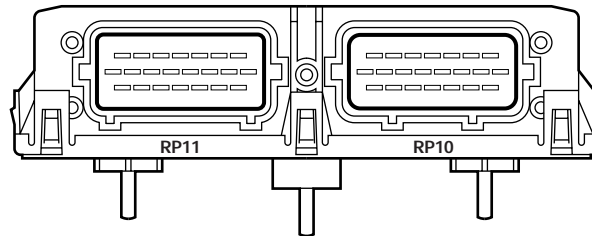
7	6	5	4	3	2	1	
BK	BO	O	—	—	—	—	
15	14	13	12	11	10	9	8
OG	—	WU	—	—	—	—	—
22	21	20	19	18	17	16	—
—	BG	B	—	—	—	—	—

**RD10 / 22-WAY / BLUE**

7	6	5	4	3	2	1	
R	YB*	Y	—	—	—	NR	
15	14	13	12	11	10	9	8
OY	GW	—	—	—	—	U	BK
22	21	20	19	18	17	16	—
—	—	—	BK	—	B	Y	—

\* Not used - NAS vehicles.

**PASSENGER REAR DOOR CONTROL MODULE**



**RP11 / 22-WAY / BLACK**

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

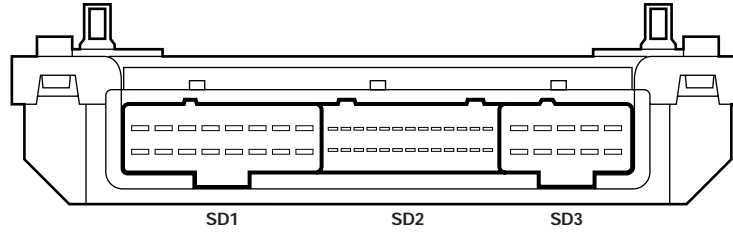
**RP10 / 22-WAY / BLUE**

7	6	5	4	3	2	1	
R	YB*	Y	—	—	—	NR	
15	14	13	12	11	10	9	8
OY	GW	—	—	—	—	U	BK
22	21	20	19	18	17	16	—
—	—	—	—	—	B	Y	—

\* Not used - NAS vehicles.



**DRIVER SEAT CONTROL MODULE: MEMORY**



**SD1 / 16-WAY / BLACK**

9	10	11	12	13	14	15	16
RW	YR	WG	W	OY	WB	OG	N
1	2	3	4	5	6	7	8
R	RU	OG	UY	GW	GO	YB	UY

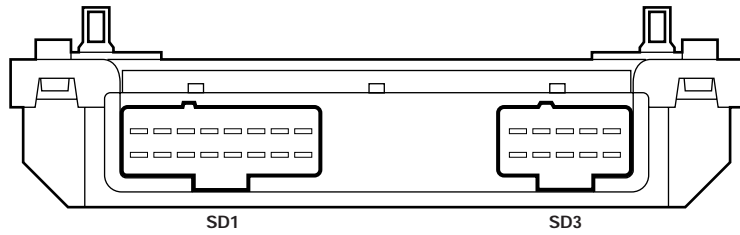
**SD2 / 26-WAY / BLACK**

14	15	16	17	18	19	20	21	22	23	24	25	26
NG	NR	—	—	GR	GB	—	—	—	—	—	—	—
1	2	3	4	5	6	7	8	9	10	11	12	13
WB	WB	—	—	W	GB	—	G	WU	UY	WR	N	—

**SD3 / 10-WAY / BLACK**

6	7	8	9	10
GW	—	G	Y	U
1	2	3	4	5
BK	B	WU	YG	NR

**DRIVER SEAT CONTROL MODULE: NON-MEMORY**



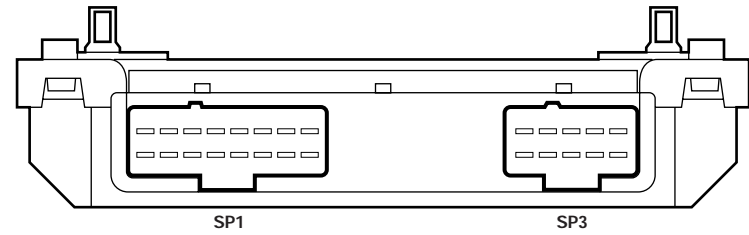
**SD1 / 16-WAY / BLACK**

9	10	11	12	13	14	15	16
RW	YR	WG	W	OY	WB	OG	N
1	2	3	4	5	6	7	8
R	RU	OG	UY	GW	GO	YB	UY

**SD3 / 10-WAY / BLACK**

6	7	8	9	10
GW	—	G	Y	U
1	2	3	4	5
BK	B	WU	YG	NR

**PASSENGER SEAT CONTROL MODULE**



**SP1 / 16-WAY / BLACK**

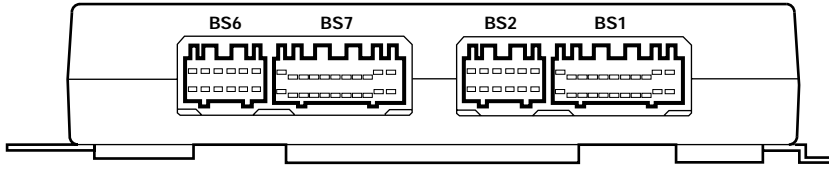
9	10	11	12	13	14	15	16
Y	N	WG	W	OY	UY	G	RW
1	2	3	4	5	6	7	8
R	RU	OG	UY	GW	GO	YB	WU

**SP3 / 10-WAY / BLACK**

6	7	8	9	10
GW	—	GO	Y	U
1	2	3	4	5
—	B	WU	WR	NR



### REAR SEAT CONTROL MODULE



BS6 / 12-WAY / WHITE

6	5	4	3	2	1
GO	GW	UY	WU	OY	OY
12	11	10	9	8	7
GR	GW	OW	B	PW	PR

BS7 / 22-WAY / WHITE

11	10	9	8	7	6	5	4	3	2	1
—	RW	RW	RW	—	—	—	—	—	—	—
22	21	20	19	18	17	16	15	14	13	12
—	—	RW	OY	UY	Y	YG	GW	GW	—	—

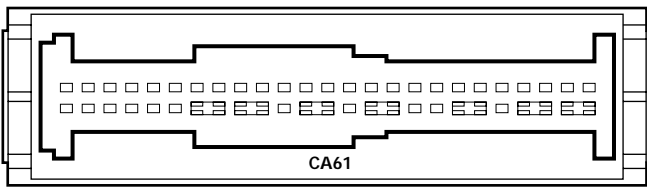
BS2 / 12-WAY / BLUE

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

BS1 / 22-WAY / BLUE

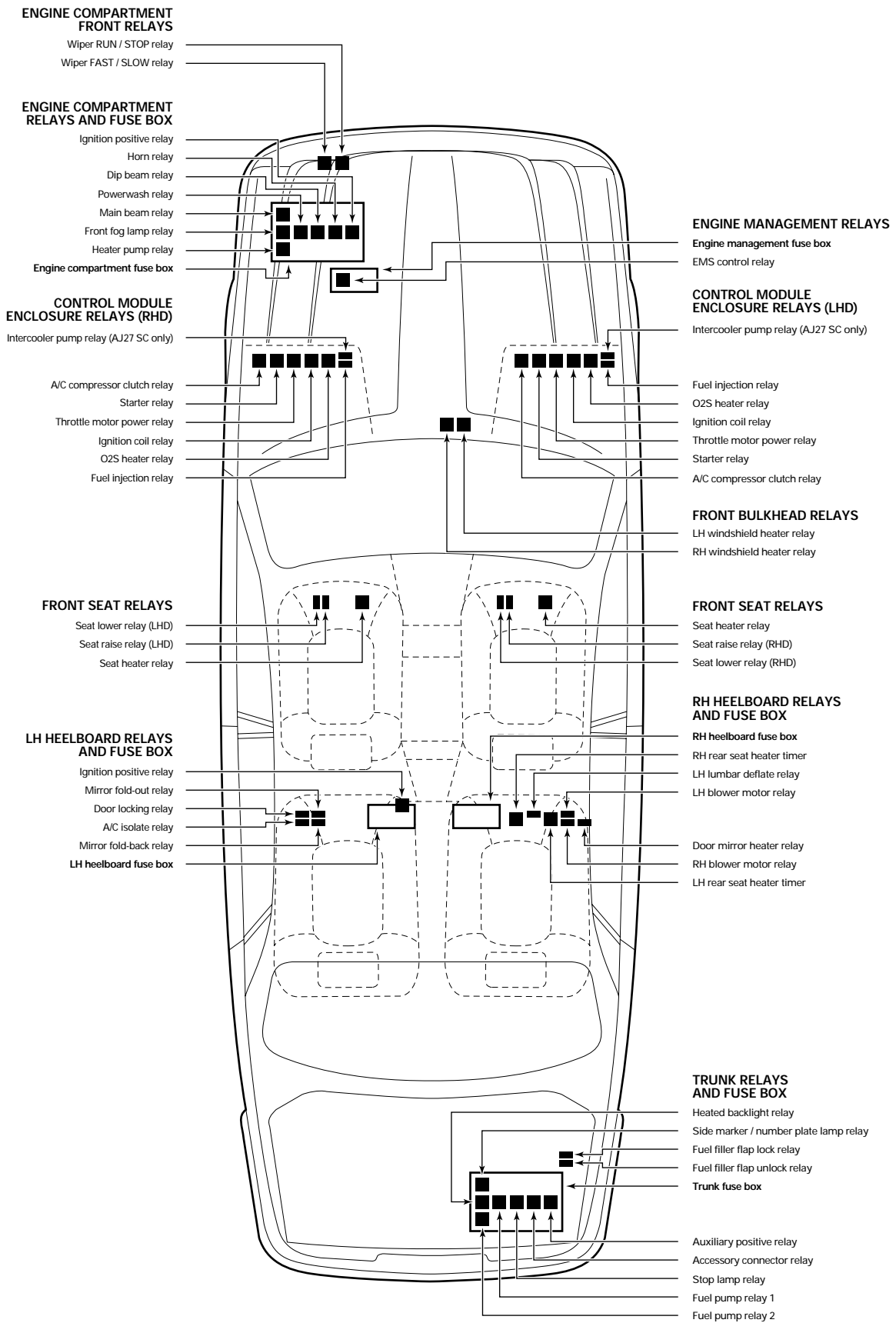
11	10	9	8	7	6	5	4	3	2	1
Y	B	—	—	—	—	—	—	—	—	—
22	21	20	19	18	17	16	15	14	13	12
B	—	—	—	—	—	—	—	—	—	B

### 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	9	8	7	6	5	4	3	2	1
R	R	Y	Y	U	U	YR	Y	YU	Y	—	YR	Y	—	YU	Y	OY	—	YR	BK	W	RW	BW	RW	BW
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—



NOTE: All relays are brown, with the exception of the microrelays, which are black.

# Fig. 01.1

## COMPONENTS

Component	Connector / Type / Color	Location / Access
BATTERY	BT66 / BATTERY CABLE CLAMP BT67 / BATTERY CABLE CLAMP	TRUNK / BATTERY COVER
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
FUSE BOX - ENGINE COMPARTMENT	LF5 / 10-WAY U.T.A. FUSE BOX / NATURAL LF6 / 10-WAY U.T.A. FUSE BOX / BLACK LF7 / 10-WAY U.T.A. FUSE BOX / GREEN LF8 / 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 / 1-WAY LUCAR STRAIGHT / METALLIC 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	TRUNK 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 / GREY	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
FC1	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
ST5	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD
ST6	EYELET	ENGINE COMPARTMENT / RH FALSE BULKHEAD

## GROUNDINGS

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

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**COMPONENTS**

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

**HARNES-TO-HARNES CONNECTORS**

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

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 01.3****COMPONENTS****Component**

FUZE BOX - ENGINE COMPARTMENT

**Connector / Type / Color**LF5 / 10-WAY U.T.A. FUZE BOX / NATURAL  
LF6 / 10-WAY U.T.A. FUZE BOX / BLACK  
LF7 / 10-WAY U.T.A. FUZE BOX / GREEN  
LF8 / 10-WAY U.T.A. FUZE BOX / BLUE  
ST19 / EYELET**Location / Access**

ENGINE COMPARTMENT / LH FRONT

FUZE BOX - ENGINE MANAGEMENT

EM19 / 10-WAY U.T.A. FUZE BOX / NATURAL  
EM20 / 10-WAY U.T.A. FUZE BOX / BLACK  
ST20 / EYELET  
ST21 / EYELET

ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE

FUZE BOX - TRUNK

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

TRUNK ELECTRICAL CARRIER

**HARNESS-TO-HARNESS CONNECTORS****Connector**BS4  
BT4  
CA109  
EM42  
IC2  
LF32**Type / Color**20-WAY MULTILOCK 070 / WHITE  
54-WAY THROUGH PANEL / GREY  
12-WAY MULTILOCK 070 / WHITE  
4-WAY YAZAKI / GREY  
8-WAY MULTILOCK 070 / WHITE  
4-WAY YAZAKI / GREY**Location / Access**BELOW REAR CENTER CONSOLE SEAT SWITCHES  
BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE  
BELOW REAR SEAT CUSHION  
BULKHEAD / REAR OF ENGINE  
REARWARD OF FUEL TANK / BATTERY COVER  
FORWARD OF LH FRONT SUSPENSION ARM

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 01.4****COMPONENTS**

Component	Connector / Type / Color	Location / Access
FUSE BOX - ENGINE COMPARTMENT	LF5 / 10-WAY U.T.A. FUSE BOX / NATURAL LF6 / 10-WAY U.T.A. FUSE BOX / BLACK LF7 / 10-WAY U.T.A. FUSE BOX / GREEN LF8 / 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

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / GREY	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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
IC1	14-WAY MULTILOCK 070 / WHITE	LH HEELBOARD
IC2	8-WAY MULTILOCK 070 / WHITE	REARWARD OF FUEL TANK / BATTERY COVER
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	LH 'A' POST / LOWER 'A' POST FINISHER

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.



**Fig. 01.5****COMPONENTS****Component**

FUSE BOX - ENGINE MANAGEMENT

**Connector / Type / Color**EM19 / 10-WAY U.T.A. FUSE BOX / NATURAL  
EM20 / 10-WAY U.T.A. FUSE BOX / BLACK  
ST20 / EYELET  
ST21 / EYELET**Location / Access**

ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE

**HARNESS-TO-HARNESS CONNECTORS****Connector**CV2  
EM2  
EM51  
FC1  
PI1**Type / Color**3-WAY MULTILOCK 070 / WHITE  
20-WAY MULTILOCK 070 / GREY  
12-WAY AUGAT 1.6 / GREY  
54-WAY THROUGH PANEL CONNECTOR / GREY  
57-WAY SUMITOMO TS090 / BLACK**Location / Access**UNDER REAR SEAT  
PASSENGER 'A' POST / LOWER 'A' POST FINISHER  
ENGINE COMPARTMENT / ADJACENT TO ABS PUMP  
BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY  
ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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 / GREY	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
EM53	20-WAY MULTILOCK 070 / WHITE	RH 'A' POST / LOWER 'A' POST FINISHER
FC1	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC11	18-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**CONTROL MODULE PIN OUT INFORMATION**

**Fig. 03.1**

**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 COMMUNICATIONS	
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	GROUND (CRANKING)	B+
D FC15-92	ENCODED COMMUNICATIONS	B+	

**ENGINE CONTROL MODULE**

Pin	Description	Active	Inactive
I EM81-12	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	GROUND (R,D,4,3,2)
I EM82-2	ENGINE CRANK	GROUND (CRANKING)	
D EM82-15	OK TO START	ENCODED COMMUNICATIONS	
D EM82-16	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	

**KEY TRANSPONDER MODULE**

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

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BATTERY	BT66 / BATTERY CABLE CLAMP BT67 / BATTERY CABLE CLAMP	TRUNK / BATTERY COVER
BODY PROCESSOR MODULE ENGINE CONTROL MODULE	FC15 / 14-WAY AMP EEEC / GREY EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / WHITE	BULKHEAD / BEHIND GLOVE BOX 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 KEY TRANSPONDER MODULE NEUTRAL SWITCH REGULATOR (GENERATOR) STARTER MOTOR	FC4 / 8-WAY MULTILOCK 070 / WHITE FC22 / 20-WAY MULTILOCK 040 / GREEN CC21 / 3-WAY MULTILOCK 070 / GREY PI50 / 3-WAY SUMITOMO 92 / BLACK ST1 / EYELET ST2 / EYELET ST3 / EYELET	STEERING COLUMN BELOW INSTRUMENT PACK GEAR SELECTOR ASSEMBLY / CENTER CONSOLE ENGINE COMPARTMENT / RH FRONT 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	18-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM60	2-WAY ECONOSEAL J2 / GREY	ENGINE COMPARTMENT / ADJACENT RH TO FALSE BULKHEAD
FC7	20-WAY MULTILOCK 070 / YELLOW	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

**GROUND**

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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**CONTROL MODULE PIN OUT INFORMATION**

**Fig. 03.2**

**BODY PROCESSOR MODULE**

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

**ENGINE CONTROL MODULE**

Pin	Description	Active	Inactive
I	EM81-12	PARK / NEUTRAL CONFIRMATION	B+ (P, N)
I	EM82-2	ENGINE CRANK	GROUND (CRANKING)
D	EM82-15	OK TO START	ENCODED COMMUNICATIONS
D	EM82-16	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS

**KEY TRANSPONDER MODULE**

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

**DUAL LINEAR SWITCH**

Pin	Description	Active	Inactive
I	CC8-2	TCM / DUAL LINEAR SWITCH COMMON GROUND SUPPLY	GROUND
O	CC8-4	NEUTRAL SWITCH STATUS	B+ (P, R, D, 4, 3, 2)
O	CC8-11	PARK / NEUTRAL CONFIRMATION	GROUND (R, D, 4, 3, 2)

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BATTERY	BT66 / BATTERY CABLE CLAMP BT67 / BATTERY CABLE CLAMP	TRUNK / BATTERY COVER
BODY PROCESSOR MODULE DUAL LINEAR SWITCH ENGINE CONTROL MODULE	FC15 / 14-WAY AMP EEEC / GREY CC8 / 12-WAY MULTILOCK 070 / GREY EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / WHITE	BULKHEAD / BEHIND GLOVE BOX RIGHT HAND SIDE OF GEAR SELECTOR / CENTER CONSOLE 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 KEY TRANSPONDER MODULE REGULATOR (GENERATOR) STARTER MOTOR	FC4 / 8-WAY MULTILOCK 070 / WHITE FC22 / 20-WAY MULTILOCK 040 / GREEN PI50 / 3-WAY SUMITOMO 92 / BLACK ST1 / EYELET ST2 / EYELET ST3 / EYELET	STEERING COLUMN BELOW INSTRUMENT PACK ENGINE COMPARTMENT / RH FRONT 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	18-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM60	2-WAY ECONOSEAL J2 / 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 / YELLOW	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

**GROUND**

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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.



**CONTROL MODULE PIN OUT INFORMATION**

**ENGINE CONTROL MODULE**

Pin	Description	Active	Inactive
O	EM80-01	EVAP VALVE ACTIVATE	GROUND (VALVE OPEN)
I	EM80-03	GROUND (POWER)	B+
O	EM80-04	THROTTLE MOTOR POWER SUPPLY	GROUND
O	EM80-05	THROTTLE MOTOR POWER SUPPLY	B+
O	EM80-06	THROTTLE MOTOR POWER SUPPLY	B+
O	EM80-07	THROTTLE MOTOR POWER SUPPLY	B+
I	EM80-08	THROTTLE MOTOR POWER SUPPLY	B+
I	EM80-09	THROTTLE MOTOR POWER SUPPLY	B+
I	EM80-15	EOT FEEDBACK	2.5 V @ 34 °C; 0.5 V @ 90 °C; (DECREASING VOLTAGE WITH TEMPERATURE INCREASE)
D	EM80-17	SERIAL COMMUNICATIONS	
D	EM80-18	SERIAL COMMUNICATIONS	
D	EM80-19	ECM PROGRAMMING	
I	EM80-21	GROUND (THROTTLE MOTOR 1)	GROUND
D	EM80-27	ECM PROGRAMMING	
I	EM80-29	GROUND (LOGIC 2)	GROUND
I	EM80-31	GROUND (THROTTLE MOTOR 2)	GROUND
O	EM81-01	VARIABLE VALVE TIMING SOLENOID + 'A' BANK	B+ (12% DUTY CYCLE @ IDLE) (INCREASING WITH ADVANCE)
O	EM81-02	VARIABLE VALVE TIMING SOLENOID - 'A' BANK	GROUND
O	EM81-03	EMS CONTROLLED RELAY ACTIVATE	GROUND
O	EM81-06	VARIABLE VALVE TIMING SOLENOID + 'B' BANK	B+ (12% DUTY CYCLE @ IDLE) (INCREASING WITH ADVANCE)
O	EM81-07	VARIABLE VALVE TIMING SOLENOID - 'B' BANK	GROUND
I	EM81-08	GROUND (POWER)	GROUND
I	EM81-09	PEDAL POSITION FEEDBACK (PPS1)	0.6 V = FOOT OFF; 3.8 V = PEDAL FULLY DEPRESSED
I	EM81-10	TPS FEEDBACK (TPS1)	0.5 V = IDLE; 4.75 V = WOT
I	EM81-12	PARK / NEUTRAL CONFIRMATION	B+ (P, N)
I	EM81-17	EMS SWITCHED POWER SUPPLY 1	0.8 V = FOOT OFF; 2.4 V = PEDAL FULLY DEPRESSED
I	EM81-18	PEDAL POSITION FEEDBACK (PPS2)	0.6 V = IDLE; 4.85 V = WOT
I	EM81-19	TPS FEEDBACK (TPS2)	GROUND
I	EM81-21	GROUND (LOGIC 1)	GROUND
I	EM81-22	PARKING BRAKE SWITCH	GROUND (APPLIED)
SG	EM81-24	PEDAL POSITION / THROTTLE POSITION SENSORS SHIELD	GROUND
O	EM82-01	SENSOR SUPPLY VOLTAGE 1	5 V
I	EM82-02	ENGINE CRANK	GROUND (CRANKING)
I	EM82-04	HO2S, UPSTREAM 'A' BANK - VARIABLE CURRENT (µA)	3.5 V
I	EM82-05	HO2S, UPSTREAM 'B' BANK - VARIABLE CURRENT (µA)	3.5 V
O	EM82-06	THROTTLE MOTOR POWER RELAY ACTIVATE	GROUND
SG	EM82-07	SENSORS SIGNAL GROUND 1	GROUND
I	EM82-08	BRAKE SWITCH	GROUND
I	EM82-09	IGNITION SWITCHED POWER SUPPLY	B+
SG	EM82-10	HO2S, UPSTREAM 'A' BANK - CONSTANT	3.8 V
SG	EM82-11	HO2S, UPSTREAM 'B' BANK - CONSTANT	3.8 V
I	EM82-12	INERTIA SWITCH ACTIVATED (VEHICLE IMPACT)	GROUND
I	EM82-13	EMS SWITCHED POWER SUPPLY 2	B+
I	EM82-14	ECT FEEDBACK	0.41 V @ 90 °C (DECREASING VOLTAGE WITH TEMPERATURE INCREASE)
D	EM82-15	OK TO START	ENCODED COMMUNICATIONS
D	EM82-16	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS
I	EM82-17	IATS FEEDBACK	0.98 V @ 10 °C (DECREASING VOLTAGE WITH TEMPERATURE INCREASE)
O	EM83-03	AIR ASSIST CLOSE VALVE ACTIVATE	8 V @ IDLE (78% DUTY CYCLE)
O	EM83-05	SENSOR SUPPLY VOLTAGE 2	5 V
SG	EM83-06	SENSOR SHIELD	GROUND
SG	EM83-07	CKPS SIGNAL GROUND	GROUND
I	EM83-08	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz
SG	EM83-09	CMPS, 'A' BANK SIGNAL GROUND	GROUND
SG	EM83-12	HO2S SHIELD	GROUND
SG	EM83-13	SENSORS SIGNAL GROUND 2	GROUND
I	EM83-14	KNOCK SENSOR, 'A' BANK FEEDBACK	0 kHz = NO KNOCK, 2 - 20 kHz = KNOCK
C	EM83-15	CAN NETWORK	15 - 1500 Hz
C	EM83-16	CAN NETWORK	15 - 1500 Hz
SG	EM83-17	CMPS, 'B' BANK SIGNAL GROUND	GROUND
I	EM83-18	CMPS, 'B' BANK SIGNAL	0.7 - 1 VAC @ 1000 RPM = 43 Hz; 2000 RPM = 72 Hz
I	EM83-19	CMPS, 'A' BANK SIGNAL	0.7 - 1 VAC @ 1000 RPM = 43 Hz; 2000 RPM = 72 Hz
I	EM83-20	BATTERY POWER SUPPLY	B+
I	EM83-21	HO2S, 'A' BANK DOWNSTREAM	0.1 - 0.9 V @ IDLE (SWING)
I	EM83-22	HO2S, 'B' BANK DOWNSTREAM	0.1 - 0.9 V @ IDLE (SWING)
I	EM83-23	KNOCK SENSOR, 'B' BANK FEEDBACK	0 kHz = NO KNOCK, 2 - 20 kHz = KNOCK
C	EM83-24	CAN NETWORK	15 - 1500 Hz
C	EM83-25	CAN NETWORK	15 - 1500 Hz
O	EM83-26	MAFS REFERENCE GROUND	GROUND
O	EM83-27	MAFS REFERENCE GROUND	GROUND
I	EM83-28	MAFS FEEDBACK	1.2 V @ IDLE, INCREASING WITH RPM INCREASE
I	EM84-01	GROUND (DOWNSTREAM HO2S HEATERS)	GROUND
O	EM84-07	HO2S HEATER, 'A' BANK DOWNSTREAM CONTROL	GROUND (20 - 60% DUTY CYCLE)
O	EM84-15	HO2S HEATER, 'B' BANK DOWNSTREAM CONTROL	GROUND (20 - 60% DUTY CYCLE)
I	EM84-16	GROUND (INJECTORS 1A, 2B, 3B, 4A)	GROUND
I	EM84-22	GROUND (INJECTORS 1B, 2A, 3A, 4B)	GROUND
O	EM85-01	HO2S HEATER, 'A' BANK UPSTREAM CONTROL	GROUND (85 - 90% DUTY CYCLE AT IDLE)
O	EM85-02	HO2S HEATER, 'B' BANK UPSTREAM CONTROL	GROUND (85 - 90% DUTY CYCLE AT IDLE)
O	EM85-05	"COOL BOX" COOLING FAN ACTIVATE	GROUND
I	EM85-06	GROUND (HO2S A UPSTREAM HEATER)	GROUND
I	EM85-07	GROUND (HO2S B UPSTREAM HEATER)	GROUND
I	EM85-08	HO2S HEATERS OBD MONITOR	HEATERS ACTIVE = B+ V

**NOTE:** Refer to the Appendix at the rear of this book for CAN and SCP Network Messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	B+	Battery Voltage	kHz	Frequency x 1000
O	Output	C	CAN (Network)	V	Voltage (DC)	ms	Milliseconds
SG	Signal Ground	S	SCP Network	HZ	Frequency	mV	Millivolts

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

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

**Fig. 04.2**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
AIR ASSIST CLOSE VALVE	PI29 / 3-WAY SUMITOMO SS / GREY	THROTTLE ASSEMBLY
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 - 'A' BANK	PI16 / 2-WAY YAZAKI / BLACK	ENGINE COMPARTMENT / 'A' BANK CYLINDER HEAD, REAR
CMPS: CAMSHAFT POSITION SENSOR - 'B' BANK	PI15 / 2-WAY YAZAKI / 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	EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / 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
EOTS: ENGINE OIL TEMPERATURE SENSOR	PI38 / 2-WAY ECONOSEAL EC J2 / GREY	ENGINE BLOCK / BELOW GENERATOR
EVAPP: EVAP CANISTER PURGE VALVE	EM39 / 2-WAY ECONOSEAL J2+ / BLACK	ENGINE COMPARTMENT / BULKHEAD
HO2S: HEATED OXYGEN SENSOR (DOWNSTREAM) - 'A' BANK	EM22 / 2-WAY SUMITOMO 0902 / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR (DOWNSTREAM) - 'B' BANK	EM24 / 2-WAY SUMITOMO 0902 / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR (UPSTREAM) - 'A' BANK	EM21 / 4-WAY SUMITOMO 0902 / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR (UPSTREAM) - 'B' BANK	EM23 / 4-WAY SUMITOMO 0902 / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
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
PPS: PEDAL POSITION SENSORS	PI42 / 5-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
THROTTLE MOTOR	PI33 / 2-WAY SUMITOMO HM250 / BLACK	ENGINE COMPARTMENT / THROTTLE ASSEMBLY
TPS: THROTTLE POSITION SENSORS	PI6 / 4-WAY ECONOSEAL J2T / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
VVT SOLENOID VALVE - 'A' BANK	PI31 / 2-WAY YAZAKI 0902 / BLACK	ENGINE COMPARTMENT / 'A' BANK CYLINDER HEAD / FRONT
VVT SOLENOID VALVE - 'B' BANK	PI32 / 2-WAY YAZAKI 0902 / 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
O2S HEATERS RELAY	BROWN	EM75 / 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
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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	0 V
O	CC30-1	AIR CONDITIONING ELECTRICAL LOAD SIGNAL	0 V
I	CC31-7	LOAD INHIBIT	B+
O	CC31-9	COMPRESSOR CLUTCH ON REQUEST	0 V
I	CC31-17	REFRIGERANT 4-WAY PRESSURE SWITCH	B+
			0 V (2 – 30 BAR)

### ENGINE CONTROL MODULE

Pin	Description	Active	Inactive
I	EM80-10	REFRIGERANT 4-WAY PRESSURE SWITCH HIGH PRESSURE	
I	EM80-11	A/CCM COMPRESSOR CLUTCH REQUEST	GROUND @ 20 BAR (290 PSI)
O	EM80-12	ELECTRICAL LOAD INHIBIT	B+
O	EM80-16	CRUISE CONTROL ON STATUS LED	GROUND
D	EM80-17	SERIAL COMMUNICATIONS	GROUND
D	EM80-18	SERIAL COMMUNICATIONS	
D	EM80-19	ECM PROGRAMMING	
I	EM80-20	CRUISE CONTROL BRAKE CANCEL REQUEST	GROUND
I	EM80-22	REFRIGERANT 4-WAY PRESSURE SWITCH HIGH PRESSURE	GROUND @ 12 BAR (174 PSI)
I	EM80-23	A/CCM ELECTRICAL LOAD REQUEST (HEATED WINDSHIELD)	B+
O	EM80-25	AIR CONDITIONING COMPRESSOR RELAY ACTIVATE	GROUND
O	EM81-04	PARALLEL (HIGH) SPEED FAN ACTIVATE	GROUND
O	EM81-05	SERIES (LOW) SPEED FAN ACTIVATE	GROUND
I	EM81-13	CRUISE CONTROL ON REQUEST	B+
I	EM81-14	CRUISE CONTROL SET +/-	7.3 V = (+), 8.8 V = (-)B+
I	EM81-15	CRUISE CONTROL CANCEL / RESUME	7.3 V = RESUME, 8.8 V = CANCEL B+
I	EM83-04	FUEL PUMP RELAY ACTIVATE	GROUND
I	EM83-10	IGNITION MODULES 1A, 2B, 3B, 4A OBD MONITOR	23 Hz @ IDLE (5 V)
I	EM83-11	IGNITION MODULES 1B, 2A, 3A, 4B OBD MONITOR	23 Hz @ IDLE (5 V)
O	EM84-02	INJECTOR 1A ACTIVATE	B+
O	EM84-03	INJECTOR 3B ACTIVATE	B+
O	EM84-04	INJECTOR 2B ACTIVATE	B+
O	EM84-05	INJECTOR 4A ACTIVATE	B+
O	EM84-06	INJECTOR 1B ACTIVATE	B+
O	EM84-09	IGNITION MODULE 4A SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-10	IGNITION MODULE 3A SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-11	IGNITION MODULE 2A SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-12	IGNITION MODULE 1A SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
I	EM84-13	INJECTOR 4B ACTIVATE	B+
I	EM84-14	INJECTOR 3A ACTIVATE	B+
O	EM84-17	IGNITION MODULE 4B SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-18	IGNITION MODULE 3B SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-19	IGNITION MODULE 2B SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-20	IGNITION MODULE 1B SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-21	INJECTOR 2A ACTIVATE	B+
			GROUND

## Fig. 04.3

### COMPONENTS

Component	Connector / Type / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH A/CCM: 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	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	PI7 / 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 RADIATOR FAN CONTROL RELAY MODULE RADIATOR FAN – LH RADIATOR FAN – RH REFRIGERANT 4-WAY PRESSURE SWITCH	PI51 / 4-WAY YAZAKI / BLACK PI55 / 4-WAY YAZAKI / BLACK PI52 / 4-WAY YAZAKI / BLACK PI56 / 4-WAY YAZAKI / BLACK PI53 / 4-WAY YAZAKI / BLACK PI57 / 4-WAY YAZAKI / BLACK PI54 / 4-WAY YAZAKI / BLACK PI58 / 4-WAY YAZAKI / BLACK LF31 / 8-WAY TRW / BLACK CF1 / 2-WAY REINSHAGEN / BLACK CF2 / 2-WAY REINSHAGEN / BLACK LF26 / 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 / CAMSHAFT COVER 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	EM52 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
FUEL INJECTION RELAY	BLACK	EM25 / BLACK	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

### HARNESSTO-HARNES CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / GREY	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM3	18-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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
LF32	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 / BLACK	CENTER OF STEERING WHEEL

### GROUND

Ground	Location / Type
BT20	EYELET (SINGLE) – TRUNK / RH REAR GROUND STUD
EM8R	EYELET (PAIR) – EMS LH GROUND STUD
EM16R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
LF10L	EYELET (PAIR) – LH FORWARD GROUND STUD
LF10R	EYELET (PAIR) – LH FORWARD GROUND STUD
LF20L	EYELET (PAIR) – RH FORWARD GROUND STUD

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.





**CONTROL MODULE PIN OUT INFORMATION**

**ENGINE CONTROL MODULE**

	Pin	Description	Active	Inactive
O	EM80-01	EVAP VALVE ACTIVATE	GROUND (VALVE OPEN)	B+
I	EM80-03	GROUND (POWER)	GROUND	GROUND
O	EM80-04	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM80-05	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM80-06	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
O	EM80-07	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM80-08	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM80-09	THROTTLE MOTOR POWER SUPPLY	B+	GROUND
I	EM80-15	EOT FEEDBACK	2.5 V @ 34 °C; 0.5 V @ 90 °C; (DECREASING VOLTAGE WITH TEMPERATURE INCREASE)	GROUND
D	EM80-17	SERIAL COMMUNICATIONS		
D	EM80-18	SERIAL COMMUNICATIONS		
D	EM80-19	ECM PROGRAMMING		
I	EM80-21	GROUND (THROTTLE MOTOR 1)	GROUND	GROUND
D	EM80-27	ECM PROGRAMMING		
I	EM80-29	GROUND (LOGIC 2)	GROUND	GROUND
I	EM80-31	GROUND (THROTTLE MOTOR 2)	GROUND	GROUND
O	EM81-03	EMS CONTROLLED RELAY ACTIVATE	GROUND	B+
I	EM81-08	GROUND (POWER)	GROUND	GROUND
I	EM81-09	PEDAL POSITION FEEDBACK (PPS1)	0.5 V = IDLE; 4.75 V = WOT	GROUND
I	EM81-10	TPS FEEDBACK (TPS1)	0.5 V = IDLE; 4.75 V = WOT	GROUND (R,D,4,3,2)
I	EM81-12	PARK / NEUTRAL CONFIRMATION	B+ (P, N)	0 V
I	EM81-17	EMS SWITCHED POWER SUPPLY 1	B+	
I	EM81-18	PEDAL POSITION FEEDBACK (PPS2)	0.4 V = IDLE; 3.25 V = WOT	
I	EM81-19	TPS FEEDBACK (TPS2)	0.6 V = IDLE; 4.85 V = WOT	
I	EM81-21	GROUND (LOGIC 1)	GROUND	GROUND
I	EM81-22	PARKING BRAKE SWITCH	GROUND (APPLIED)	B+
I	EM81-23	IATS 2 FEEDBACK	2.38 V @ 20 °C; (DECREASING VOLTAGE WITH TEMPERATURE INCREASE)	
SG	EM81-24	PEDAL POSITION / THROTTLE POSITION SENSORS SHIELD	GROUND	GROUND
O	EM82-01	SENSOR SUPPLY VOLTAGE 1	5 V	5 V
I	EM82-02	ENGINE CRANK	GROUND (CRANKING)	
I	EM82-04	HO2S, UPSTREAM 'A' BANK - VARIABLE CURRENT (µA)	3.5 V	
I	EM82-05	HO2S, UPSTREAM 'B' BANK - VARIABLE CURRENT (µA)	3.5 V	
O	EM82-06	THROTTLE MOTOR POWER RELAY ACTIVATE	GROUND	B+
SG	EM82-07	SENSORS SIGNAL GROUND 1	GROUND	GROUND
I	EM82-08	BRAKE SWITCH	GROUND	B+
I	EM82-09	IGNITION SWITCHED POWER SUPPLY	B+	
SG	EM82-10	HO2S, UPSTREAM 'A' BANK - CONSTANT	3.8 V	
SG	EM82-11	HO2S, UPSTREAM 'B' BANK - CONSTANT	3.8 V	
I	EM82-12	INERTIA SWITCH ACTIVATED (VEHICLE IMPACT)	GROUND	B+
I	EM82-13	EMS SWITCHED POWER SUPPLY 2	B+	0 V
I	EM82-14	ECT FEEDBACK	0.41 V @ 90 °C; (DECREASING VOLTAGE WITH TEMPERATURE INCREASE)	
D	EM82-15	OK TO START	ENCODED COMMUNICATIONS	
D	EM82-16	SECURITY ACKNOWLEDGE	ENCODED COMMUNICATIONS	
I	EM82-17	IATS FEEDBACK	0.98 V @ 10 °C; (DECREASING VOLTAGE WITH TEMPERATURE INCREASE)	
O	EM83-05	SENSOR SUPPLY VOLTAGE 2	5 V	5 V
SG	EM83-06	SENSOR SHIELD	GROUND	GROUND
SG	EM83-07	CKPS SIGNAL GROUND	GROUND	GROUND
I	EM83-08	CKPS SIGNAL	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz	
SG	EM83-09	CMPS, 'A' BANK SIGNAL GROUND	GROUND	GROUND
SG	EM83-12	HO2S SHIELD	GROUND	GROUND
SG	EM83-13	SENSORS SIGNAL GROUND 2	GROUND	GROUND
I	EM83-14	KNOCK SENSOR, 'A' BANK FEEDBACK	0 kHz = NO KNOCK, 2 - 20 kHz = KNOCK	
C	EM83-15	CAN NETWORK	15 - 1500 Hz	
C	EM83-16	CAN NETWORK	15 - 1500 Hz	
SG	EM83-17	CMPS, 'B' BANK SIGNAL GROUND	GROUND	GROUND
I	EM83-18	CMPS, 'B' BANK SIGNAL	0.7 - 1 VAC @ 1000 RPM = 43 Hz; 2000 RPM = 72 Hz	
I	EM83-19	CMPS, 'A' BANK SIGNAL	0.7 - 1 VAC @ 1000 RPM = 43 Hz; 2000 RPM = 72 Hz	
I	EM83-20	BATTERY POWER SUPPLY	B+	B+
I	EM83-21	HO2S, 'A' BANK DOWNSTREAM	0.1 - 0.9 V @ IDLE (SWING)	
I	EM83-22	HO2S, 'B' BANK DOWNSTREAM	0.1 - 0.9 V @ IDLE (SWING)	
I	EM83-23	KNOCK SENSOR, 'B' BANK FEEDBACK	0 kHz = NO KNOCK, 2 - 20 kHz = KNOCK	
C	EM83-24	CAN NETWORK	15 - 1500 Hz	
C	EM83-25	CAN NETWORK	15 - 1500 Hz	
O	EM83-26	MAFS REFERENCE GROUND	GROUND	GROUND
O	EM83-27	MAFS REFERENCE GROUND	GROUND	GROUND
I	EM83-28	MAFS FEEDBACK	1.2 V @ IDLE, INCREASING WITH RPM INCREASE	
I	EM84-01	GROUND (DOWNSTREAM HO2S HEATERS)	GROUND	GROUND
O	EM84-07	HO2S HEATER, 'A' BANK DOWNSTREAM CONTROL	GROUND (20 - 60% DUTY CYCLE)	B+
O	EM84-15	HO2S HEATER, 'B' BANK DOWNSTREAM CONTROL	GROUND (20 - 60% DUTY CYCLE)	B+
I	EM84-16	GROUND (INJECTORS 1A, 2B, 3B, 4A)	GROUND	GROUND
I	EM84-22	GROUND (INJECTORS 1B, 2A, 3A, 4B)	GROUND	GROUND
O	EM85-01	HO2S HEATER, 'A' BANK UPSTREAM CONTROL	GROUND (85 - 90% DUTY CYCLE AT IDLE)	B+
O	EM85-02	HO2S HEATER, 'B' BANK UPSTREAM CONTROL	GROUND (85 - 90% DUTY CYCLE AT IDLE)	B+
O	EM85-05	"COOL BOX" COOLING FAN ACTIVATE	GROUND	B+
I	EM85-06	GROUND (HO2S A UPSTREAM HEATER)	GROUND	GROUND
I	EM85-07	GROUND (HO2S B UPSTREAM HEATER)	GROUND	GROUND
I	EM85-08	HO2S HEATERS OBD MONITOR	HEATERS ACTIVE = B+ V	

**NOTE:** Refer to the Appendix at the rear of this book for CAN and SCP Network messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

<b>I</b>	<b>Input</b>	<b>D</b>	<b>Serial and Encoded Data</b>	<b>B+</b>	<b>Battery Voltage</b>	<b>kHz</b>	<b>Frequency x 1000</b>
<b>O</b>	<b>Output</b>	<b>C</b>	<b>CAN (Network)</b>	<b>V</b>	<b>Voltage (DC)</b>	<b>ms</b>	<b>Milliseconds</b>
<b>SG</b>	<b>Signal Ground</b>	<b>S</b>	<b>SCP Network</b>	<b>Hz</b>	<b>Frequency</b>	<b>mV</b>	<b>Millivolts</b>

**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
CKPS: CRANKSHAFT POSITION SENSOR	P117 / 2-WAY ECONOSEAL III HC / BLACK	ENGINE / REAR OF BED PLATE
CMPS: CAMSHAFT POSITION SENSOR - 'A' BANK	P116 / 2-WAY YAZAKI / BLACK	ENGINE COMPARTMENT / 'A' BANK CYLINDER HEAD, REAR
CMPS: CAMSHAFT POSITION SENSOR - 'B' BANK	P115 / 2-WAY YAZAKI / 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	EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
ECTS: ENGINE COOLANT TEMPERATURE SENSOR	P14 / 2-WAY ECONOSEAL E J2 / GREY	ENGINE COMPARTMENT / REAR OF ENGINE TOP HOSE
EOTS: ENGINE OIL TEMPERATURE SENSOR	P138 / 2-WAY ECONOSEAL EC J2 / GREY	ENGINE BLOCK / BELOW GENERATOR
EVAPP: EVAP CANISTER PURGE VALVE	EM39 / 2-WAY ECONOSEAL J2+ / BLACK	ENGINE COMPARTMENT / BULKHEAD
HO2S: HEATED OXYGEN SENSOR (DOWNSTREAM) - 'A' BANK	EM22 / 2-WAY SUMITOMO 0902 / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR (DOWNSTREAM) - 'B' BANK	EM24 / 2-WAY SUMITOMO 0902 / BLACK	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR (UPSTREAM) - 'A' BANK	EM21 / 4-WAY SUMITOMO 0902 / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
HO2S: HEATED OXYGEN SENSOR (UPSTREAM) - 'B' BANK	EM23 / 4-WAY SUMITOMO 0902 / GREY	ENGINE COMPARTMENT / BRACKET ON TOP OF TRANSMISSION
IATS 2: INTAKE AIR TEMPERATURE SENSOR 2	P13 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / 'A' BANK INTERCOOLER / REAR
KS: KNOCK SENSOR - 'A' BANK	P126 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
KS: KNOCK SENSOR - 'B' BANK	P127 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE VEE / UNDER INTAKE MANIFOLD
MAFS: MASS AIR FLOW SENSOR	P135 / 5-WAY YAZAKI 92 / BLACK	ENGINE COMPARTMENT / REARWARD OF AIR CLEANER
PARKING BRAKE SWITCH	CC11 / 2-WAY MULTILOCK 040 / BLACK	CENTER CONSOLE ASSEMBLY
PPS: PEDAL POSITION SENSORS	P142 / 5-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY
THROTTLE MOTOR	P133 / 2-WAY SUMITOMO HM250 / BLACK	ENGINE COMPARTMENT / THROTTLE ASSEMBLY
TPS: THROTTLE POSITION SENSORS	P16 / 4-WAY ECONOSEAL J2T / BLACK	ENGINE COMPARTMENT / ON THROTTLE ASSEMBLY

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
THROTTLE MOTOR POWER RELAY	BROWN	EM49 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
O2S HEATERS RELAY	BROWN	EM75 / 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
EM53	20-WAY MULTILOCK 070 / WHITE	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	LH 'A' POST / LOWER 'A' POST FINISHER
P11	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE
P12	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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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	0 V
O	CC30-1	AIR CONDITIONING ELECTRICAL LOAD SIGNAL	B+
I	CC31-7	LOAD INHIBIT	0 V
O	CC31-9	COMPRESSOR CLUTCH ON REQUEST	B+
I	CC31-17	REFRIGERANT 4-WAY PRESSURE SWITCH	0 V (2 – 30 BAR)

### ENGINE CONTROL MODULE

Pin	Description	Active	Inactive
I	EM80-10	REFRIGERANT 4-WAY PRESSURE SWITCH HIGH PRESSURE	GROUND @ 20 BAR (290 PSI)
I	EM80-11	A/CCM COMPRESSOR CLUTCH REQUEST	B+
O	EM80-12	ELECTRICAL LOAD INHIBIT	GROUND
O	EM80-14	INTERCOOLER PUMP RELAY ACTIVATE	GROUND
O	EM80-16	CRUISE CONTROL ON STATUS LED	GROUND
I	EM80-20	CRUISE CONTROL BRAKE CANCEL REQUEST	GROUND
I	EM80-22	REFRIGERANT 4-WAY PRESSURE SWITCH HIGH PRESSURE	GROUND @ 12 BAR (174 PSI)
I	EM80-23	A/CCM ELECTRICAL LOAD REQUEST (HEATED WINDSHIELD)	B+
O	EM80-25	AIR CONDITIONING COMPRESSOR RELAY ACTIVATE	GROUND
O	EM81-04	PARALLEL (HIGH) SPEED FAN ACTIVATE	GROUND
O	EM81-05	SERIES (LOW) SPEED FAN ACTIVATE	GROUND
I	EM81-13	CRUISE CONTROL ON REQUEST	B+
I	EM81-14	CRUISE CONTROL SET +/-	7.3 V = (+), 8.8 V = (-)B+
I	EM81-15	CRUISE CONTROL CANCEL / RESUME	7.3 V = RESUME, 8.8 V = CANCEL B+
O	EM82-03	FUEL PUMP RELAY 2 ACTIVATE	GROUND
I	EM83-04	FUEL PUMP RELAY ACTIVATE	GROUND
I	EM83-10	IGNITION MODULES 1A, 2B, 3B, 4A OBD MONITOR	23 Hz @ IDLE (5 V)
I	EM83-11	IGNITION MODULES 1B, 2A, 3A, 4B OBD MONITOR	23 Hz @ IDLE (5 V)
O	EM84-02	INJECTOR 1A ACTIVATE	GROUND
O	EM84-03	INJECTOR 3B ACTIVATE	GROUND
O	EM84-04	INJECTOR 2B ACTIVATE	GROUND
O	EM84-05	INJECTOR 4A ACTIVATE	GROUND
O	EM84-06	INJECTOR 1B ACTIVATE	GROUND
O	EM84-09	IGNITION MODULE 4A SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-10	IGNITION MODULE 3A SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-11	IGNITION MODULE 2A SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-12	IGNITION MODULE 1A SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
I	EM84-13	INJECTOR 4B ACTIVATE	GROUND
I	EM84-14	INJECTOR 3A ACTIVATE	GROUND
O	EM84-17	IGNITION MODULE 4B SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-18	IGNITION MODULE 3B SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-19	IGNITION MODULE 2B SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-20	IGNITION MODULE 1B SWITCHING	GROUND (85 – 90% DUTY CYCLE @ IDLE)
O	EM84-21	INJECTOR 2A ACTIVATE	GROUND

## Fig. 04.6

### COMPONENTS

Component	Connector / Type / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH A/CCM: 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	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 PUMPS FUZE BOX – TRUNK	PI7 / 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 INTERCOOLER PUMP RADIATOR FAN CONTROL RELAY MODULE RADIATOR FAN – LH RADIATOR FAN – RH REFRIGERANT 4-WAY PRESSURE SWITCH	PI51 / 4-WAY YAZAKI / BLACK PI55 / 4-WAY YAZAKI / BLACK PI52 / 4-WAY YAZAKI / BLACK PI56 / 4-WAY YAZAKI / BLACK PI53 / 4-WAY YAZAKI / BLACK PI57 / 4-WAY YAZAKI / BLACK PI54 / 4-WAY YAZAKI / BLACK PI58 / 4-WAY YAZAKI / BLACK LF30 / 2-WAY AUGAT 1.6 / BLACK LF31 / 8-WAY TRW / BLACK CF1 / 2-WAY REINSHAGEN / BLACK CF2 / 2-WAY REINSHAGEN / BLACK LF26 / 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 / CAMSHAFT COVER ENGINE COMPARTMENT / ADJACENT TO RH 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	EM52 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
FUEL INJECTION RELAY	BLACK	EM25 / BLACK	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
FUEL PUMP 1 RELAY	BROWN	BUS	RELAY #4, TRUNK FUSE BOX / TRUNK
FUEL PUMP 2 RELAY	BROWN	BUS	RELAY #1, TRUNK FUSE BOX / TRUNK
IGNITION COIL RELAY	BROWN	EM26 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
INTERCOOLER PUMP RELAY	BLACK	EM25 / BLACK	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT

### HARNESSTO-HARNESSTO CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / GREY	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM3	18-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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
LF32	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 / BLACK	CENTER OF STEERING WHEEL

### GROUNDS

Ground	Location / Type
BT20	EYELET (SINGLE) – TRUNK / RH REAR GROUND STUD
EM8R	EYELET (PAIR) – EMS LH GROUND STUD
EM16R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
EM17	EYELET (SINGLE) – EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
LF10L	EYELET (PAIR) – LH FORWARD GROUND STUD
LF10R	EYELET (PAIR) – LH FORWARD GROUND STUD
LF20L	EYELET (PAIR) – RH FORWARD GROUND STUD
LF20R	EYELET (PAIR) – RH FORWARD GROUND STUD

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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+
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
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: AJ27 N/A**

Pin	Description	Active	Inactive
O	EM7-1	PRESSURE REGULATOR #2	B+ (NO PRESSURE)
O	EM7-2	SPORT MODE SWITCH STATUS LED	GROUND = LED ON
O	EM7-4	PRESSURE REGULATOR #4	B+ (NO PRESSURE)
O	EM7-5	PRESSURE REGULATOR #1	B+ (NO PRESSURE)
I	EM7-6	GROUND	GROUND
I	EM7-8	ROTARY SWITCH 'L2' CONTACTS	B+
I	EM7-9	ROTARY SWITCH 'L4' CONTACTS	B+
I	EM7-12	SPORT MODE SWITCH STRATEGY SELECT	GROUND = SPORT
I	EM7-13	D - 4 SWITCH	GROUND
I	EM7-14	TURBINE SPEED SENSOR	300 Hz @ IDLE (2.5 V)
SG	EM7-15	OUTPUT SPEED SENSOR SHIELD	GROUND
SG	EM7-16	OUTPUT SPEED SENSOR	GROUND
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
I	EM7-26	BATTERY POWER SUPPLY	B+
O	EM7-28	ROTARY / D - 4 / KICK DOWN SWITCHES COMMON GROUND	GROUND
O	EM7-29	PRESSURE REGULATOR #3	GROUND (MAXIMUM PRESSURE)
O	EM7-30	SOLENOID VALVE #1	GROUND
O	EM7-32	SOLENOID VALVE #3	GROUND
O	EM7-33	SOLENOID VALVE #2	GROUND
I	EM7-34	GROUND	GROUND
I	EM7-36	ROTARY SWITCH 'L1' CONTACTS	B+
I	EM7-37	ROTARY SWITCH 'L3' CONTACTS	B+
I	EM7-42	TURBINE SPEED SENSOR	1.51 V @ 10 MPH (16 KMH) = 250 Hz, 20 MPH (32 KMH) = 500 Hz
I	EM7-44	OUTPUT SPEED SENSOR	1.51 V @ 10 MPH (16 KMH) = 223 Hz, 20 MPH (32 KMH) = 446 Hz
I	EM7-45	SPORT MODE SWITCH STRATEGY SELECT	10 v = SPORT
O	EM7-51	PRESSURE REGULATOR #5	GROUND = NORMAL
O	EM7-52	SOLENOID VALVES COMMON SUPPLY	B+ (NO PRESSURE)
O	EM7-53	PRESSURE REGULATORS COMMON SUPPLY	B+
I	EM7-54	IGNITION SWITCHED POWER SUPPLY	B+
I	EM7-55	IGNITION SWITCHED POWER SUPPLY	B+
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
MODE SWITCH (TRANSMISSION)	CC4 / 10-WAY AMP MICRO QUAD LOCK / BLACK	CENTER CONSOLE ASSEMBLY
TRANSMISSION CONTROL MODULE: AJ27 N/A	EM7 / 88-WAY BOSCH / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
TRANSMISSION ELECTRICAL CONNECTOR: AJ27 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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

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O	Output	C	CAN (Network)	V	Voltage (DC)	ms	Milliseconds
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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+
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
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: AJ27 SC**

Pin	Description	Active	Inactive
I	EM61-2	KICKDOWN SWITCH	GROUND (= 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
I	EM61-26	DUAL LINEAR SWITCH VOLTAGE ENCODED GEAR RECOGNITION	GROUND = N, D, 4, 2
I	EM61-27	DUAL LINEAR SWITCH VOLTAGE ENCODED GEAR RECOGNITION	GROUND = N, 4, 3, 2      8 V = R, D
I	EM61-28	DUAL LINEAR SWITCH VOLTAGE ENCODED GEAR RECOGNITION	GROUND = P, D, 3, 2
I	EM61-29	IGNITION SUPPLIED VOLTAGE	B+
I	EM61-30	TCM / DUAL LINEAR SWITCH COMMON GROUND SUPPLY	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
O	EM62-15	'3-4' SOLENOID ACTIVATE	GROUND
O	EM62-16	'2-3' SOLENOID ACTIVATE	GROUND
O	EM62-17	TCC SOLENOID ACTIVATE	GROUND – LOCKED
O	EM62-33	SPEED SENSOR / FLUID TEMP. SENSOR COMMON GROUND	GROUND
I	EM62-34	FLUID TEMP. SENSOR FEEDBACK	1.75 V @ 90° C = R, D, 4, 3, 2
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)
O	EM62-37	SHIFT PRESSURE REGULATOR ACTIVATE	GROUND ( 39% PWM @ IDLE)
O	EM62-38	SOLENOID VALVE / PRESSURE REGULATOR COMMON VOLTAGE SUPPLY	B+

**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	CC8 / 12-WAY MULTILOCK 070 / GREY	RIGHT HAND SIDE OF GEAR SELECTOR / CENTER CONSOLE
GEAR SELECTOR ILLUMINATION MODULE	CC14 / 10-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
KICKDOWN SWITCH	CC35 / 1-WAY LUCAR RIGHT ANGLE / CLEAR CC36 / 1-WAY LUCAR RIGHT ANGLE / CLEAR	BELOW ACCELERATOR PEDAL
MODE SWITCH (TRANSMISSION)	CC4 / 10-WAY AMP MICRO QUAD LOCK / BLACK	CENTER CONSOLE ASSEMBLY
TRANSMISSION CONTROL MODULE: AJ27 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: AJ27 SC	GB1 / 13-WAY KOSTAL 1.5 / BLACK	TRANSMISSION

**HARNESS-TO-HARNESS CONNECTORS**

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

**GROUNDS**

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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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.

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**Fig. 05.3**

**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 EM82-08	BRAKE SWITCH	GROUND	B+
C EM83-16	CAN NETWORK	15 - 1500 Hz	
C EM83-25	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
C FC24-11	CAN NETWORK	15 - 1500 Hz	
S FC24-13	SCP NETWORK	2 - 1600 Hz	
S FC24-14	SCP NETWORK	2 - 1600 Hz	
C FC24-24	CAN NETWORK	15 - 1500 Hz	

**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
ENGINE CONTROL MODULE	EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / 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 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA
KEYLOCK SOLENOID (COLUMN SWITCHGEAR)	SC5 / 2-WAY MULTILOCK 040 / BLUE	COLUMN SWITCHGEAR
NOT-IN-PARK MICROSWITCH	CC13 / 3-WAY MULTILOCK 070 / WHITE	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 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY
FC11	18-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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**

**ABS / TRACTION CONTROL CONTROL MODULE**

Pin	Description	Active	Inactive
O LF27-1	BRAKE FLUID RESERVOIR LEVEL SWITCH REFERENCE	B+	B+
I LF27-2	BRAKE SWITCH	GROUND	B+
I LF27-3	RH FRONT WHEEL SPEED SENSOR	2.5 V @ 10 MPH (16 KMH) = 100 Hz; 20 MPH (32 KMH) = 200 Hz	
SG LF27-4	RH FRONT WHEEL SPEED SENSOR	2.5 V @ REST	
C LF27-5	CAN NETWORK	15 - 1500 Hz	
SG LF27-6	RH REAR WHEEL SPEED SENSOR	2.5 V @ REST	
I LF27-7	RH REAR WHEEL SPEED SENSOR	2.5 V @ 10 MPH (16 KMH) = 100 Hz; 20 MPH (32 KMH) = 200 Hz	
I LF27-8	POWER GROUND	GROUND	GROUND
I LF27-9	BATTERY POWER SUPPLY	B+	B+
I LF27-13	BRAKE FLUID RESERVOIR LEVEL SWITCH	GROUND	B+
I LF27-14	STABILITY / TRACTION CONTROL SWITCH	GROUND (MOMENTARY)	B+
C LF27-15	CAN NETWORK	15 - 1500 Hz	
O LF27-16	STABILITY / TRACTION CONTROL SWITCH STATE LED	GROUND	B+
I LF27-17	LH FRONT WHEEL SPEED SENSOR	2.5 V @ 10 MPH (16 KMH) = 100 Hz; 20 MPH (32 KMH) = 200 Hz	
SG LF27-18	LH FRONT WHEEL SPEED SENSOR	2.5 V @ REST	
LF27-19	NOT USED		
I LF27-20	IGNITION SWITCHED SUPPLY	B+	GROUND
I LF27-21	LH REAR WHEEL SPEED SENSOR	2.5 V @ 10 MPH (16 KMH) = 100 Hz; 20 MPH (32 KMH) = 200 Hz	
SG LF27-22	LH REAR WHEEL SPEED SENSOR	2.5 V @ REST	
I LF27-24	POWER GROUND	GROUND	GROUND
I LF27-25	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	LF27 / 25-WAY AMP / FORD / BLACK	ENGINE COMPARTMENT / BEHIND LH HEADLAMP ASSEMBLY
BRAKE FLUID RESERVOIR	EM37 / 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

**HARNESSTO-HARNESSTO CONNECTORS**

Connector	Type / Color	Location / Access
CA9	4-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
LF1	2-WAY AUGAT 1.6 / NATURAL	BELOW CHASSIS RAIL / LH SIDE
LF2	2-WAY AUGAT 1.6 / NATURAL	BELOW CHASSIS RAIL / RH SIDE
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	LH 'A' POST / LOWER 'A' POST FINISHER

**GROUNDS**

Ground	Location / Type
CC3L	EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE
LF29L	EYELET (PAIR) - ABS GROUND STUD
LF29R	EYELET (PAIR) - ABS GROUND STUD

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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**

**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. 06.2**

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

HARNESSTO-HARNESSTO CONNECTORS		
Connector	Type / Color	Location / Access
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
LL2	2-WAY AUGAT 1.6 / BLACK	BELOW CHASSIS RAIL / LH SIDE
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	LH 'A' POST / LOWER 'A' POST FINISHER

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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

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I	Input	D	Serial and Encoded Data	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**

**Fig. 06.3**

**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+

**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 / GREY	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
CA9	4-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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	LH 'A' POST / LOWER 'A' POST FINISHER

**GROUNDSTO**

Ground	Location / Type
EM17	EYELET (SINGLE) - EMS BULKHEAD GROUND STUD

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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**

**Fig. 07.1**

**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 < 1 V = CLOSED
I	CC29-3	RH FRESH / RECIRCULATION VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN < 1 V = CLOSED
I	CC29-5	COOL AIR BYPASS VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN < 1 V = CLOSED
I	CC29-6	ENGINE COOLANT TEMPERATURE	2.5 V @ 90° C, VOLTAGE DECREASING WITH TEMPERATURE INCREASE
I	CC29-10	DEFROST VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN < 1 V = CLOSED
I	CC29-11	LH FRESH / RECIRCULATION VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN < 1 V = CLOSED
I	CC29-13	FOOTWELL VENT POTENTIOMETER FEEDBACK	> 3.5 V = OPEN < 1 V = CLOSED
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, VOLTAGE DECREASING WITH TEMPERATURE INCREASE
I	CC30-6	HEATER MATRIX TEMPERATURE SENSOR FEEDBACK	2.25 V @ 20° C, VOLTAGE DECREASING WITH TEMPERATURE INCREASE
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, VOLTAGE DECREASING WITH TEMPERATURE INCREASE
I	CC30-12	EVAPORATOR TEMPERATURE SENSOR FEEDBACK	3.25 V @ 0° C, VOLTAGE DECREASING WITH TEMPERATURE INCREASE
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 KMH); 44 Hz @ 20 MPH (32 KMH) @ 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

**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	LF16 / 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	BLACK	CA50 / BLACK	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 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY
FC11	18-WAY MULTILOCK 070 / WHITE	ABOVE DIMMER MODULE / COIN TRAY

**GROUND**

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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**CONTROL MODULE PIN OUT INFORMATION**

**Fig. 07.2**

**AIR CONDITIONING CONTROL MODULE**

Pin	Description	Active	Inactive
I	CC28-1	COMPRESSOR CLUTCH STATUS	B+ (ON)
O	CC28-2	HEATER VALVE ACTIVE	B+
O	CC28-3	RH BLOWER MOTOR RELAY ACTIVE	0 V
O	CC28-4	LH / RH WINDSHIELD HEATER RELAYS ACTIVATE	0 V
O	CC28-5	DOOR MIRROR HEATER RELAY ACTIVATE	0 V
O	CC28-16	LH BLOWER MOTOR RELAY ACTIVATE	B+
O	CC28-17	HEATER PUMP RELAY ACTIVATE	0 V
O	CC28-18	HEATED BACKLIGHT RELAY ACTIVATE	0 V
I	CC29-7	RH BLOWER SPEED FEEDBACK	7.6 V = LOW SPEED
O	CC29-8	RH BLOWER SPEED CONTROL DRIVE SIGNAL	1.3 V = LOW SPEED
I	CC29-15	LH BLOWER SPEED FEEDBACK	7.6 V = LOW SPEED
O	CC29-16	LH BLOWER SPEED CONTROL DRIVE SIGNAL	1.3 V = LOW SPEED
O	CC30-1	AIR CONDITIONING ELECTRICAL LOAD SIGNAL	B+
I	CC31-7	LOAD INHIBIT	0 V
O	CC31-9	COMPRESSOR CLUTCH ON REQUEST	B+
I	CC31-17	REFRIGERANT 4-WAY PRESSURE SWITCH	0 V (2 - 30 BAR)

**ENGINE CONTROL MODULE**

Pin	Description	Active	Inactive
I	EM80-10	REFRIGERANT 4-WAY PRESSURE SWITCH HIGH PRESSURE	GROUND @ 20 BAR (290 PSI)
I	EM80-11	A/CCM COMPRESSOR CLUTCH REQUEST	B+
O	EM80-12	ELECTRICAL LOAD INHIBIT	GROUND
I	EM80-22	REFRIGERANT 4-WAY PRESSURE SWITCH HIGH PRESSURE	GROUND @ 12 BAR (174 PSI)
I	EM80-23	A/CCM ELECTRICAL LOAD REQUEST (HEATED WINDSHIELD)	B+
O	EM80-25	AIR CONDITIONING COMPRESSOR RELAY ACTIVATE	GROUND
O	EM81-04	PARALLEL (HIGH) SPEED FAN ACTIVATE	GROUND
O	EM81-05	SERIES (LOW) SPEED FAN ACTIVATE	GROUND

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH	PI36 / 1-WAY SUMITOMO 90 A TYPE / BLACK	ENGINE COMPARTMENT / A/C COMPRESSOR
AIR CONDITIONING CONTROL MODULE	CC28 / 26-WAY MULTILOCK 47 / GREY CC29 / 16-WAY MULTILOCK 47 / GREY CC30 / 12-WAY MULTILOCK 47 / GREY CC31 / 22-WAY MULTILOCK 47 / GREY	RH SIDE OF TRANSMISSION TUNNEL / GLOVE BOX ASSEMBLY
AIR CONDITIONING CONTROL PANEL	CC27 / 12-WAY MULTILOCK 040 / BLUE	CENTER CONSOLE
BLOWER MOTOR - LH	CC32 / 15-WAY SUMITOMO 90 HYBRID / GREEN	LH SIDE FASCIA GLOVE BOX
BLOWER MOTOR - RH	CC33 / 15-WAY SUMITOMO 90 HYBRID / GREEN	RH SIDE FASCIA GLOVE BOX
DOOR MIRROR - DRIVER	DD8 / 12-WAY MULTILOCK 040 / BLACK	DRIVER DOOR
DOOR MIRROR - PASSENGER	PDB / 12-WAY MULTILOCK 040 / BLACK	PASSENGER DOOR
ENGINE CONTROL MODULE	EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
FUSE BOX - ENGINE COMPARTMENT	LFS / 10-WAY U.T.A. FUSE BOX / NATURAL LF6 / 10-WAY U.T.A. FUSE BOX / BLACK LF7 / 10-WAY U.T.A. FUSE BOX / GREEN LF8 / 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 / 1-WAY LUCAR POSILOK MKI / BLACK IC18 / LUCAR	INSIDE 'E' POST / 'E' POST UPPER TRIM BEHIND LEFT HAND REAR QUARTER PANEL
HEATER PUMP	EM36 / 2-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / LEFT HAND REAR
HEATER VALVE	EM40 / 2-WAY ECONOSEAL III LC / WHITE	ENGINE COMPARTMENT / LEFT HAND REAR
RADIATOR FAN CONTROL RELAY MODULE	LF31 / 8-WAY TRW / BLACK	ENGINE COMPARTMENT / ADJACENT TO LH CRUSH TUBE
RADIATOR FAN - LH	CF1 / 2-WAY REINSHAGEN / BLACK	ENGINE COMPARTMENT / BELOW LH FAN
RADIATOR FAN - RH	CF2 / 2-WAY REINSHAGEN / BLACK	ENGINE COMPARTMENT / BELOW RH FAN
REFRIGERANT 4-WAY PRESSURE SWITCH	LF26 / 6-WAY ECONOSEAL III LC / BLACK	ENGINE COMPARTMENT / ADJACENT TO LH SIDE OF RADIATOR
WINDSHIELD HEATER - LH	SH4 / 2-WAY AMP SERIES 187C / GREY	CONNECTOR ADJACENT TO HOOD LATCH
WINDSHIELD HEATER - RH	SH5 / 2-WAY AMP SERIES 187C / GREY	CONNECTOR ADJACENT TO HOOD LATCH

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
AIR CONDITIONING COMPRESSOR CLUTCH RELAY	BROWN	EM52 / BROWN	CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT
BLOWER MOTOR RELAY - LH	BLACK	CA58 / BLACK	RH HEELBOARD RELAYS / HEELBOARD COVER
BLOWER MOTOR RELAY - RH	BLACK	CA58 / BLACK	RH HEELBOARD RELAYS / HEELBOARD COVER
DOOR MIRROR HEATER RELAY	BLACK	CA18 / BLACK	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 / GREY	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
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	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
LF32	4-WAY YAZAKI / GREY	LH 'A' POST / LOWER 'A' POST FINISHER
PI1	57-WAY SUMITOMO TS090 / BLACK	FORWARD OF LH FRONT SUSPENSION ARM ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE

**GROUND**

Ground	Location / Type
CA30R	EYELET (PAIR) - LH 'A' POST GROUND SCREW
CA33R	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
LF10L	EYELET (PAIR) - LH FORWARD GROUND STUD
LF10R	EYELET (PAIR) - LH FORWARD GROUND STUD
LF20L	EYELET (PAIR) - RH FORWARD GROUND STUD

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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.

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**CONTROL MODULE PIN OUT INFORMATION**

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
I	FC24-01	IGNITION SWITCHED POWER SUPPLY	B+
I	FC24-03	ADAPTIVE DAMPING WARNING	GROUND
I	FC24-04	GROUND	GROUND
I	FC24-06	ILLUMINATION SUPPLY	B+
I	FC24-07	TRIP CYCLE	GROUND (MOMENTARY)
I	FC24-08	'A/B' TRIP SELECT	GROUND (MOMENTARY)
I	FC24-09	'ML/KM' SELECT	GROUND (MOMENTARY)
C	FC24-10	CAN NETWORK	15 - 1500 Hz
C	FC24-11	CAN NETWORK	15 - 1500 Hz
S	FC24-13	SCP NETWORK	2 - 1600 Hz
S	FC24-14	SCP NETWORK	2 - 1600 Hz
I	FC24-15	BATTERY POWER SUPPLY	B+
I	FC24-16	GROUND	GROUND
I	FC24-18	'CLEAR' SELECT	GROUND (MOMENTARY)
I	FC24-19	'000' SELECT	GROUND (MOMENTARY)
C	FC24-23	CAN NETWORK	15 - 1500 Hz
C	FC24-24	CAN NETWORK	15 - 1500 Hz
O	FC24-25	GROUND REFERENCE	GROUND
O	FC25-03	ENGINE SPEED	5 V @ 1000 RPM = 45 Hz; 2000 RPM = 90 Hz
O	FC25-04	ENGINE COOLANT TEMPERATURE	6 V = 90° C
O	FC25-05	VEHICLE SPEED - A/CMM	22 Hz @ 10 MPH (16 KMH); 44 Hz @ 20 MPH (32 KMH) @ B+
O	FC25-06	VEHICLE SPEED - PAS	22 Hz @ 10 MPH (16 KMH); 44 Hz @ 20 MPH (32 KMH) @ B+
O	FC25-07	VEHICLE SPEED - ADAPTIVE DAMPING CONTROL MODULE	22 Hz @ 10 MPH (16 KMH); 44 Hz @ 20 MPH (32 KMH) @ B+
I	FC25-13	FUEL LEVEL GAUGE FEEDBACK	B+ = EMPTY
O	FC25-14	FUEL LEVEL GAUGE REFERENCE GROUND	GROUND
I	FC25-16	AIR BAG MIL	GROUND (ON)
I	FC25-19	LOW OIL PRESSURE WARNING	> 3 V = > 3 PSI
O	FC25-20	VEHICLE SPEED	22 Hz @ 10 MPH (16 KMH); 44 Hz @ 20 MPH (32 KMH) @ B+
I	FC25-21	DIMMER OVERRIDE	GROUND
I	FC25-22	CHARGE WARNING	B+
I	FC25-23	LOW COOLANT WARNING	GROUND

**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 QUAD LOCK / BLACK	CENTER AIR VENT
COOLANT LEVEL SWITCH	EM55 / 2-WAY AMP JUNIOR POWER TIMER / BROWN	ENGINE COMPARTMENT / ON COOLANT RESERVOIR
FUEL LEVEL SENSOR	BT14 / 1-WAY LUCAR POSILOCK MKI / BLACK BT15 / 1-WAY LUCAR POSILOCK MKI / BLACK	FUEL TANK SENDER UNIT / TRUNK CARPET
INSTRUMENT PACK	FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	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 / GREY	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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
PI1	57-WAY SUMITOMO TS090 / BLACK	ENGINE COMPARTMENT / BULKHEAD / REAR OF ENGINE

**GROUNDINGS**

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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
D	FC15-10	SRS AUDIBLE BACKUP	
I	FC15-15	IGNITION SWITCHED GROUND	B+
I	FC15-31	SEAT BELT SWITCH STATUS	B+ (FASTENED)
I	FC15-32	IGNITION SWITCHED GROUND	B+
I	FC15-41	STARTER ENGAGE REQUEST	B+
I	FC15-80	BATTERY SUPPLY VOLTAGE	B+
O	FC15-82	AUDIBLE WARNING SPEAKER	
O	FC15-83	AUDIBLE WARNING SPEAKER	
S	FC15-84	SCP NETWORK	
S	FC15-85	SCP NETWORK	
I	FC15-104	BATTERY SUPPLY VOLTAGE	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)	SC7 / HARDWIRED	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
SEAT BELT SWITCH	SD8 / 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 / GREY	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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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.

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**CONTROL MODULE PIN OUT INFORMATION**

**Fig. 09.1**

**BODY PROCESSOR MODULE**

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

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
S	FC24-13	SCP NETWORK	2 - 1600 Hz
S	FC24-14	SCP NETWORK	2 - 1600 Hz

**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
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	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
LAMP UNIT - LH FRONT	LF38 / 6-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / LH FRONT
LAMP UNIT - RH FRONT	LF40 / 6-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / RH FRONT
FUSE BOX - ENGINE COMPARTMENT	LF5 / 10-WAY U.T.A. FUSE BOX / NATURAL LF6 / 10-WAY U.T.A. FUSE BOX / BLACK LF7 / 10-WAY U.T.A. FUSE BOX / GREEN LF8 / 10-WAY U.T.A. FUSE BOX / BLUE ST19 / EYELET	ENGINE COMPARTMENT / LH FRONT
INSTRUMENT PACK	FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA
LIGHTING STALK (COLUMN SWITCHGEAR)	SC2 / 10-WAY MULTILOCK 070 / YELLOW	COLUMN SWITCHGEAR HARNESS / ADJACENT TO STEERING COLUMN MOTOR
SIDE DI REPEATER - LH (ROW ONLY)	LF17 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	BEHIND LEFT HAND WHEEL ARCH LINER
SIDE DI REPEATER - RH (ROW ONLY)	CA80 / 2-WAY AMP JUNIOR POWER TIMER / BLACK	BEHIND RIGHT HAND WHEEL ARCH LINER
SIDE MARKER - LH FRONT (NAS ONLY)	BL5 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	FRONT BUMPER - LH SIDE
SIDE MARKER - RH FRONT (NAS ONLY)	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 / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	LH 'A' POST / LOWER 'A' POST FINISHER
Grounds	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	
LF18L	EYELET (PAIR) - LH FORWARD GROUND STUD	
LF19R	EYELET (PAIR) - RH FORWARD GROUND STUD	

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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
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
C	FC24-11	CAN NETWORK	15 - 1500 Hz
S	FC24-13	SCP NETWORK	2 - 1600 Hz
S	FC24-14	SCP NETWORK	2 - 1600 Hz
C	FC24-24	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.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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. 09.2**

**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 BT64 / EYELET	TRUNK ELECTRICAL CARRIER
HIGH MOUNTED STOP LAMP	CA35 / 2-WAY YAZAKI / NATURAL	BACKLIGHT
INSTRUMENT PACK	FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW 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 POSILOCK II / BLACK	BEHIND TRUNK LID LINER
NUMBER PLATE LAMP - RH	BT26 / 2-WAY AMP POSILOCK II / BLACK	BEHIND TRUNK LID LINER
REAR SIDE MARKER - LH (NAS ONLY)	BT29 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	TRUNK LH SIDE / TRUNK CARPET
REAR SIDE MARKER - RH (NAS ONLY)	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 / 2-WAY COAXIAL CONNECTOR / BLACK	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 / GREY	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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY

**GROUND**

Ground	Location / Type
BT20	EYELET (SINGLE) - TRUNK / RH REAR GROUND STUD
BT21L	EYELET (PAIR) - TRUNK / RH REAR GROUND STUD
BT22L*	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD (*PREMIUM ICE)
BT24*	EYELET (SINGLE) - TRUNK / RH CENTER GROUND STUD (*STANDARD ICE)
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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 09.3****COMPONENTS****Component**

HEADLAMP LEVELING ACTUATOR – LH  
HEADLAMP LEVELING ACTUATOR – RH  
HEADLAMP LEVELING SWITCH  
(FASCIA SWITCH PACK)

**Connector / Type / Color**

LF41 / 3-WAY REINSHAGEN / BLACK  
LF42 / 3-WAY REINSHAGEN / BLACK  
FC14 / 6-WAY JAE IL-AG5 / GREEN

**Location / Access**

ENGINE COMPARTMENT / LH HEADLAMP  
ENGINE COMPARTMENT / RH HEADLAMP  
FASCIA SWITCH PACK

**HARNESSTO-HARNESSTO CONNECTORS****Connector**

FC5  
LF3

**Type / Color**

54-WAY THROUGH PANEL CONNECTOR / GREY  
54-WAY THROUGH PANEL CONNECTOR / GREY

**Location / Access**

BELOW DRIVER SIDE AIR VENT / COIN TRAY  
LH 'A' POST / LOWER 'A' POST FINISHER

**GROUNDSTO****Ground**

FC17L  
LF18L  
LF19R

**Location / Type**

EYELET (PAIR) – EMS BULKHEAD GROUND STUD  
EYELET (PAIR) – LH FORWARD GROUND STUD  
EYELET (PAIR) – RH FORWARD GROUND STUD

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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 abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 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
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 / 1-WAY LUCAR 02 / CLEAR FC34 / 1-WAY LUCAR 02 / CLEAR	GLOVE BOX
IGNITION SWITCH (KEY-IN SWITCH)	FC4 / 8-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 / GREY	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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
IC1	14-WAY MULTILOCK 070 / WHITE	LH HEELBOARD

### GROUNDS

Ground	Location / Type
BT22L*	EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD (*PREMIUM ICE)
BT24*	EYELET (SINGLE) - TRUNK / RH CENTER GROUND STUD (*STANDARD ICE)
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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.



**CONTROL MODULE PIN OUT INFORMATION**

**Fig. 10.2**

**DIMMER MODULE**

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

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
I FC24-16	GROUND	GROUND	GROUND
I FC24-6	ILLUMINATION SUPPLY	B+	GROUND
I FC25-21	DIMMER OVERRIDE	GROUND	B+

**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 AMP / METALLIC CA76 / 1-WAY LUCAR POSILOCK MKI / BLACK	REAR CENTER CONSOLE VENT
ANALOG CLOCK	FC38 / 6-WAY AMP MICRO QUAD LOCK / 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-AG5 / 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 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW SC2 / 10-WAY MULTILOCK 070 / YELLOW	FASCIA
LIGHTING STALK (COLUMN SWITCHGEAR)		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 IC11 / 26-WAY AMP MICRO QUAD LOCK / YELLOW IC19 / 8-WAY ALPINE / BLACK	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 AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL
SWITCH PACK - DRIVER REAR DOOR	RD1 / 5-WAY JAE IL-AG5 / GREEN	DOOR TRIM PANEL
SWITCH PACK - PASSENGER DOOR	PD1 / 5-WAY JAE IL-AG5 / GREEN	DOOR TRIM PANEL
SWITCH PACK - PASSENGER REAR DOOR	RP1 / 5-WAY JAE IL-AG5 / 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	4-WAY MULTILOCK 070 / WHITE	PASSENGER 'B/C' POST / DOOR HARNESS GAITER
CA46	4-WAY MULTILOCK 070 / WHITE	DRIVER 'B/C' POST / DOOR HARNESS GAITER
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY
SC3	12-WAY MULTILOCK 070 / GREY	ADJACENT TO STEERING COLUMN MOTOR
SP25	10-WAY MULTILOCK 070 / WHITE	BEHIND PASSENGER SEAT BACK FINISHER

**GROUND S**

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
FC29L	EYELET (PAIR) - LH BULKHEAD GROUND STUD / CABIN SIDE
FC29R	EYELET (PAIR) - LH BULKHEAD GROUND STUD / CABIN SIDE
IC8	EYELET (SINGLE) - RADIO GROUND STUD / TRANSMISSION TUNNEL / CENTER

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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
I	FC15-15	IGNITION SWITCHED GROUND	GROUND
I	FC15-25	GROUND SUPPLY	GROUND
I	FC15-32	IGNITION SWITCHED GROUND	GROUND
O	FC15-40	COLUMN MOTOR POTENTIOMETER REFERENCE VOLTAGE	5V
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)
O	FC15-52	COLUMN REACH MOTOR SUPPLY	B+
I	FC15-58	NOT IN PARK MICROSWITCH STATUS	GROUND (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)
O	FC15-78	COLUMN REACH MOTOR SUPPLY	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	FC15-87	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
O	FC15-91	COLUMN REACH MOTOR POTENTIOMETER REFERENCE GROUND	GROUND
I	FC15-93	COLUMN TILT MOTOR POTENTIOMETER FEEDBACK	UP = 4V, DOWN = 0.5V
O	FC15-99	COLUMN TILT MOTOR SUPPLY	B+
O	FC15-100	COLUMN TILT MOTOR SUPPLY	B+
I	FC15-102	BATTERY SUPPLY VOLTAGE	B+

### DRIVER DOOR CONTROL MODULE

Pin	Description	Active	Inactive
I	DD10-1	BATTERY POWER SUPPLY	B+
I	DD10-8	LOGIC 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)
I	DD11-20	DRIVER DOOR SWITCH	GROUND (DOOR OPEN)

### DRIVER REAR DOOR CONTROL MODULE

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

NOTE: Refer to the Appendix at the rear of this book for CAN and SCP Network messages.

Fig. 11.1

### 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 EEEEC / 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 AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL
NOT-IN-PARK MICROSWITCH	CC13 / 3-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
STEERING COLUMN MOTORS	FC49 / 6-WAY MULTILOCK 070 / WHITE FC50 / 8-WAY MULTILOCK 070 / YELLOW	STEERING COLUMN

### HARNESSTO-HARNESSTO 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	4-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 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY

### GROUNDSTO

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
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
FC29L	EYELET (PAIR) - LH BULKHEAD GROUND STUD / CABIN SIDE

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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 MICROSCHWITCH 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	
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	
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
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	
I DD10-22	DRIVER DOOR MIRROR POTENTIOMETER VERTICAL POSITION FEEDBACK	1 V = DOWN; 8 V = UP	
I DD11-1	MIRROR COMMON GROUND	GROUND	GROUND
O DD11-2	SEAT MEMORY STATUS LED	GROUND (LED ON)	
I DD11-3	LH VERTICAL MOVEMENT REQUEST	B+ = DOWN	GROUND = UP
I DD11-5	PASSENGER MIRROR SELECT	B+	GROUND = UP
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
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

### INSTRUMENT PACK

Pin	Description	Active	Inactive
C FC24-11	CAN NETWORK	15 - 1500 Hz	
S FC24-13	SCP NETWORK	2 - 1600 Hz	
S FC24-14	SCP NETWORK	2 - 1600 Hz	
C FC24-24	CAN NETWORK	15 - 1500 Hz	

### 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	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
O PD10-20	PASSENGER DOOR MIRROR POTENTIOMETER COMMON REFERENCE VOLTAGE	B+	GROUND
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 abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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. 11.2**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
DOOR CONTROL MODULE - DRIVER 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 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW DD1 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA DOOR TRIM PANEL
MEMORY SWITCHES (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL
MIRROR JOYSTICK (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL
MIRROR SELECT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL
NOT-IN-PARK MICROSCHWITCH	CC13 / 3-WAY MULTILOCK 070 / WHITE	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	4-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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

## CONTROL MODULE PIN OUT INFORMATION

### BODY PROCESSOR MODULE

Pin	Description	Active	Inactive
I	FC15-15	IGNITION SWITCHED GROUND	GROUND
I	FC15-32	IGNITION SWITCHED GROUND	GROUND
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)
I	FC15-80	BATTERY SUPPLY VOLTAGE	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+

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

### 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
O	PD10-3	PASSENGER DOOR MIRROR HORIZONTAL MOVEMENT MOTOR	B+ = RIGHT
O	PD10-4	PASSENGER DOOR MIRROR VERTICAL MOVEMENT MOTOR	B+ = UP
I	PD10-8	LOGIC GROUND	GROUND
S	PD10-9	SCP NETWORK	2 - 1600 Hz
S	PD10-16	SCP NETWORK	2 - 1600 Hz
I	PD10-17	POWER GROUND	GROUND

**NOTE:** Refer to the Appendix at the rear of this book for CAN and SCP Network messages.

**Fig. 11.3**

### COMPONENTS

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEEC / 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 AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL
MIRROR SELECT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL

### HARNESSTO-HARNESSTO 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	4-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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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
I	FC15-16	SIDE LAMP REQUEST	GROUND
I	FC15-32	IGNITION SWITCHED GROUND	GROUND
I	FC15-42	HEADLAMP DIP REQUEST	GROUND (MOMENTARY)
O	FC15-72	MIRROR FOLDBACK RELAY ACTIVATE	GROUND
O	FC15-77	MIRROR FOLD OUT RELAY ACTIVATE	GROUND
I	FC15-80	BATTERY SUPPLY VOLTAGE	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+

### DRIVER DOOR CONTROL MODULE

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

### INSTRUMENT PACK

Pin	Description	Active	Inactive
C	FC24-11	CAN NETWORK	15 - 1500 Hz
S	FC24-13	SCP NETWORK	2 - 1600 Hz
S	FC24-14	SCP NETWORK	2 - 1600 Hz
C	FC24-24	CAN NETWORK	15 - 1500 Hz

**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	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	PDB / 12-WAY MULTILOCK 040 / BLACK	PASSENGER DOOR
INSTRUMENT PACK	FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA
INTERIOR REAR VIEW MIRROR	CA55 / 8-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 AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL
MIRROR SELECT SWITCH (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY AMP MICRO QUAD LOCK / 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	BLACK	CA60 / BLACK	LH HEELBOARD RELAYS / HEELBOARD COVER
FOLD-OUT RELAY	BLACK	CA60 / BLACK	LH HEELBOARD RELAYS / HEELBOARD COVER

### HARNESS-TO-HARNESS CONNECTORS

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / GREY	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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY

### GROUND

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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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+

**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 SD1-1	DRIVER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SD1-2	DRIVER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SD1-3	DRIVER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SD1-4	DRIVER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SD1-5	DRIVER HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SD1-6	DRIVER HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SD1-7	DRIVER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
O SD1-8	DRIVER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
I SD1-9	DRIVER SEAT CUSHION FORE MOVEMENT REQUEST	B+	GROUND
I SD1-10	DRIVER SEAT CUSHION AFT MOVEMENT REQUEST	B+	GROUND
I SD1-11	DRIVER SEAT CUSHION LOWER REAR MOVEMENT REQUEST	B+	GROUND
I SD1-12	DRIVER SEAT CUSHION RAISE REAR MOVEMENT REQUEST	B+	GROUND
I SD1-13	DRIVER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST	B+	GROUND
I SD1-14	DRIVER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST	B+	GROUND
I SD1-15	DRIVER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST	B+	GROUND
I SD1-16	DRIVER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST	B+	GROUND
O SD2-1	DRIVER SEAT CUSHION REAR / SQUAB RECLINE MOTOR POT. REF. GROUND	GROUND	GROUND
O SD2-2	DRIVER SEAT CUSHION FORE / AFT MOTOR POT. REFERENCE GROUND	GROUND	GROUND
O SD2-5	DRIVER SEAT CUSHION REAR / SQUAB RECLINE MOTOR POT. REF. VOLTAGE	5V	GROUND
O SD2-6	DRIVER SEAT CUSHION FRONT MOTOR POT. REFERENCE VOLTAGE	5V	GROUND
I SD2-8	DRIVER SEAT HEADREST MOTOR POTENTIOMETER FEEDBACK	10 V = UP, 1 V = DOWN	GROUND
I SD2-9	DRIVER SEAT CUSHION FRONT MOTOR POTENTIOMETER FEEDBACK	10 V = UP, 1 V = DOWN	GROUND
I SD2-10	DRIVER SEAT CUSHION REAR MOTOR POTENTIOMETER FEEDBACK	10 V = UP, 1 V = DOWN	GROUND
I SD2-11	DRIVER SEAT SQUAB RECLINE MOTOR POTENTIOMETER FEEDBACK	9 V = FORE, 2 V = AFT	GROUND
I SD2-12	DRIVER SEAT CUSHION FORE / AFT MOTOR POTENTIOMETER FEEDBACK	2 V = FORE, 10 V = AFT	GROUND
O SD2-14	DRIVER SEAT HEADREST MOTOR POTENTIOMETER REFERENCE GROUND	GROUND	GROUND
O SD2-15	DRIVER SEAT CUSHION FRONT MOTOR POTENTIOMETER REFERENCE GROUND	GROUND	GROUND
O SD2-18	DRIVER SEAT CUSHION FORE / AFT MOTOR POT. REFERENCE VOLTAGE	5V	GROUND
O SD2-19	DRIVER SEAT HEADREST MOTOR POTENTIOMETER REFERENCE VOLTAGE	5V	GROUND
I SD3-1	MODULE IDENTIFICATION	GROUND (DRIVER)	GROUND
I SD3-2	POWER GROUND	GROUND	GROUND
O SD3-3	DRIVER SEAT RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SD3-4	DRIVER SEAT RAISE / LOWER MOTOR SUPPLY	B+	GROUND
I SD3-5	BATTERY POWER SUPPLY	B+	B+
I SD3-6	DRIVER SEAT HEADREST RAISE MOVEMENT REQUEST	B+	GROUND
I SD3-8	DRIVER SEAT HEADREST LOWER MOVEMENT REQUEST	B+	GROUND
S SD3-9	SCP NETWORK	2 - 1600 Hz	GROUND
S SD3-10	SCP NETWORK	2 - 1600 Hz	GROUND

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
C FC24-11	CAN NETWORK	15 - 1500 Hz	
S FC24-13	SCP NETWORK	2 - 1600 Hz	
S FC24-14	SCP NETWORK	2 - 1600 Hz	
C FC24-24	CAN NETWORK	15 - 1500 Hz	

NOTE: Refer to the Appendix at the rear of this book for CAN and SCP Network messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA
MEMORY SWITCHES (DRIVER DOOR SWITCH PACK)	DD1 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	DOOR TRIM PANEL
SEAT CONTROL MODULE - DRIVER	SD1 / 16-WAY FORD 2.8 TIMER / BLACK SD2 / 26-WAY FORD IDC / BLACK SD3 / 10-WAY FORD 2.8 TIMER / BLACK	DRIVER SEAT / UNDER
SEAT CUSHION HEATERS - DRIVER	SD7 / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT HEATER SWITCH (CENTER CONSOLE SWITCH PACK)	CC1 / 16-WAY FORD IDC S.U. / BLACK	
SEAT LUMBAR PUMP - DRIVER	SD10 / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT MOTORS - DRIVER	SD4 / 6-WAY MULTILOCK 070 / GREY SD6 / 6-WAY MULTILOCK 070 / YELLOW SD11 / 6-WAY MULTILOCK 070 / WHITE SD12 / 6-WAY MULTILOCK 070 / WHITE SD13 / 6-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT / UNDER
SEAT SQUAB HEATERS - DRIVER	SD9 / 3-WAY MULTILOCK 070 / GREY	DRIVER SEAT
SWITCH PACK - DRIVER SEAT	SD5 / 16-WAY MULTILOCK 040 / BLACK	DRIVER SEAT

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - DRIVER	BROWN	SD14 / 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	4-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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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 SD1-1	DRIVER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SD1-2	DRIVER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SD1-3	DRIVER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SD1-4	DRIVER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SD1-5	DRIVER HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SD1-6	DRIVER HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SD1-7	DRIVER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
O SD1-8	DRIVER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
I SD1-9	DRIVER SEAT CUSHION FORE MOVEMENT REQUEST	B+	GROUND
I SD1-10	DRIVER SEAT CUSHION AFT MOVEMENT REQUEST	B+	GROUND
I SD1-11	DRIVER SEAT CUSHION LOWER REAR MOVEMENT REQUEST	B+	GROUND
I SD1-12	DRIVER SEAT CUSHION RAISE REAR MOVEMENT REQUEST	B+	GROUND
I SD1-13	DRIVER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST	B+	GROUND
I SD1-14	DRIVER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST	B+	GROUND
I SD1-15	DRIVER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST	B+	GROUND
I SD1-16	DRIVER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST	B+	GROUND
I SD3-1	MODULE IDENTIFICATION	GROUND (DRIVER)	GROUND
I SD3-2	POWER GROUND	GROUND	GROUND
O SD3-3	DRIVER SEAT RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SD3-4	DRIVER SEAT RAISE / LOWER MOTOR SUPPLY	B+	GROUND
I SD3-5	BATTERY POWER SUPPLY	B+	B+
I SD3-6	DRIVER SEAT HEADREST RAISE MOVEMENT REQUEST	B+	GROUND
I SD3-8	DRIVER SEAT HEADREST LOWER MOVEMENT REQUEST	B+	GROUND
S SD3-9	SCP NETWORK	2 - 1600 Hz	
S SD3-10	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 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 CONTROL MODULE - DRIVER	SD1 / 16-WAY FORD 2.8 TIMER / BLACK SD2 / 26-WAY FORD IDC / BLACK SD3 / 10-WAY FORD 2.8 TIMER / BLACK	DRIVER SEAT / UNDER
SEAT CUSHION HEATERS - DRIVER	SD7 / 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	SD10 / 3-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT
SEAT MOTORS - DRIVER	SD4 / 6-WAY MULTILOCK 070 / GREY SD6 / 6-WAY MULTILOCK 070 / YELLOW SD11 / 6-WAY MULTILOCK 070 / WHITE SD12 / 6-WAY MULTILOCK 070 / WHITE SD13 / 6-WAY MULTILOCK 070 / YELLOW	DRIVER SEAT / UNDER
SEAT SQUAB HEATERS - DRIVER	SD9 / 3-WAY MULTILOCK 070 / GREY	DRIVER SEAT
SWITCH PACK - DRIVER SEAT	SD5 / 16-WAY MULTILOCK 040 / BLACK	DRIVER SEAT

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - DRIVER	BROWN	SD14 / 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	4-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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY

**GROUND**

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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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
O	FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND
I	FC15-32	IGNITION SWITCHED GROUND	GROUND
I	FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)
O	FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND
I	FC15-80	BATTERY SUPPLY VOLTAGE	B+
I	FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)

**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	SD7 / 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)	SD16 / 6-WAY MULTILOCK 070 / GREY	DRIVER SEAT / UNDER
SEAT SQUAB HEATERS - DRIVER	SD9 / 3-WAY MULTILOCK 070 / GREY	DRIVER SEAT
SWITCH PACK - DRIVER SEAT (RAISE / LOWER ONLY)	SD17 / 16-WAY MULTILOCK 040 / BLACK	DRIVER SEAT / UNDER

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - DRIVER	BROWN	SD14 / BROWN	FRONT SEAT RELAYS / UNDER SEAT
SEAT RAISE RELAY	BLACK	SD18 / BLACK	FRONT SEAT RELAYS / UNDER SEAT
SEAT LOWER RELAY	BLACK	SD18 / BLACK	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	4-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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY

**GROUND**

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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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 SD1-1	PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SD1-2	PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+	GROUND
O SD1-3	PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SD1-4	PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+	GROUND
O SD1-5	PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SD1-6	PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY	B+	GROUND
O SD1-7	PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
O SD1-8	PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+	GROUND
I SD1-9	PASSENGER SEAT CUSHION FORE MOVEMENT REQUEST	B+	GROUND
I SD1-10	PASSENGER SEAT CUSHION AFT MOVEMENT REQUEST	B+	GROUND
I SD1-11	PASSENGER SEAT CUSHION LOWER REAR MOVEMENT REQUEST	B+	GROUND
I SD1-12	PASSENGER SEAT CUSHION RAISE REAR MOVEMENT REQUEST	B+	GROUND
I SD1-13	PASSENGER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST	B+	GROUND
I SD1-14	PASSENGER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST	B+	GROUND
I SD1-15	PASSENGER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST	B+	GROUND
I SD1-16	PASSENGER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST	B+	GROUND
I SD3-2	COMMON GROUND SUPPLY	GROUND	GROUND
O SD3-3	PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY	B+	GROUND
O SD3-4	PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY	B+	GROUND
I SD3-5	BATTERY SUPPLY	B+	B+
I SD3-6	PASSENGER SEAT HEADREST RAISE MOVEMENT REQUEST	B+	GROUND
I SD3-8	PASSENGER SEAT HEADREST LOWER MOVEMENT REQUEST	B+	GROUND
S SD3-9	SCP NETWORK	2 - 1600 Hz	
S SD3-10	SCP NETWORK	2 - 1600 Hz	

**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 EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
SEAT CONTROL MODULE - PASSENGER	SP1 / 16-WAY FORD 2.8 TIMER / BLACK SP3 / 10-WAY FORD 2.8 TIMER / BLACK SP7 / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT / UNDER
SEAT CUSHION HEATERS - PASSENGER	SP7 / 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	SP10 / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT
SEAT MOTORS - PASSENGER	SP4 / 6-WAY MULTILOCK 070 / GREY SP6 / 6-WAY MULTILOCK 070 / YELLOW SP11 / 6-WAY MULTILOCK 070 / WHITE SP12 / 6-WAY MULTILOCK 070 / WHITE SP13 / 6-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT / UNDER
SEAT SQUAB HEATERS - PASSENGER	SP9 / 3-WAY MULTILOCK 070 / GREY	PASSENGER SEAT
SWITCH PACK - PASSENGER SEAT	SP5 / 16-WAY MULTILOCK 040 / BLACK	PASSENGER SEAT

**RELAYS**

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - PASSENGER	BROWN	SP14 / 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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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
O	FC15-17	SEAT HEATER STATUS (LHD = PASSENGER, RHD = DRIVER)	GROUND
I	FC15-32	IGNITION SWITCHED GROUND	GROUND
I	FC15-35	SEAT HEATER REQUEST (LHD = PASSENGER, RHD = DRIVER)	GROUND (MOMENTARY)
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)
O	FC15-69	SEAT HEATER STATUS (LHD = DRIVER, RHD = PASSENGER)	GROUND
I	FC15-80	BATTERY SUPPLY VOLTAGE	B+
S	FC15-84	SCP NETWORK	2 - 1600 Hz
S	FC15-85	SCP NETWORK	2 - 1600 Hz
I	FC15-86	SEAT HEATER REQUEST (LHD = DRIVER, RHD = PASSENGER)	GROUND (MOMENTARY)

### PASSENGER SEAT CONTROL MODULE

Pin	Description	Active	Inactive
O	SP1-1	PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+
O	SP1-2	PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY	B+
O	SP1-3	PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+
O	SP1-4	PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY	B+
O	SP1-5	PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY	B+
O	SP1-6	PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY	B+
O	SP1-7	PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+
O	SP1-8	PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY	B+
I	SP1-9	PASSENGER SEAT CUSHION FORE MOVEMENT REQUEST	B+
I	SP1-10	PASSENGER SEAT CUSHION AFT MOVEMENT REQUEST	B+
I	SP1-11	PASSENGER SEAT CUSHION LOWER REAR MOVEMENT REQUEST	B+
I	SP1-12	PASSENGER SEAT CUSHION RAISE REAR MOVEMENT REQUEST	B+
I	SP1-13	PASSENGER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST	B+
I	SP1-14	PASSENGER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST	B+
I	SP1-15	PASSENGER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST	B+
I	SP1-16	PASSENGER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST	B+
I	SP3-2	COMMON GROUND SUPPLY	GROUND
O	SP3-3	PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY	B+
O	SP3-4	PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY	B+
I	SP3-5	BATTERY SUPPLY	B+
I	SP3-6	PASSENGER SEAT HEADREST RAISE MOVEMENT REQUEST	B+
I	SP3-8	PASSENGER SEAT HEADREST LOWER MOVEMENT REQUEST	B+
S	SP3-9	SCP NETWORK	2 - 1600 Hz
S	SP3-10	SCP NETWORK	2 - 1600 Hz

**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 EEEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
FORE / AFT SWITCH - PASSENGER REAR	SP19 / 10-WAY AMP MICRO QUAD LOCK / BLACK	PASSENGER SEAT / REAR
RECLINE SWITCH - PASSENGER REAR	SP20 / 10-WAY AMP MICRO QUAD LOCK / BLACK	PASSENGER SEAT / REAR
SEAT CONTROL MODULE - PASSENGER	SP1 / 16-WAY FORD 2.8 TIMER / BLACK SP3 / 10-WAY FORD 2.8 TIMER / BLACK	PASSENGER SEAT / UNDER
SEAT CUSHION HEATERS - PASSENGER	SP7 / 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	SP10 / 3-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT
SEAT MOTORS - PASSENGER	SP4 / 6-WAY MULTILOCK 070 / GREY SP6 / 6-WAY MULTILOCK 070 / YELLOW SP11 / 6-WAY MULTILOCK 070 / WHITE SP12 / 6-WAY MULTILOCK 070 / WHITE SP13 / 6-WAY MULTILOCK 070 / YELLOW	PASSENGER SEAT / UNDER
SEAT SQUAB HEATERS - PASSENGER	SP9 / 3-WAY MULTILOCK 070 / GREY	PASSENGER SEAT
SWITCH PACK - PASSENGER SEAT	SP5 / 16-WAY MULTILOCK 040 / BLACK	PASSENGER SEAT

### RELAYS

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - PASSENGER	BROWN	SP14 / 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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY
SP25	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

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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
O	FC15-17	RH SEAT HEATER STATUS	GROUND
I	FC15-32	IGNITION SWITCHED GROUND	GROUND
I	FC15-35	RH SEAT HEATER REQUEST	GROUND (MOMENTARY)
I	FC15-41	STARTER ENGAGE REQUEST	GROUND (CRANKING)
O	FC15-69	LH SEAT HEATER STATUS	GROUND
I	FC15-80	BATTERY SUPPLY VOLTAGE	B+
I	FC15-86	LH SEAT HEATER REQUEST	GROUND (MOMENTARY)

**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 - PASSENGER	SP7 / 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 - PASSENGER	SP9 / 3-WAY MULTILOCK 070 / GREY	PASSENGER SEAT

RELAYS

Relay	Case Color	Connector / Color	Location / Access
SEAT HEATER RELAY - PASSENGER	BROWN	SP14 / 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 / GREY	BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
FC5	54-WAY THROUGH PANEL CONNECTOR / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
FC7	20-WAY MULTILOCK 070 / YELLOW	ABOVE DIMMER MODULE / COIN TRAY

GROUNDSTO

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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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

REAR SEAT CONTROL MODULE

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

**Fig. 12.7**

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	BX3 / 6-WAY MULTILOCK 070 / YELLOW	REAR SEAT
SEAT HEADREST MOTOR – RH REAR	BB3 / 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	BX4 / 3-WAY MULTILOCK 070 / YELLOW	REAR SEAT
SEAT LUMBAR PUMP – RH REAR	BB4 / 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	BLACK	BS10 / BLACK	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
CA39L	EYELET (PAIR) – LH HEELBOARD POST GROUND SCREW
CA39R	EYELET (PAIR) – LH HEELBOARD POST GROUND SCREW

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 12.8****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**

BX1 / 3-WAY MULTILOCK 070 / YELLOW  
 BB1 / 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  
 BX5 / 3-WAY MULTILOCK 070 / GREY  
 BB5 / 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

**HARNESSTO-HARNESSTO CONNECTORS****Connector**

BS3  
 BS4  
 BS5  
 CA109

**Type / Color**

6-WAY MULTILOCK 070 / WHITE  
 20-WAY MULTILOCK 070 / WHITE  
 6-WAY MULTILOCK 070 / WHITE  
 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**

CA38L

**Location / Type**

EYELET (PAIR) – LH HEELBOARD POST GROUND SCREW

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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**

BX1 / 3-WAY MULTILOCK 070 / YELLOW  
 BB1 / 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  
 BX5 / 3-WAY MULTILOCK 070 / GREY  
 BB5 / 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

**HARNESSTO-HARNESSTO CONNECTORS****Connector**

BS11  
 BS12  
 BS13  
 BS15  
 CA109

**Type / Color**

10-WAY AMP MICRO QUAD LOCK / BLACK  
 10-WAY AMP MICRO QUAD LOCK / NATURAL  
 3-WAY MULTILOCK 070 / YELLOW  
 3-WAY MULTILOCK 070 / YELLOW  
 12-WAY MULTILOCK 070 / WHITE

**Location / Access**

BEHIND REAR CENTER CONSOLE SWITCH PACK  
 BEHIND REAR CENTER CONSOLE SWITCH PACK  
 BELOW REAR SEAT CUSHION  
 BELOW REAR SEAT CUSHION  
 BELOW REAR SEAT CUSHION

**GROUNDS****Ground**

CA38L

**Location / Type**

EYELET (PAIR) – LH HEELBOARD POST GROUND SCREW

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.



Fig. 13.2

CONTROL MODULE PIN OUT INFORMATION

BODY PROCESSOR MODULE

Table with columns: Pin, Description, Active, Inactive. Lists pin assignments for Body Processor Module.

DRIVER DOOR CONTROL MODULE

Table with columns: Pin, Description, Active, Inactive. Lists pin assignments for Driver Door Control Module.

DRIVER REAR DOOR CONTROL MODULE

Table with columns: Pin, Description, Active, Inactive. Lists pin assignments for Driver Rear Door Control Module.

PASSENGER DOOR CONTROL MODULE

Table with columns: Pin, Description, Active, Inactive. Lists pin assignments for Passenger Door Control Module.

PASSENGER REAR DOOR CONTROL MODULE

Table with columns: Pin, Description, Active, Inactive. Lists pin assignments for Passenger Rear Door Control Module.

SECURITY AND LOCKING CONTROL MODULE

Table with columns: Pin, Description, Active, Inactive. Lists pin assignments for Security and Locking Control Module.

NOTE: Refer to the Appendix at the rear of this book for CAN and SCP Network messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

Table of abbreviations: I Input, O Output, SG Signal Ground, D Serial and Encoded Data, C CAN (Network), S SCP Network, B+ Battery Voltage, V Voltage (DC), H Hz, kHz Frequency x 1000, ms Milliseconds, 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.

COMPONENTS

Table with columns: Component, Connector / Type / Color, Location / Access. Lists components like Body Processor Module, Door Control Modules, and Lock Actuators with their connector details and locations.

RELAYS

Table with columns: Relay, Case Color, Connector / Color, Location / Access. Lists relays such as Door Locking Relay and Fuel Filler Flap Lock Relay.

HARNESSTO-HARNESSTO CONNECTORS

Table with columns: Connector, Type / Color, Location / Access. Lists harness connectors like BT4, CA8, CA10, CA11, CA12, CA14, CA16, CA45, CA46, FC1, and FC7.

GROUNDS

Table with columns: Ground, Location / Type. Lists ground points like BT22L\*, BT24\*, BT28L, BT34, CA30R, CA31L, CA33L, CA33R, CA36L, CA36R, CC3L, CC3R, FC17L.

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.



**CONTROL MODULE PIN OUT INFORMATION**

**Fig. 14.1**

**BODY PROCESSOR MODULE**

Pin	Description	Active	Inactive
I FC15-6	WASHER FLUID LEVEL SENSOR	GROUND (FULL)	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+

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
BODY PROCESSOR MODULE	FC15 / 14-WAY AMP EEEC / GREY	BULKHEAD / BEHIND GLOVE BOX
FUSE BOX - ENGINE COMPARTMENT	LF5 / 10-WAY U.T.A. FUSE BOX / NATURAL LF6 / 10-WAY U.T.A. FUSE BOX / BLACK LF7 / 10-WAY U.T.A. FUSE BOX / GREEN LF8 / 10-WAY U.T.A. FUSE BOX / BLUE ST19 / EYELET	ENGINE COMPARTMENT / LH FRONT
INTERIOR REAR VIEW MIRROR	CA55 / 8-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
POWER WASH PUMP	LF43 / 2-WAY REINSHAGEN / VOLKSWAGEN / BLACK	RIGHT FRONT QUARTER PANEL / WASHER FLUID CONTAINER
RAIN SENSING MODULE	EM72 / 12-WAY AMP ML42 / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
RAIN SENSOR	NO CODES / 3-WAY AMP MICRO QUAD LOCK / BLACK	BEHIND INTERIOR REAR VIEW MIRROR
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	LF44 / 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	LF11 / BLACK	ENGINE COMPARTMENT FRONT RELAYS / ENGINE COMPARTMENT
WIPER FAST / SLOW RELAY	BLACK	LF11 / BLACK	ENGINE COMPARTMENT FRONT RELAYS / ENGINE COMPARTMENT
POWERWASH RELAY	BROWN	BUS	RELAY #4, ENGINE COMPARTMENT FUSE BOX / ENGINE COMPARTMENT

**HARNESSTO-HARNES CONNECTORS**

Connector	Type / Color	Location / Access
EM3	18-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 / GREY	BELOW DRIVER SIDE AIR VENT / COIN TRAY
LF3	54-WAY THROUGH PANEL CONNECTOR / GREY	LH 'A' POST / LOWER 'A' POST FINISHER

**GROUND**

Ground	Location / Type
EM8L	EYELET (PAIR) - EMS LH GROUND STUD
EM17	EYELET (SINGLE) - EMS BULKHEAD GROUND STUD
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
LF18R	EYELET (PAIR) - LH FORWARD GROUND STUD
LF19L	EYELET (PAIR) - RH FORWARD GROUND STUD

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.



**CONTROL MODULE PIN OUT INFORMATION**

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
C	FC24-11 CAN NETWORK	15 - 1500 Hz	
C	FC24-24 CAN NETWORK	15 - 1500 Hz	
O	FC25-20 VEHICLE SPEED	22 Hz @ 10 MPH (16 KMH); 44 Hz @ 20 MPH (32 KMH) @ B+	

**RADIO / CASSETTE HEAD UNIT**

Pin	Description	Active	Inactive
I	IC11-1 VEHICLE SPEED	22 Hz @ 10 MPH (16 KMH); 44 Hz @ 20 MPH (32 KMH) @ B+	
I	IC11-2 STEERING WHEEL AUDIO CONTROLS	0 V = MODE, 1.2 V = SEEK, 2.4 V = VOLUME '+', 3.7 V = VOLUME '-'	
O	IC11-18 ANTENNA UP	B+	5V 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 / 8-WAY ALPINE / BLACK	TRUNK LH SIDE / TRUNK CARPET
INSTRUMENT PACK	FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA
RADIO / CASSETTE HEAD UNIT	CA3 / COAXIAL CONNECTOR IC10 / 20-WAY MULTILOCK 070 / WHITE IC11 / 26-WAY AMP MICRO QUAD LOCK / YELLOW IC19 / 8-WAY ALPINE / BLACK	CENTER CONSOLE
RADIO ANTENNA	CA7 / COAXIAL CONNECTOR	ANTENNA MOTOR ASSEMBLY / BATTERY COVER
RADIO CONTROL SWITCHES (STEERING WHEEL)	SW4 / 3-WAY EPC / BLACK	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
SPEAKER, FRONT DOOR TWEETER - DRIVER SIDE	DD5 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL
SPEAKER, FRONT DOOR TWEETER - PASSENGER SIDE	PD5 / 2-WAY GROTE & HARTMAN MDK / BLACK	DOOR CASING / TRIM PANEL

**HARNES-TO-HARNES CONNECTORS**

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / GREY	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 / GREY	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
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
IC8	EYELET (SINGLE) - RADIO GROUND STUD / TRANSMISSION TUNNEL / CENTER

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**CONTROL MODULE PIN OUT INFORMATION**

**INSTRUMENT PACK**

Pin	Description	Active	Inactive
C	FC24-11 CAN NETWORK	15 - 1500 Hz	
C	FC24-24 CAN NETWORK	15 - 1500 Hz	
O	FC25-20 VEHICLE SPEED	22 Hz @ 10 MPH (16 KMH); 44 Hz @ 20 MPH (32 KMH) @ B+	

**RADIO / CASSETTE HEAD UNIT**

Pin	Description	Active	Inactive
I	IC11-1 VEHICLE SPEED	22 Hz @ 10 MPH (16 KMH); 44 Hz @ 20 MPH (32 KMH) @ B+	
I	IC11-2 STEERING WHEEL AUDIO CONTROLS	0 V = MODE, 1.2 V = SEEK, 2.4 V = VOLUME '+', 3.7 V = VOLUME '-'	5V
O	IC11-18 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	CD AUTOCHANGER DATA CABLE	TRUNK LH SIDE / TRUNK CARPET
INSTRUMENT PACK	FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA
POWER AMPLIFIER	IC5 / 8-WAY ALPINE / BLACK IC21 / CD AUTOCHANGER DATA CABLE 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 IC11 / 26-WAY AMP MICRO QUAD LOCK / YELLOW IC19 / 8-WAY ALPINE / BLACK	CENTER CONSOLE
RADIO ANTENNA	CA7 / COAXIAL CONNECTOR	ANTENNA MOTOR ASSEMBLY / BATTERY COVER
RADIO CONTROL SWITCHES (STEERING WHEEL)	SW4 / 3-WAY EPC / BLACK	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

**HARNESSTO-HARNESSTO CONNECTORS**

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / GREY	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 / GREY	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
FC17R	EYELET (PAIR) - EMS BULKHEAD GROUND STUD
IC8	EYELET (SINGLE) - RADIO GROUND STUD / TRANSMISSION TUNNEL / CENTER
IC20	EYELET (SINGLE) - TRUNK / LH FORWARD GROUND STUD

**FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.**

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 17.1**

**COMPONENTS**

<b>Component</b>	<b>Connector / Type / Color</b>	<b>Location / Access</b>
TELEPHONE ANTENNA	RT64 / COAXIAL CONNECTOR	BELOW CENTER CONSOLE GLOVE BOX
	RT65 / COAXIAL CONNECTOR	HEATED BACKLIGHT / HEADLINING / REAR
	RT66 / COAXIAL CONNECTOR	CENTER CONSOLE
TELEPHONE HANDSET - FRONT	RT5 / TELEPHONE / PROPRIETARY	CENTER CONSOLE
TELEPHONE HANDSET - REAR	RT10 / TELEPHONE / PROPRIETARY	CENTER CONSOLE
TELEPHONE MICROPHONE	CA67 / 2-WAY MULTILOCK 040 / BLUE	ROOF CONSOLE
CELLULAR TELEPHONE CONTROL MODULE	RT3 / TELEPHONE / PROPRIETARY	CENTER CONSOLE
	RT4 / TELEPHONE / PROPRIETARY	CENTER CONSOLE

**HARNESSTO-HARNESSTO 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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 17.2****COMPONENTS**

Component	Connector / Type / Color	Location / Access
CD AUTO-CHANGER	CD AUTOCHANGER DATA CABLE	TRUNK LH SIDE / TRUNK CARPET
NAVIGATION CONTROL MODULE	IC5 / 8-WAY ALPINE / BLACK IC12 / 16-WAY MULTILOCK 42 / BLACK	TRUNK LH SIDE / TRUNK CARPET INSIDE LH REAR QUARTER PANEL
NAVIGATION GPS ANTENNA	IC41 / 2-WAY HIROSE COAX GT5 SERIES / GREY	BELOW PARCEL SHELF
POWER AMPLIFIER	IC5 / 8-WAY ALPINE / BLACK IC21 / CD AUTOCHANGER DATA CABLE 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 IC11 / 26-WAY AMP MICRO QUAD LOCK / YELLOW IC19 / 8-WAY ALPINE / BLACK	CENTER CONSOLE
VEHICLE SPEED INTERFACE MODULE	NV1 / 42-WAY SIEMENS / BLUE	ABOVE PASSENGER FOOTWELL

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
NV2	2-WAY MULTILOCK 070 / WHITE	RH SIDE OF TRANSMISSION TUNNEL
IC2	8-WAY MULTILOCK 070 / WHITE	REARWARD OF FUEL TANK / BATTERY COVER

**GROUND**

Ground	Location / Type
FC17L	EYELET (PAIR) – EMS BULKHEAD GROUND STUD
BT22L*	EYELET (PAIR) – TRUNK / RH CENTER GROUND STUD (*PREMIUM ICE)
BT24*	EYELET (SINGLE) – TRUNK / RH CENTER GROUND STUD (*STANDARD ICE)

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, 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+
O	CA61-2	LH SEAT BELT PRETENSIONER GROUND SUPPLY	GROUND
O	CA61-3	RH SEAT BELT PRETENSIONER POWER SUPPLY	B+
O	CA61-4	RH SEAT BELT PRETENSIONER GROUND SUPPLY	GROUND
I	CA61-5	IGNITION SUPPLY VOLTAGE	B+
I	CA61-6	GROUND SUPPLY	GROUND
O	CA61-7	INSTRUMENT PACK 'SRS' MIL	GROUND (NO FAULT)
D	CA61-9	DIAGNOSTIC OUTPUT SERIAL OUTPUT	ENCODED COMMUNICATIONS
O	CA61-10	STEERING WHEEL AIRBAG POWER SUPPLY	B+
O	CA61-11	STEERING WHEEL AIRBAG GROUND SUPPLY	GROUND
O	CA61-13	PASSENGER FASCIA AIRBAG POWER SUPPLY	B+
O	CA61-14	PASSENGER FASCIA AIRBAG GROUND SUPPLY	GROUND
O	CA61-16	DRIVER SIDE AIRBAG POWER SUPPLY	B+
O	CA61-17	DRIVER SIDE AIRBAG GROUND SUPPLY	GROUND
O	CA61-18	PASSENGER SIDE AIRBAG POWER SUPPLY	B+
O	CA61-19	PASSENGER SIDE AIRBAG GROUND SUPPLY	GROUND
I	CA61-20	LH SIDE IMPACT SENSOR GROUND SUPPLY	GROUND
I	CA61-21	RH SIDE IMPACT SENSOR GROUND SUPPLY	GROUND
I	CA61-22	LH SIDE IMPACT SENSOR STATUS	GROUND (SHORTED)
I	CA61-23	RH SIDE IMPACT SENSOR STATUS	GROUND (SHORTED)
I	CA61-24	LH SIDE IMPACT SENSOR GROUND SUPPLY STATUS	GROUND (NO FAULT)
I	CA61-25	RH SIDE IMPACT SENSOR GROUND SUPPLY STATUS	GROUND (NO FAULT)
O	CA61-40	SRS AUDIBLE BACKUP	ENCODED COMMUNICATIONS

**Fig. 18.1**

**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
IMPACT SENSOR - LH	CA15 / 3-WAY MOLEX C-GRID / BLACK	INSIDE 'B/C' POST / 'B/C' POST TRIM
IMPACT SENSOR - RH	CA22 / 3-WAY MOLEX C-GRID / BLACK	INSIDE 'B/C' POST / 'B/C' POST TRIM
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	SD15 / 2-WAY FORD AIRBAG / YELLOW	DRIVER SEAT / SIDE
SIDE AIRBAG - PASSENGER	SP15 / 2-WAY FORD AIRBAG / YELLOW	PASSENGER SEAT / SIDE

**HARNES-TO-HARNES CONNECTORS**

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

**GROUNDS**

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

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 19.1**

**COMPONENTS**

<b>Component</b>	<b>Connector / Type / Color</b>	<b>Location / Access</b>
PARKING AID CONTROL MODULE	RB1 / 16-WAY / BLACK BT71 / 12-WAY BLACK	TRUNK / LH REAR
PARKING AID SENSOR - LH	RB2 / 3-WAY / BLACK	REAR BUMPER
PARKING AID SENSOR - CENTER LH	RB3 / 3-WAY / BLACK	REAR BUMPER
PARKING AID SENSOR - RH	RB5 / 3-WAY / BLACK	REAR BUMPER
PARKING AID SENSOR - CENTER RH	RB4 / 3-WAY / BLACK	REAR BUMPER
PARKING AID SOUNDER	BT70 / 2-WAY / GREY	PARCEL SHELF

**GROUND**

<b>Ground</b>	<b>Location / Type</b>
BT21L	EYELET (PAIR) - TRUNK / RH REAR GROUND STUD

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.



CONTROL MODULE PIN OUT INFORMATION

**Fig. 20.1**

**BODY PROCESSOR MODULE**

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

**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 AMP / METALLIC	REAR CENTER CONSOLE VENT
	CA76 / 1-WAY LUCAR POSILOCK MKI / BLACK	
FUSE BOX - ENGINE COMPARTMENT	LF5 / 10-WAY U.T.A. FUSE BOX / NATURAL	ENGINE COMPARTMENT / LH FRONT
	LF6 / 10-WAY U.T.A. FUSE BOX / BLACK	
	LF7 / 10-WAY U.T.A. FUSE BOX / GREEN	
	LF8 / 10-WAY U.T.A. FUSE BOX / BLUE	
	ST19 / EYELET	
FUSE BOX - TRUNK	BT10 / 10-WAY U.T.A. FUSE BOX / NATURAL	TRUNK ELECTRICAL CARRIER
	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	
HORN SWITCHES (STEERING WHEEL)	HP1 / 1-WAY BLADE	CENTER OF STEERING WHEEL
	HP2 / 1-WAY BLADE	
HORN - LH	LF46 / 1-WAY LUCAR POSILOCK MKI / BLACK	FORWARD OF RADIATOR - LH SIDE / RADIATOR GRILLE
	LF47 / 1-WAY LUCAR POSILOCK MKI / BLACK	
HORN - RH	LF48 / 1-WAY LUCAR POSILOCK MKI / BLACK	FORWARD OF RADIATOR - RH SIDE / RADIATOR GRILLE
	LF49 / 1-WAY LUCAR POSILOCK MKI / BLACK	
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

**HARNESS-TO-HARNESS CONNECTORS**

Connector	Type / Color	Location / Access
BT4	54-WAY THROUGH PANEL / GREY	BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
EM1	12-WAY AUGAT 1.6 / BLACK	ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
EM3	18-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 / BLACK	CENTER OF STEERING WHEEL

**GROUND**

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
LF18R	EYELET (PAIR) - LH FORWARD GROUND STUD
LF20R	EYELET (PAIR) - RH FORWARD GROUND STUD

FOR CONTROL MODULE PIN OUT INFORMATION, UNFOLD PAGE TO LEFT.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 21.1**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
ABS / TRACTION CONTROL CONTROL MODULE	LF27 / 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	EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
GEAR SELECTOR ILLUMINATION MODULE	CC14 / 10-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
INSTRUMENT PACK	FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA
SEAT CONTROL MODULE - DRIVER	SD1 / 16-WAY FORD 2.8 TIMER / BLACK SD2 / 26-WAY FORD IDC / BLACK SD3 / 10-WAY FORD 2.8 TIMER / BLACK	DRIVER SEAT / UNDER
SEAT CONTROL MODULE - PASSENGER	SP1 / 16-WAY FORD 2.8 TIMER / BLACK SP3 / 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: AJ27 N/A	EM7 / 88-WAY BOSCH / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
TRANSMISSION CONTROL MODULE: AJ27 SC	EM61 / 18-WAY AMP JUNIOR POWER TIMER / BLACK EM62 / 14-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
VEHICLE SPEED INTERFACE MODULE	NV1 / 42-WAY SIEMENS / BLUE	ABOVE PASSENGER FOOTWELL

**HARNESSTO-HARNESSTO CONNECTORS**

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

**GROUNDS**

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

**NOTE:** Refer to the Appendix at the rear of this book for CAN and SCP Network messages.

The following abbreviations are used to represent values for Control Module Pin-Out data

I	Input	D	Serial and Encoded Data	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 this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 21.2**

**COMPONENTS**

Component	Connector / Type / Color	Location / Access
ABS / TRACTION CONTROL CONTROL MODULE	LF27 / 25-WAY AMP / FORD / BLACK	ENGINE COMPARTMENT / BEHIND LH HEADLAMP 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
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	EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
GEAR SELECTOR ILLUMINATION MODULE	CC14 / 10-WAY MULTILOCK 070 / WHITE	CENTER CONSOLE ASSEMBLY
INSTRUMENT PACK	FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW	FASCIA
SEAT CONTROL MODULE - DRIVER	SD1 / 16-WAY FORD 2.8 TIMER / BLACK SD2 / 26-WAY FORD IDC / BLACK SD3 / 10-WAY FORD 2.8 TIMER / BLACK	DRIVER SEAT / UNDER
SEAT CONTROL MODULE - PASSENGER	SP1 / 16-WAY FORD 2.8 TIMER / BLACK SP3 / 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: AJ27 N/A	EM7 / 88-WAY BOSCH / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
TRANSMISSION CONTROL MODULE: AJ27 SC	EM61 / 18-WAY AMP JUNIOR POWER TIMER / BLACK EM62 / 14-WAY AMP JUNIOR POWER TIMER / BLACK	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
VEHICLE SPEED INTERFACE MODULE	NV1 / 42-WAY SIEMENS / BLUE	ABOVE PASSENGER FOOTWELL

**HARNESSTO-HARNESSTO CONNECTORS**

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

**GROUNDS**

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

**NOTE:** Refer to the Appendix at the rear of this book for CAN and SCP Network messages.

Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

**Fig. 21.3**

**COMPONENTS1**

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 ELOS0 / 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	EM80 / 31-WAY AMP 403 / NATURAL EM81 / 24-WAY AMP 403 / NATURAL EM82 / 17-WAY AMP 403 / NATURAL EM83 / 28-WAY AMP 403 / NATURAL EM84 / 22-WAY AMP 403 / NATURAL EM85 / 12-WAY MULTILOCK 070 / WHITE	ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE
KEY TRANSPONDER MODULE	FC22 / 20-WAY MULTILOCK 040 / GREEN	BELOW INSTRUMENT PACK

**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
EM2	20-WAY MULTILOCK 070 / GREY	PASSENGER 'A' POST / LOWER 'A' POST FINISHER
EM3	18-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

**GROUND**

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

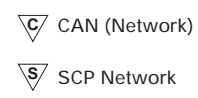
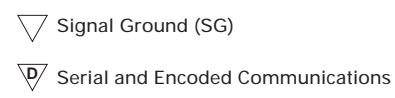
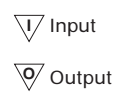
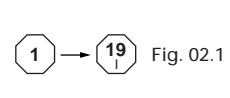
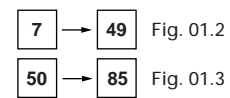
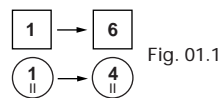
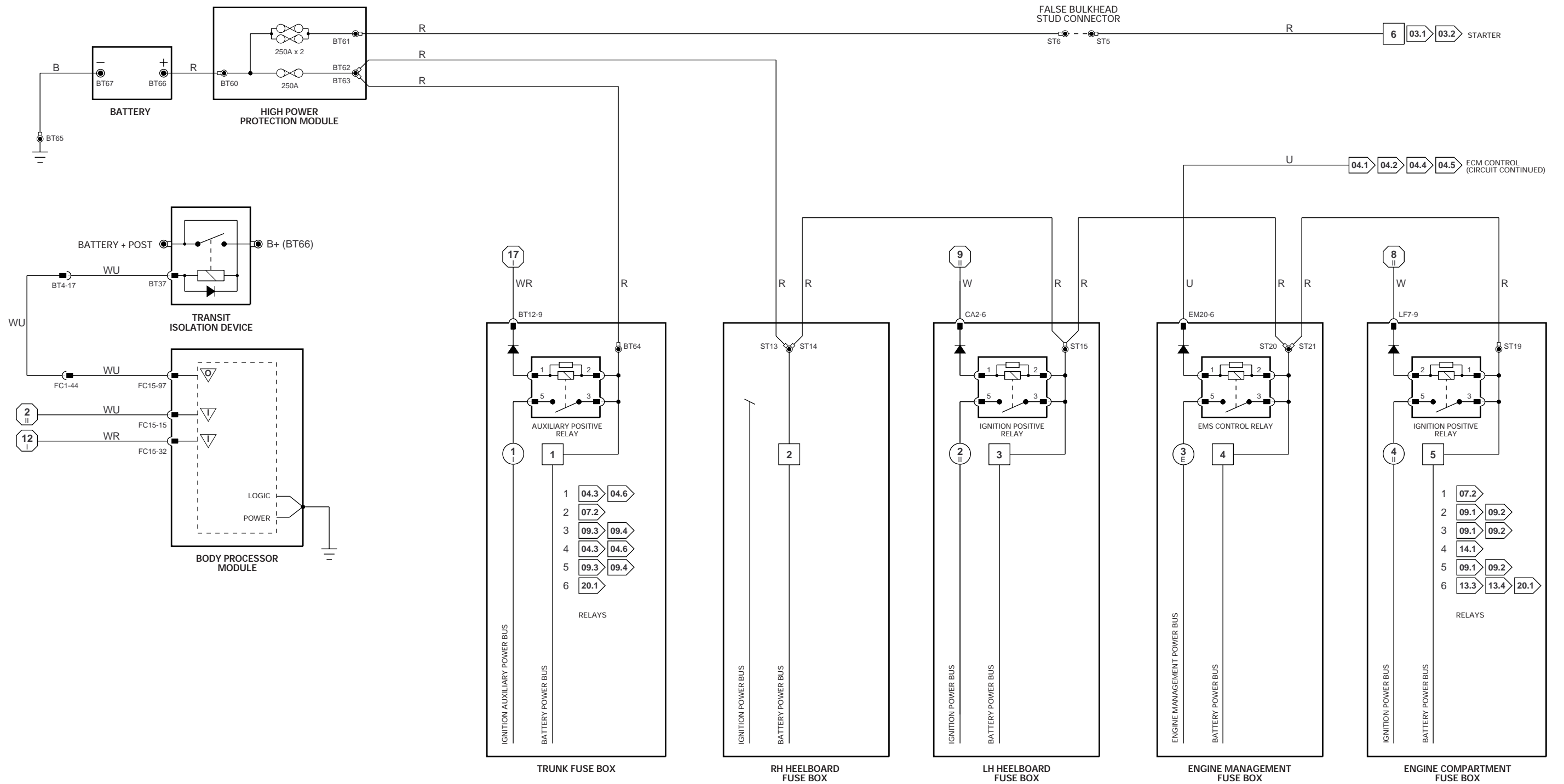
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O	Output	C	CAN (Network)	V	Voltage (DC)	ms	Milliseconds
SG	Signal Ground	S	SCP Network	Hz	Frequency	mV	Millivolts

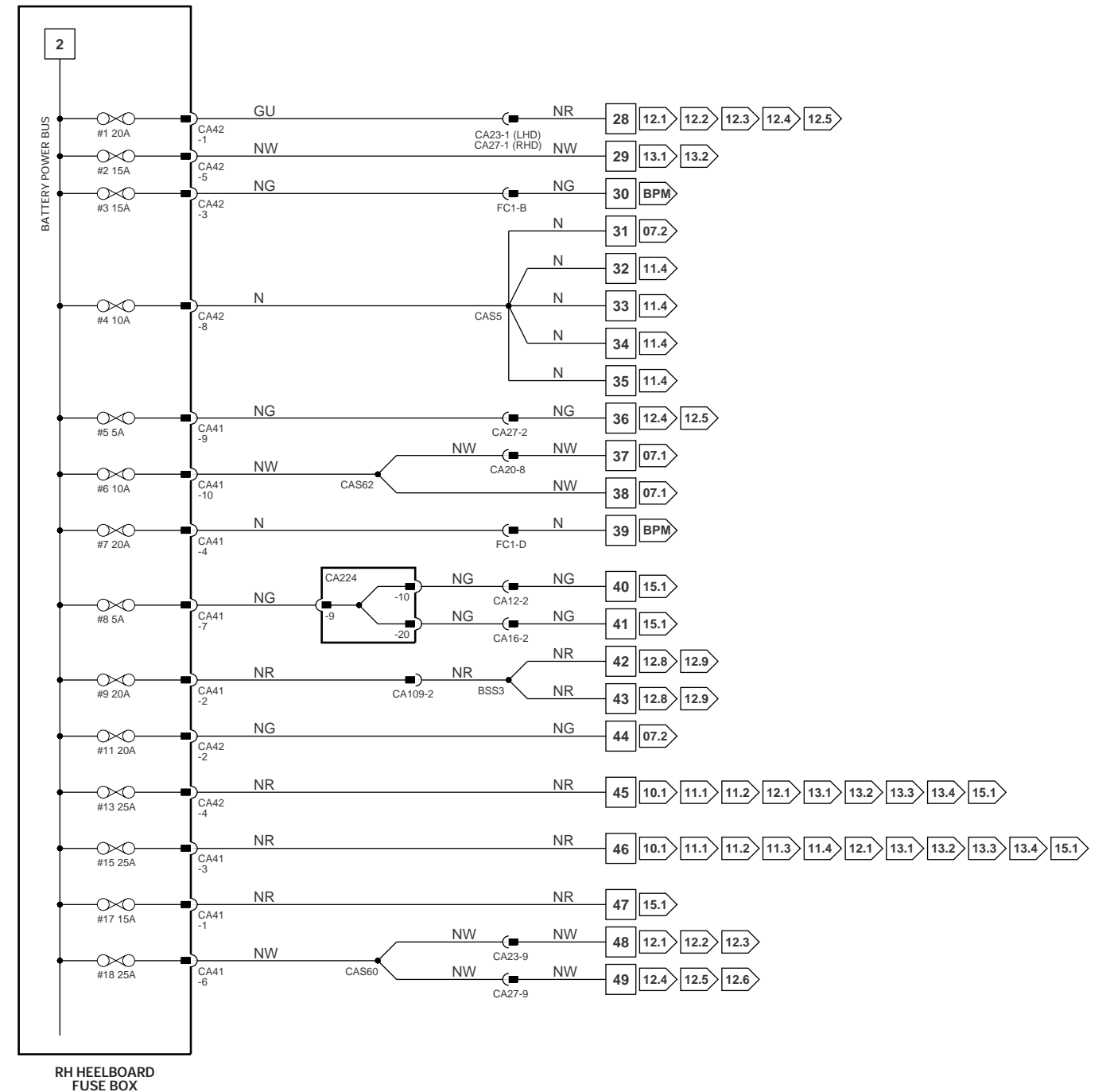
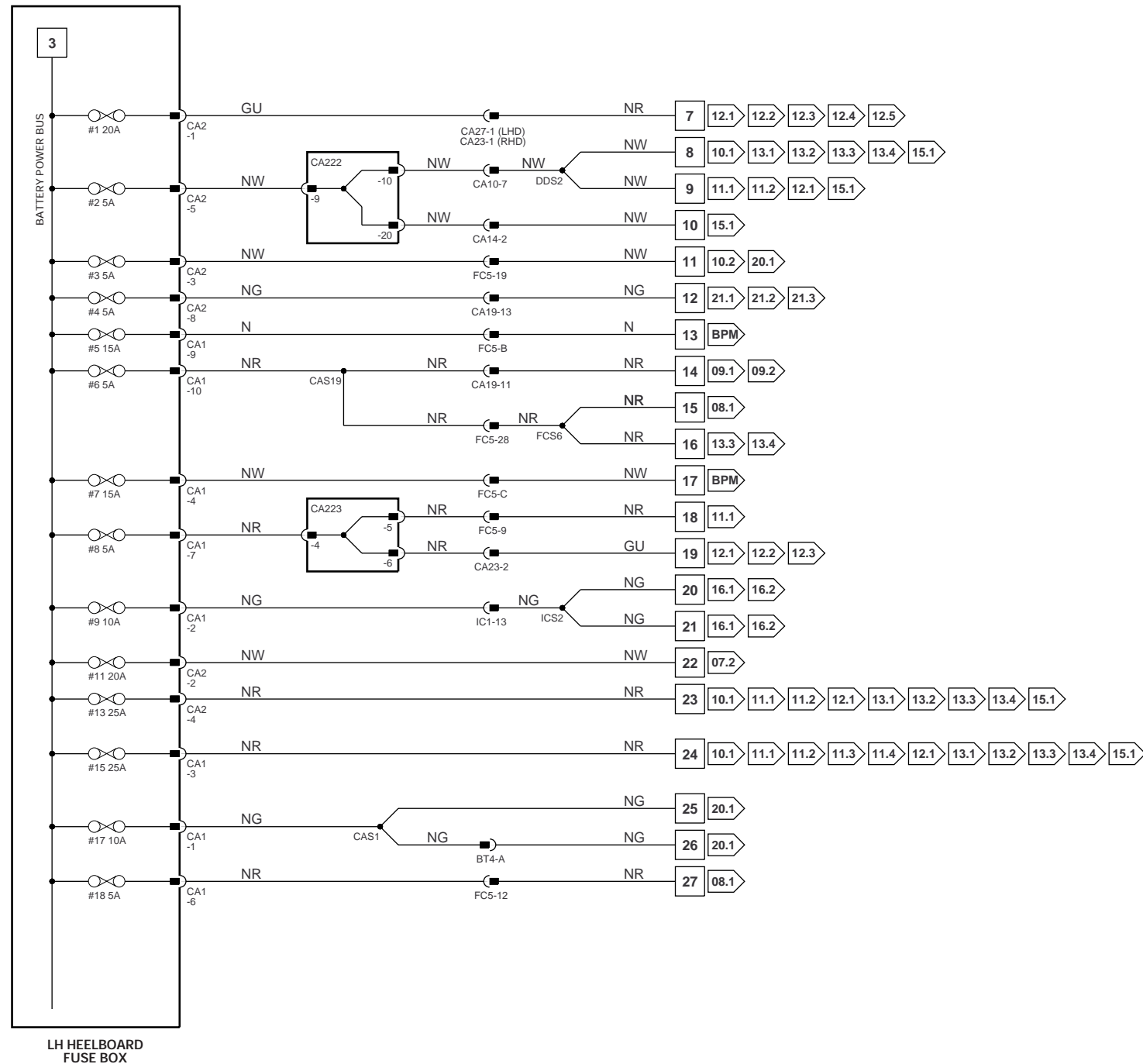
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**NOTE:** The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive"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

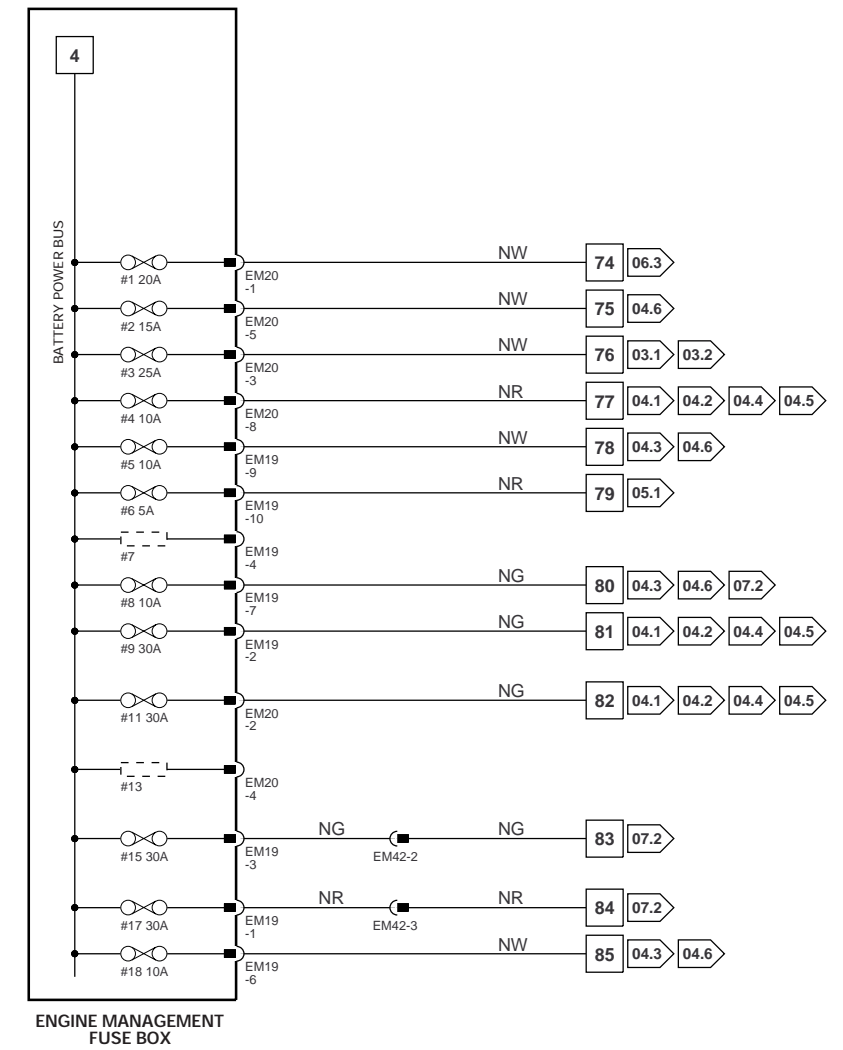
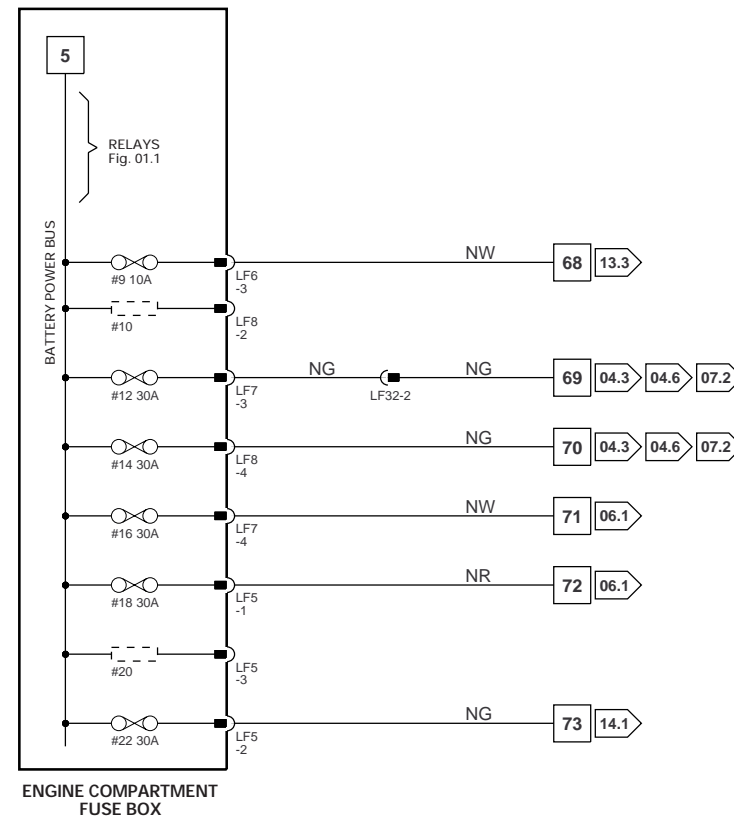
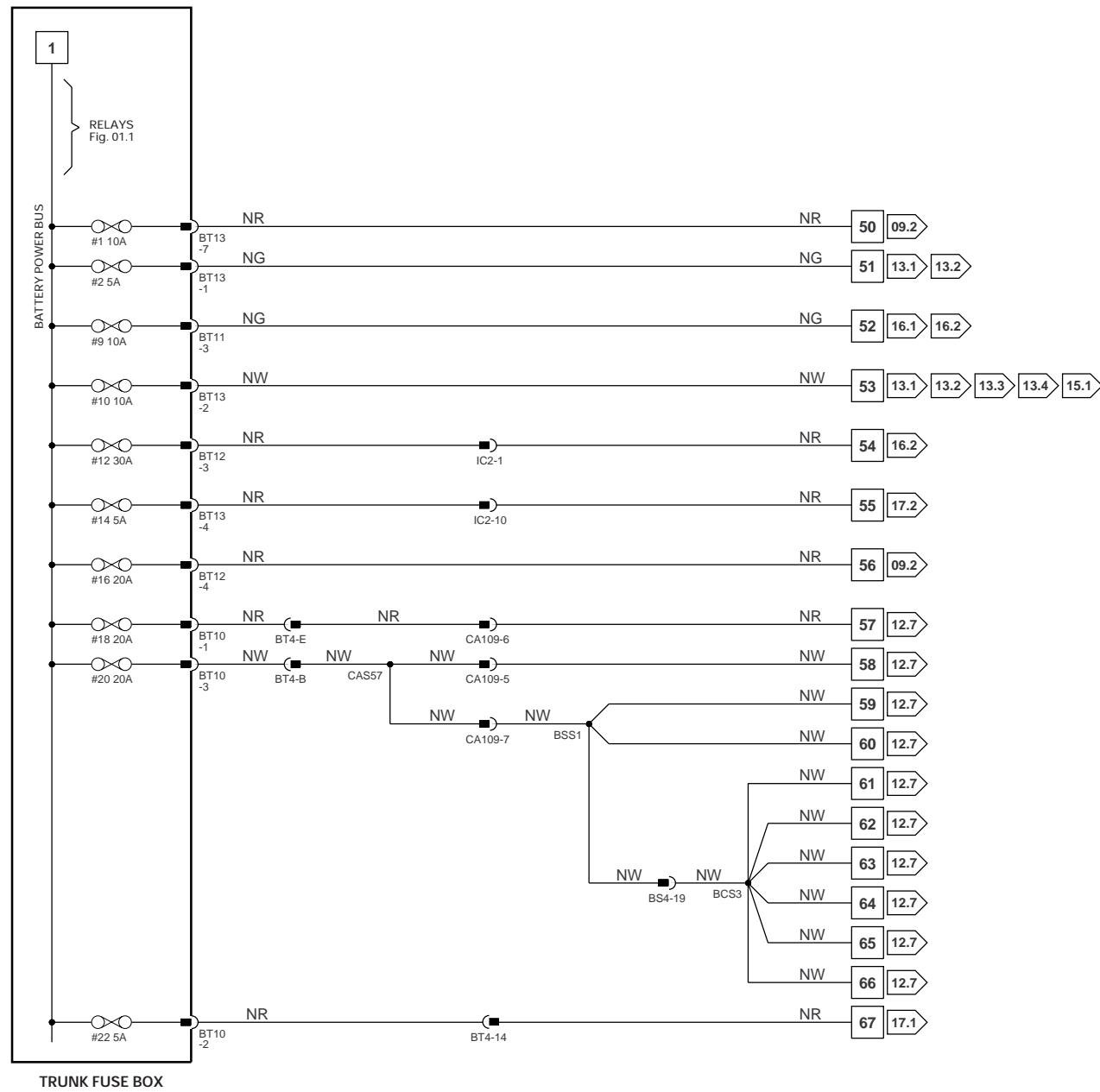
Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

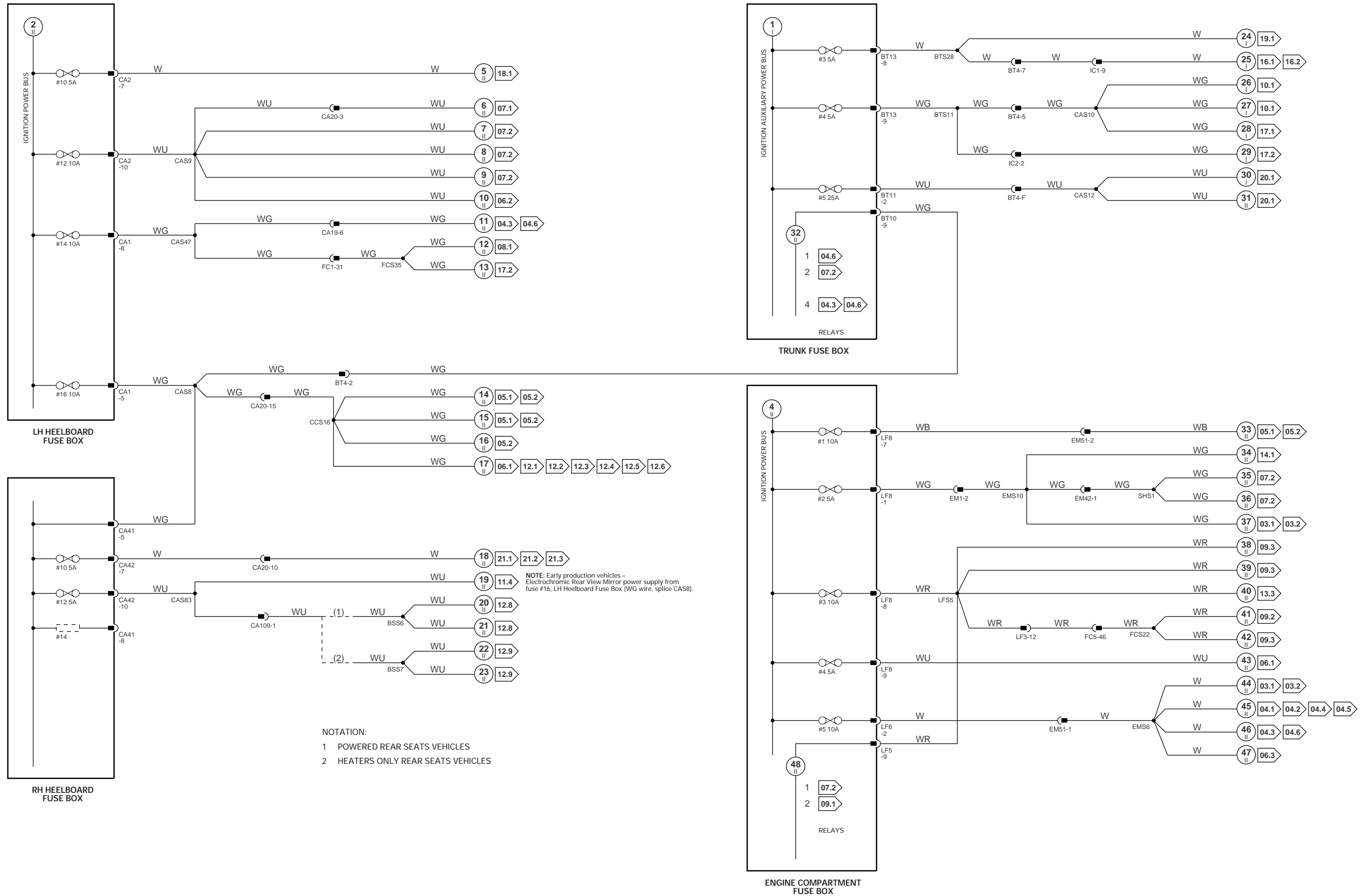


VARIANT: All Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999

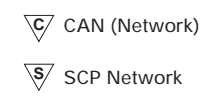
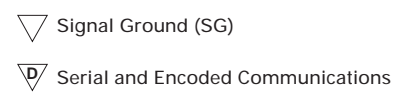
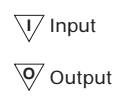
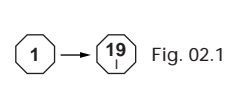
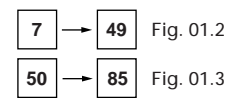
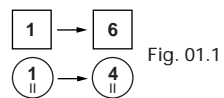
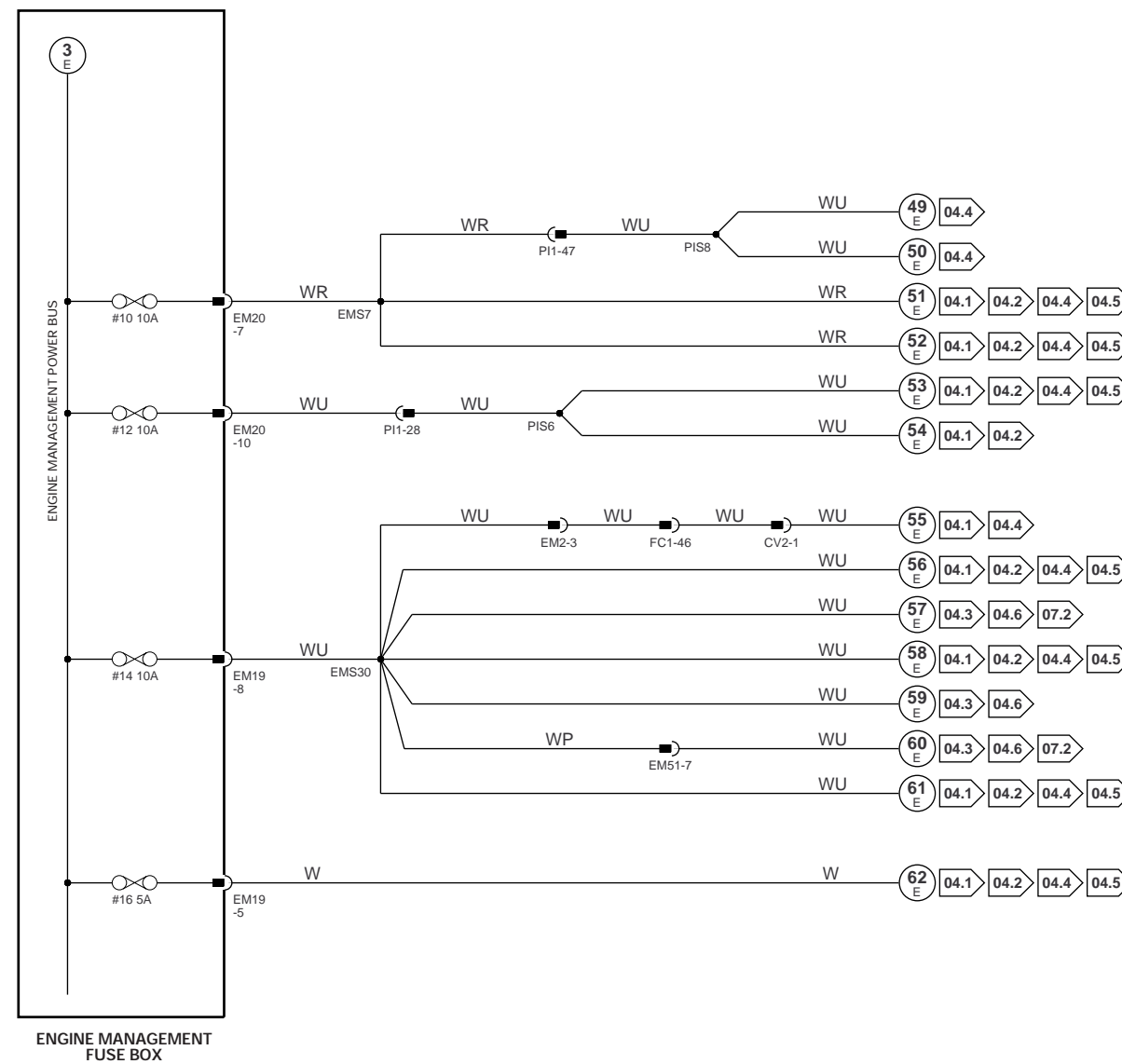


**BPM** NOTE: Body Processor Module appears in numerous figures.

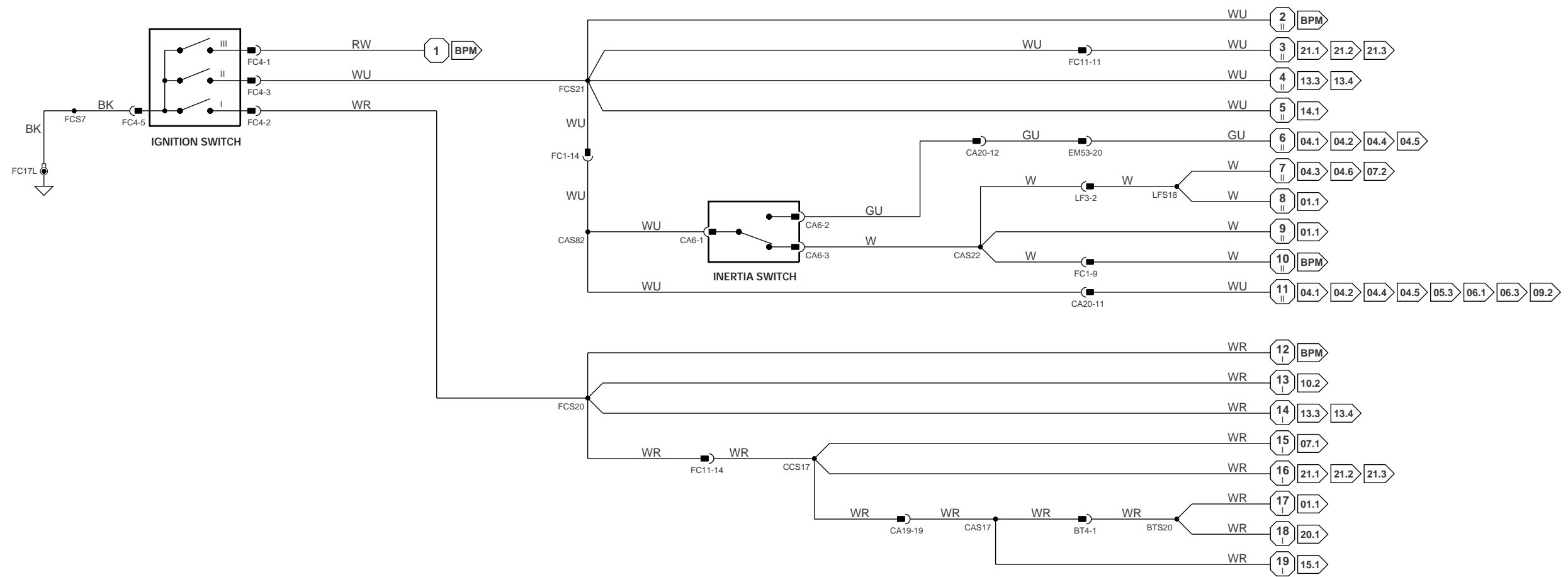
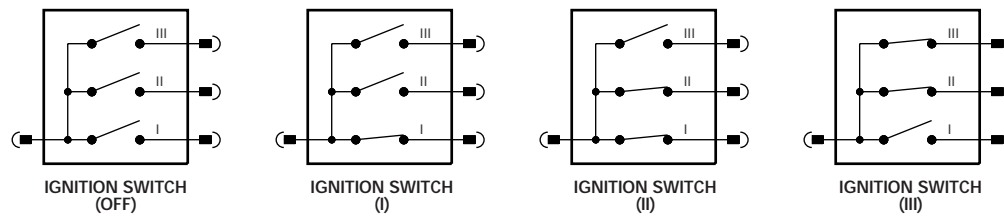




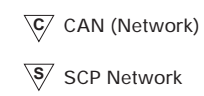
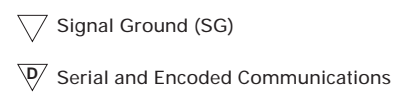
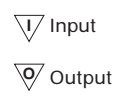
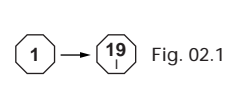
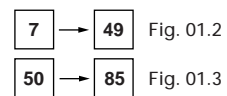
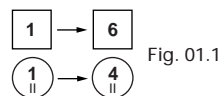




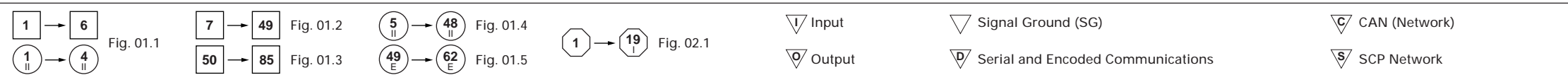
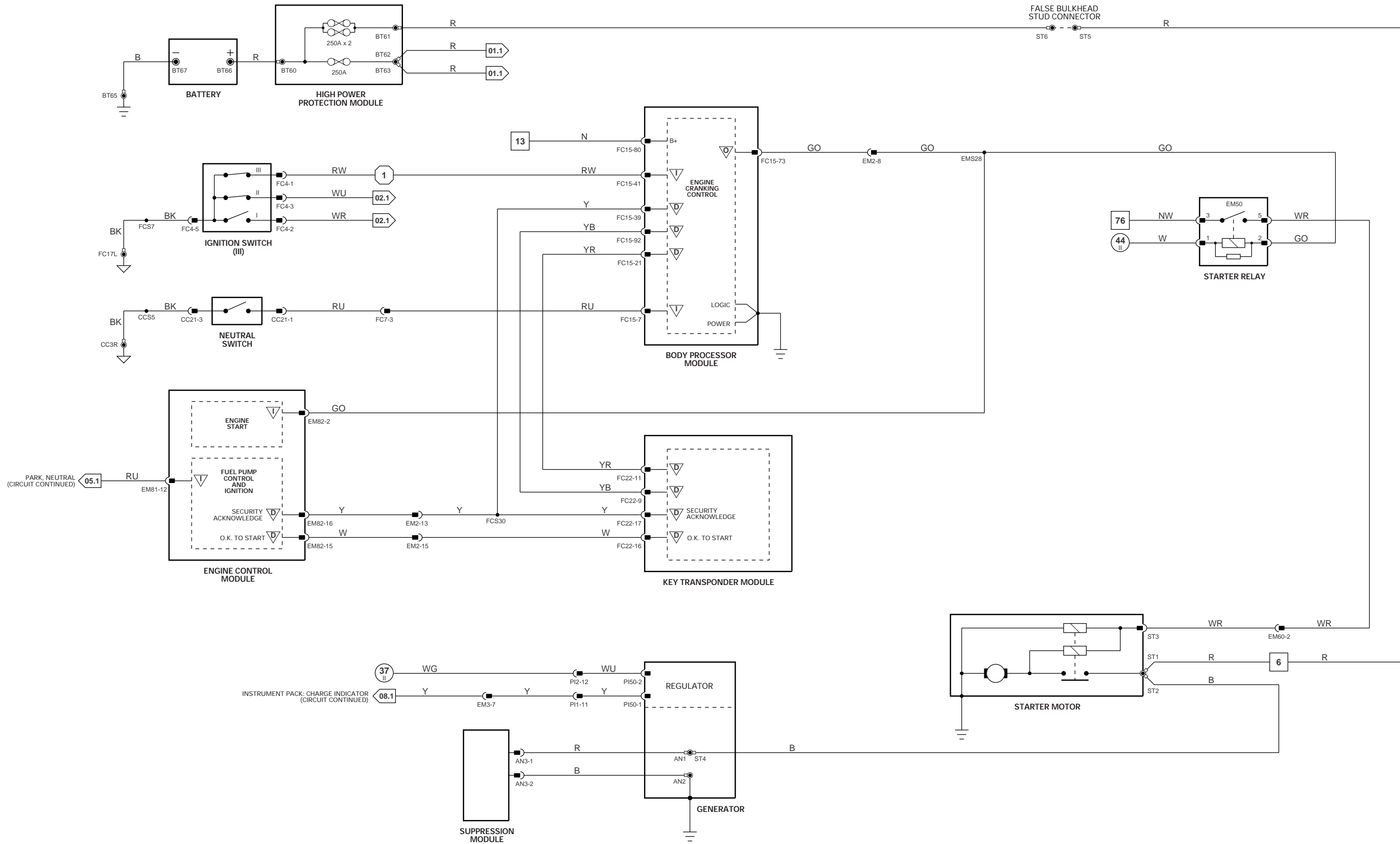
VARIANT: All Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



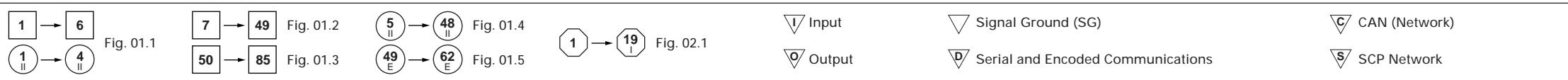
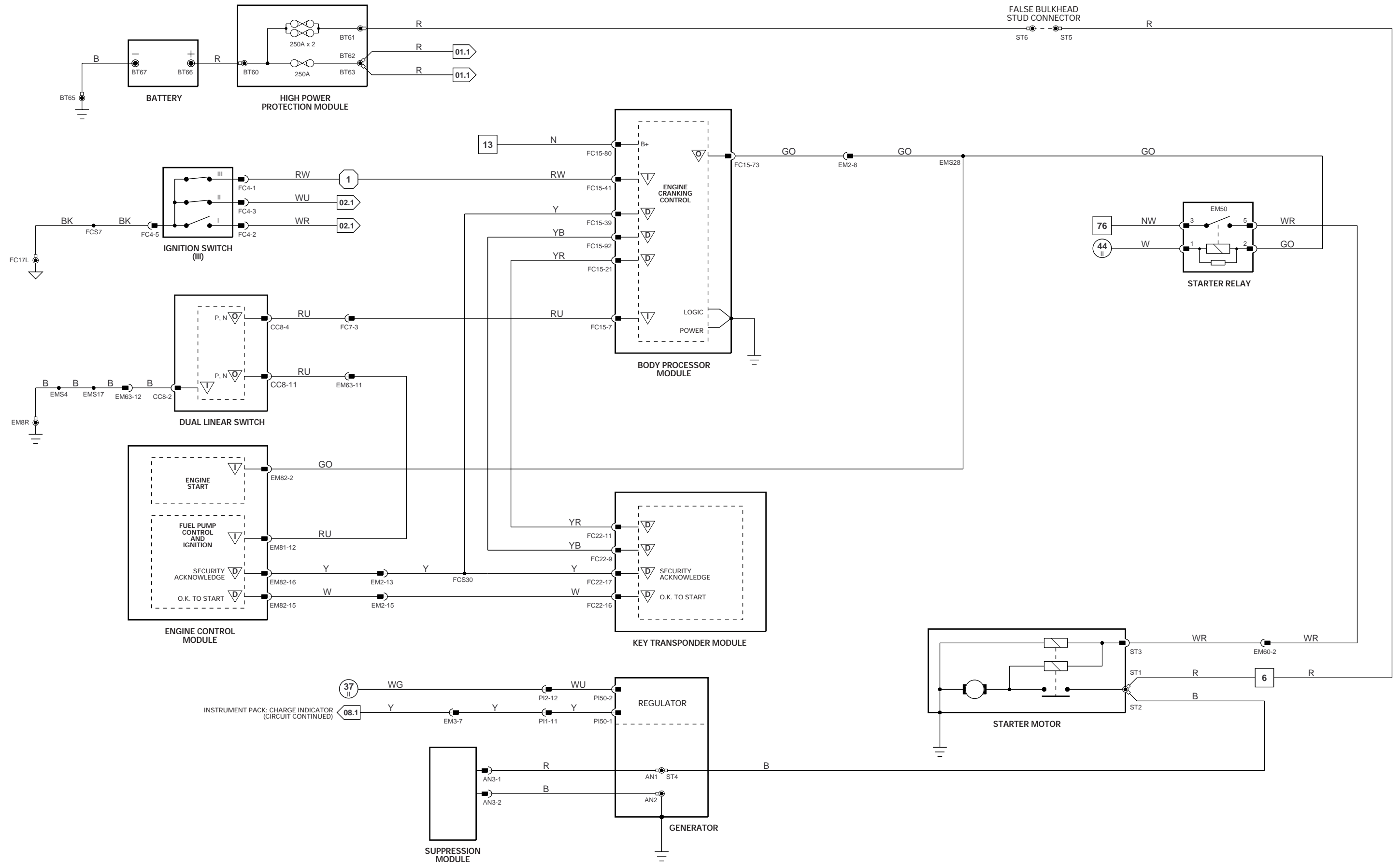
**BPM** NOTE: Body Processor Module appears in numerous figures.



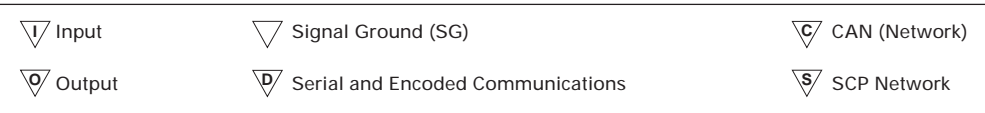
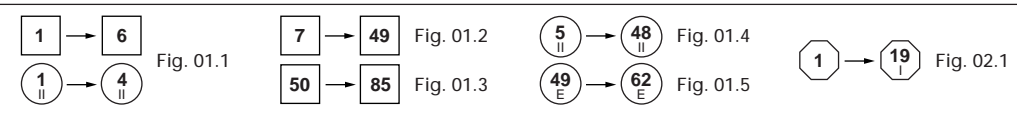
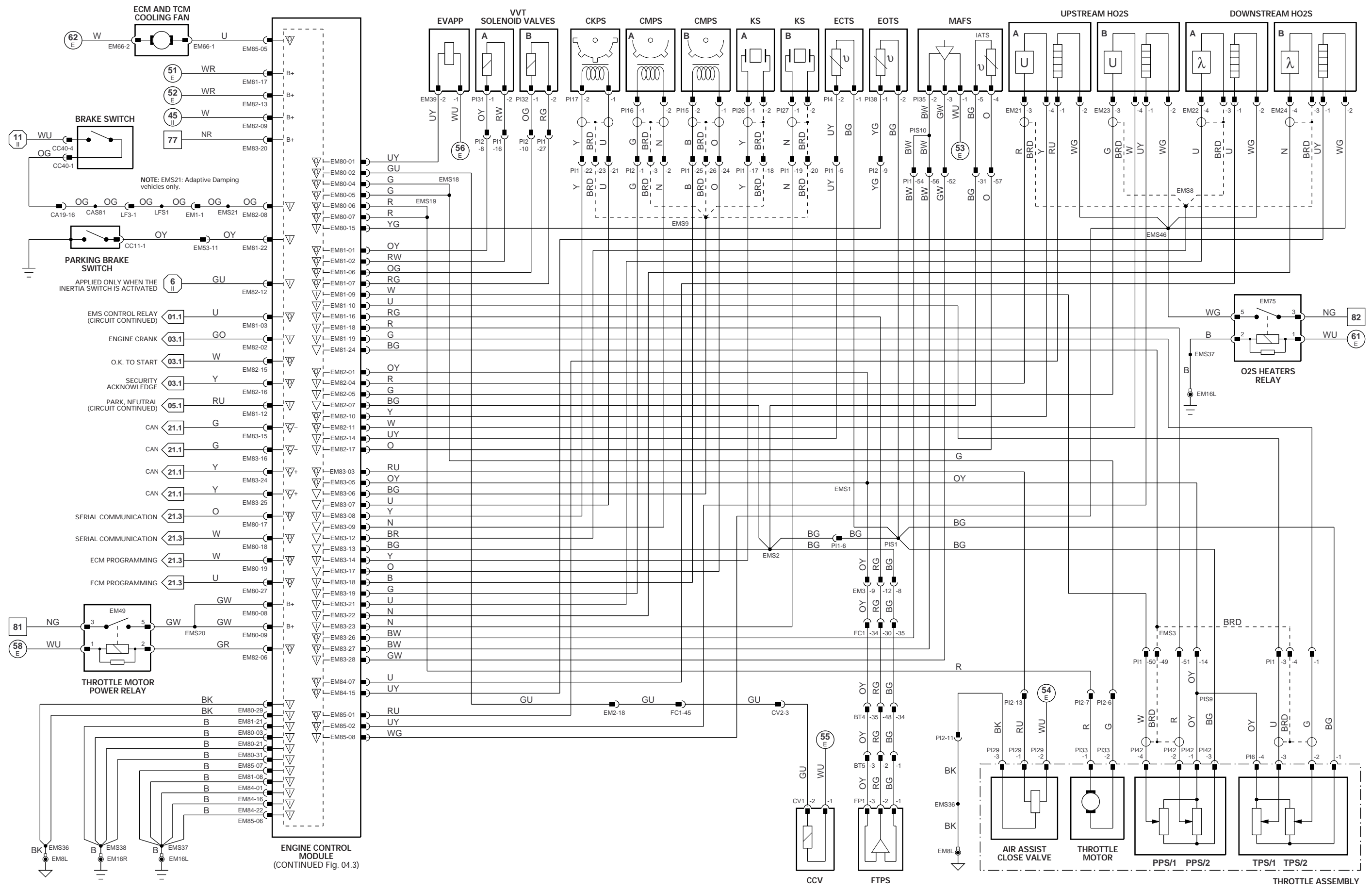
VARIANT: All Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



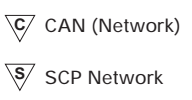
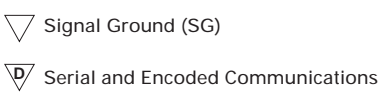
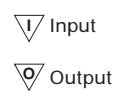
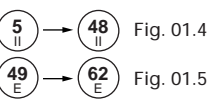
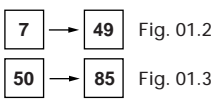
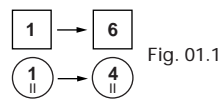
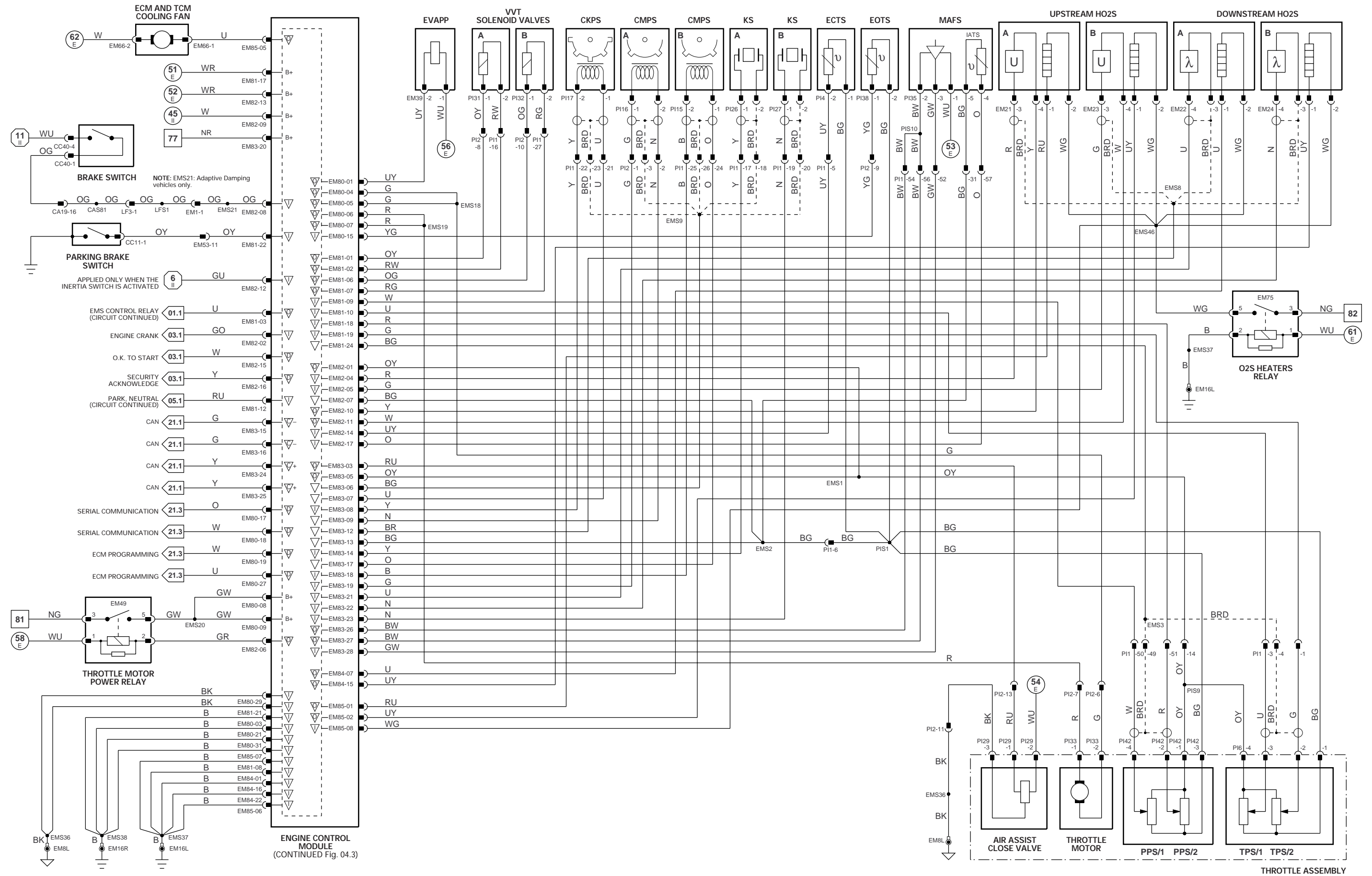
VARIANT: AJ27 N/A Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



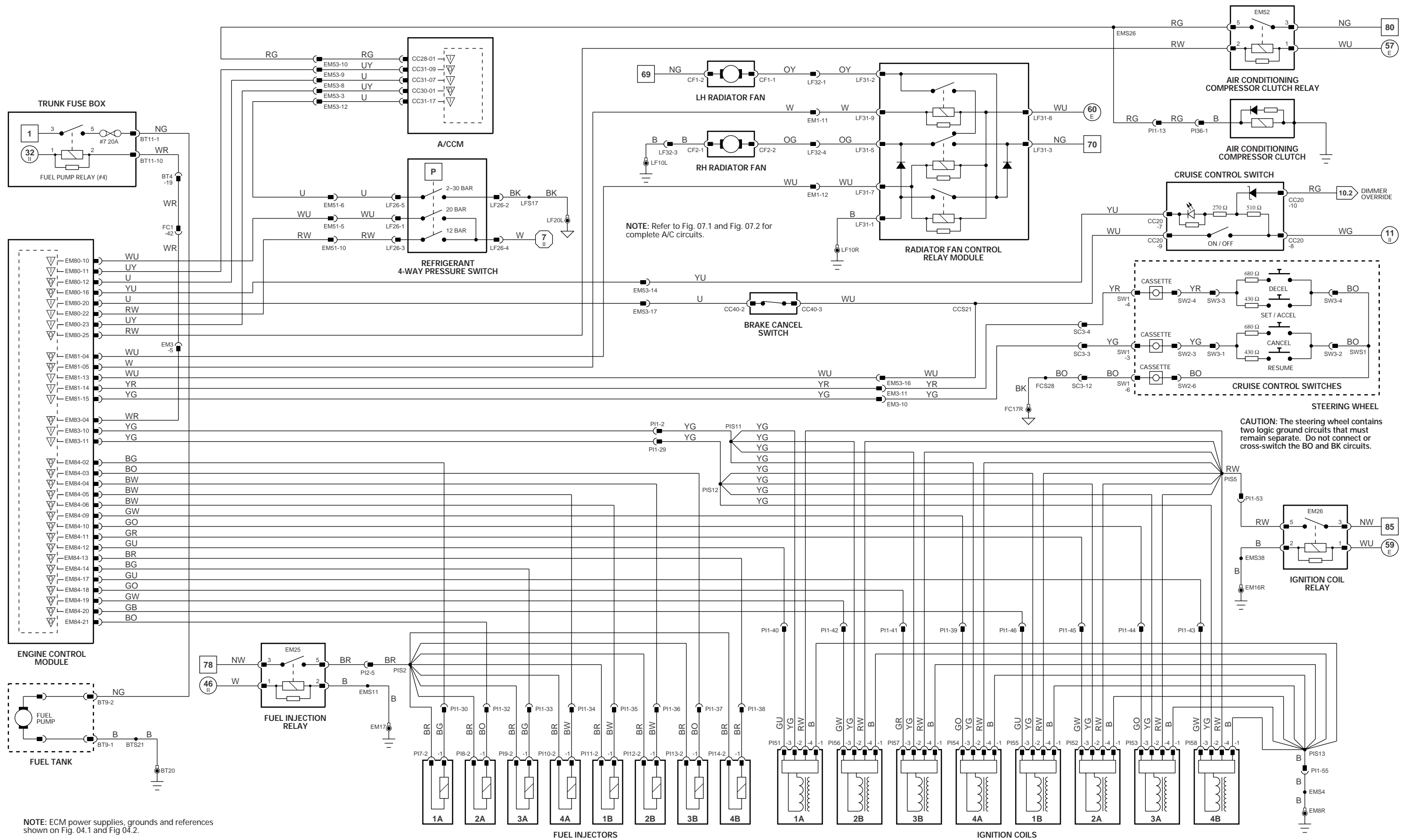
VARIANT: AJ27 SC Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



VARIANT: AJ27 4.0 N/A NAS Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



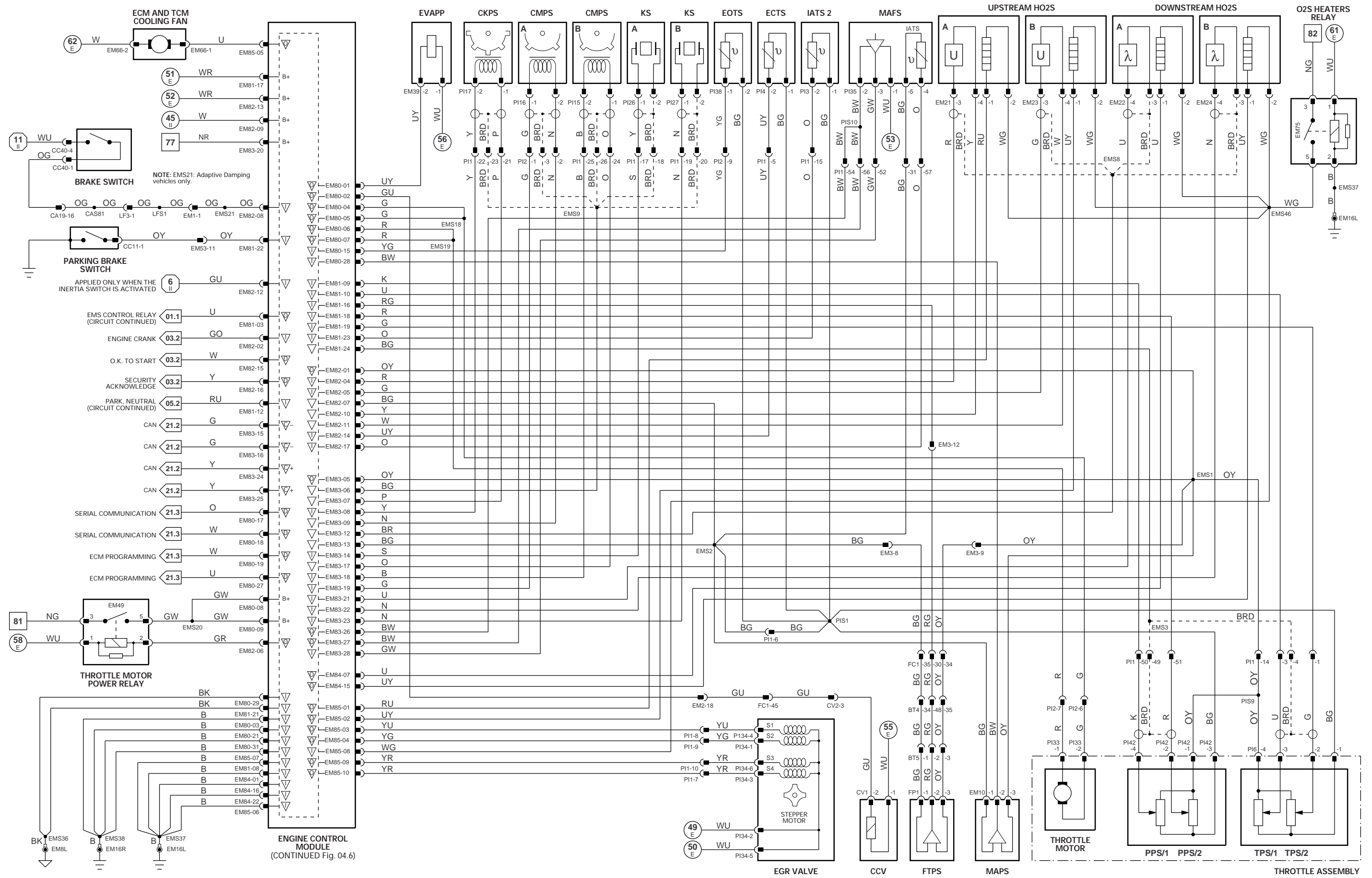
VARIANT: AJ27 4.0 and 3.2 N/A ROW Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999



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

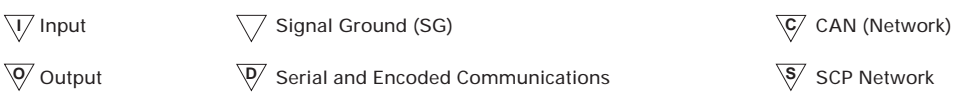
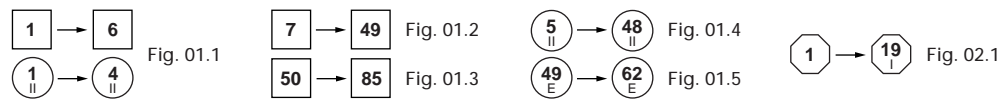
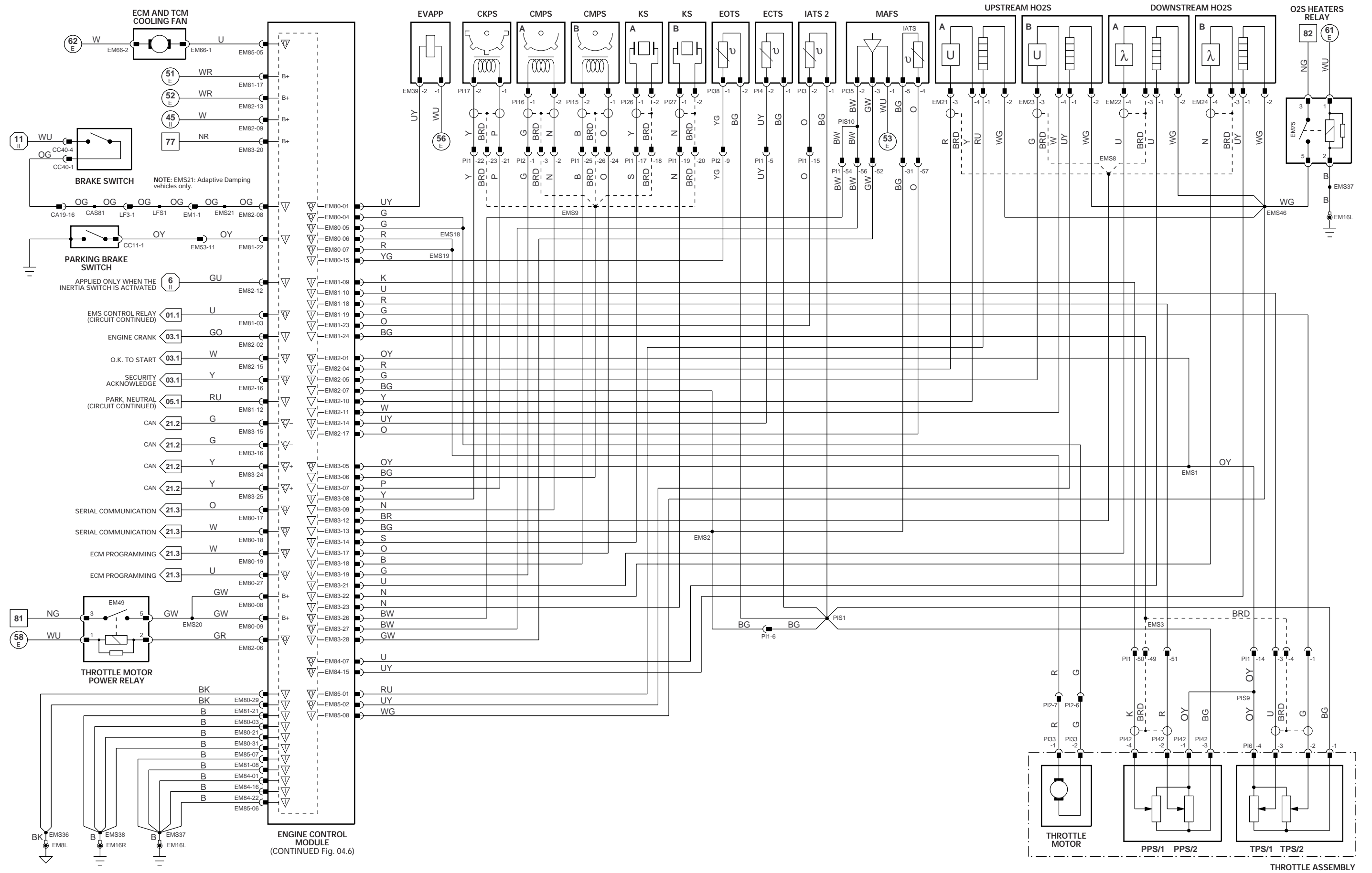
CAUTION: The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

Fig. 01.1 Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Output	Signal Ground (SG) Serial and Encoded Communications	CAN (Network) SCP Network	<p>VARIANT: AJ27 4.0 and 3.2 N/A Vehicles          VIN RANGE: F00103 →          DATE OF ISSUE: October 1999</p>
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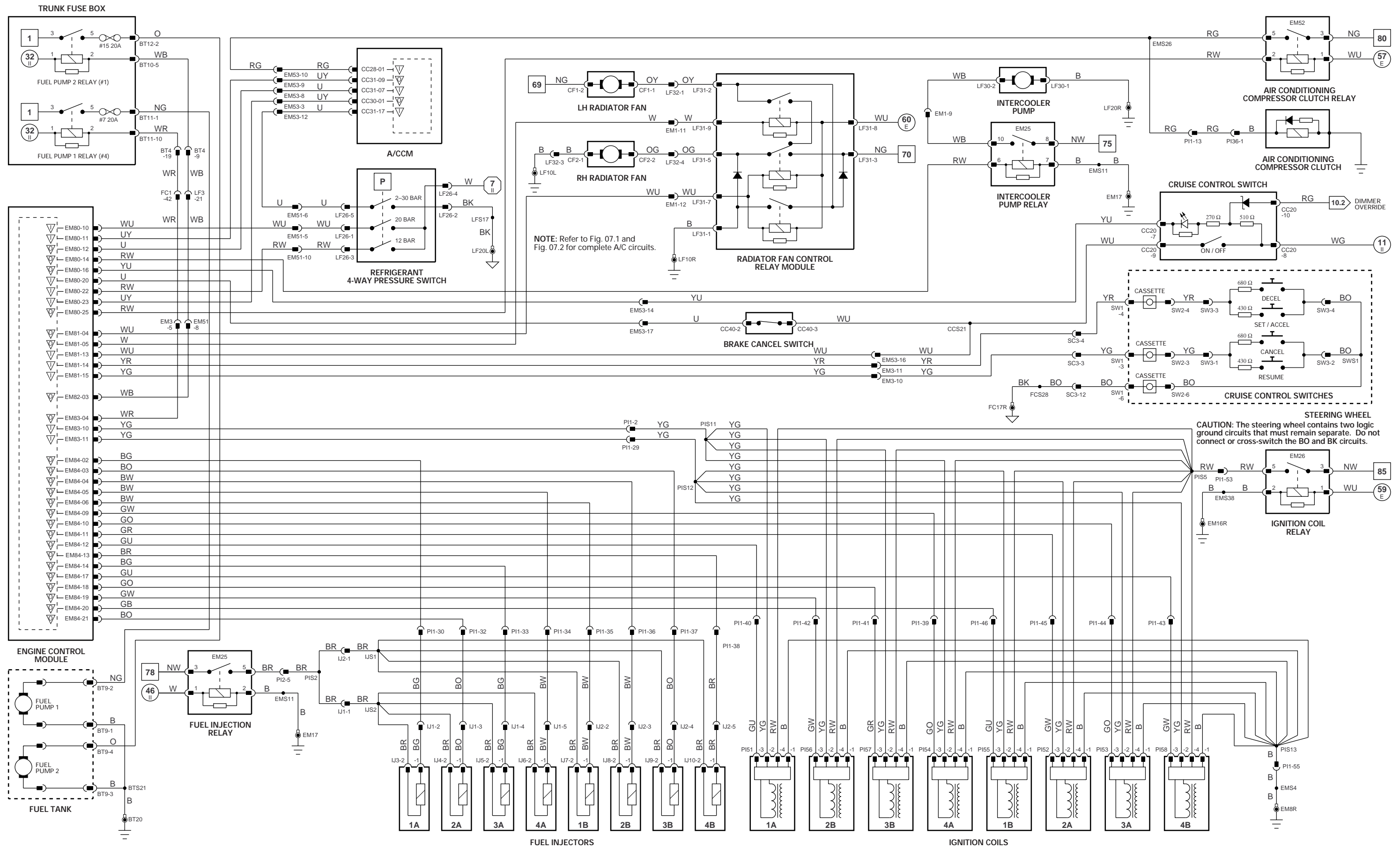


VARIANT: AJ27 4.0 SC NAS Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999





VARIANT: AJ27 4.0 SC ROW Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



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

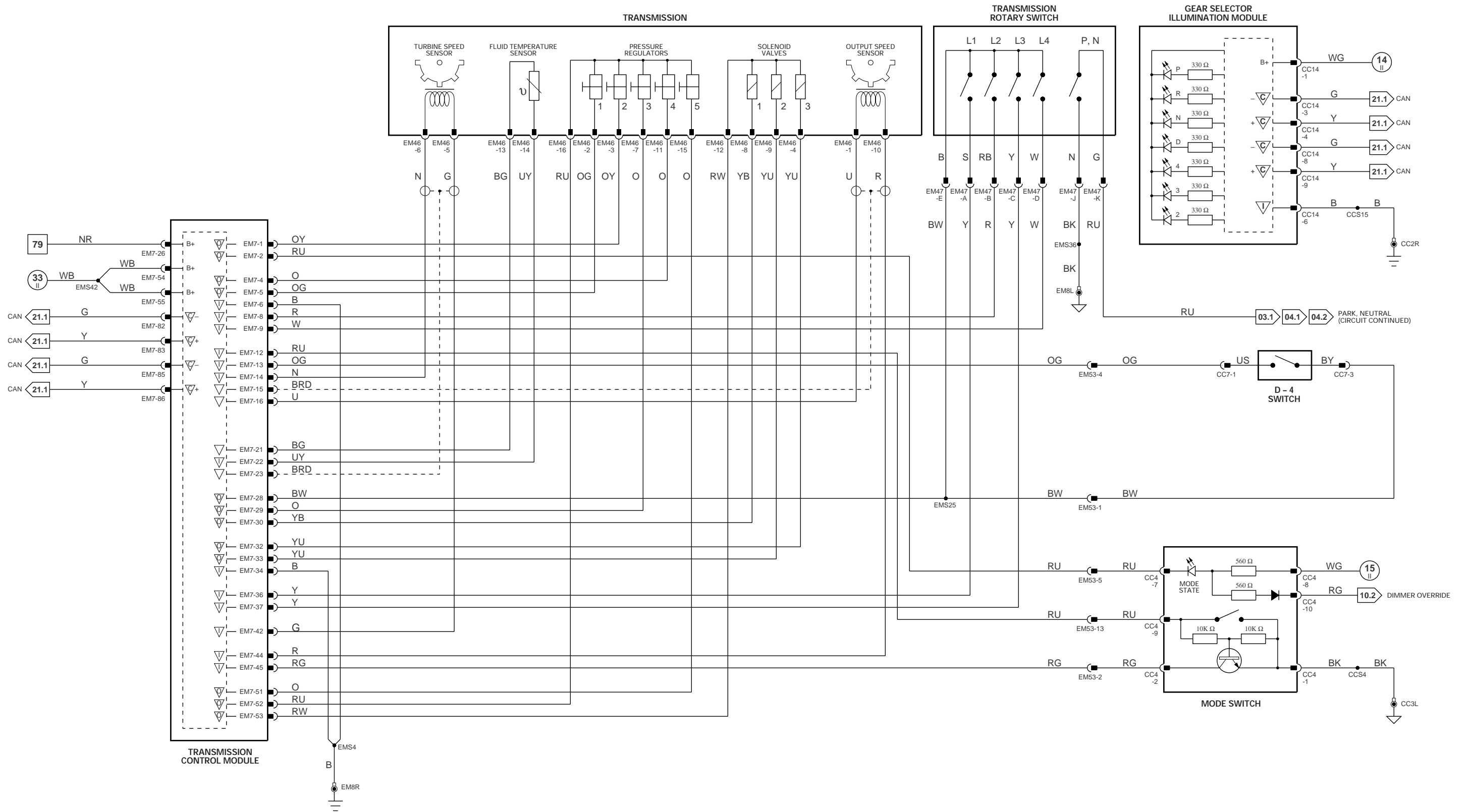
CAUTION: The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

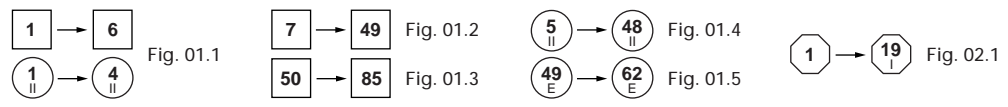
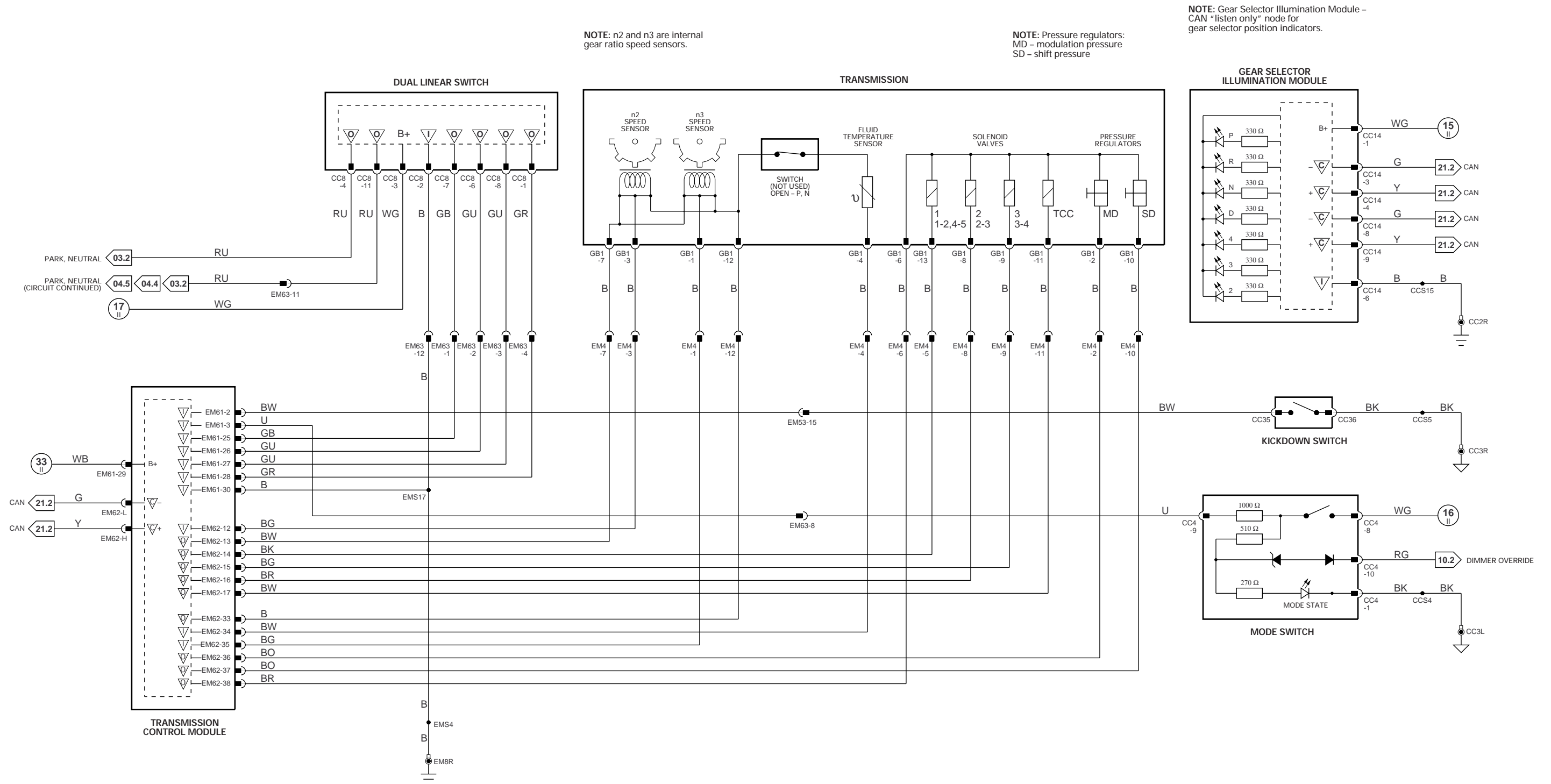
NOTE: ECM power supplies, grounds and references shown on Fig. 04.4 and Fig 04.5.

Input Output	Signal Ground (SG) Serial and Encoded Communications	CAN (Network) SCP Network	VARIANT: AJ27 4.0 SC Vehicles VIN RANGE: F00103 DATE OF ISSUE: October 1999
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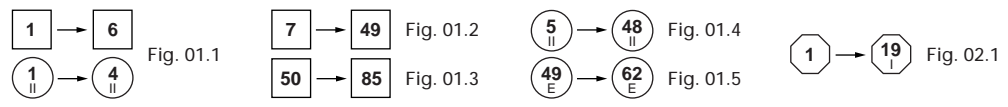
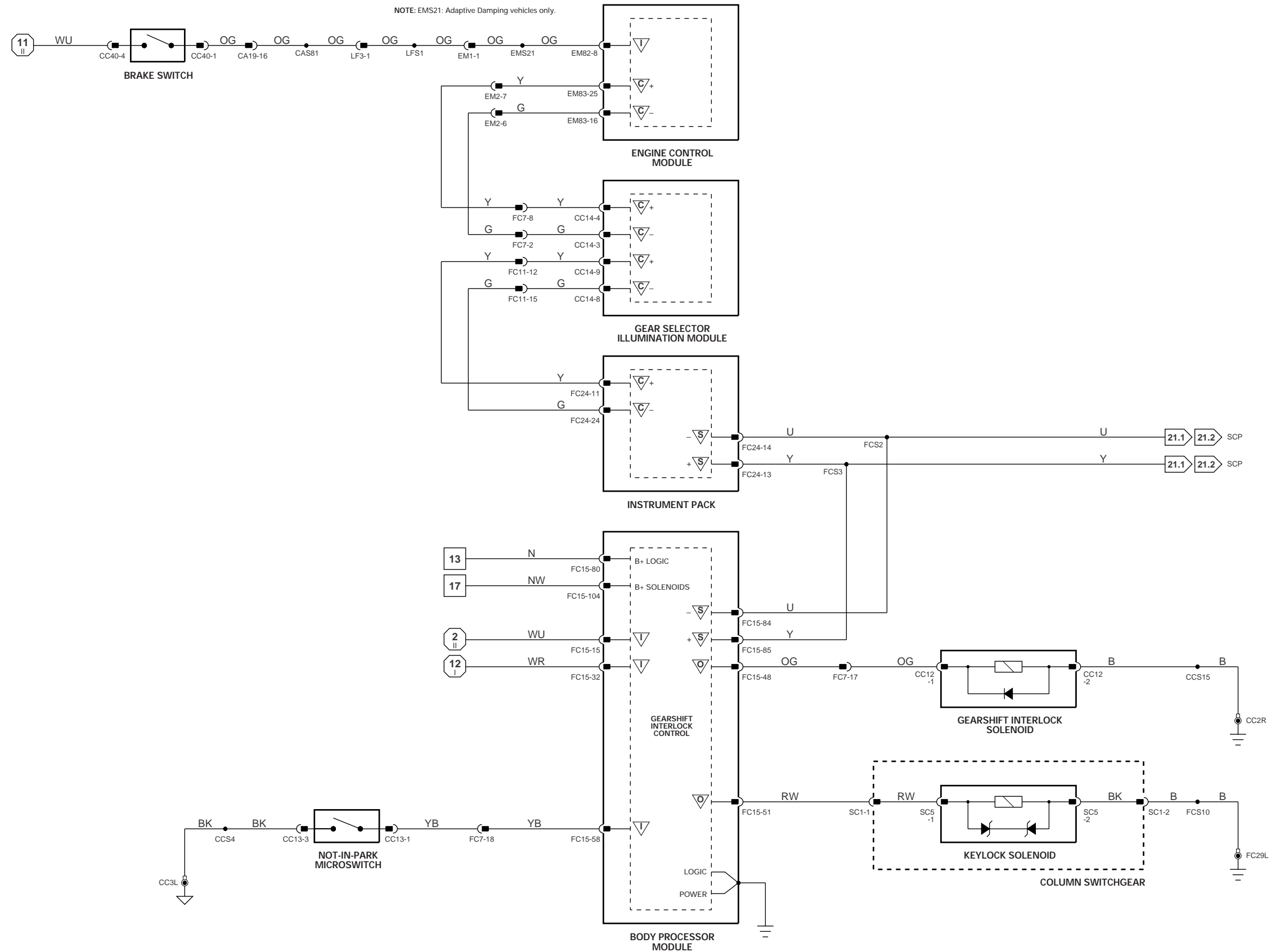


NOTE: Gear Selector Illumination Module - CAN "listen only" node for gear selector position indicators.

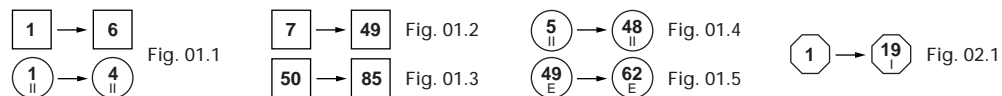
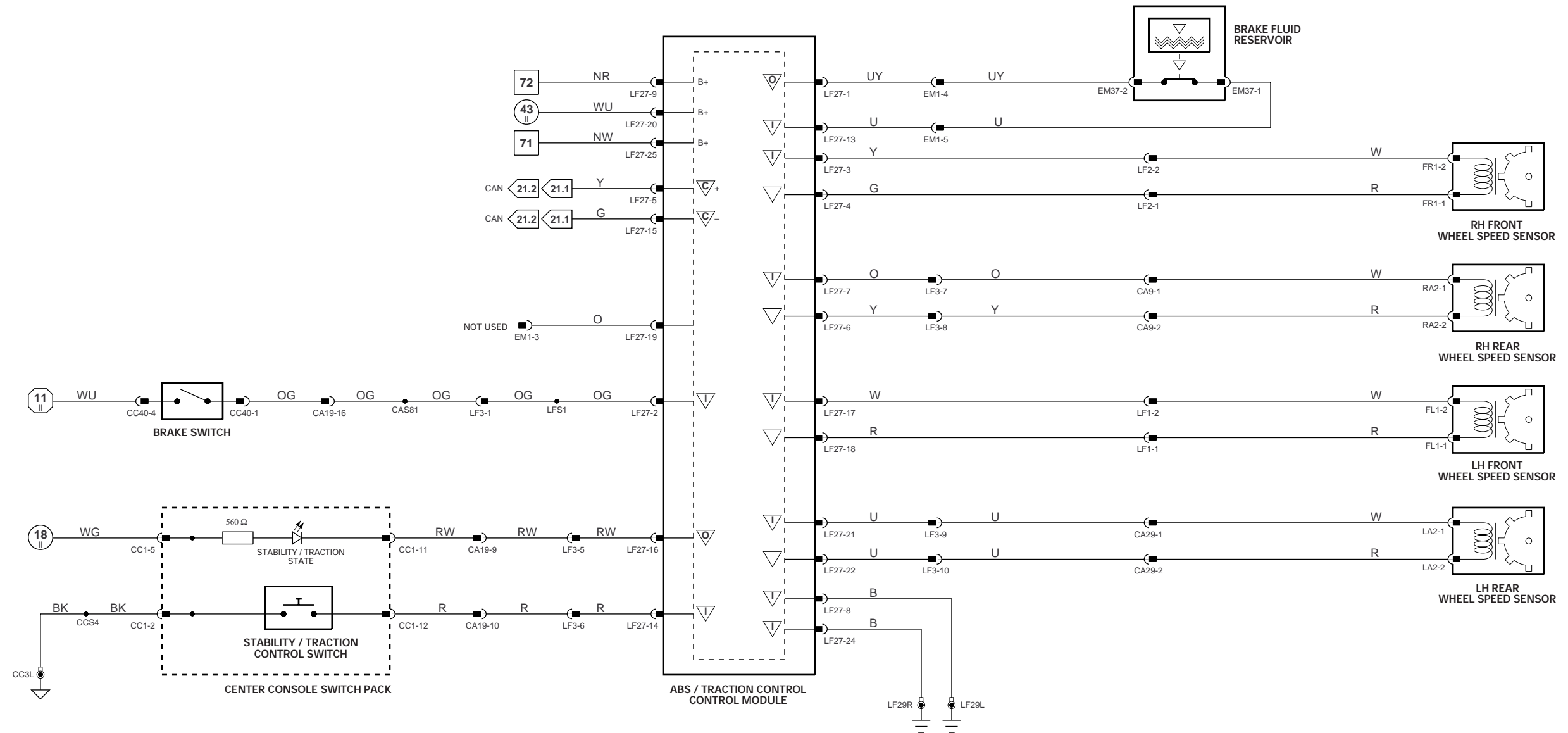




VARIANT: AJ27 SC Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999

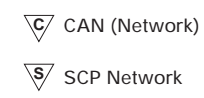
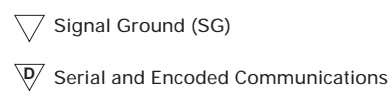
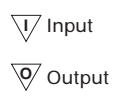
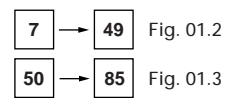
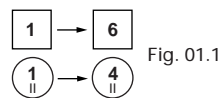
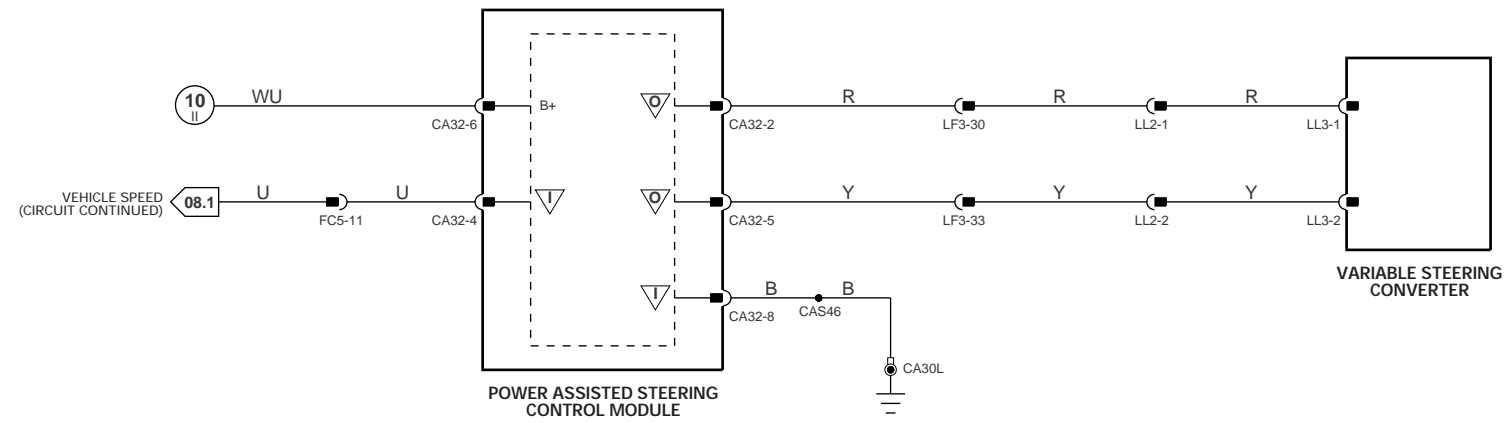


VARIANT: All Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999

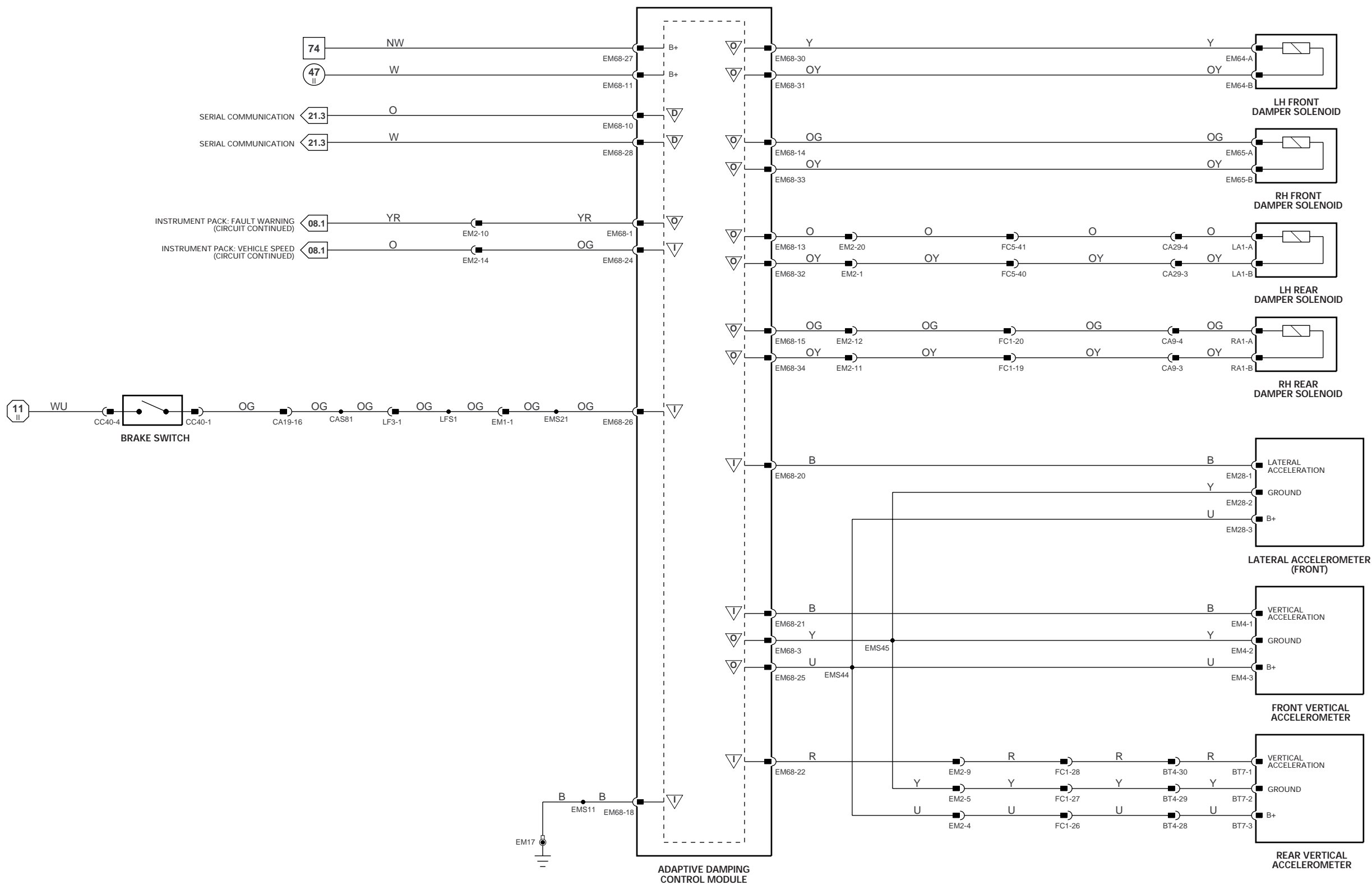


▽ Input  
 ▽ Output  
 ▽ Signal Ground (SG)  
 ▽ Serial and Encoded Communications  
 ▽ CAN (Network)  
 ▽ SCP Network

**VARIANT:** All Vehicles  
**VIN RANGE:** F00103 →  
**DATE OF ISSUE:** October 1999



VARIANT: All Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999

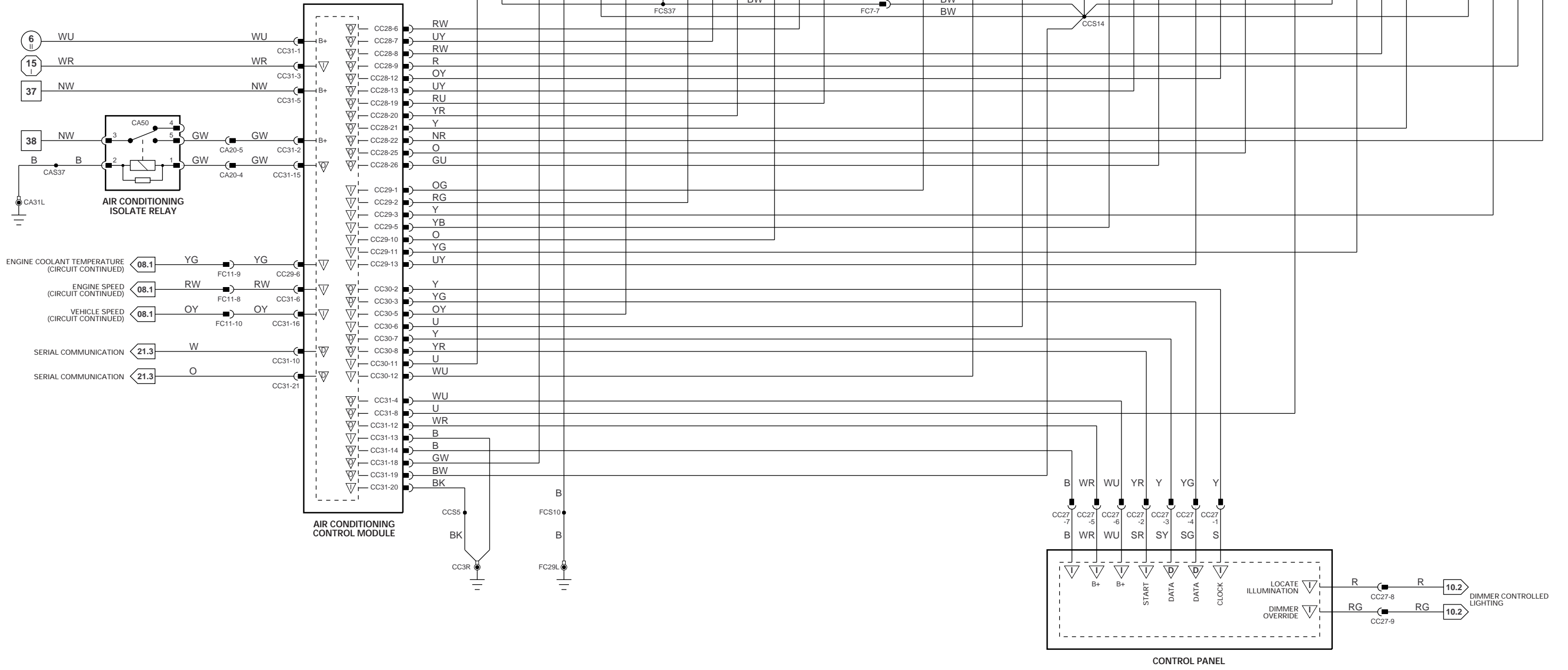
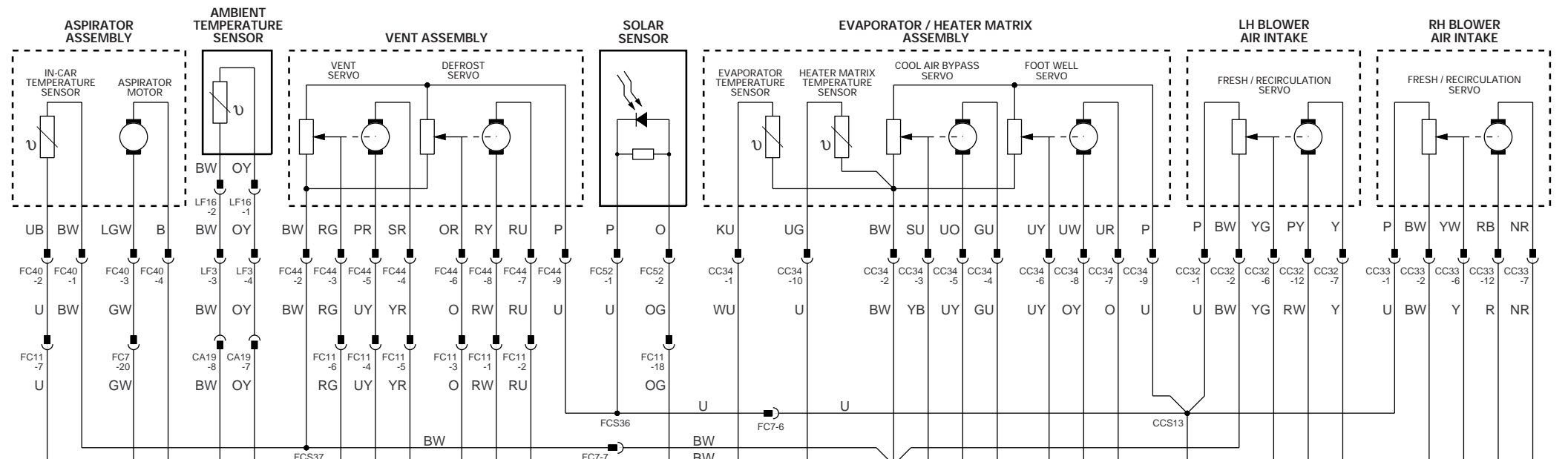


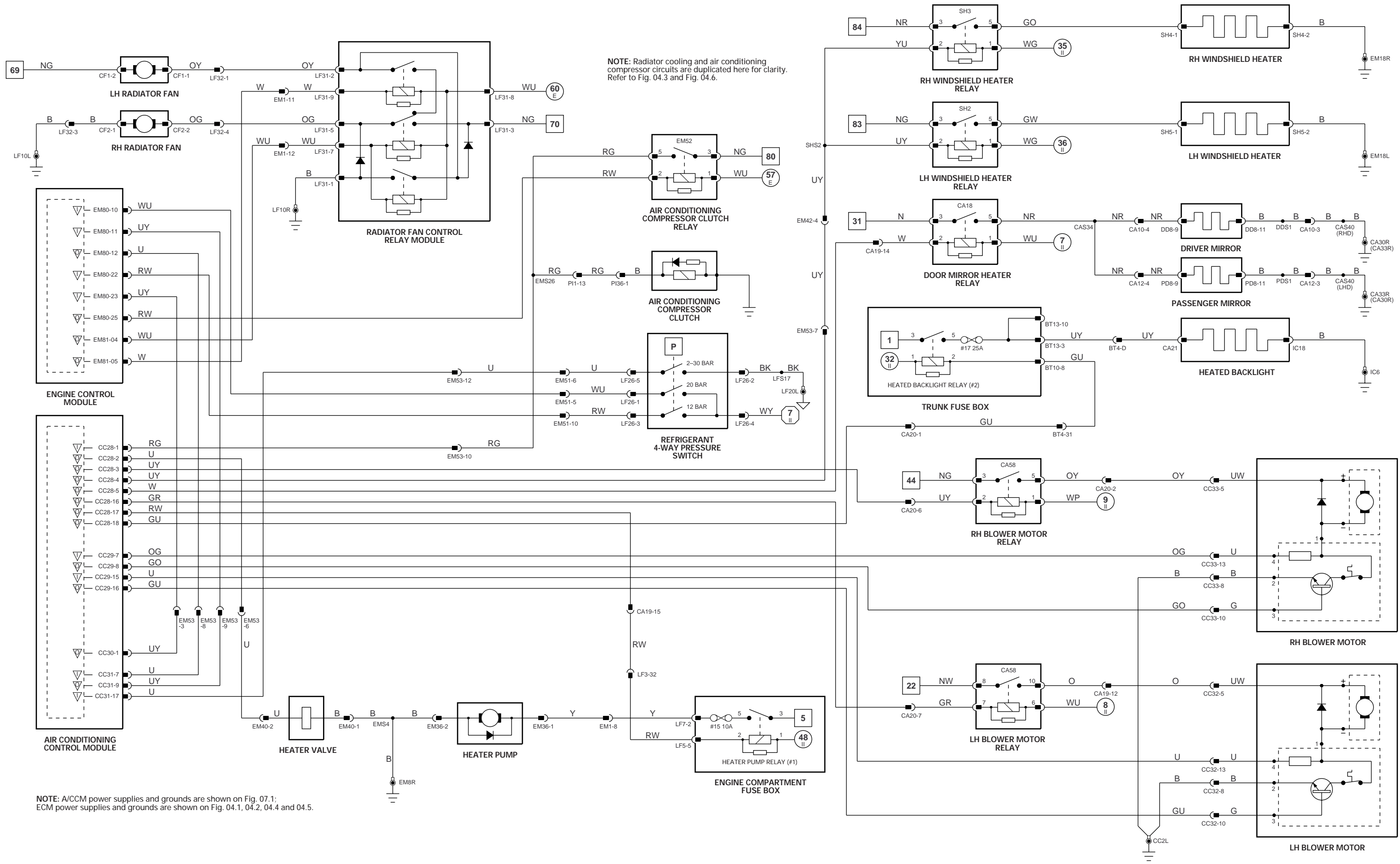




NOTE: When the ignition switched ground input is interrupted during engine cranking, the A/CCM will not drive high power consuming components.

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.

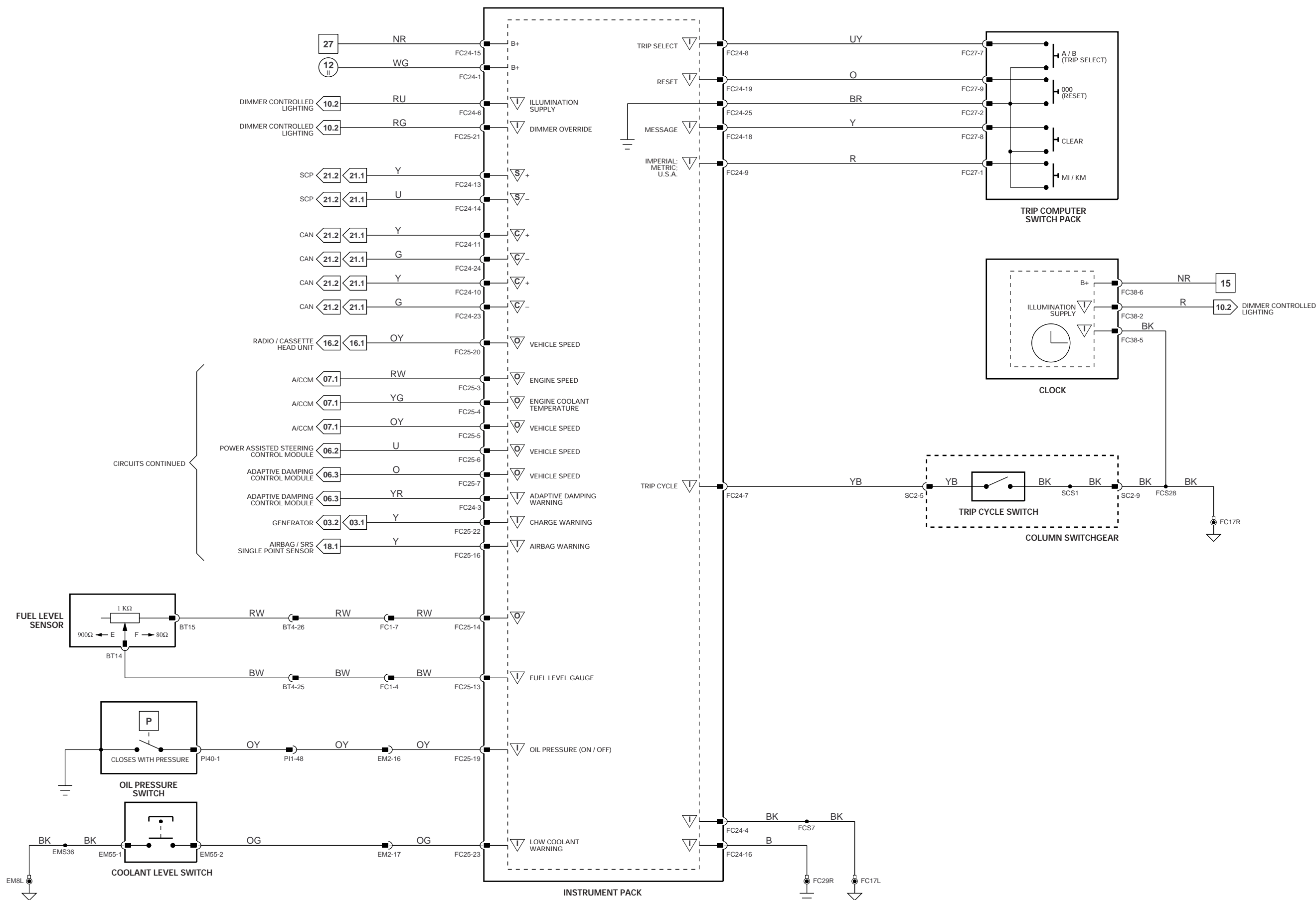




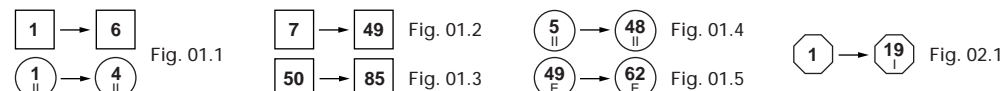
NOTE: Radiator cooling and air conditioning compressor circuits are duplicated here for clarity. Refer to Fig. 04.3 and Fig. 04.6.

NOTE: A/CCM power supplies and grounds are shown on Fig. 07.1; ECM power supplies and grounds are shown on Fig. 04.1, 04.2, 04.4 and 04.5.

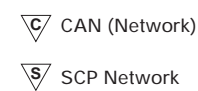
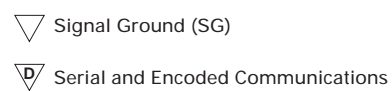
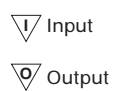
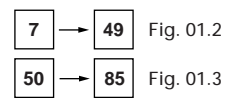
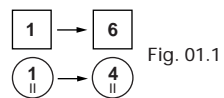
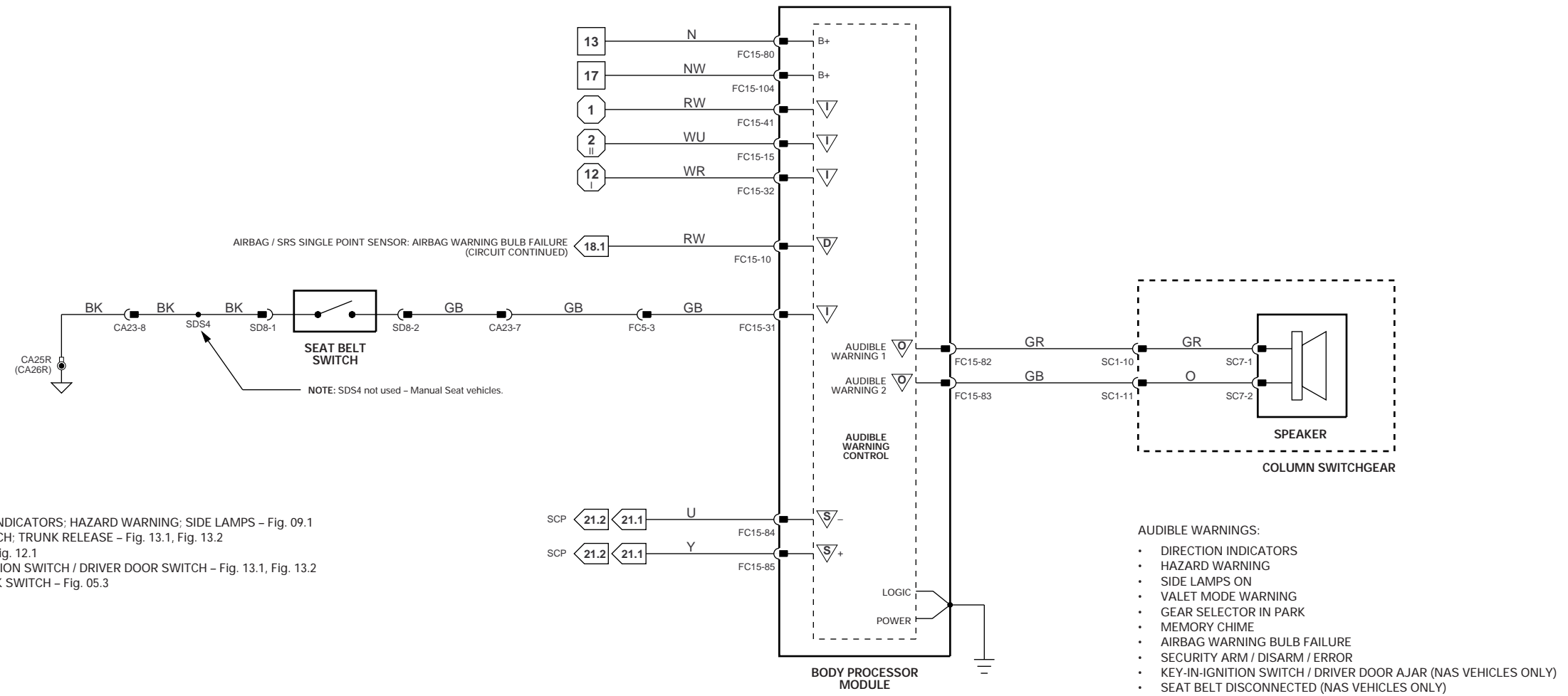
	<p>1 → 6 Fig. 01.1</p> <p>1 → 19 Fig. 02.1</p> <p>7 → 49 Fig. 01.2</p> <p>50 → 85 Fig. 01.3</p> <p>5 → 48 Fig. 01.4</p> <p>49 → 62 Fig. 01.5</p>	<p>▽ Input</p> <p>▽ Signal Ground (SG)</p> <p>▽ CAN (Network)</p> <p>▽ SCP Network</p> <p>▽ Serial and Encoded Communications</p>	<p>VARIANT: All Vehicles</p> <p>VIN RANGE: F00103 →</p> <p>DATE OF ISSUE: October 1999</p>
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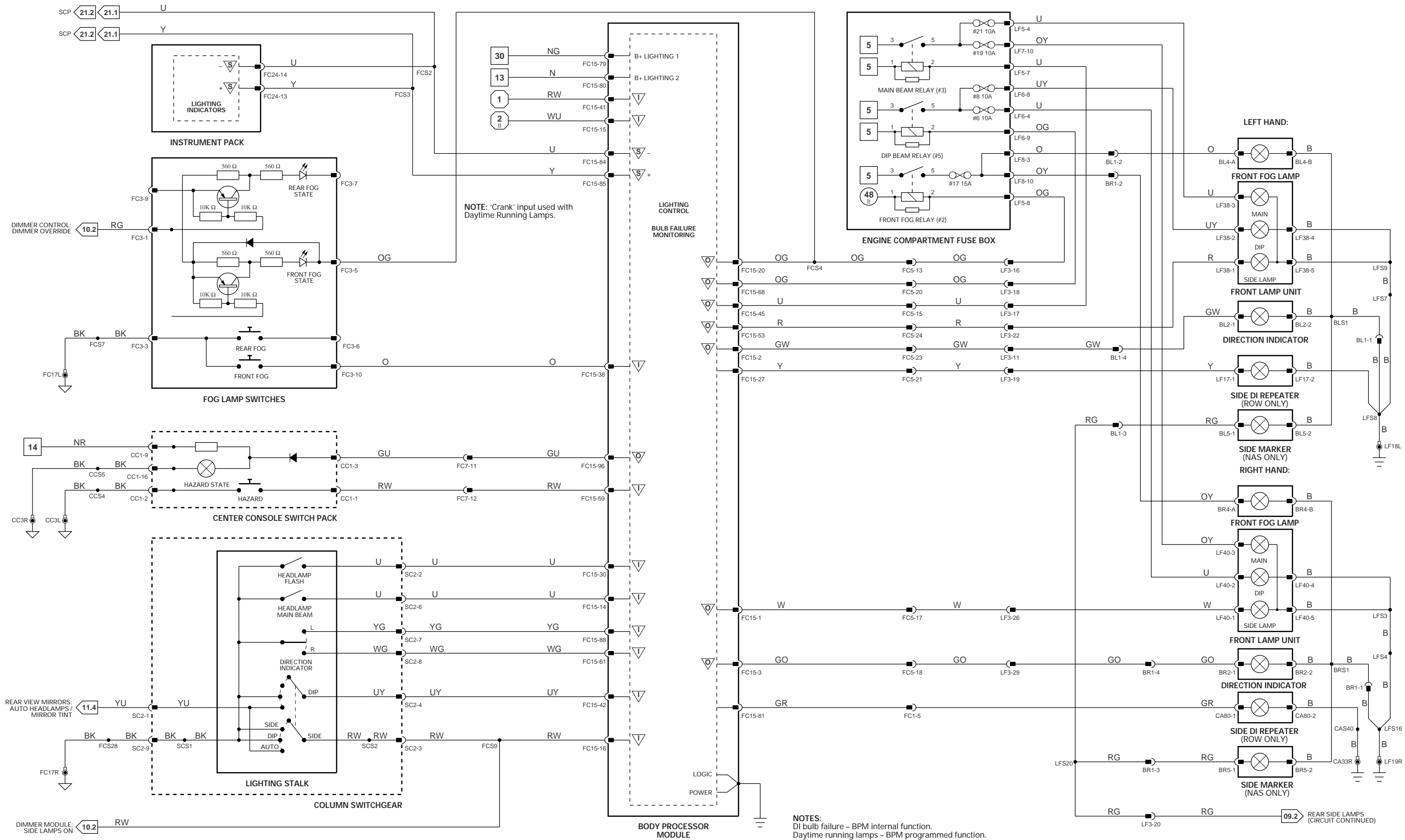
CIRCUITS CONTINUED



VARIANT: All Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999

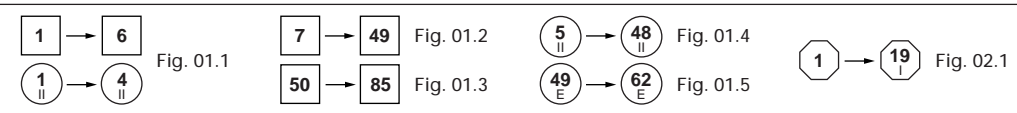


VARIANT: All Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999

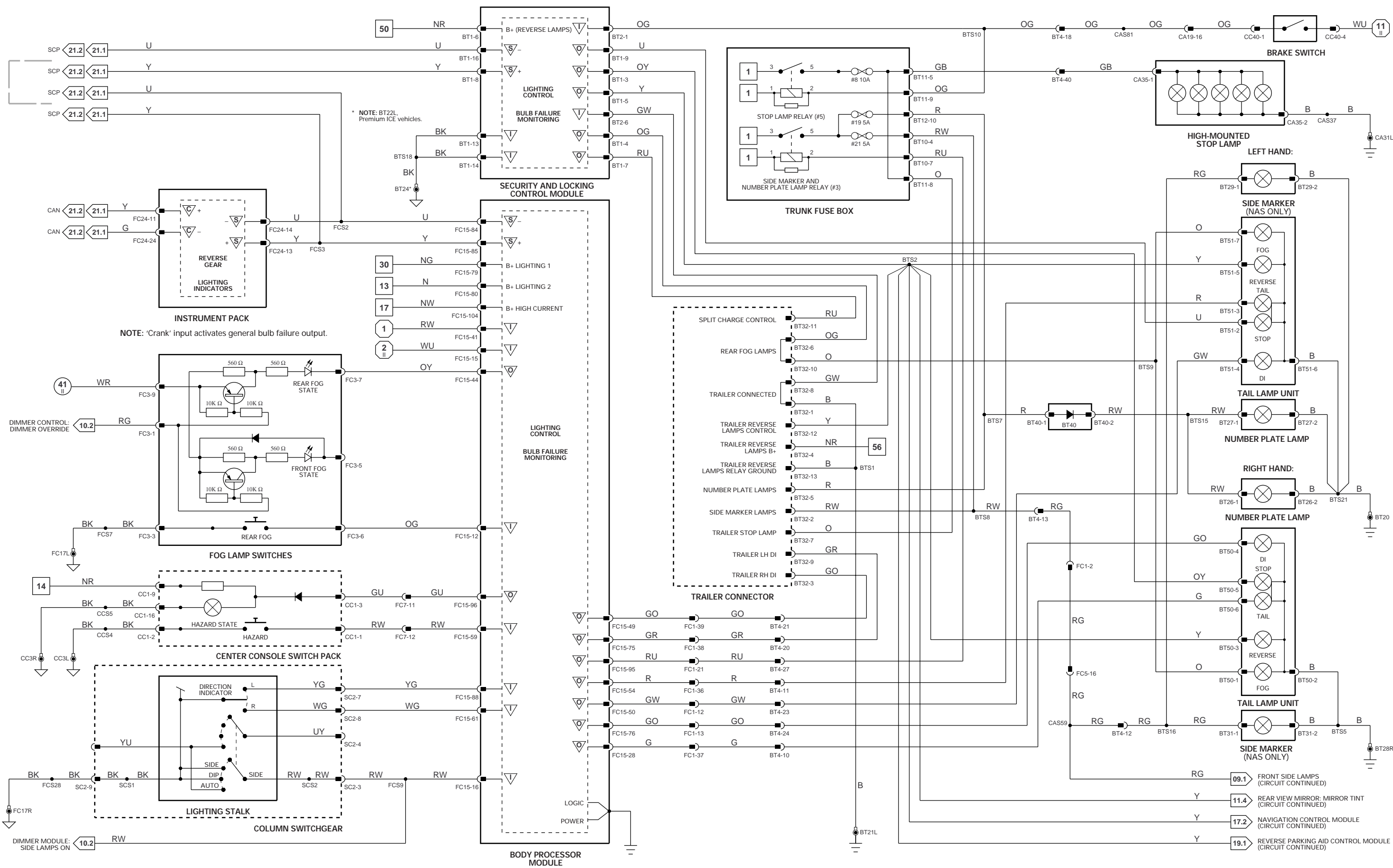


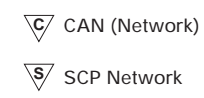
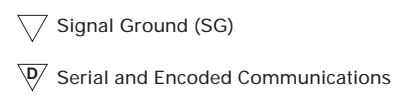
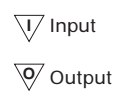
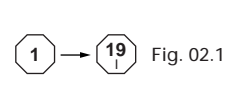
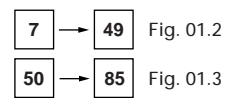
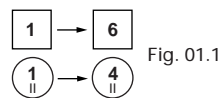
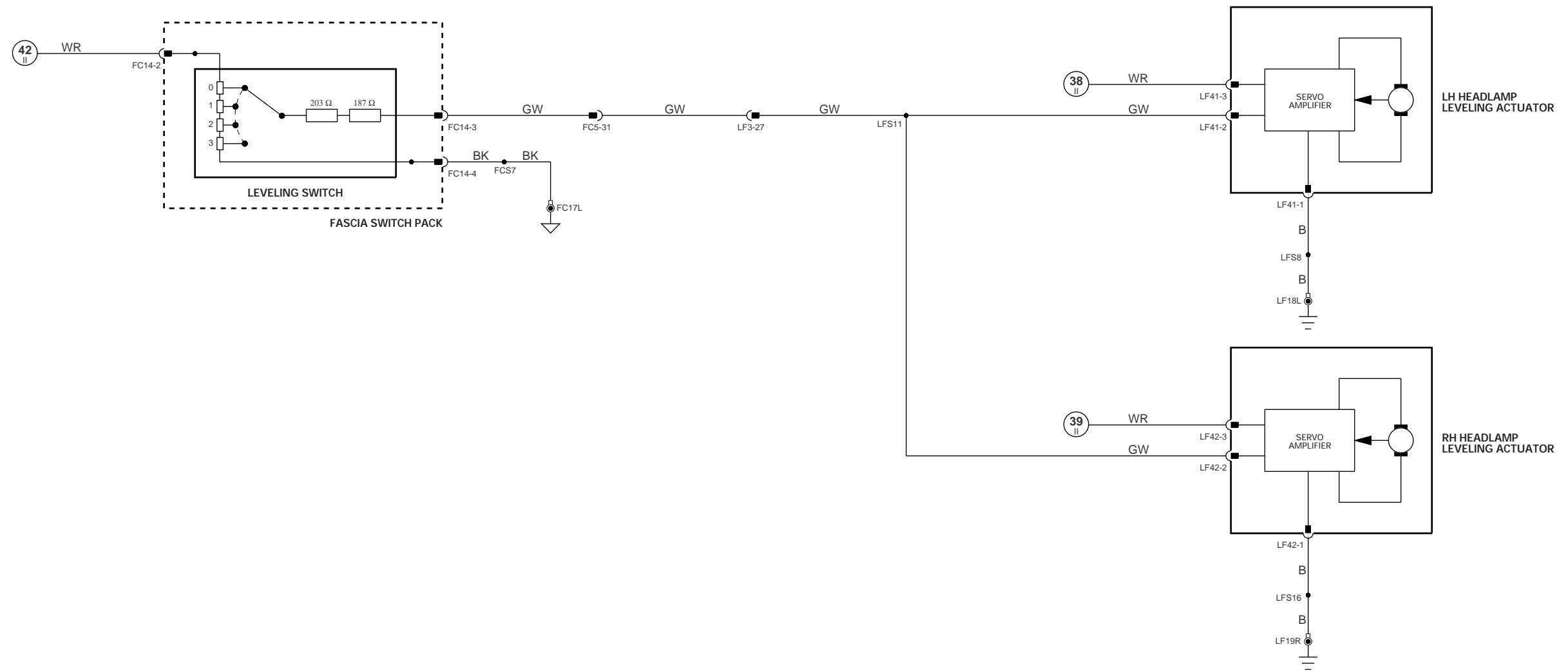
NOTE: 'Crank' input used with Daytime Running Lamps.

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



VARIANT: All Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999

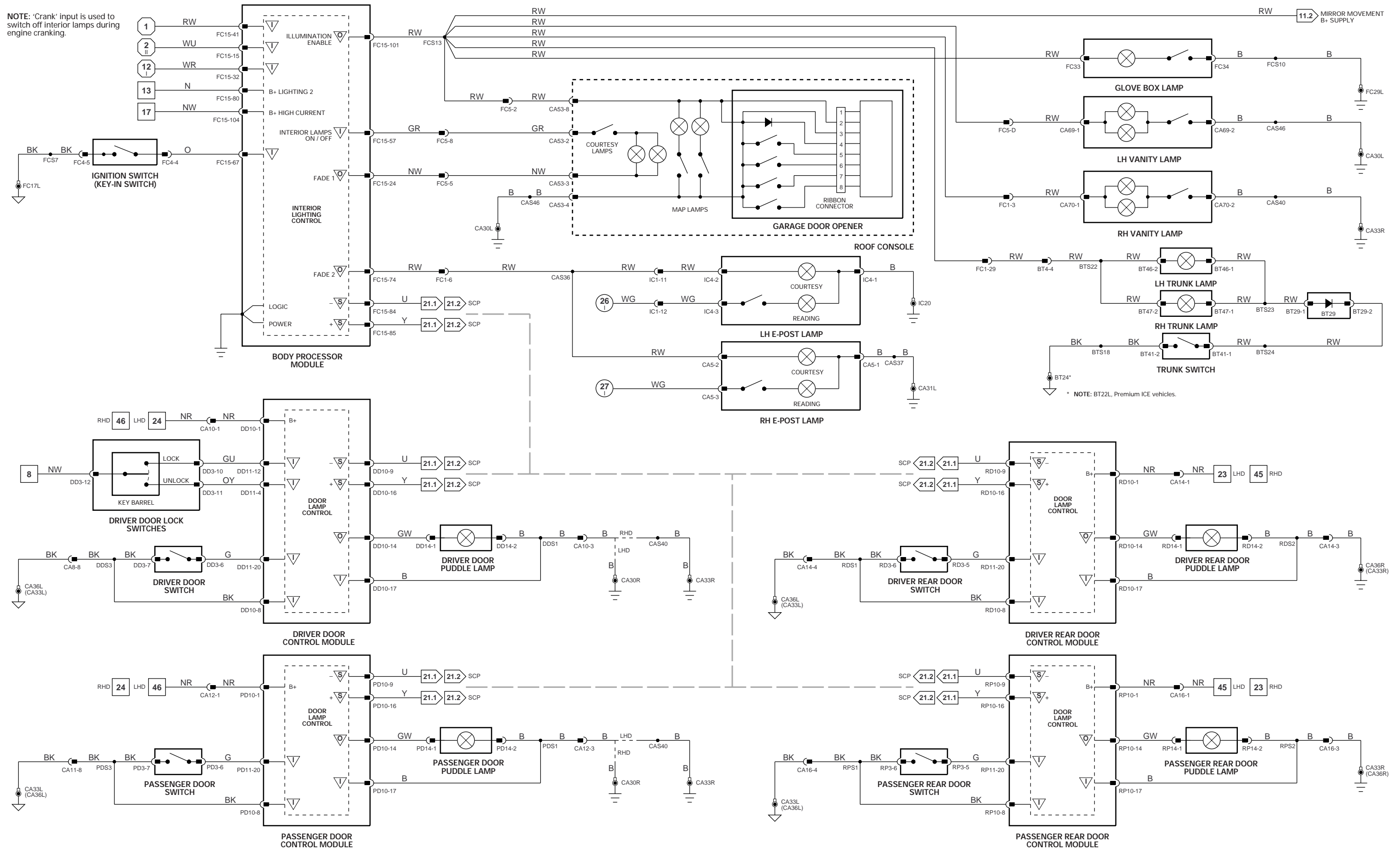




VARIANT: Headlamp Leveling Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999

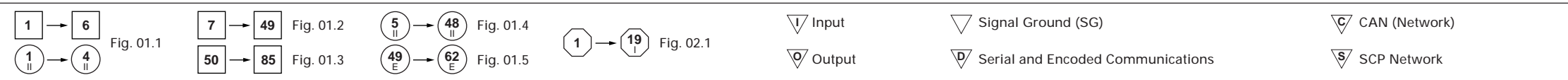
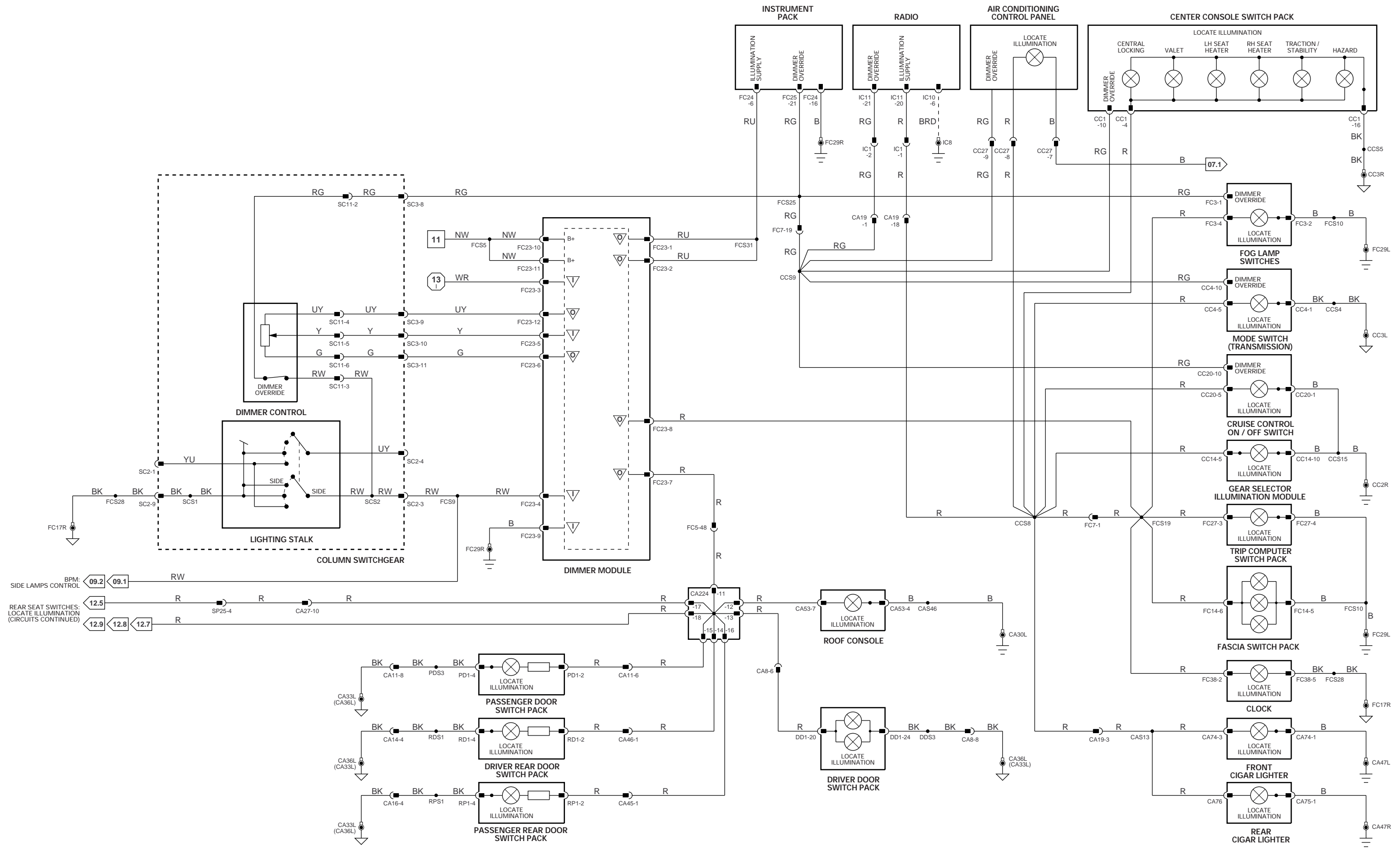


NOTE: 'Crank' input is used to switch off interior lamps during engine cranking.

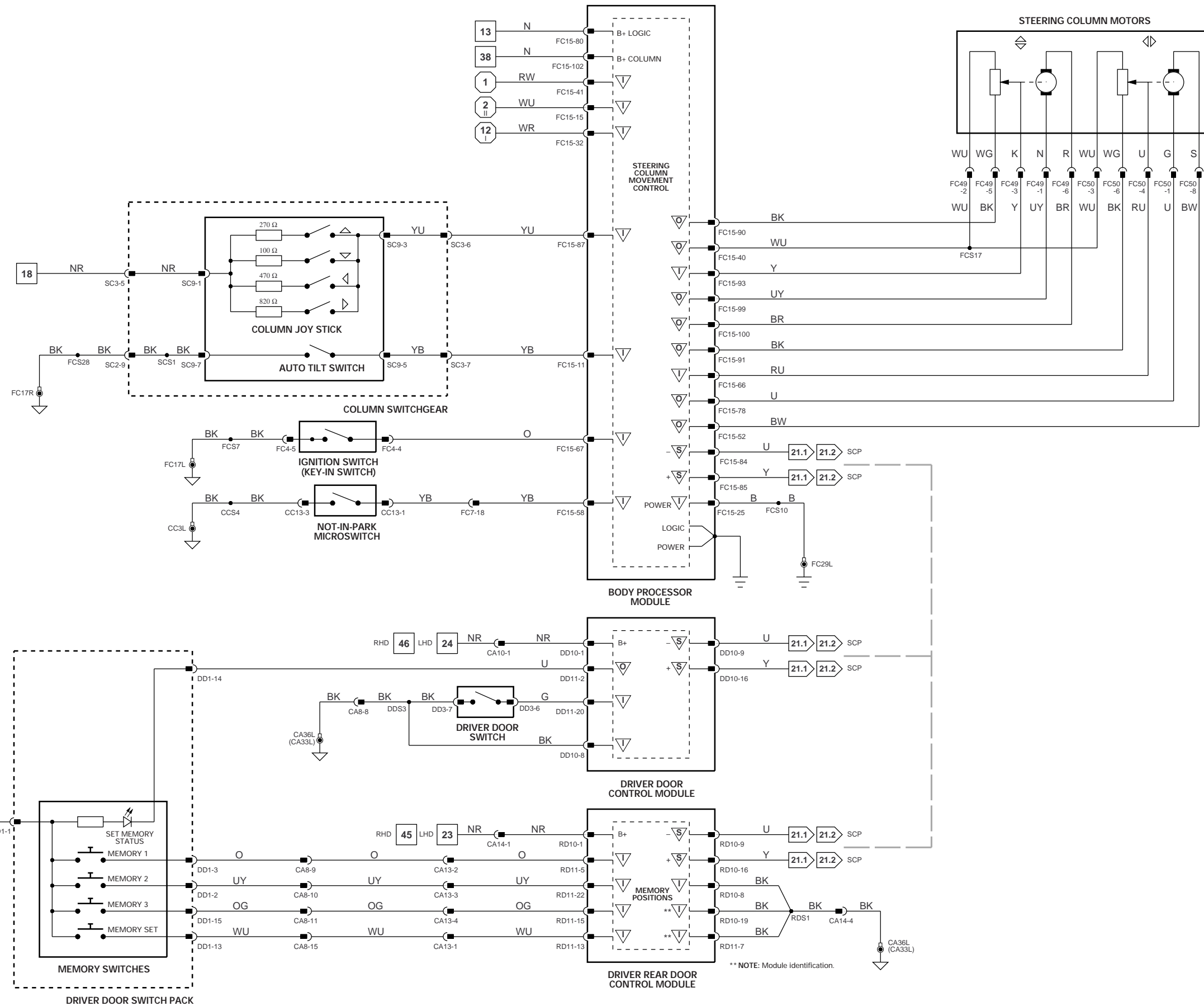


\* NOTE: BT22L. Premium ICE vehicles.

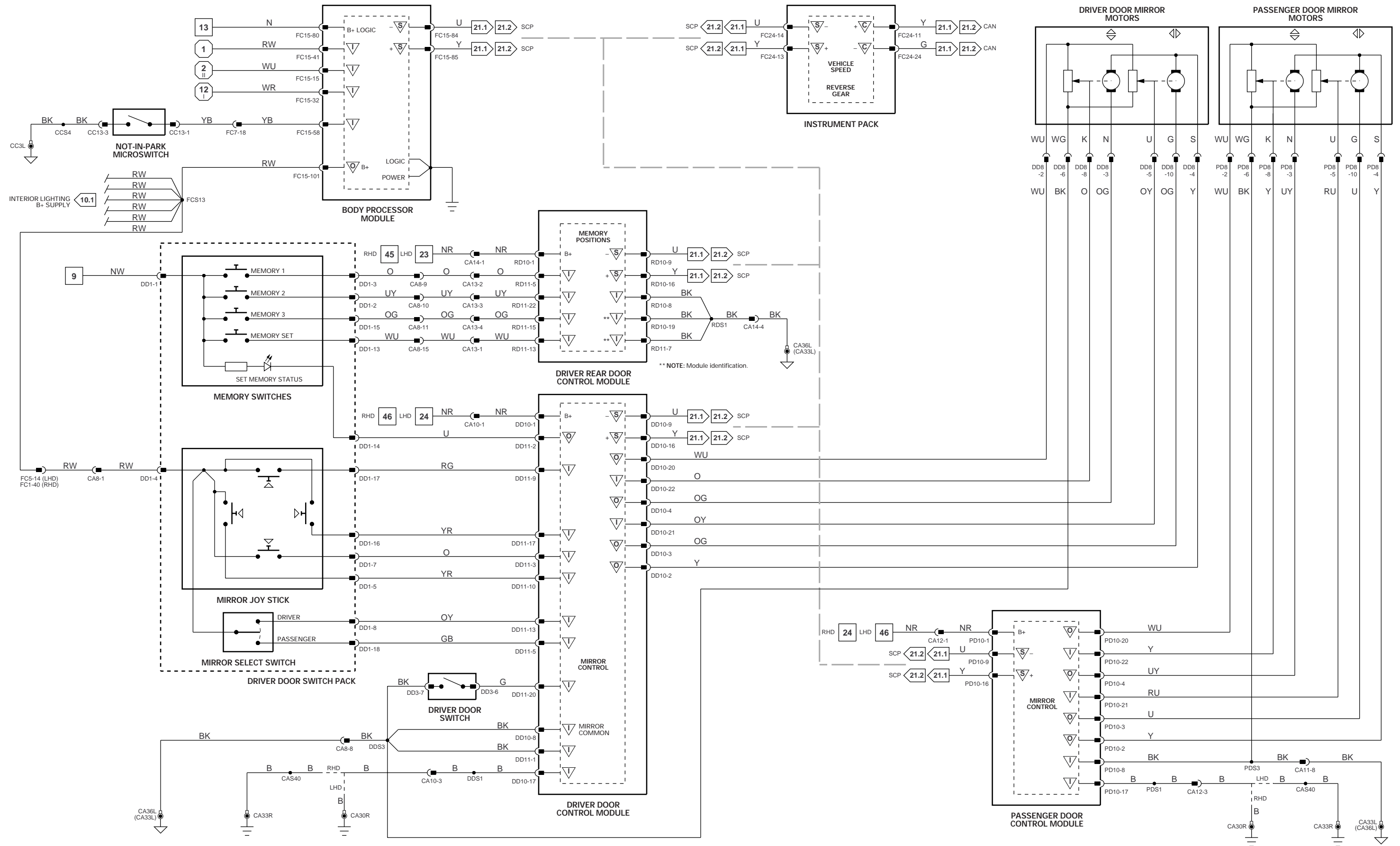


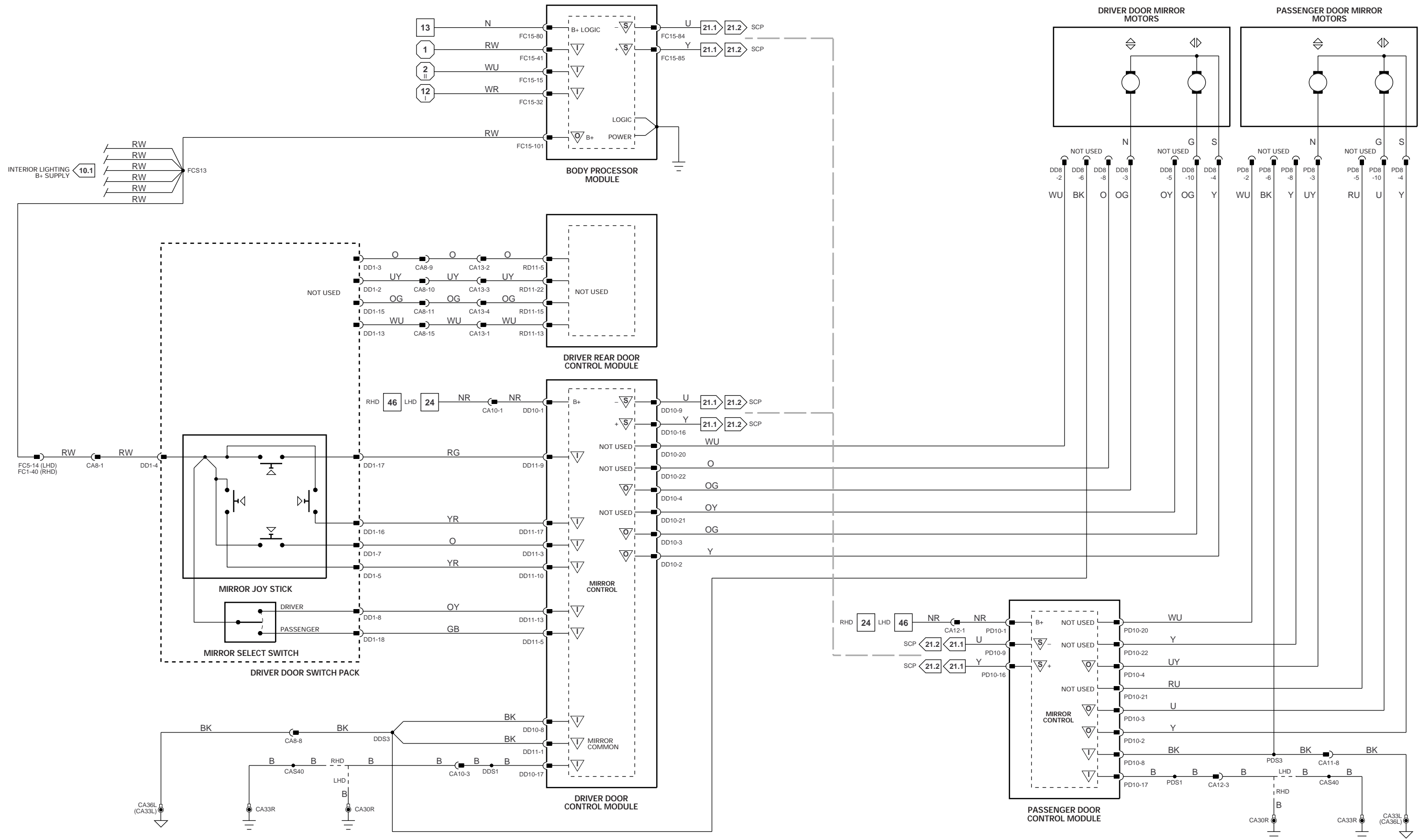


VARIANT: All Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



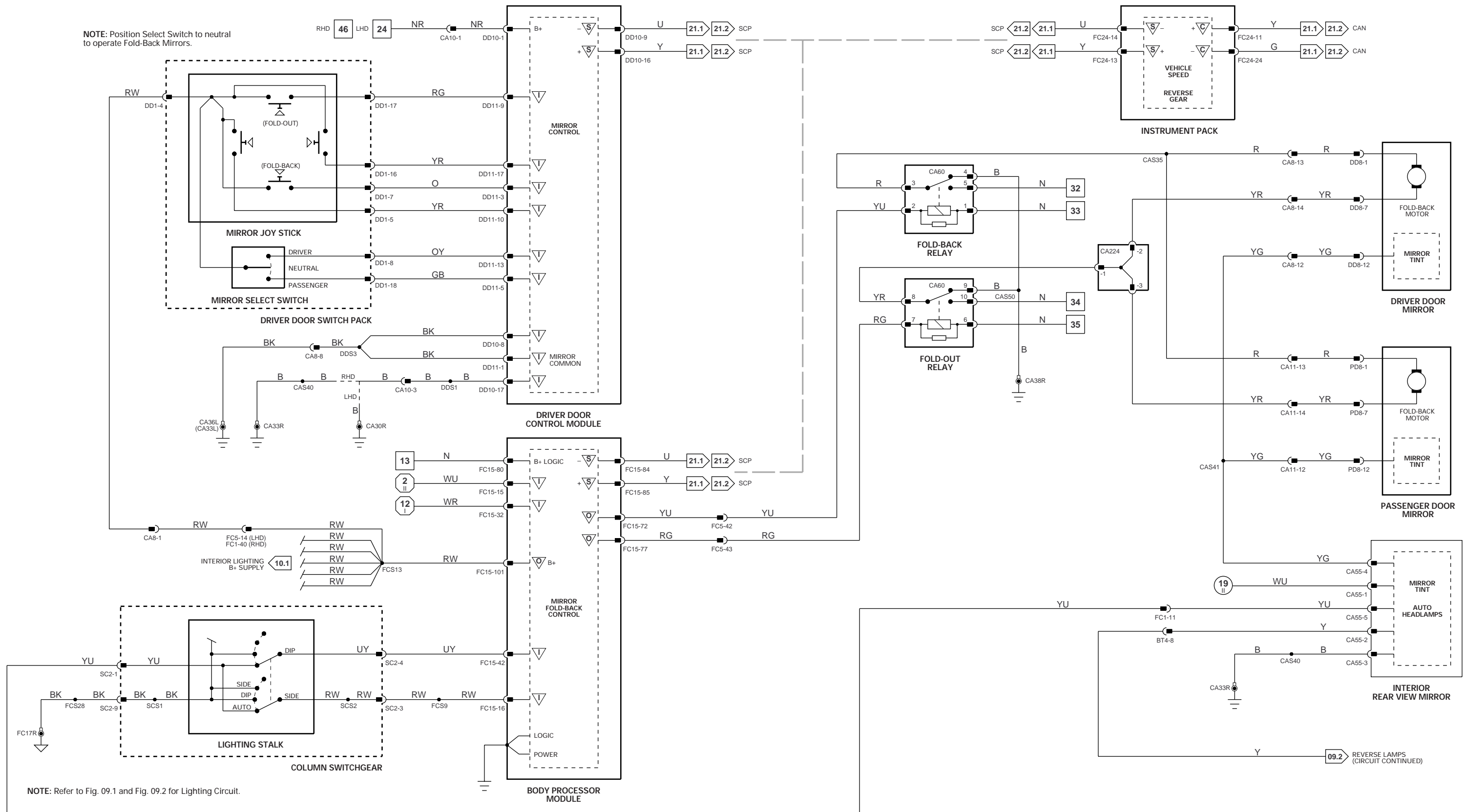
VARIANT: Powered Column Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



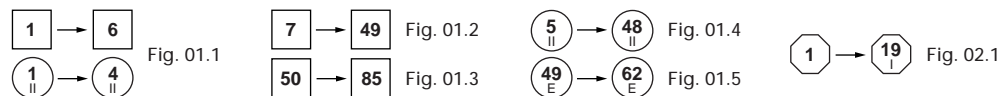




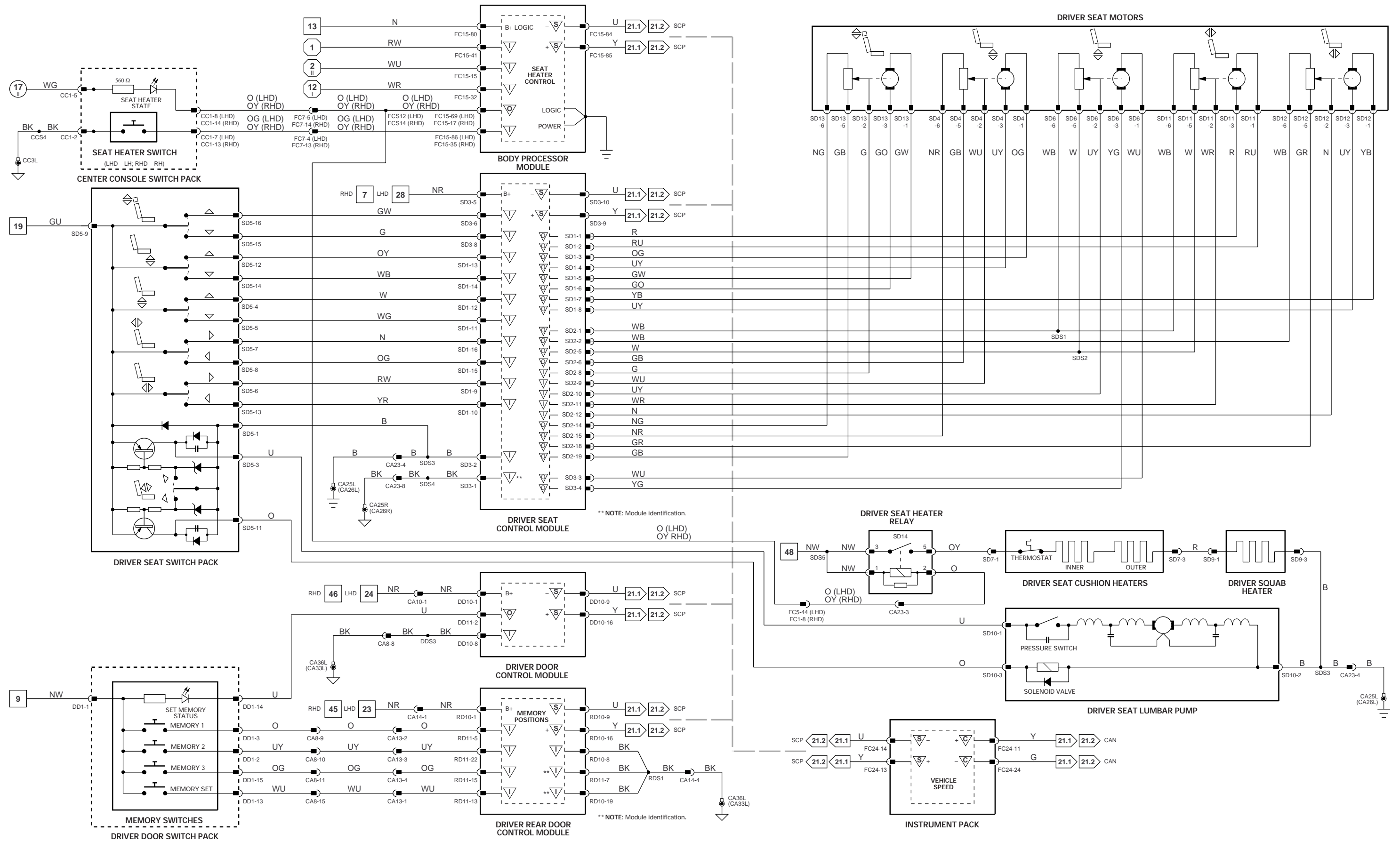
NOTE: Position Select Switch to neutral to operate Fold-Back Mirrors.

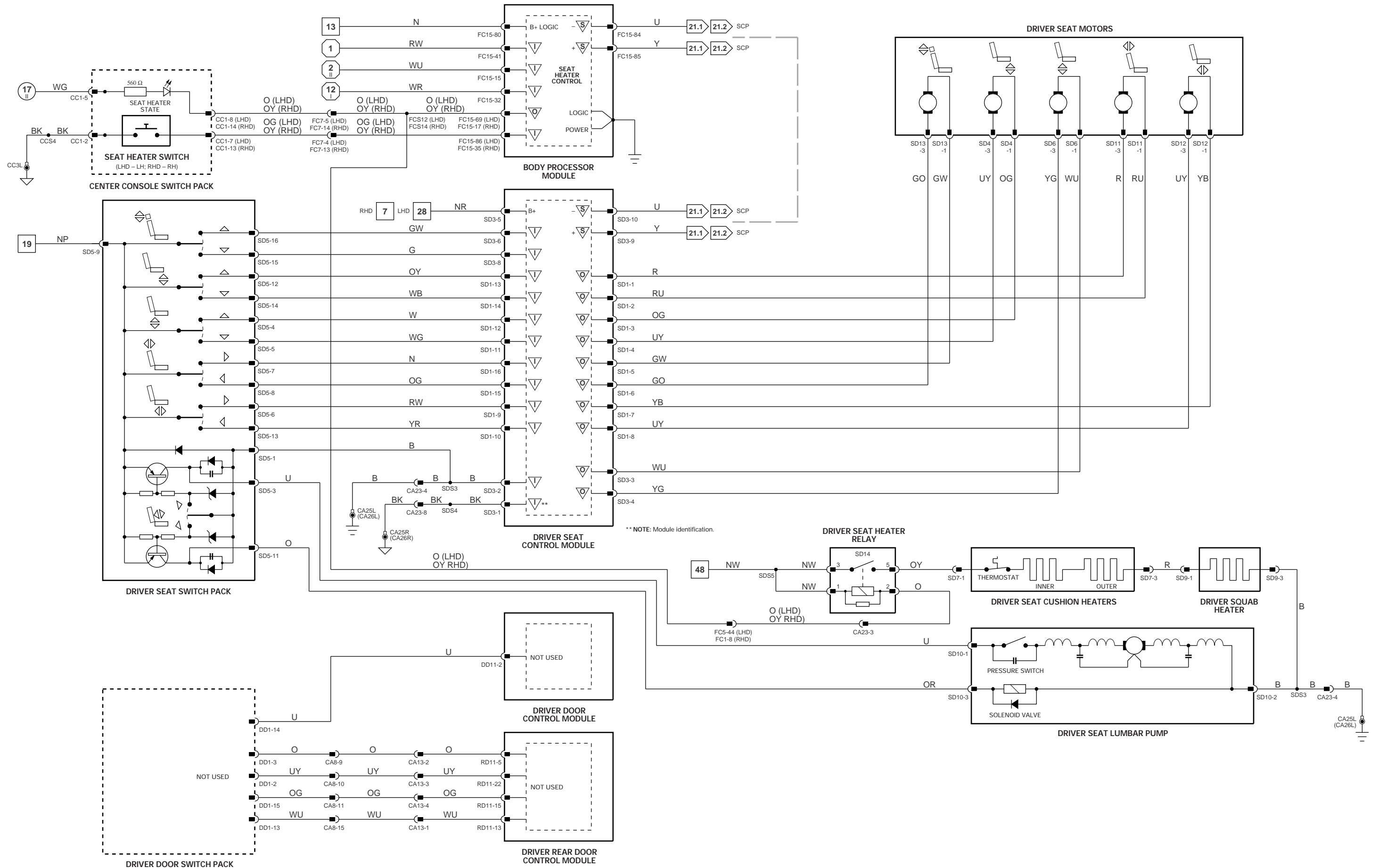


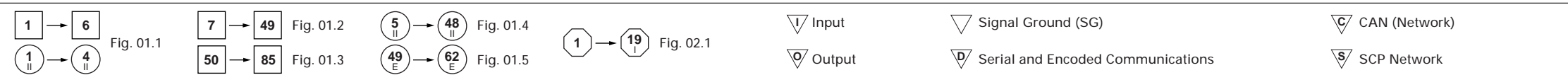
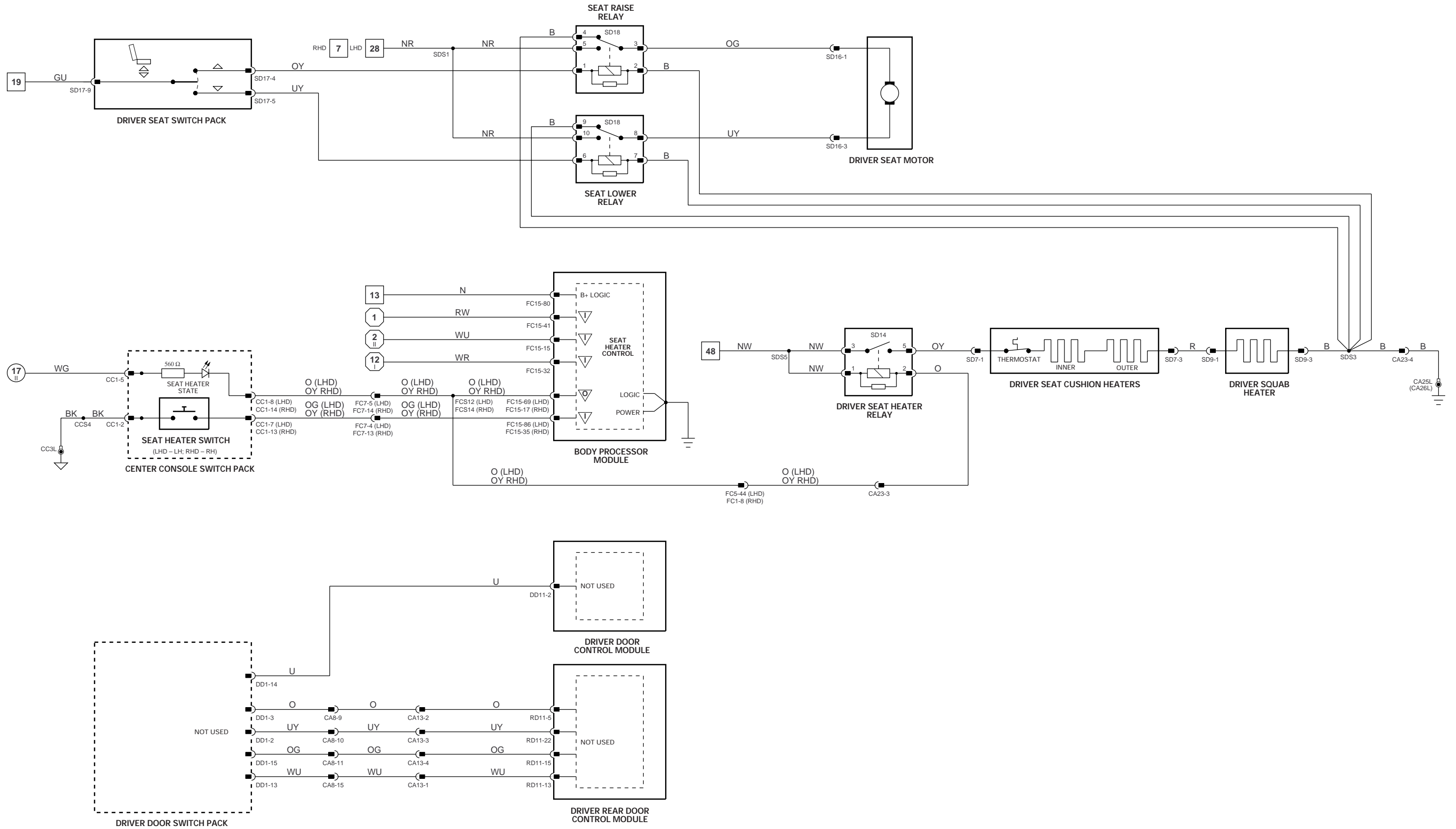
NOTE: Refer to Fig. 09.1 and Fig. 09.2 for Lighting Circuit.



VARIANT: All Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999

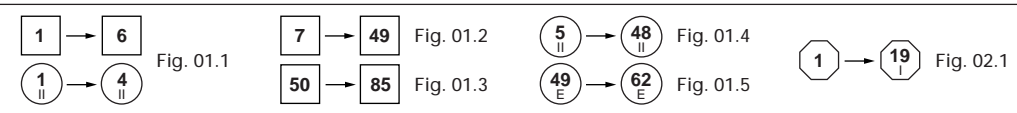
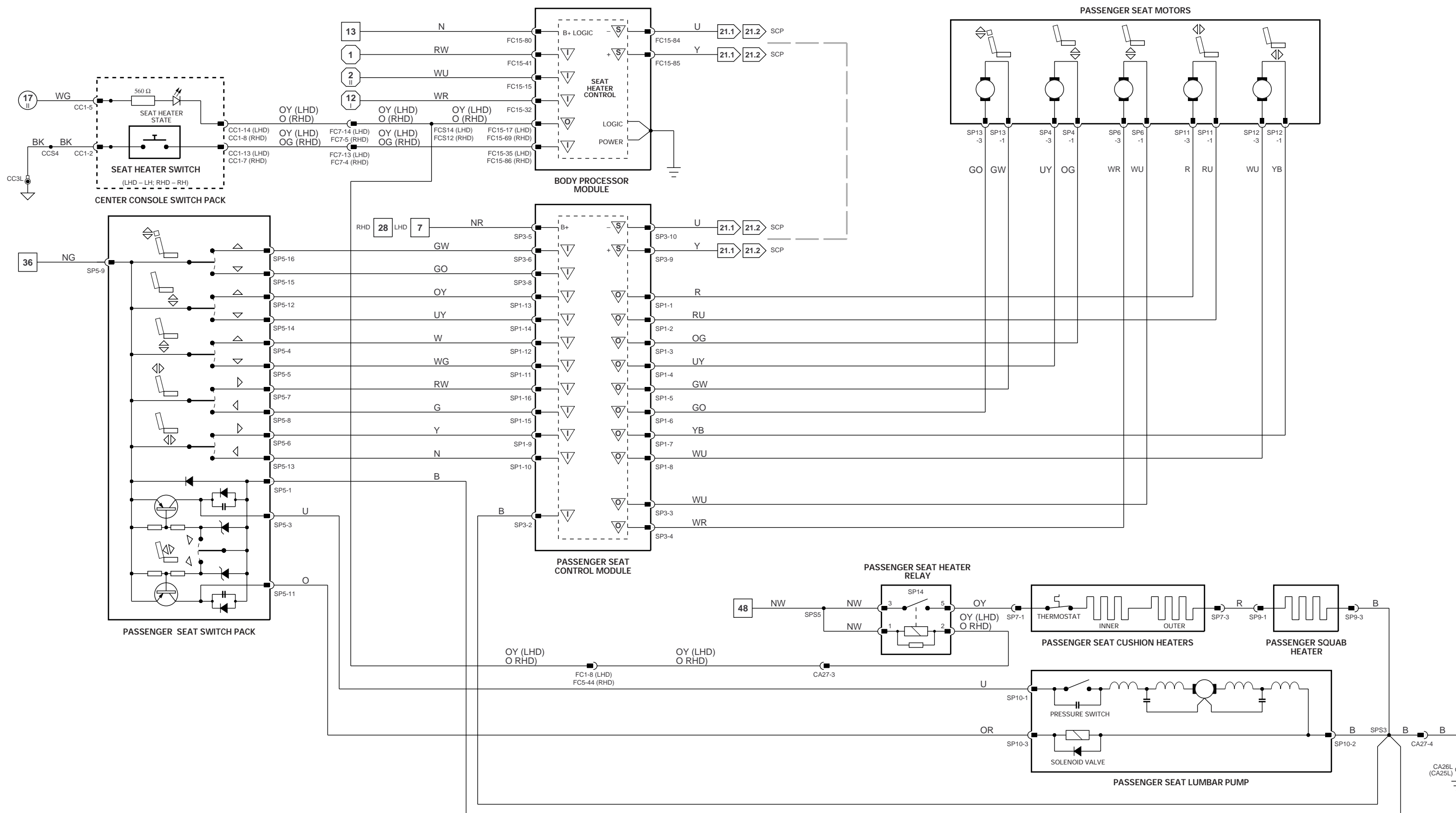




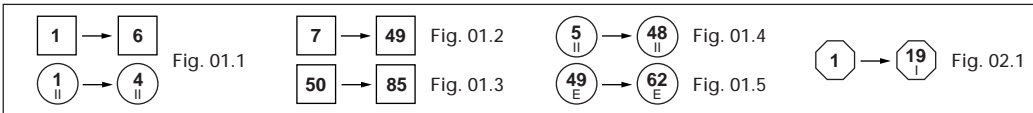
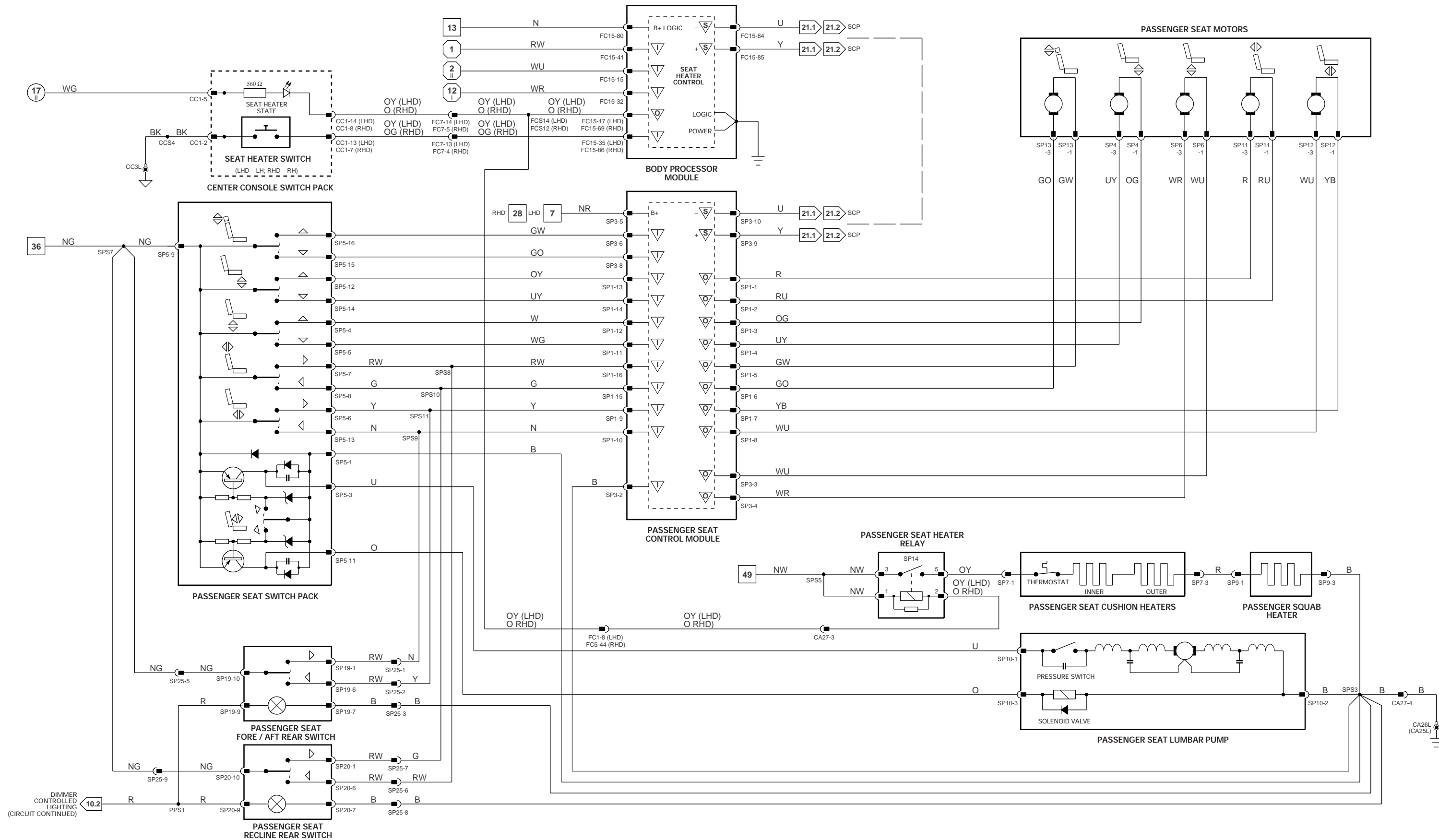


VARIANT: Driver Raise / Lower Seat Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999

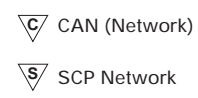
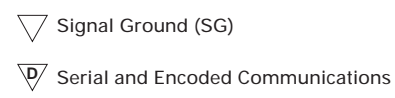
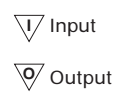
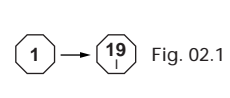
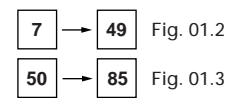
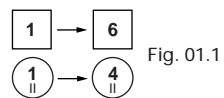
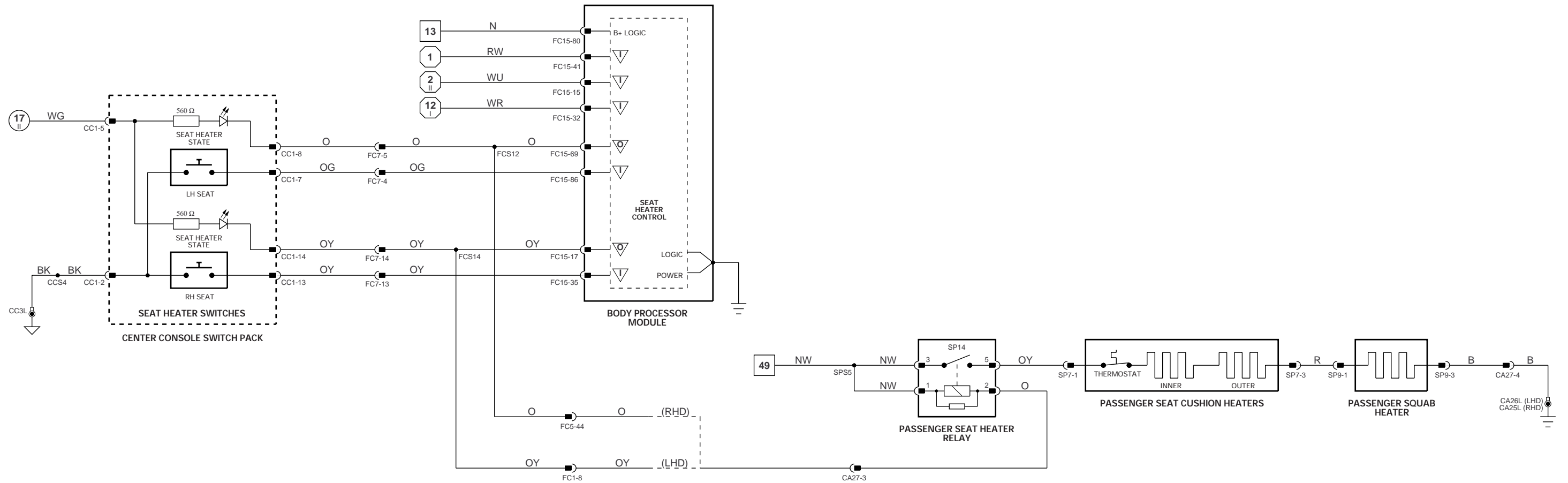




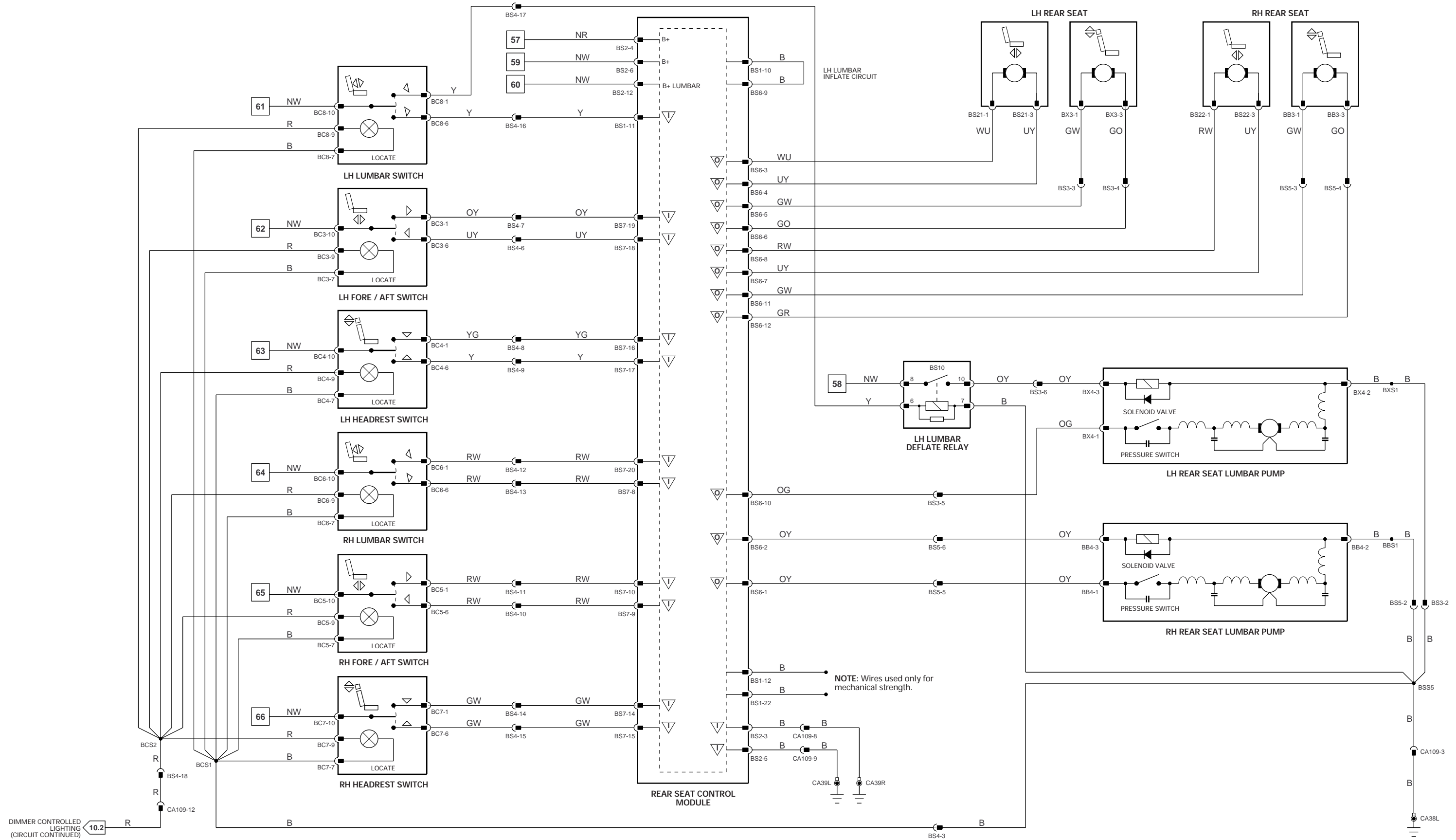
VARIANT: Passenger 5-Way Powered Seat Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999

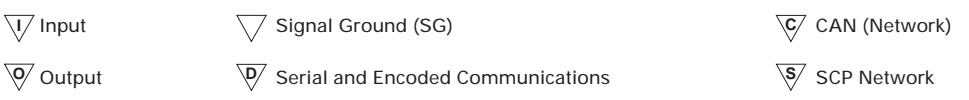
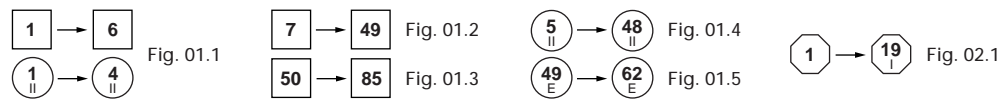
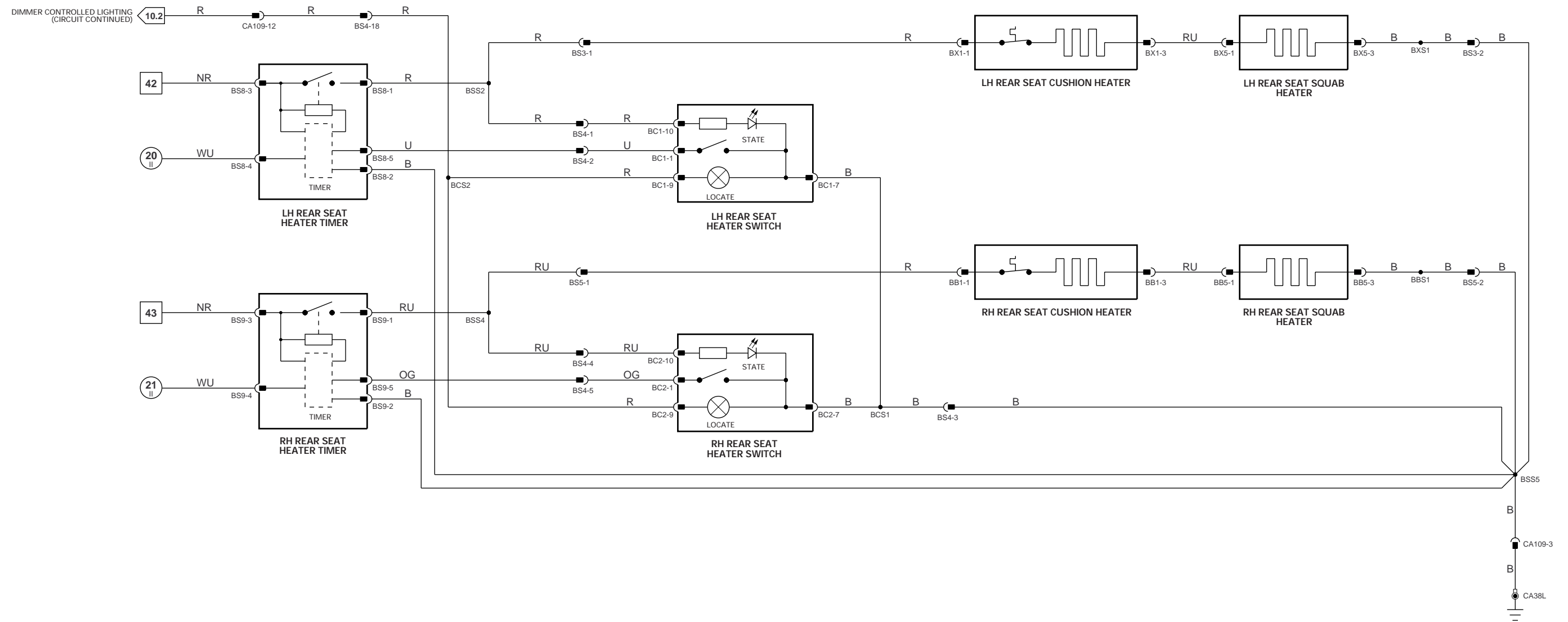


VARIANT: LWB Powered Rear Seat Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999

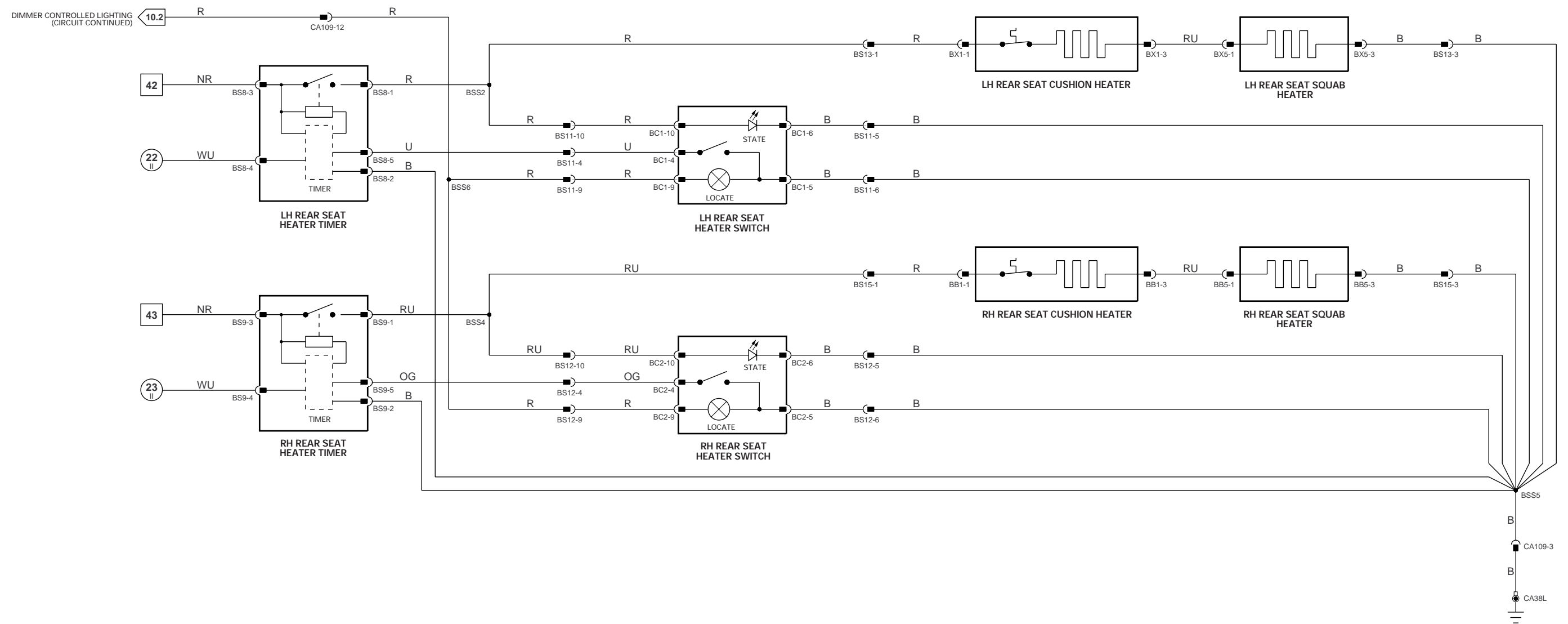


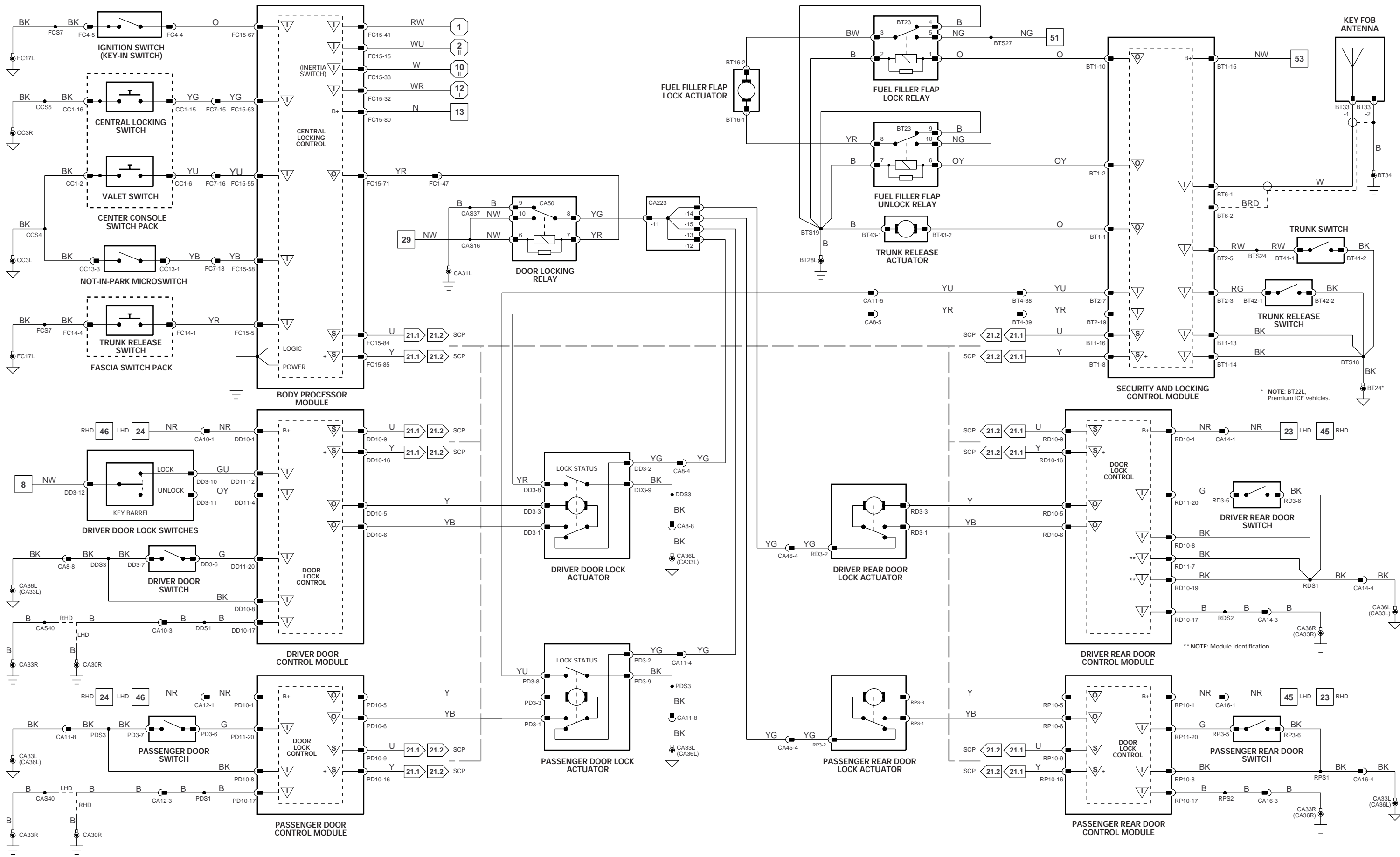
VARIANT: Heaters Only Front Passenger Seat Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999





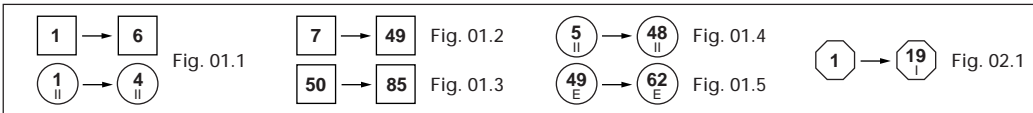
VARIANT: Powered / Heated Rear Seat Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



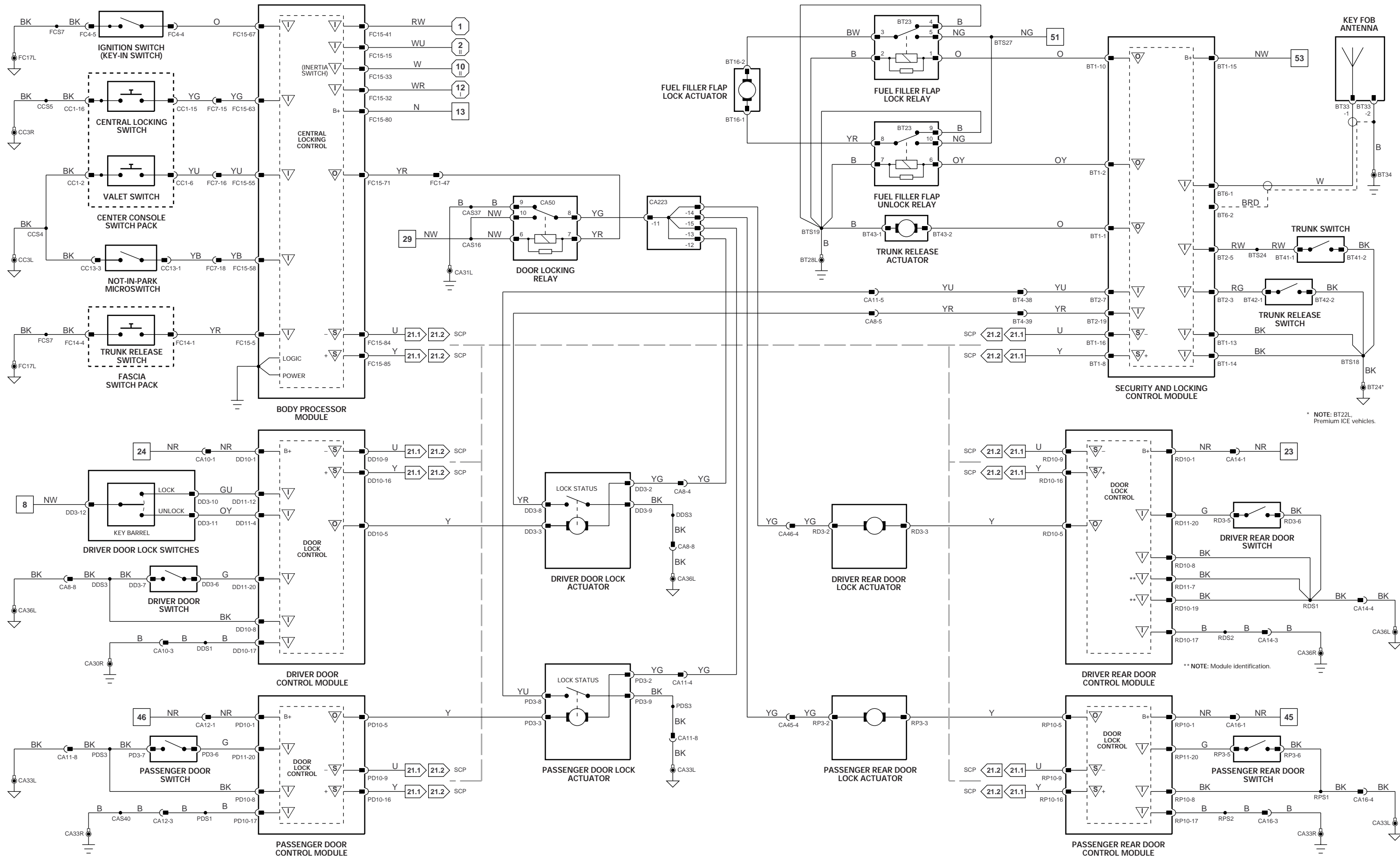


\* NOTE: BT22L Premium ICE vehicles.

\*\* NOTE: Module identification.

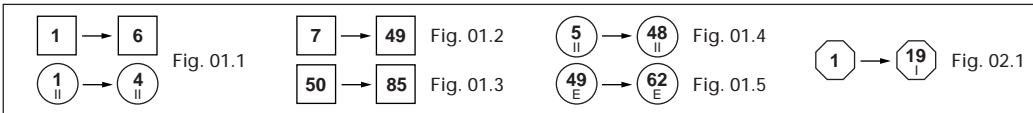


VARIANT: ROW Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



\* NOTE: BT22L Premium ICE vehicles.

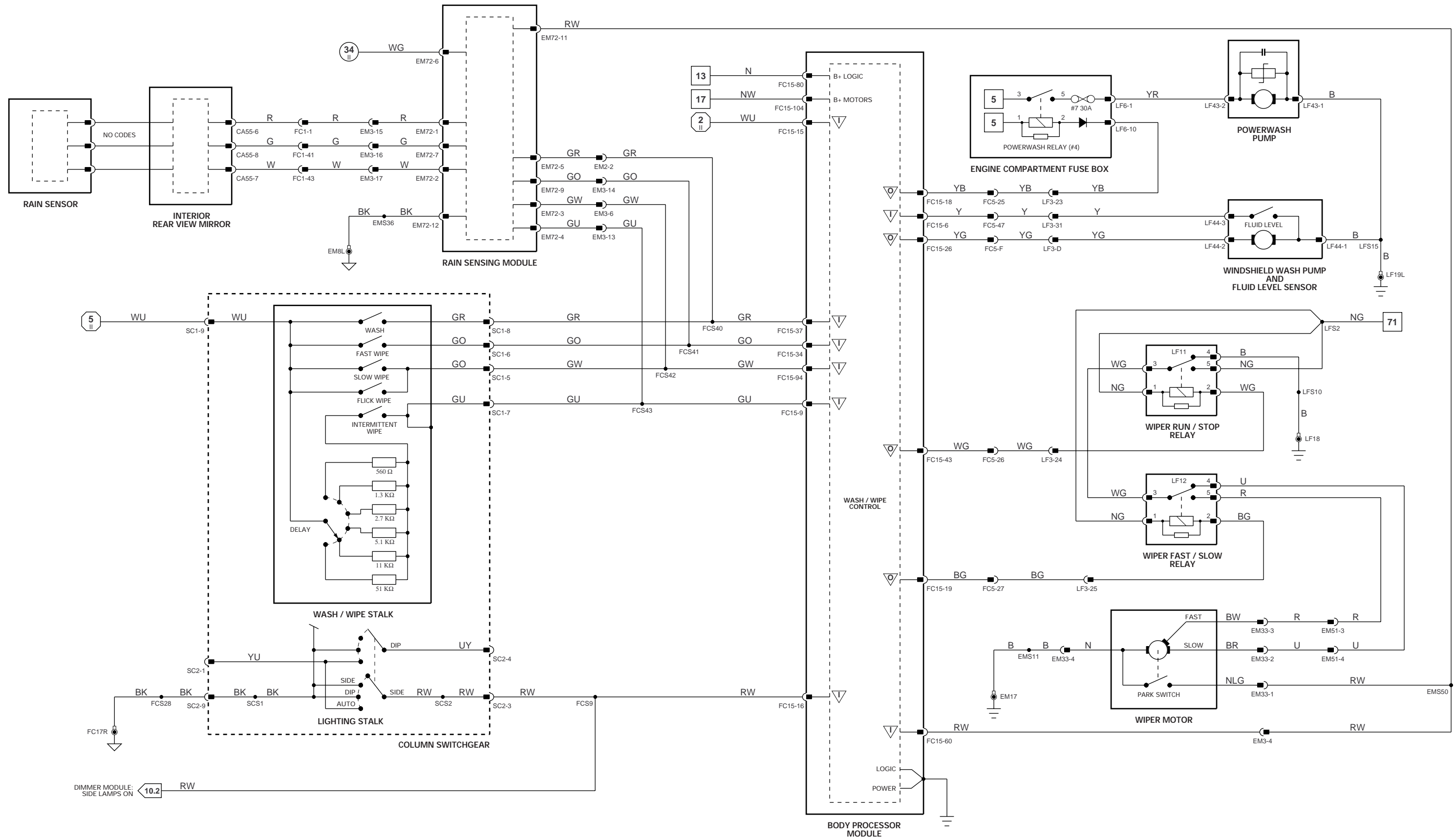
\*\* NOTE: Module identification.

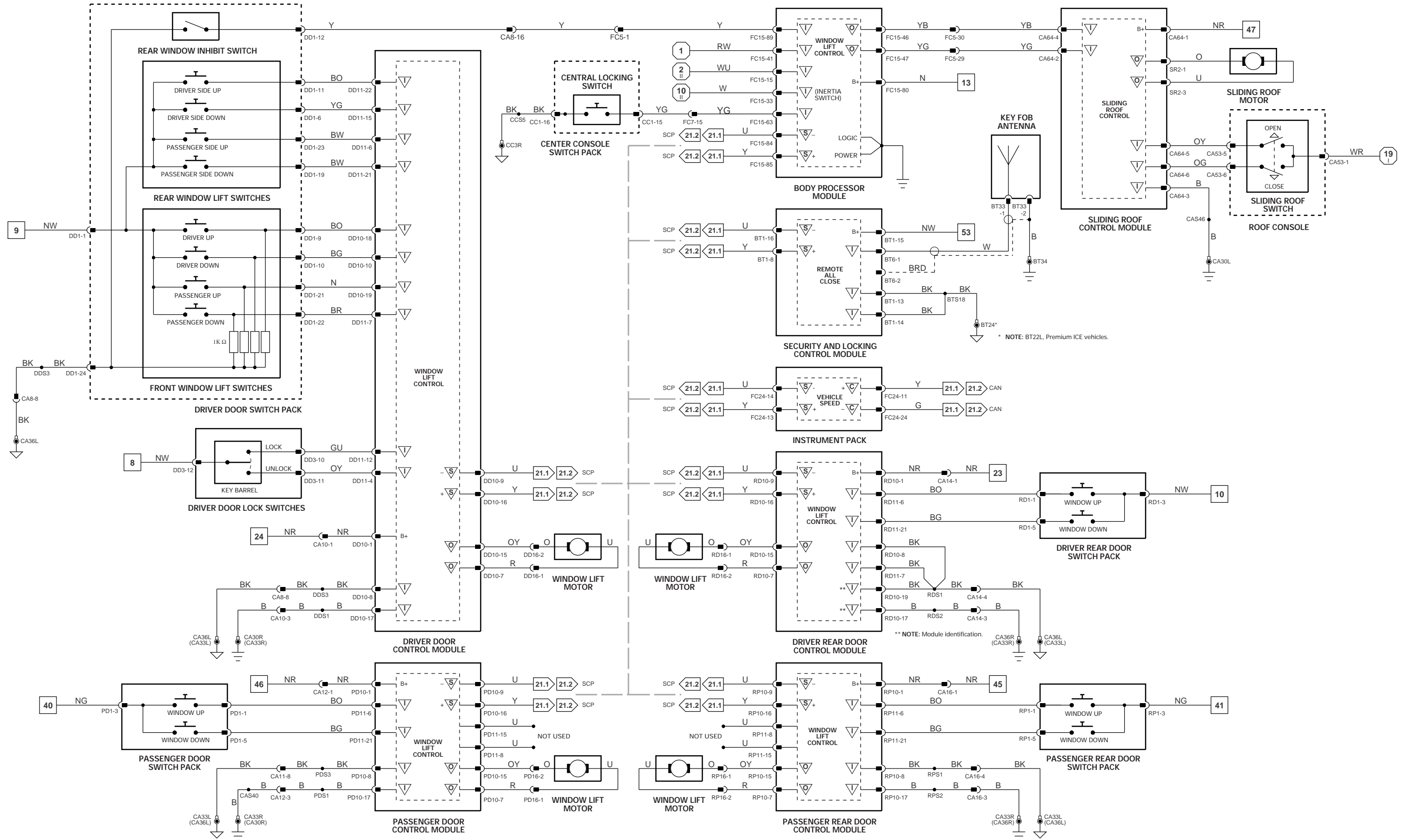


- Input
- Output
- Signal Ground (SG)
- Serial and Encoded Communications
- CAN (Network)
- SCP Network

VARIANT: NAS Vehicles  
 VIN RANGE: F00103 →  
 DATE OF ISSUE: October 1999



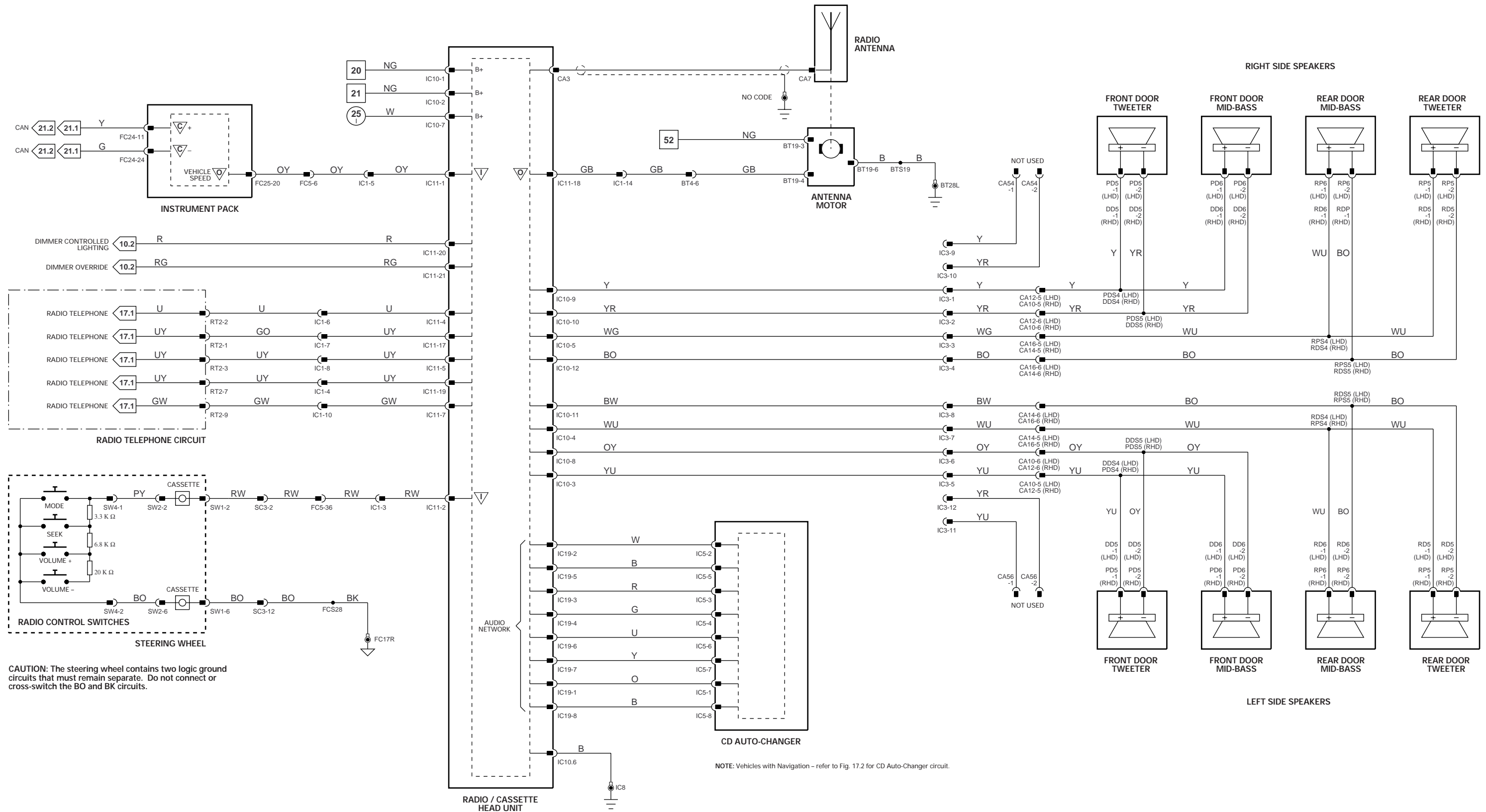




\* NOTE: BT22L, Premium ICE vehicles.

\*\* NOTE: Module identification.

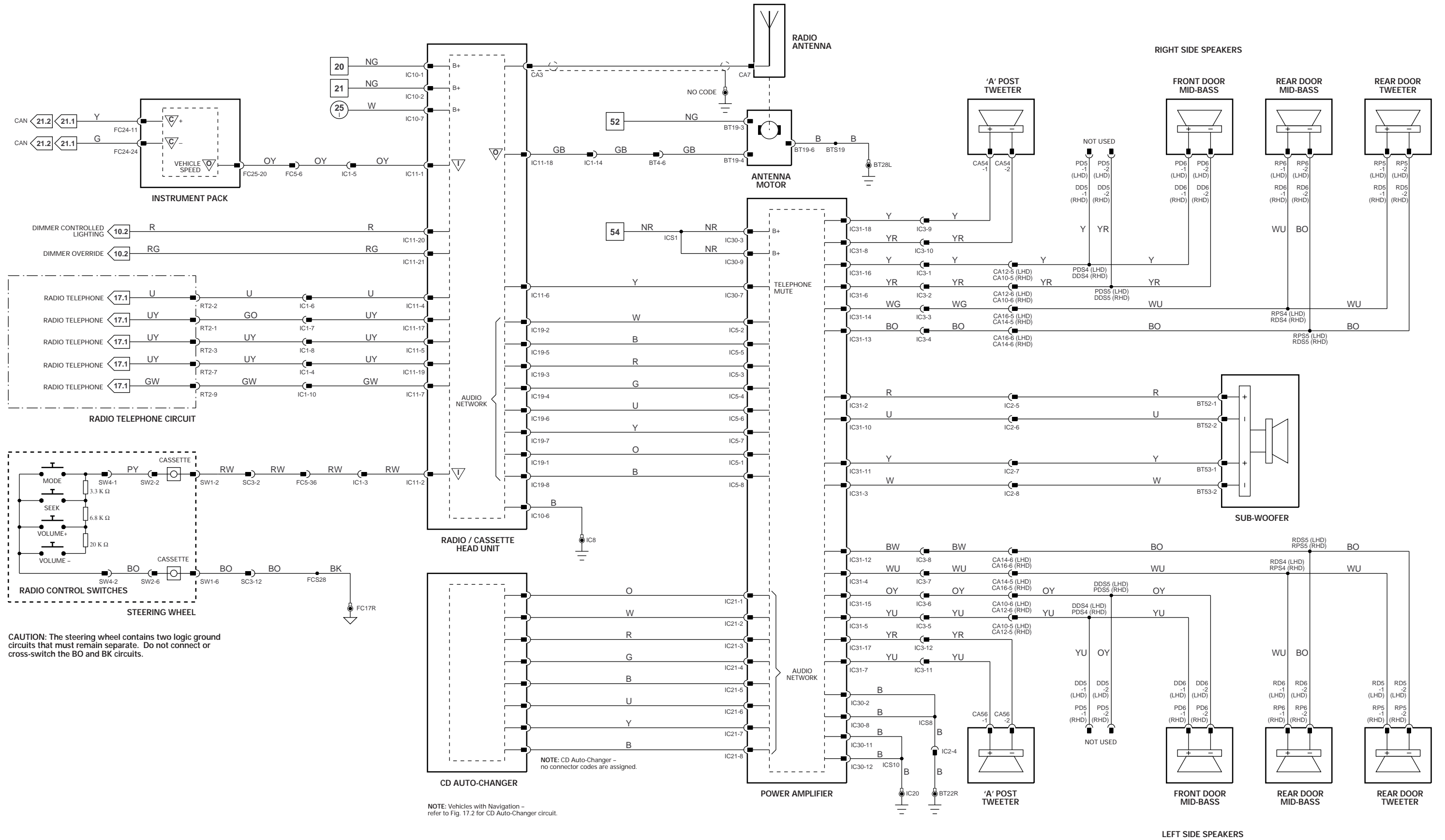
Fig. 01.1 Fig. 01.1	Fig. 01.2 Fig. 01.3	Fig. 01.4 Fig. 01.5	Fig. 02.1	Input Output	Signal Ground (SG) Serial and Encoded Communications	CAN (Network) SCP Network	<b>VARIANT:</b> All Vehicles <b>VIN RANGE:</b> F00103 → <b>DATE OF ISSUE:</b> October 1999
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CAUTION: The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

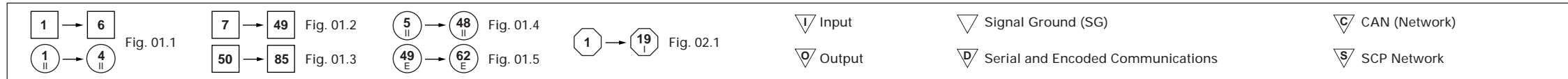
NOTE: Vehicles with Navigation - refer to Fig. 17.2 for CD Auto-Changer circuit.

	<p>Fig. 01.1: 1 → 6, 1 → 4</p> <p>Fig. 01.2: 7 → 49, 50 → 85</p> <p>Fig. 01.4: 5 → 48, 49 → 62</p> <p>Fig. 02.1: 1 → 19</p>	<p>Fig. 01.5: 5 → 48, 49 → 62</p>	<p>VARIANT: Standard ICE Vehicles</p> <p>VIN RANGE: F00103 →</p> <p>DATE OF ISSUE: October 1999</p>
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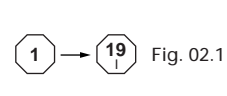
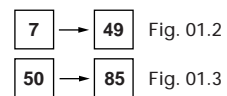
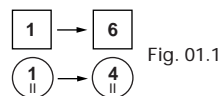
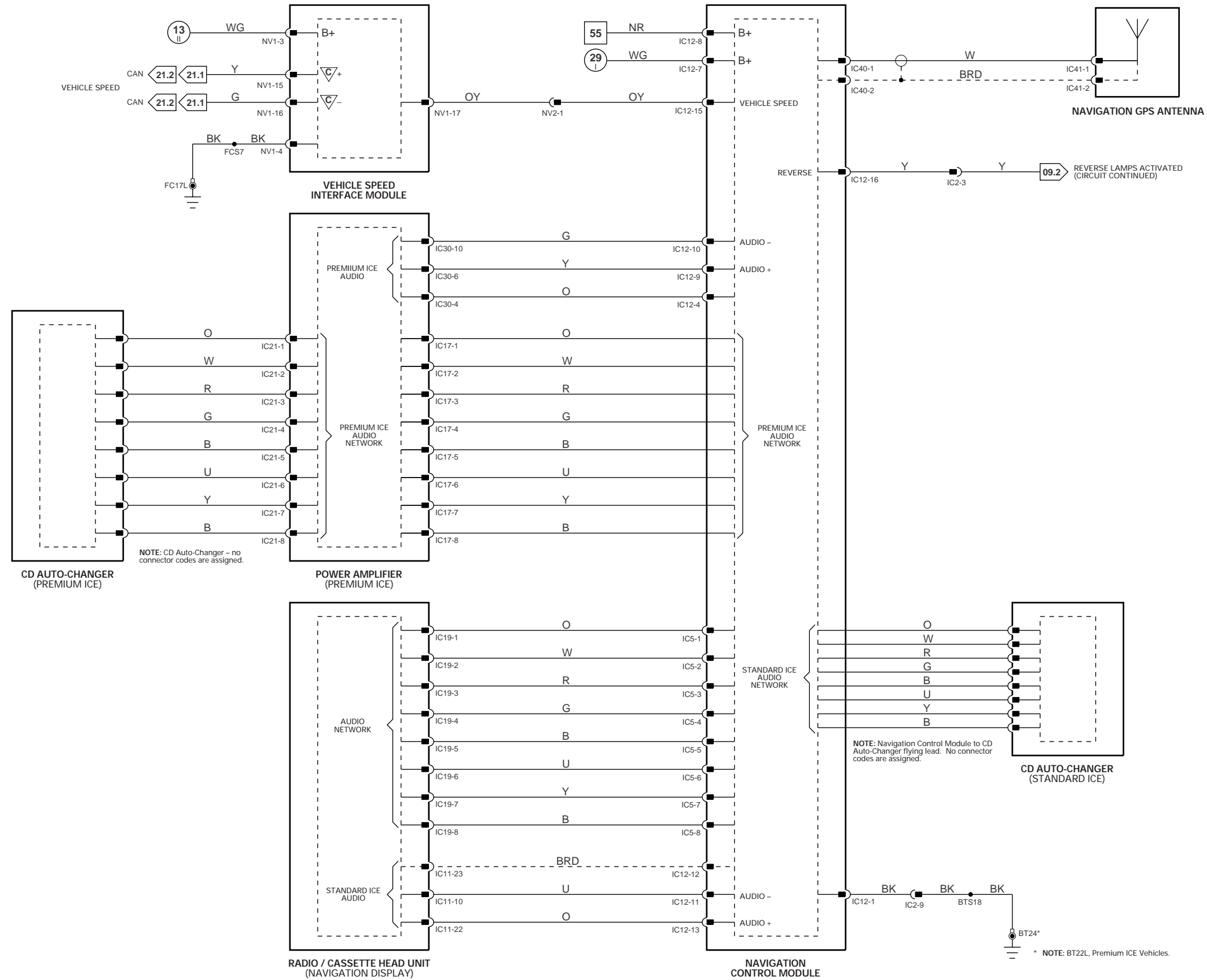
**CAUTION:** The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

**NOTE:** Vehicles with Navigation - refer to Fig. 17.2 for CD Auto-Changer circuit.



**VARIANT:** Premium ICE Vehicles  
**VIN RANGE:** F00103 →  
**DATE OF ISSUE:** October 1999



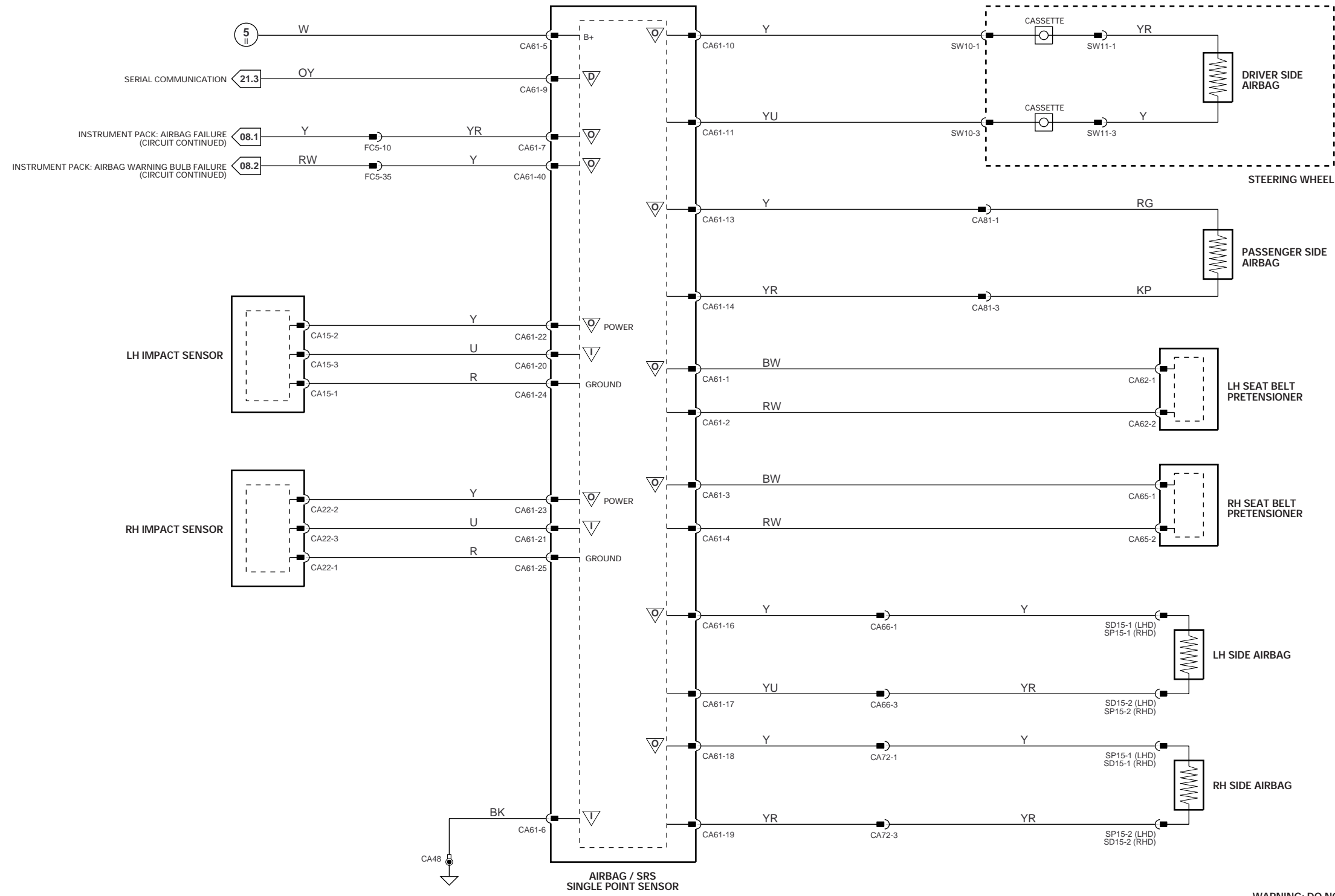


▽ Input  
▽ Output

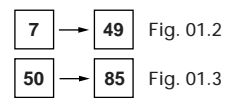
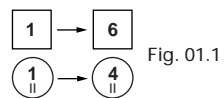
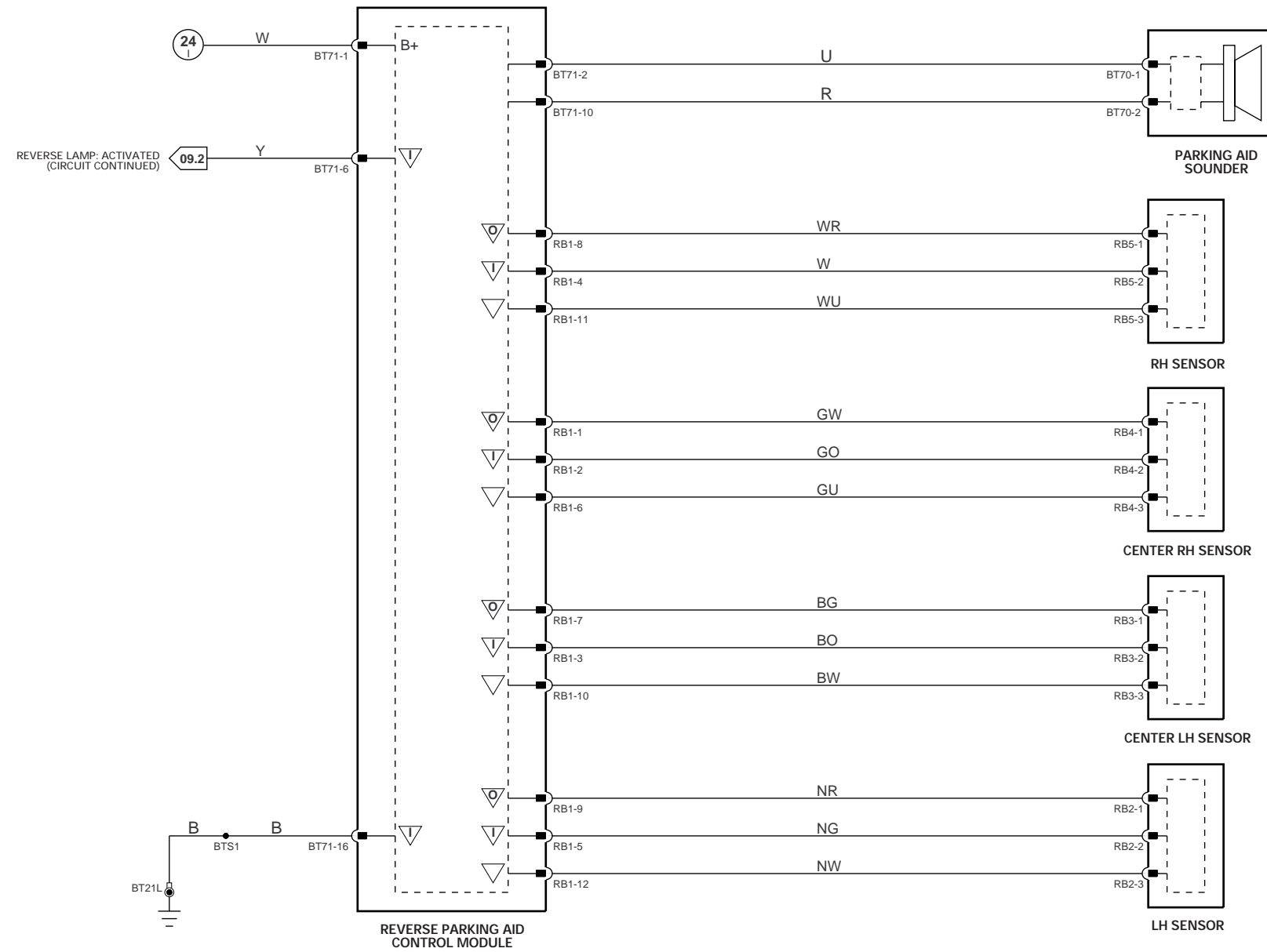
▽ Signal Ground (SG)  
▽ Serial and Encoded Communications

▽ CAN (Network)  
▽ SCP Network

VARIANT: Navigation Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999



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



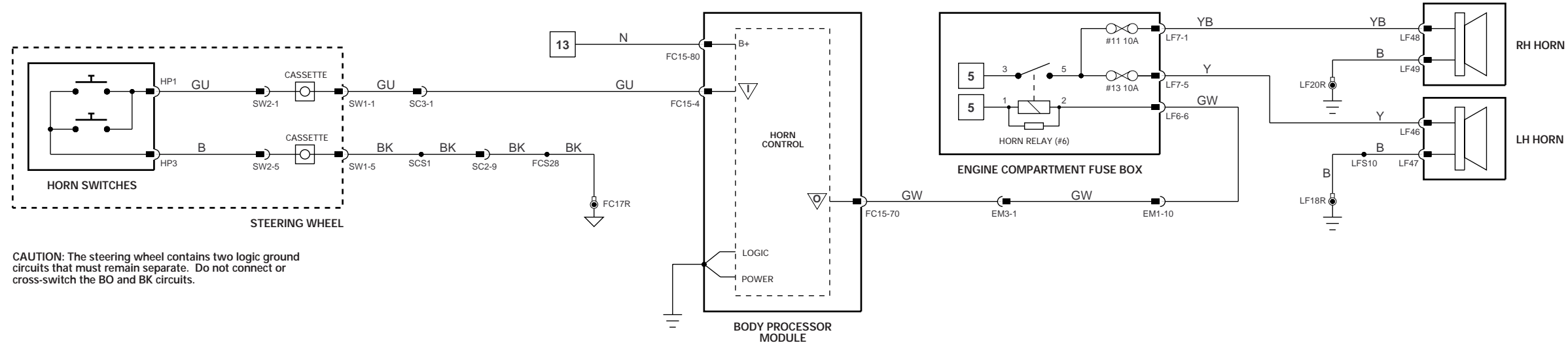
▽ Input  
▽ Output

▽ Signal Ground (SG)  
▽ Serial and Encoded Communications

▽ CAN (Network)  
▽ SCP Network

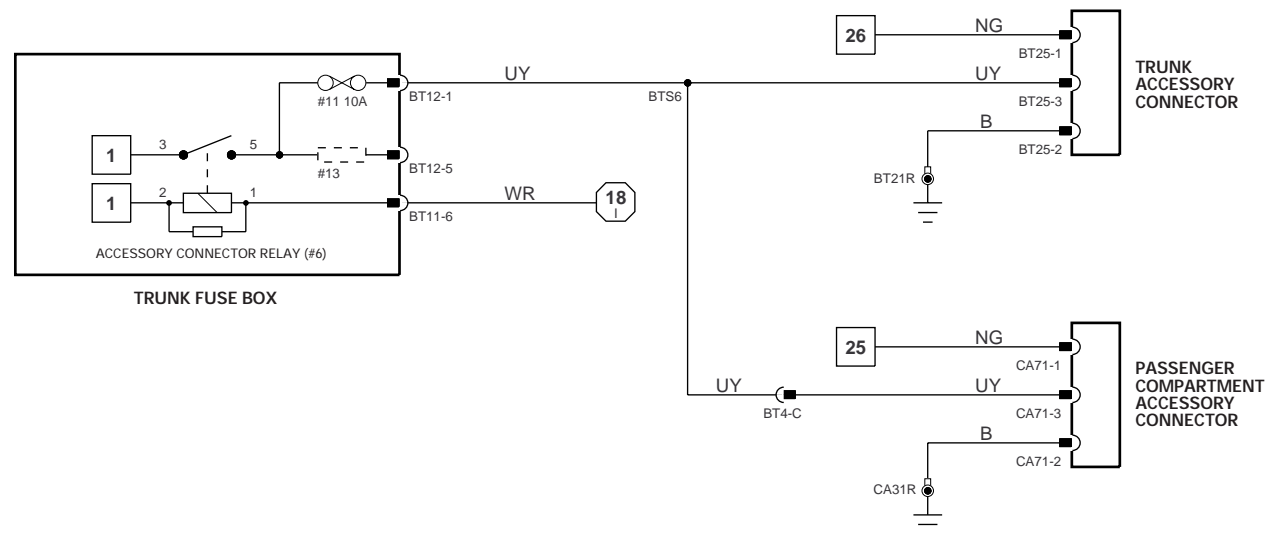
VARIANT: All Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999



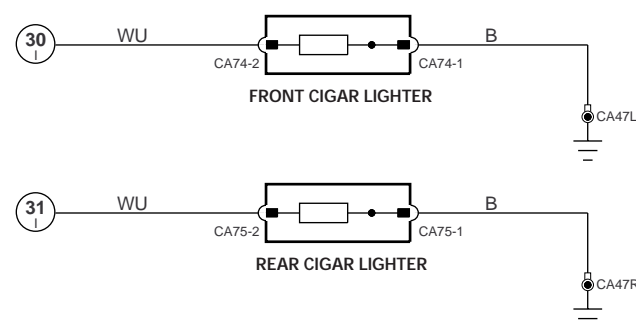


CAUTION: The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

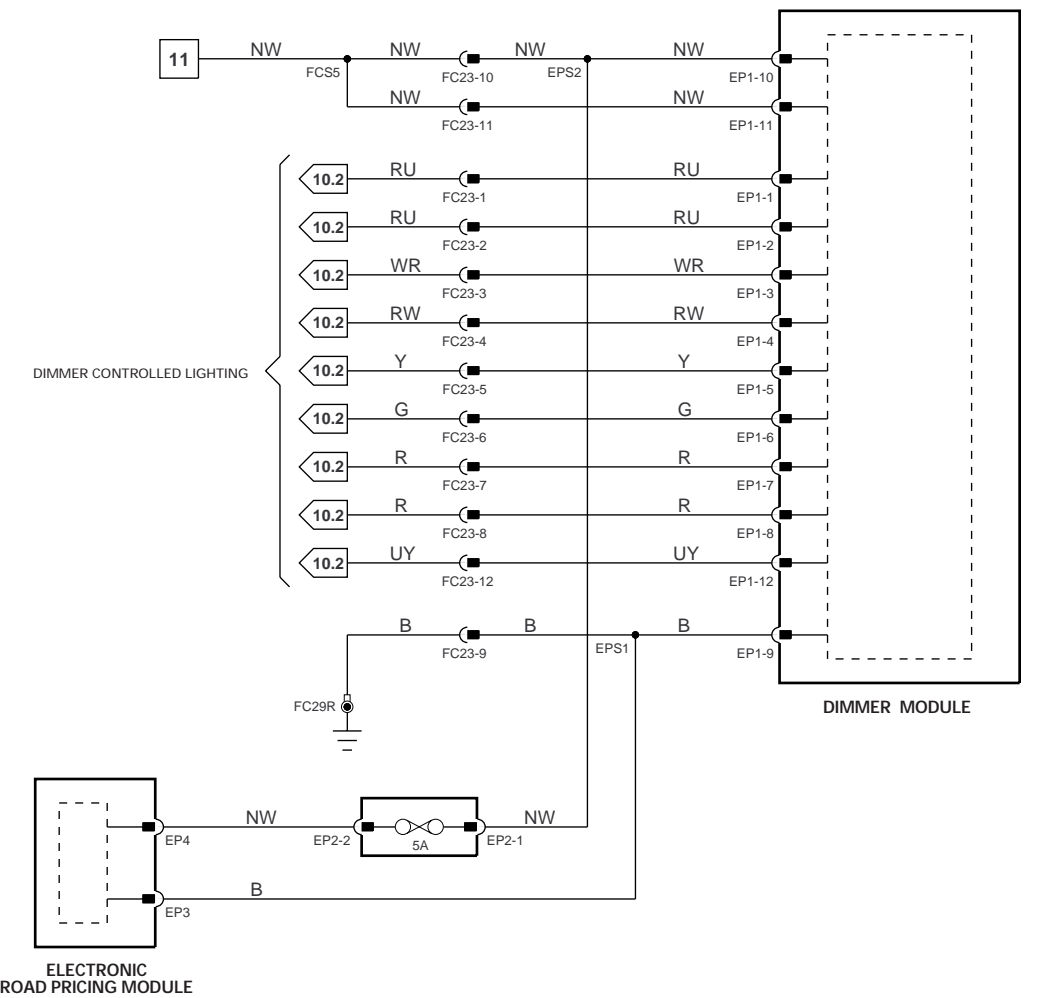
HORNS



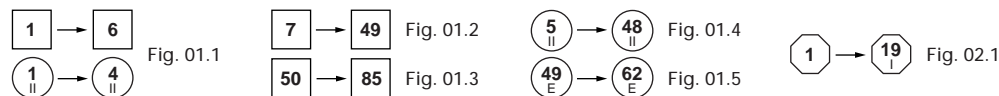
ACCESSORY CONNECTORS



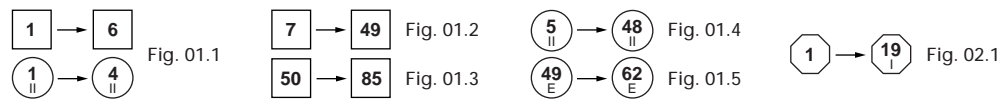
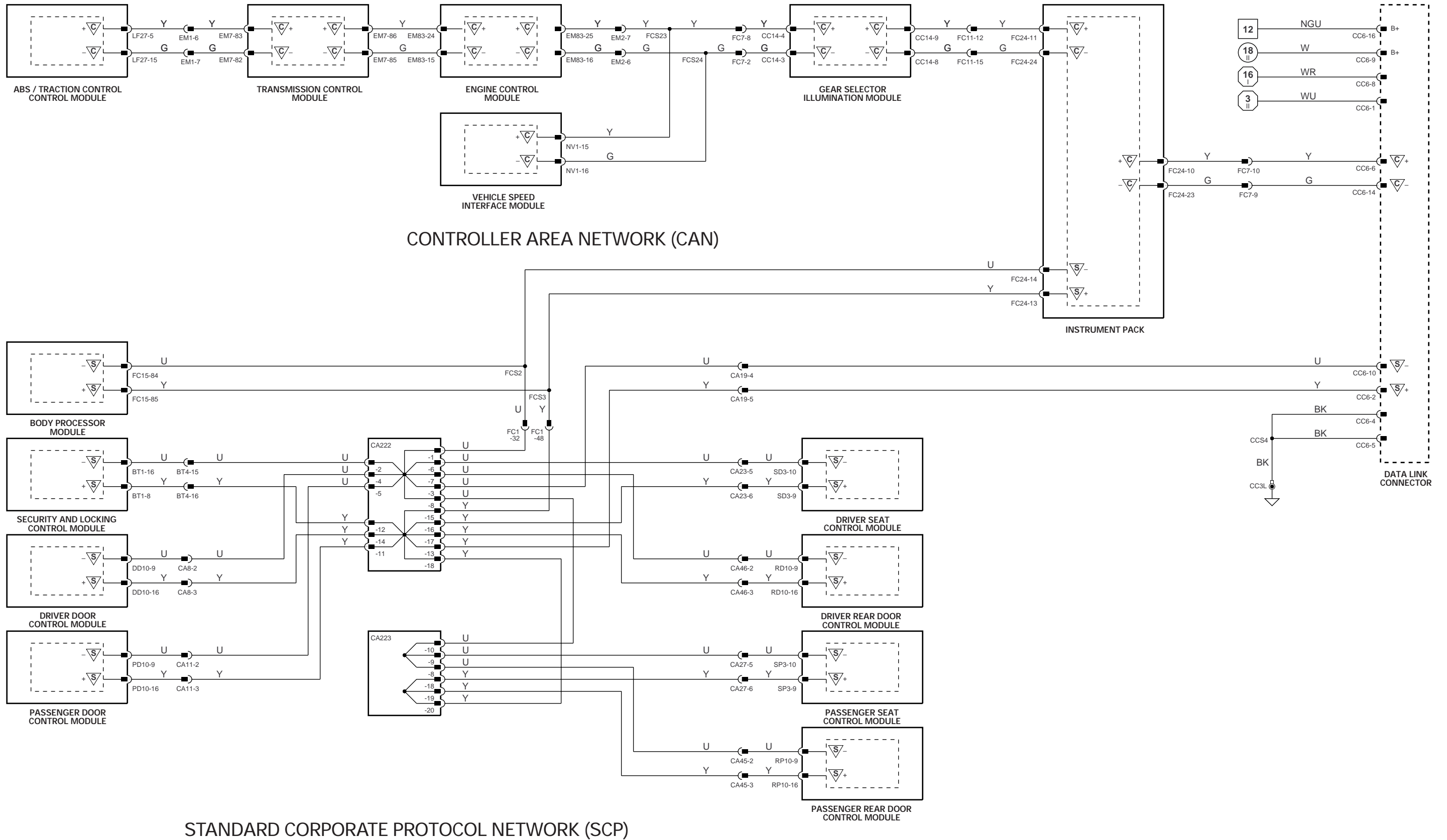
CIGAR LIGHTERS

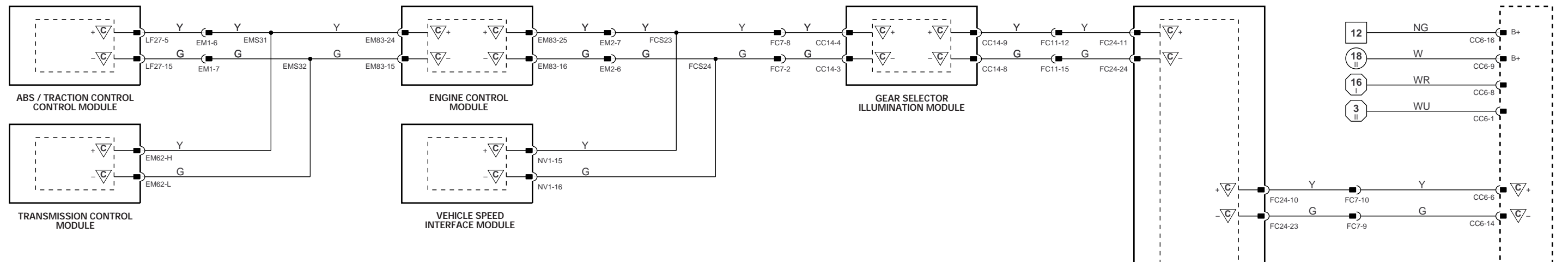


ELECTRONIC ROAD PRICING

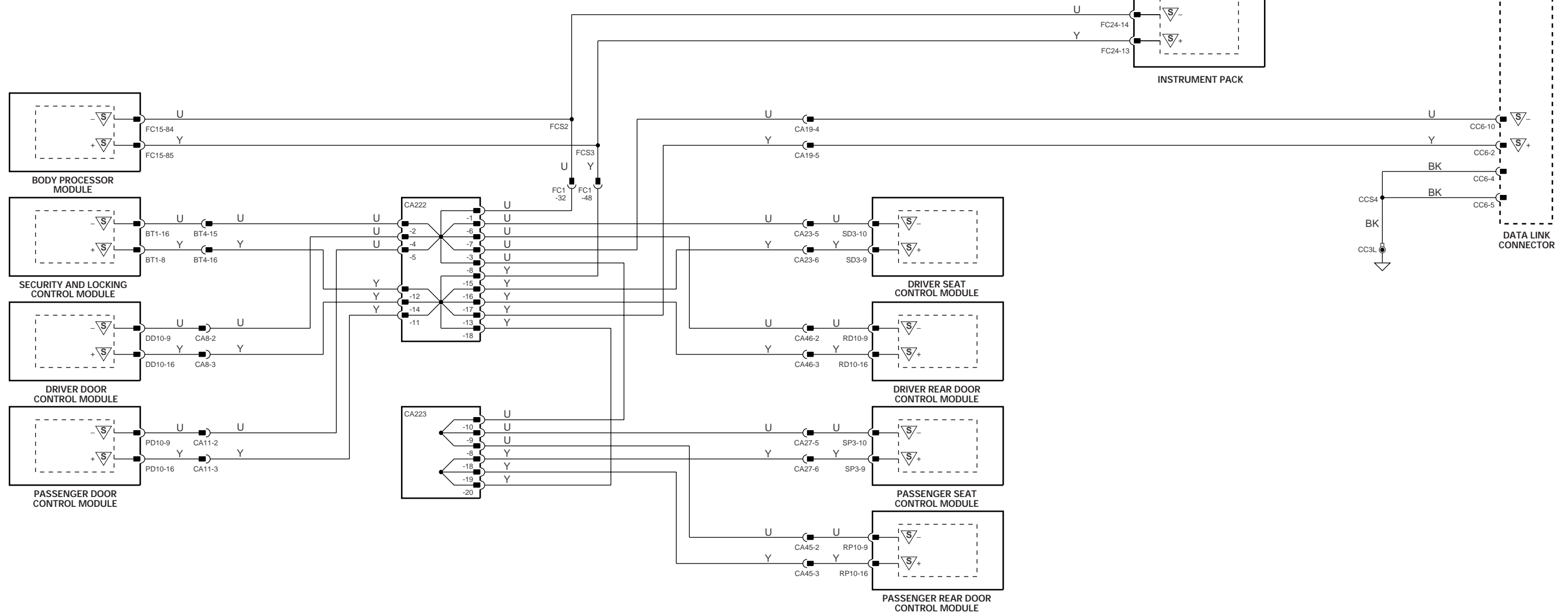


VARIANT: All Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999

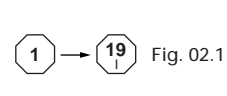
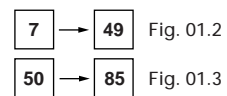
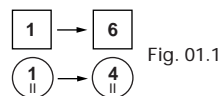




CONTROLLER AREA NETWORK (CAN)



STANDARD CORPORATE PROTOCOL NETWORK (SCP)

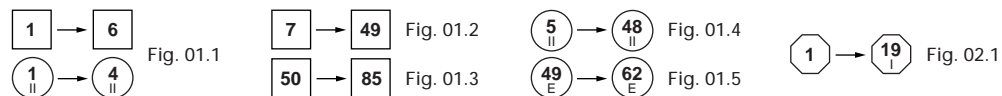
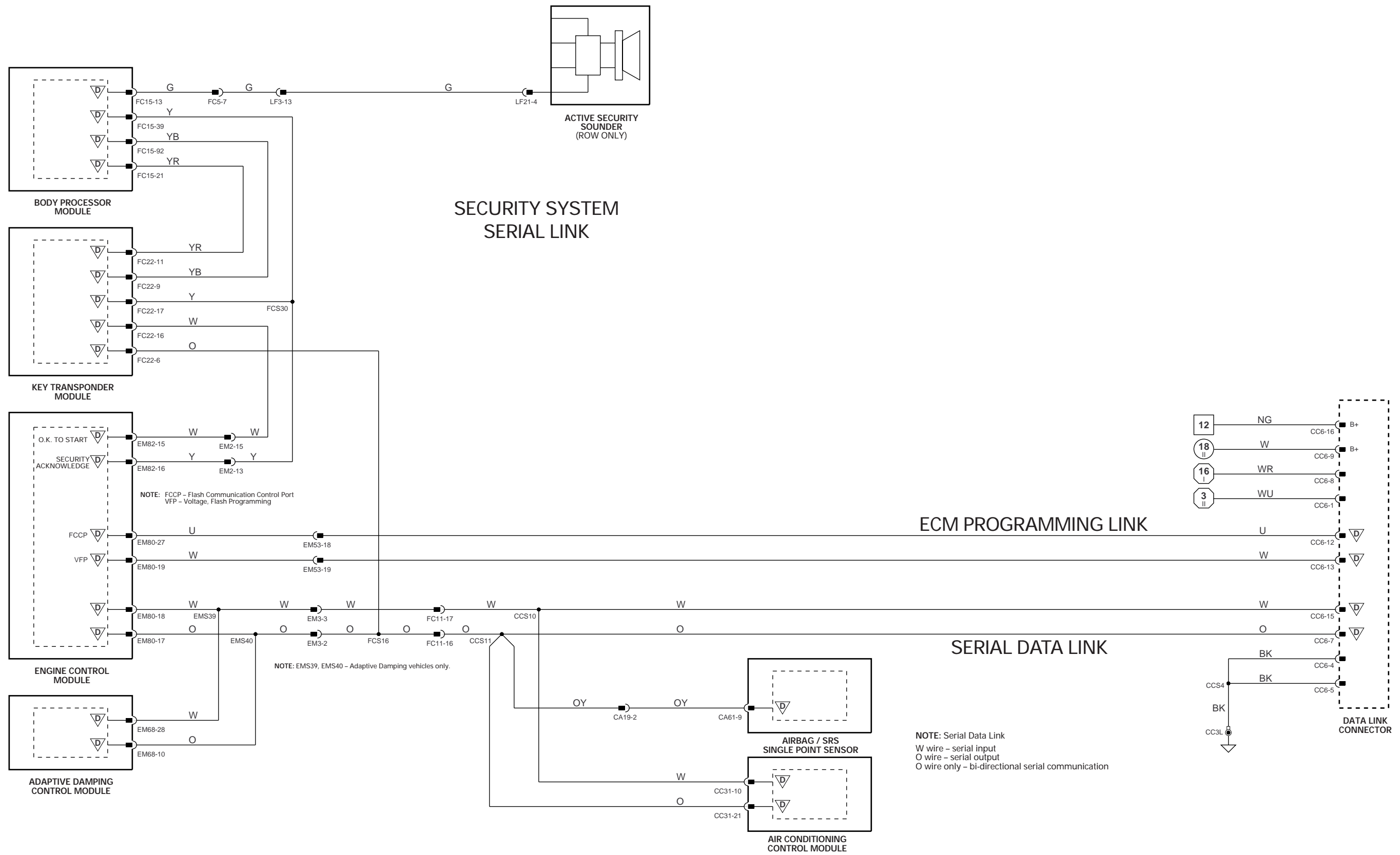


▽ Input  
▽ Output

▽ Signal Ground (SG)  
▽ Serial and Encoded Communications

▽ CAN (Network)  
▽ SCP Network

VARIANT: AJ27 SC Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999



VARIANT: All Vehicles  
VIN RANGE: F00103 →  
DATE OF ISSUE: October 1999



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

## Abbreviations

The following abbreviations are used throughout this Appendix:

ABS/TCCM	Anti-Lock Braking / Traction Control Control Module
BPM	Body Processor Module
DIAG	Diagnostics
DDCM	Driver Door Control Module
DRDCM	Driver Rear Door Control Module
DSCM	Driver Seat Control Module
ECM	Engine Control Module
INST	Instrument Pack
J-GATE	Gear Selector Illumination Module
PDCM	Passenger Door Control Module
PRDCM	Passenger Rear Door Control Module
PSCM	Passenger Seat Control Module
R	Receive
T	Transmit
TCM	Transmission Control Module
SLCM	Security and Locking Control Module



## CAN Message Matrix

Message / Function	Source	Receivers					
		ECM	TCM	ABS/TCCM	INST	J-GATE	DIAG
CAN traction acknowledge	ECM		X				
CAN traction control estimated engine torque	ECM		X				
CAN shift energy management estimated engine torque	ECM		X	X			
CAN throttle position	ECM		X	X			
CAN pedal position	ECM		X	X			
CAN torque reduction acknowledge	ECM		X				
CAN engine speed	ECM		X	X	X		
CAN brake pedal pressed	ECM			X	X		
CAN speed control status	ECM		X				
CAN parking brake status	ECM				X		
CAN OBDII clear fault codes	ECM		X	X			
CAN engine coolant temperature	ECM		X		X		
CAN engine OBDII MIL	ECM			X	X		
CAN throttle malfunction red	ECM			X	X		
CAN throttle malfunction amber	ECM			X	X		
CAN ECM fault code MIL status	ECM			X			
CAN ECM PECUS flag	ECM				X		
CAN engine fault codes	ECM			X			
CAN fuel used	ECM				X		
CAN barometric pressure	ECM		X				
CAN torque reduction request	TCM	X					
CAN transmission overload	TCM	X					
CAN transmission input speed	TCM	X		X			
CAN transmission output speed	TCM	X		X			
CAN torque converter slip	TCM	X		X			
CAN kickdown	TCM	X		X			
CAN gear position actual	TCM	X		X			
CAN torque converter status	TCM	X		X			
CAN gear position selected	TCM	X			X	X	
CAN gear selection fault	TCM	X			X	X	
CAN transmission shift map	TCM	X		X			



Message / Function	Source	Receivers					
		ECM	TCM	ABS/TCCM	INST	J-GATE	DIAG
CAN transmission oil temperature	TCM	X			X		
CAN transmission malfunction	TCM	X		X	X		
CAN TCM PECUS flag	TCM				X		
CAN gear position target (not used)	TCM			X			
CAN torque transfer in progress (not used)	TCM			X			
CAN TCM fault code MIL status	TCM	X					
CAN OBDII TCM clear acknowledge	TCM	X					
CAN transmission fault codes	TCM	X		X			
CAN torque reduction throttle	ABS/TCCM	X					
CAN fast torque reduction ignition	ABS/TCCM	X					
CAN fast torque reduction cylinder	ABS/TCCM	X					
CAN traction status	ABS/TCCM	X			X		
CAN traction shift map	ABS/TCCM		X				
CAN ABS PECUS flag	ABS/TCCM				X		
CAN vehicle reference speed	ABS/TCCM	X			X		
CAN reference distance traveled	ABS/TCCM				X		
CAN ABS fault codes	ABS/TCCM	X					
CAN OBDII ABS clear acknowledge	ABS/TCCM	X					
CAN ABS fault code MIL status	ABS/TCCM	X					
CAN ABS malfunction	ABS/TCCM	X			X		
CAN front left wheel speed	ABS/TCCM	X	X				
CAN front right wheel speed	ABS/TCCM	X	X				
CAN rear left wheel speed	ABS/TCCM	X	X				
CAN rear right wheel speed	ABS/TCCM	X	X		X		
CAN sidelight status	INST	X					
CAN dipped beam status	INST	X					
CAN main beam status	INST	X					
CAN oil pressure low	INST	X					
CAN trip units	INST	X					
CAN fuel level damped	INST	X					
CAN fuel level raw	INST	X					



## CAN Message Matrix

Message / Function	Source	Receivers					
		ECM	TCM	ABS/TCCM	INST	J-GATE	DIAG
CAN NWM token ECM	ECM		X	X	X		
CAN NWM token TCM	TCM	X		X	X		
CAN NWM token INST	INST	X	X	X			
CAN NWM token ABS	ABS/TCCM	X	X		X		
CAN diagnostic data in ECM	DIAG	X					
CAN diagnostic data in TCM	DIAG		X				
CAN diagnostic data in INST	DIAG				X		
CAN diagnostic data in ABS	DIAG			X			
CAN diagnostic data out ECM	ECM						X
CAN diagnostic data out TCM	TCM						X
CAN diagnostic data out INST	INST						X
CAN diagnostic data out ABS	ABS/TCCM						X





### SCP Message Matrix

#	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					
55	Passenger mirror left			T	R					
56	Unlock all doors			T / R	T / R			R	R	

continued...



## SCP Message Matrix

#	Message Name	INST	BPM	DDCM	PDCM	DSCM	PSCM	DRDCM	PRDCM	SLCM
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		
108	Close passenger rear window			T					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



#	Message Name	INST	BPM	DDCM	PDCM	DSCM	PSCM	DRDCM	PRDCM	SLCM
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