



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

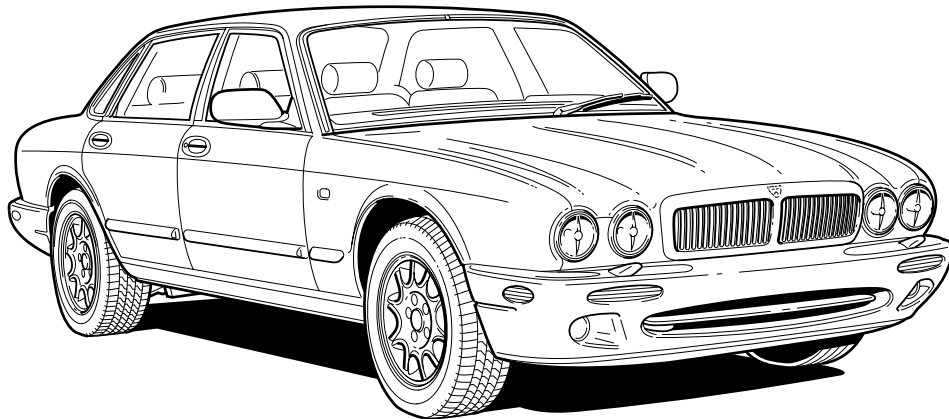


BY APPOINTMENT TO
HER MAJESTY QUEEN ELIZABETH
THE QUEEN MOTHER
MANUFACTURERS OF DAIMLER AND JAGUAR CARS
JAGUAR CARS LIMITED COVENTRY



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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| 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 | Transmission: AJ27 SC | Fig. 05.2 |
| Solar Sensor | Fig. 07.1 | Trip Computer Switch Pack | Fig. 08.1 |
| Speakers – ‘A’ Post Tweeter | Fig. 16.1 | ..... | Fig. 10.2 |
| ..... | Fig. 16.2 | Trip Cycle Switch (Column Switchgear) | Fig. 08.1 |
| Speakers – Front Door Mid-Bass | Fig. 16.1 | Trunk Accessory Connector | Fig. 19.1 |
| ..... | Fig. 16.2 | Trunk Lamps | Fig. 10.1 |
| Speakers – Front Door Tweeter | Fig. 16.1 | | |
| 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 |
|-----|--|------------------------|------------------|
| 1 | FC10-1 NEUTRAL SWITCH (ON/OFF) | GROUND | B+ (P.A.S. 1, 2) |
| 2 | FC10-2 SERIAL COMMUNICATION (VCI TRANSPODER) | ENCODED COMMUNICATIONS | |
| 3 | FC10-3 SECURITY KNOWLEDGE | ENCODED COMMUNICATIONS | |
| 4 | FC10-4 SPARK/ENGINE KICKER | GROUND (COMMON) | B+ |
| 5 | FC10-5 SPARK/IGNITION ACTUATOR | GROUND (COMMON) | B+ |
| 6 | FC10-6 INJECTION/IGNITION ACTUATOR | GROUND (COMMON) | B+ |
| 7 | FC10-7 AIR/FUEL/INJECTION/IGNITION | B+ | |

ENGINE CONTROL MODULE

| Pin | Description | Active | Inactive |
|-----|---------------------------------|------------------------|----------------------|
| 1 | EM10-1 INDI-NEUTRAL COMPRESSION | B+ (P.A.S. 1, 2) | GROUND (P.A.S. 2, 3) |
| 2 | EM10-2 INDI-IGNITION | ENCODED COMMUNICATIONS | |
| 3 | EM10-3 OIL TO START | ENCODED COMMUNICATIONS | |
| 4 | EM10-4 SECURITY KNOWLEDGE | ENCODED COMMUNICATIONS | |

KEY TRANSPODER MODULE

| Pin | Description | Active | Inactive |
|-----|------------------------------|------------------------|----------|
| 1 | KTM10-1 SERIAL COMMUNICATION | ENCODED COMMUNICATIONS | |
| 2 | KTM10-2 SERIAL COMMUNICATION | ENCODED COMMUNICATIONS | |
| 3 | KTM10-3 OIL TO START | ENCODED COMMUNICATIONS | |
| 4 | KTM10-4 SECURITY KNOWLEDGE | ENCODED COMMUNICATIONS | |

Fig. 03.1

| Component | Connector / Type / Color | Location / Access |
|------------------------------|--|--|
| BATTERY | B+ (P.A.S. 1, 2) B- (GROUND) | FROM BATTERY COVER |
| BODY PROCESSOR MODULE | FC10-1 (NEUTRAL SWITCH) / FC10-2 (VCI) / FC10-3 (SECURITY KNOWLEDGE) / FC10-4 (SPARK/ENGINE KICKER) / FC10-5 (SPARK/IGNITION ACTUATOR) / FC10-6 (INJECTION/IGNITION ACTUATOR) / FC10-7 (AIR/FUEL/INJECTION/IGNITION) | BEHIND BULKHEAD COVER BOX ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE |
| GENERATOR | GEN (GENERATOR) REG (REGULATOR) ST (STARTER MOTOR) | ENGINE COMPARTMENT (IN FRONT) TRUNK / ADJACENT TO BATTERY |
| HIGH POWER PROTECTION MODULE | HPM (HIGH POWER PROTECTION) | ENGINE COMPARTMENT (IN FRONT) |
| IGNITION SWITCH | IGN (IGNITION) | ENGINE COMPARTMENT (IN FRONT) |
| KEY TRANSPODER MODULE | KTM10-1 (SERIAL COMMUNICATION) / KTM10-2 (SERIAL COMMUNICATION) / KTM10-3 (OIL TO START) / KTM10-4 (SECURITY KNOWLEDGE) | BEHIND INSTRUMENT PANEL BEHIND INSTRUMENT ASSEMBLY / CONTROL CONSOLE |
| NEUTRAL SWITCH | NS (NEUTRAL SWITCH) | ENGINE COMPARTMENT (IN FRONT) |
| REGULATOR | REG (REGULATOR) | ENGINE COMPARTMENT (BEHIND) / REAR OF ENGINE |
| STARTER MOTOR | ST (STARTER MOTOR) | ENGINE COMPARTMENT (FRONT) / REAR OF ENGINE |
| SUPPRESSION MODULE | SM (SUPPRESSION) | ENGINE COMPARTMENT (REAR) / FRONT |

| Relay | Case Color | Connector / Color | Location / Access |
|---------------|------------|-------------------|--|
| STARTER RELAY | BROWN | DM5 / BROWN | CONTROL MODULE ENCLOSURE RELAYS / ENGINE COMPARTMENT |

HARNESS-TO-HARNESS CONNECTORS

| Connector | Type / Color | Location / Access |
|-----------|----------------------------------|--|
| DM5 | DM5 (MULTICOLOR) / DM5 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM6 | DM6 (MULTICOLOR) / DM6 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM7 | DM7 (MULTICOLOR) / DM7 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM8 | DM8 (MULTICOLOR) / DM8 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM9 | DM9 (MULTICOLOR) / DM9 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM10 | DM10 (MULTICOLOR) / DM10 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM11 | DM11 (MULTICOLOR) / DM11 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM12 | DM12 (MULTICOLOR) / DM12 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM13 | DM13 (MULTICOLOR) / DM13 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM14 | DM14 (MULTICOLOR) / DM14 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM15 | DM15 (MULTICOLOR) / DM15 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM16 | DM16 (MULTICOLOR) / DM16 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM17 | DM17 (MULTICOLOR) / DM17 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM18 | DM18 (MULTICOLOR) / DM18 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM19 | DM19 (MULTICOLOR) / DM19 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |
| DM20 | DM20 (MULTICOLOR) / DM20 (GREEN) | FRONT / REAR / POST / UNDER / POST / FRONT |

GROUNDINGS

| Ground | Location / Type |
|--------|--|
| CG1 | CHASSIS GROUND - REAR / FRONT / UNDER / POST |
| CG2 | CHASSIS GROUND - REAR / FRONT / UNDER / POST - COMMON SIDE |
| CG3 | CHASSIS GROUND - REAR / FRONT / UNDER / POST - COMMON SIDE |
| CG4 | CHASSIS GROUND - REAR / FRONT / UNDER / POST - COMMON 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 | O | SG | D | C | S | BA | V | Hz | ms | μs | MHz |
|-------|--------|---------------|-------------------------|---------------|-------------|-----------------|--------------|-----------|--------------|--------------|------------------|
| Input | Output | Signal Ground | Serial and Encoded Data | CAN (Network) | SCP Network | Battery Voltage | Voltage (DC) | Frequency | Milliseconds | Microseconds | Frequency x 1000 |

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.

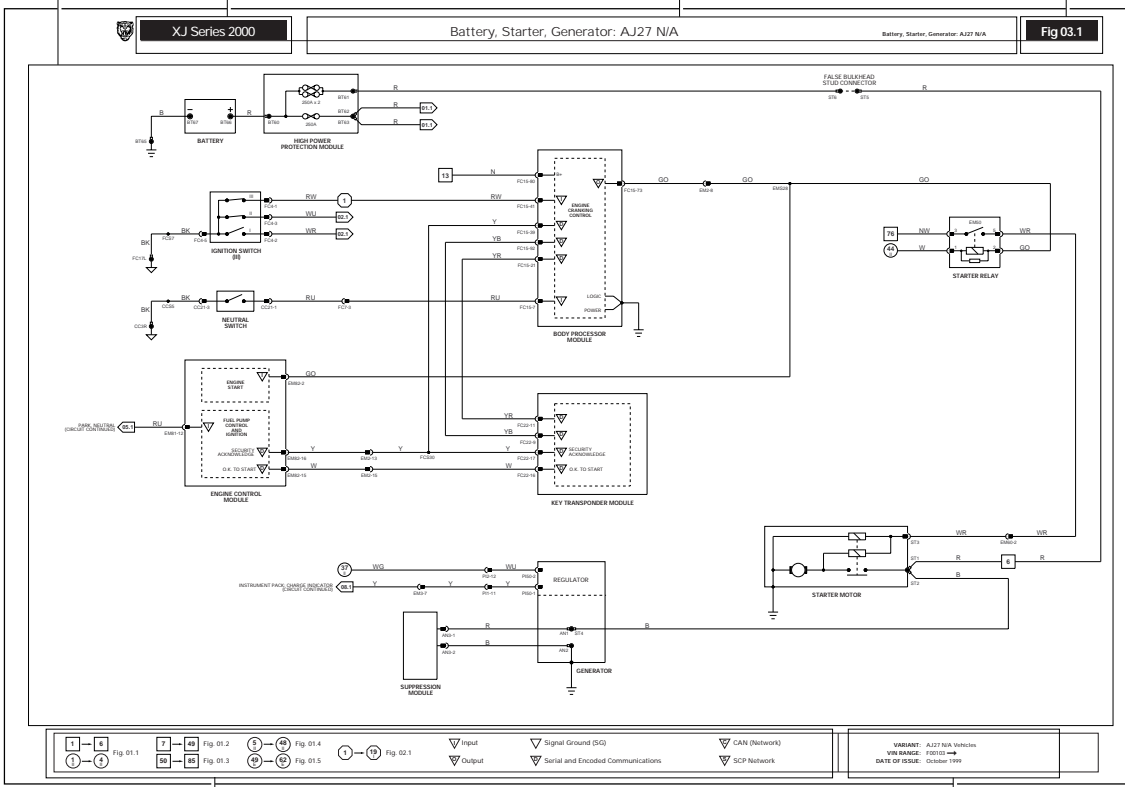
Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

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.

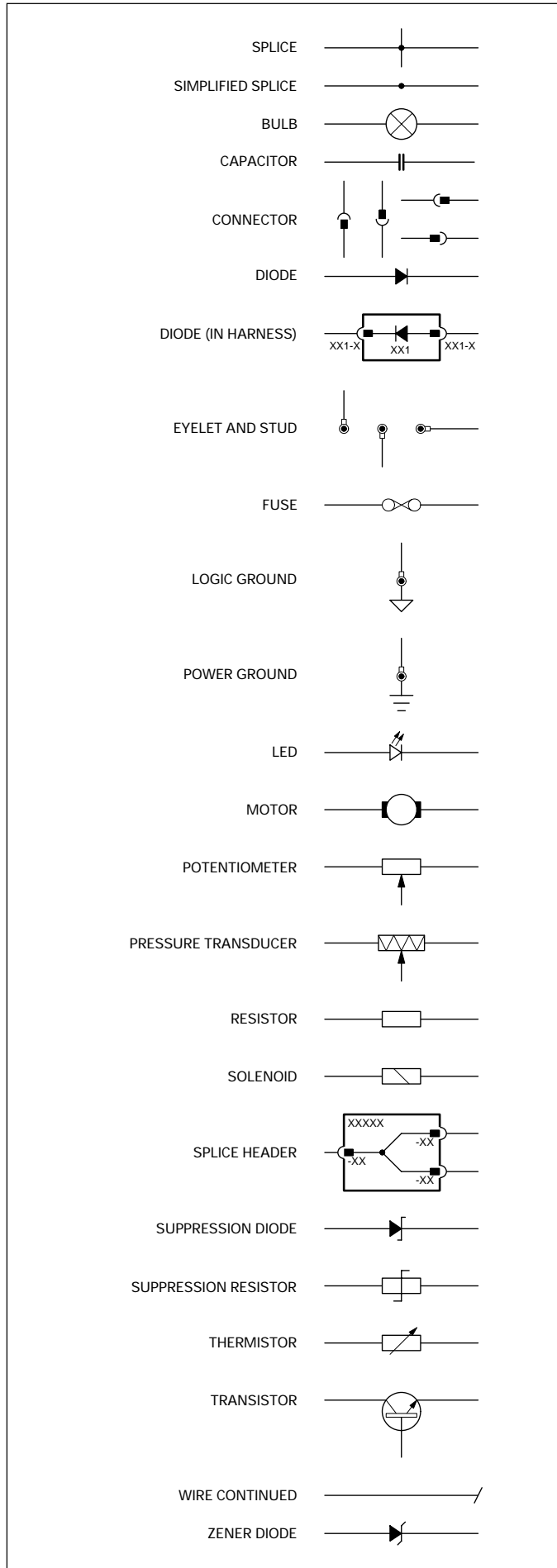
Control Module Input, Output, Data Link, Signal Ground and Network(s)

-  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.



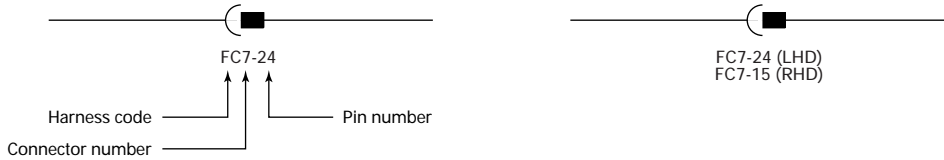
Harness Component Numbers

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).

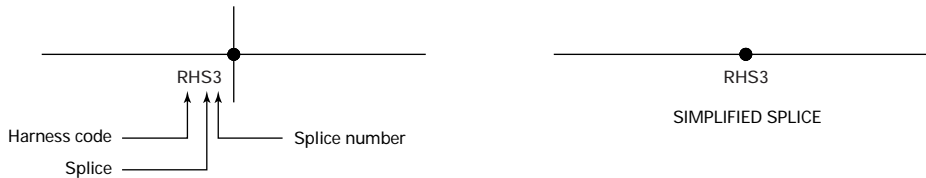


Splices

HARNESS CODE + S (SPLICE) + SPLICE NUMBER

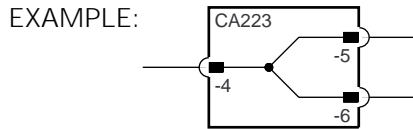
EXAMPLE: RHS3 (no dash is used)

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.



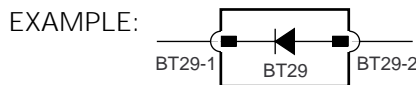
Splice Headers

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.



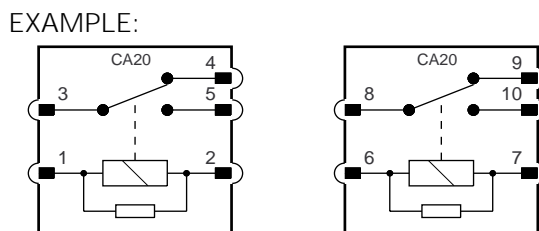
Diodes

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

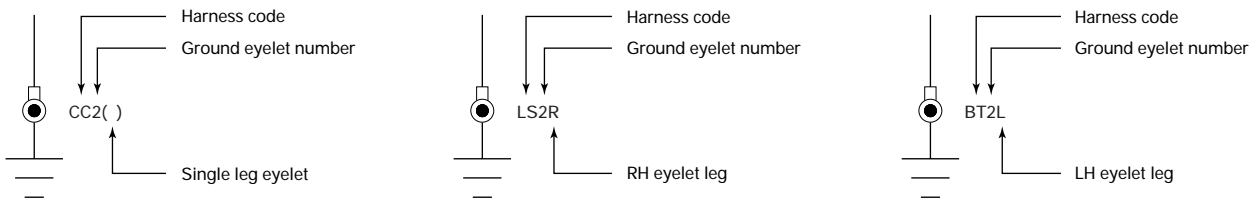
HARNESS CODE + GROUND EYELET NUMBER + EYELET DESIGNATION (L or R where applicable)

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).

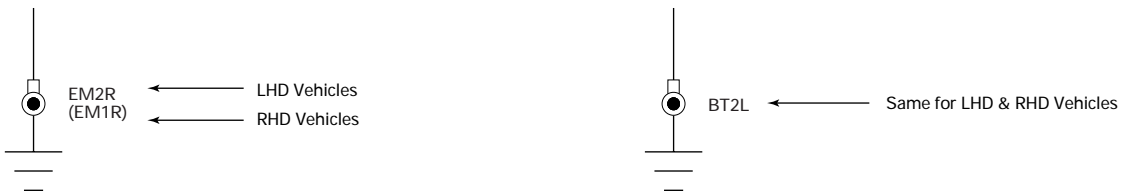


EXAMPLES:



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:

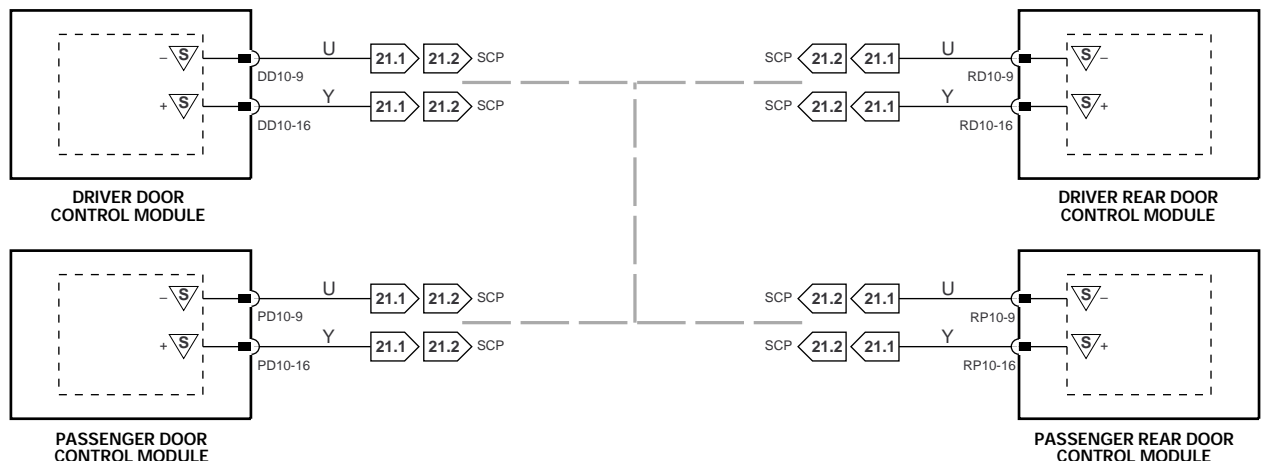


NOTE: The XJ Series ground studs are not identified by code. Therefore, multiple eyelets with different harness codes may be connected to a ground stud.

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:

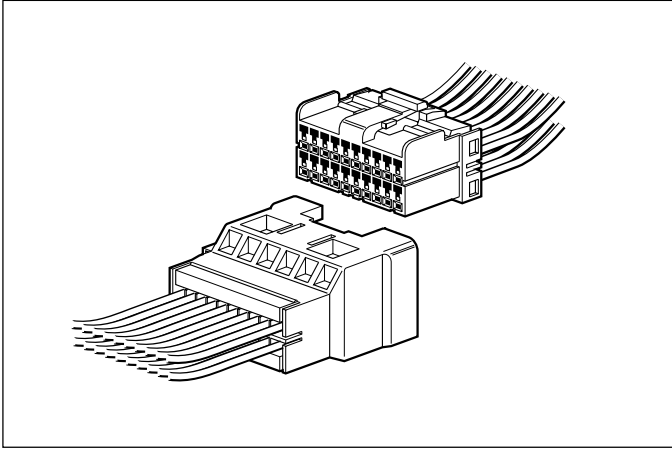




The following connectors are the common harness-to-harness connectors used throughout the vehicle.

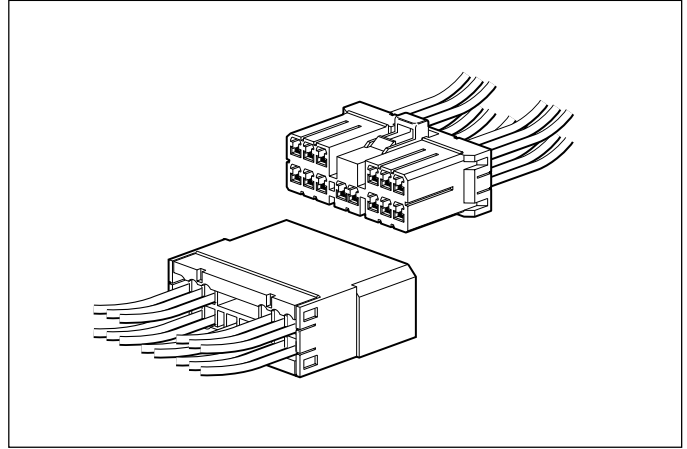
Multilock 040

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



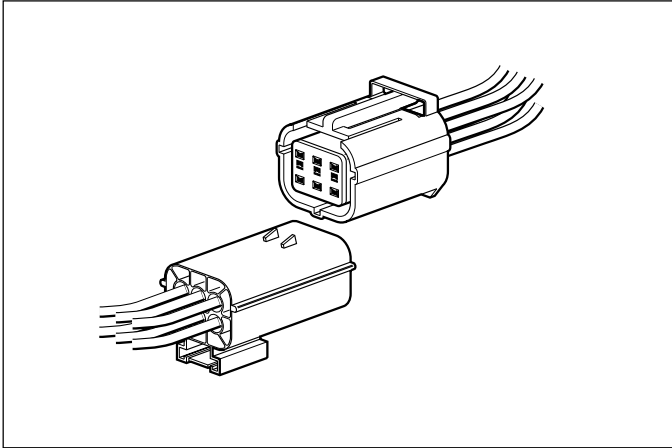
Multilock 070

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



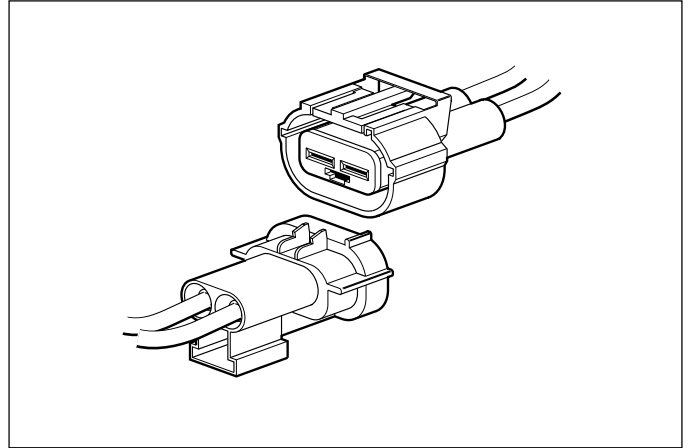
Econoseal III LC

Low current sealed connector.



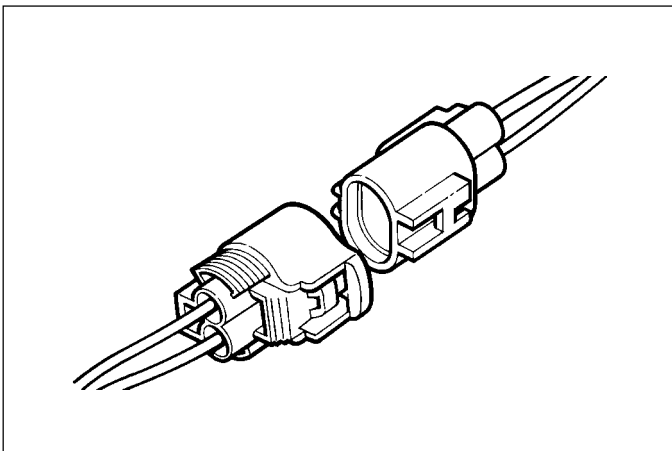
Econoseal III HC

High current sealed connector.



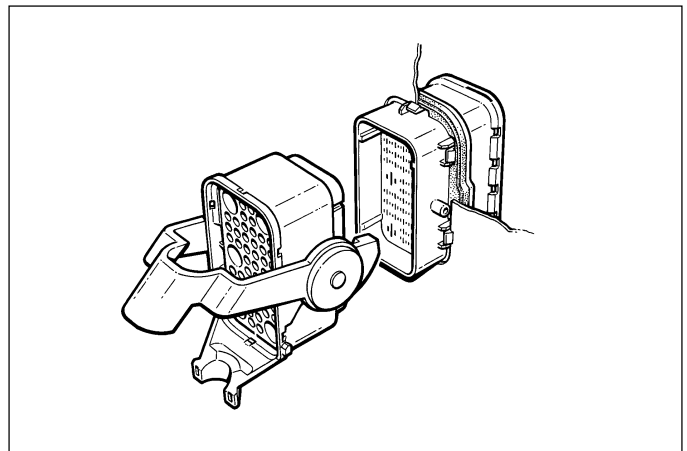
Ford Card

Used for SRS only.



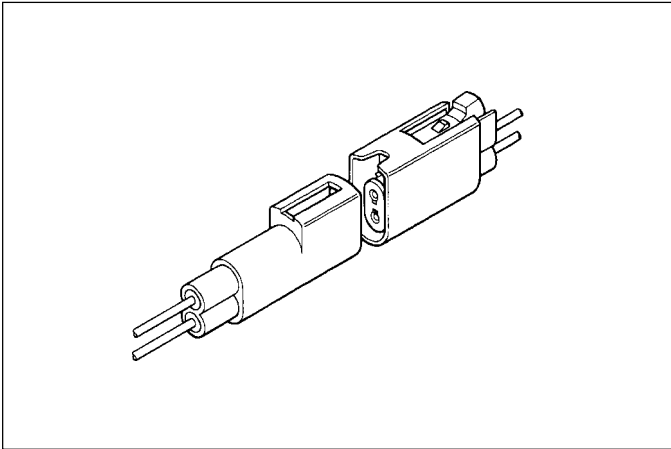
Through Panel

54-way connector.

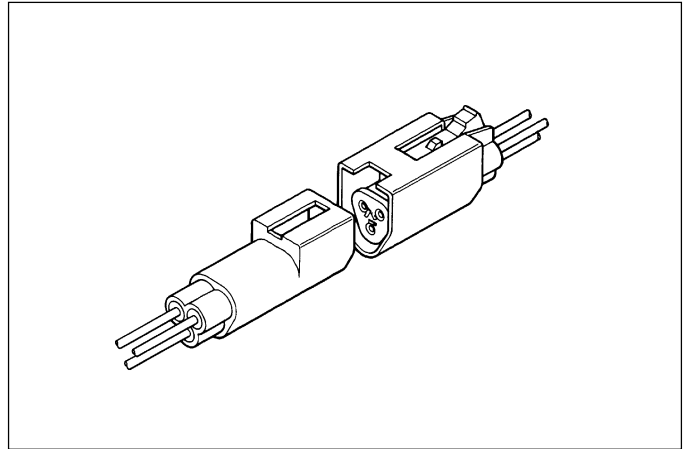




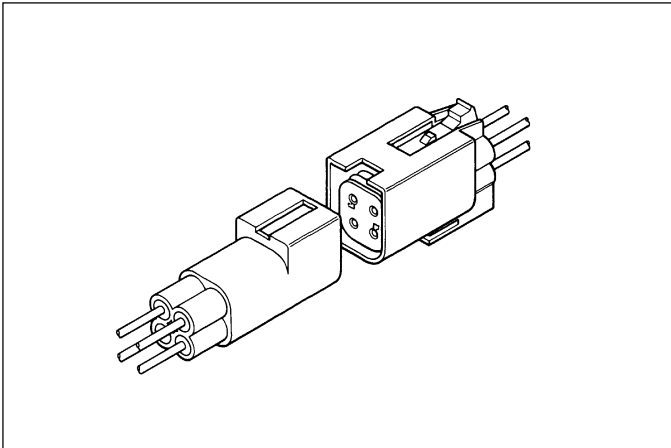
Augat 1.6
2-way connector.



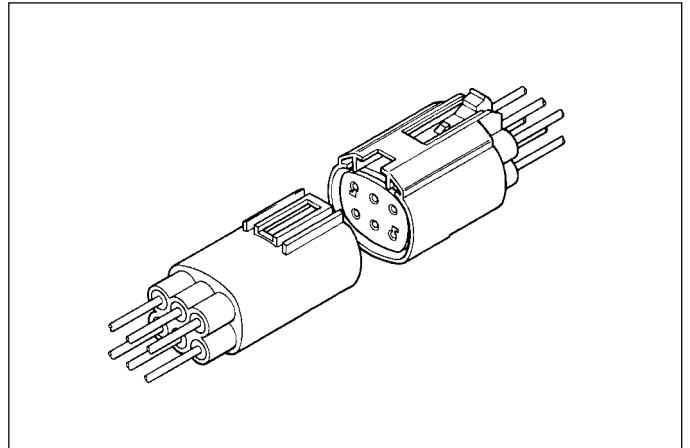
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3-way connector.



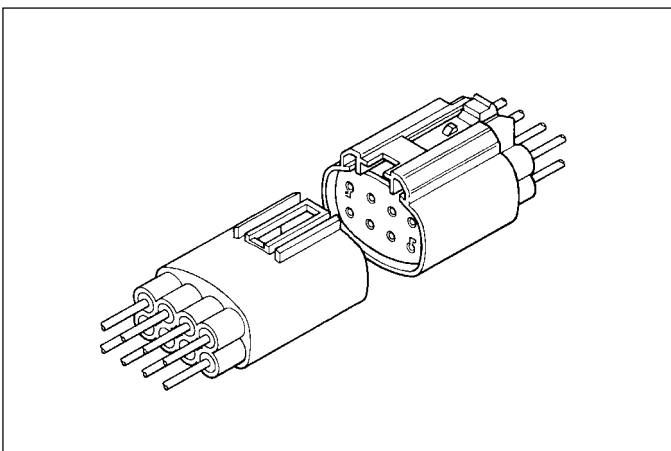
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4-way connector.

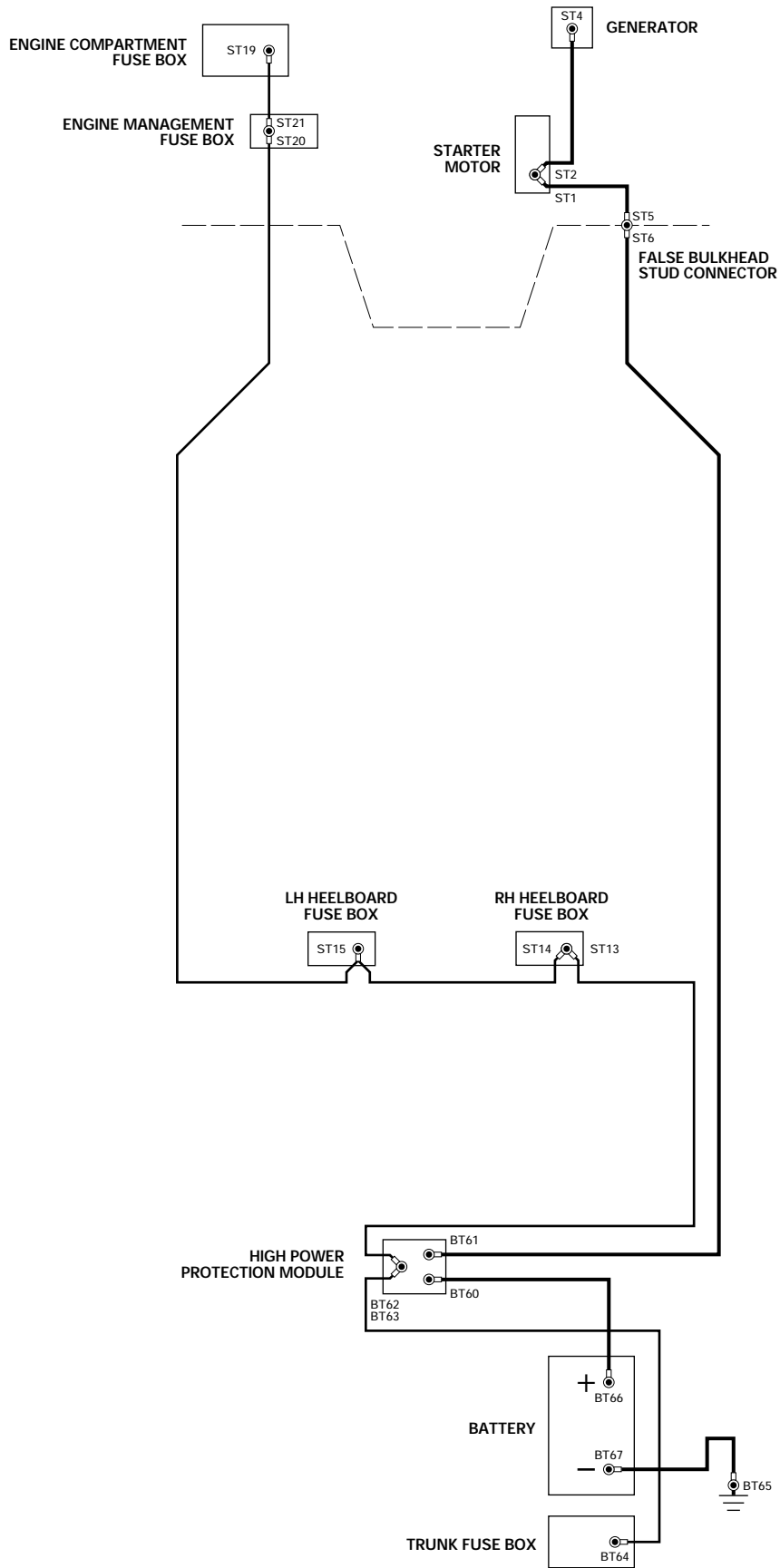


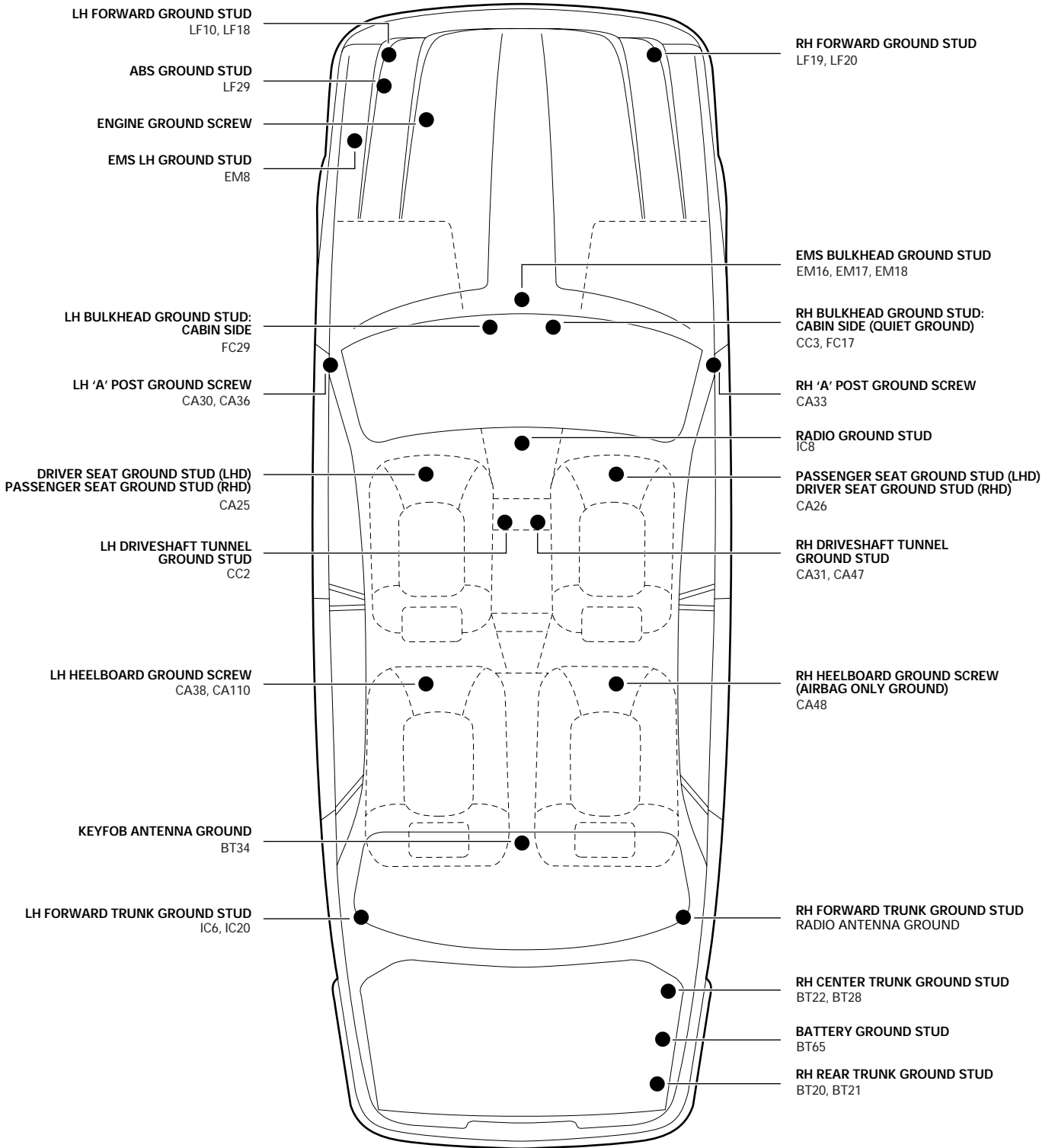
Augat 1.6
6-way connector.



Augat 1.6
8-way connector.



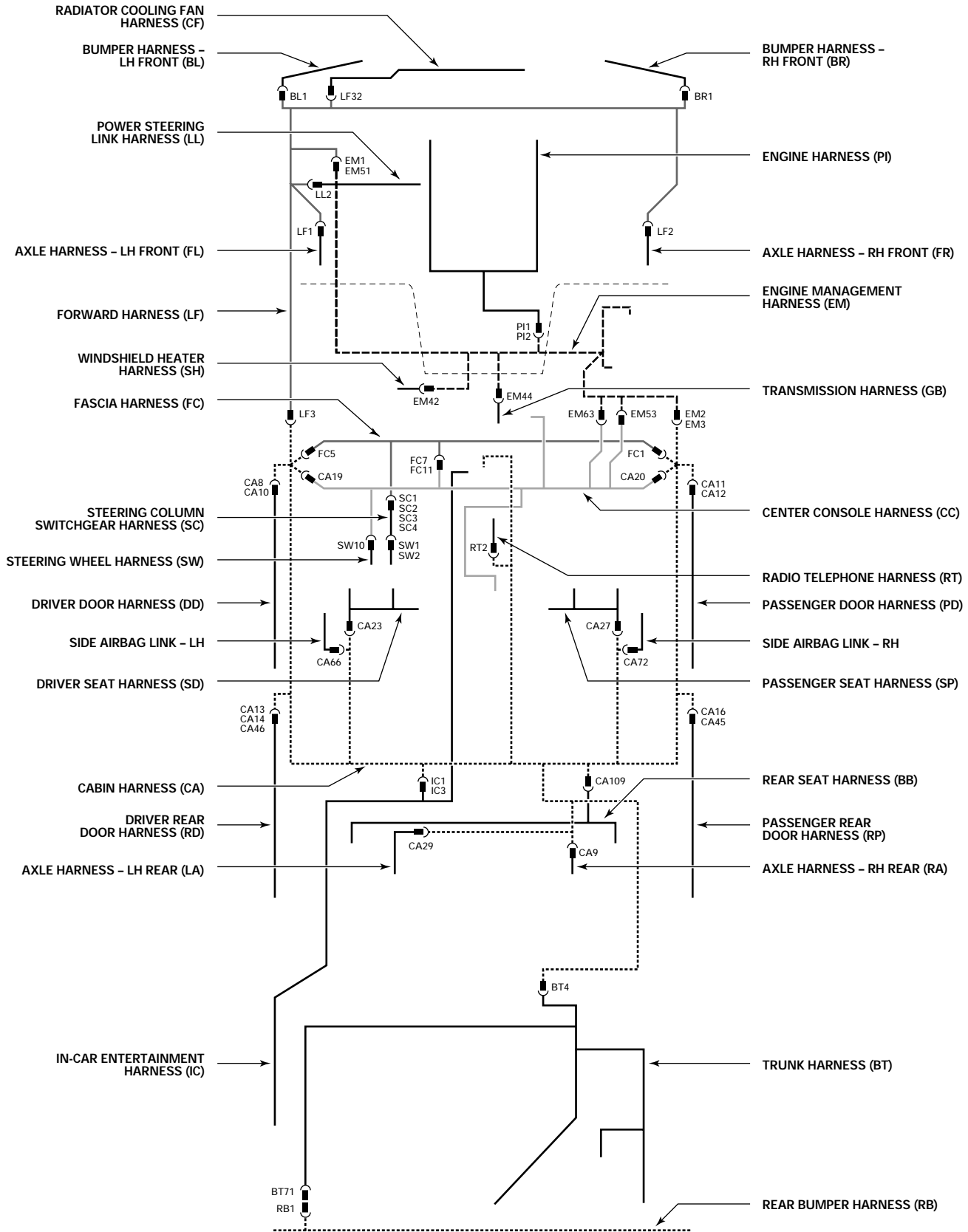






LHD

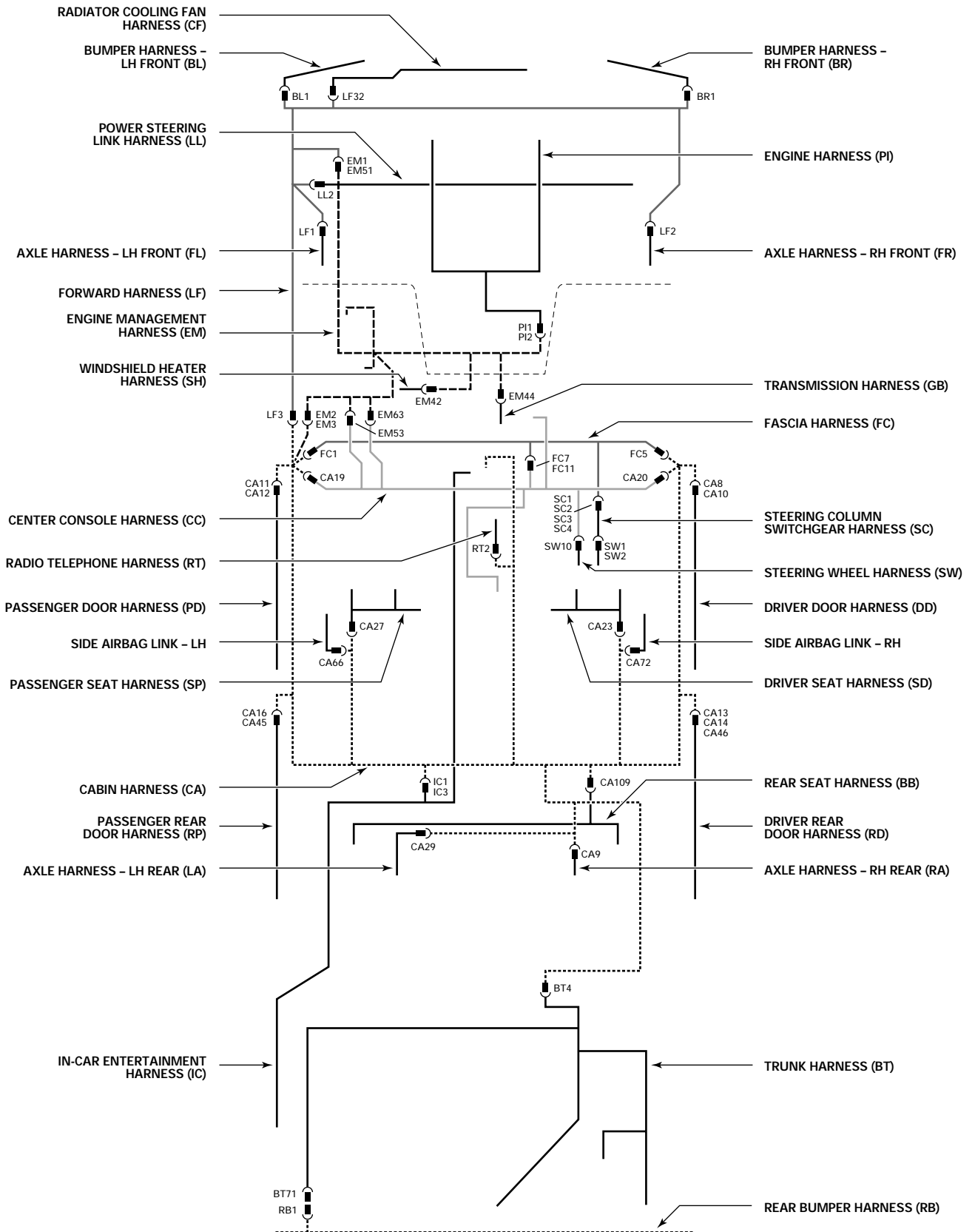
FRONT OF VEHICLE





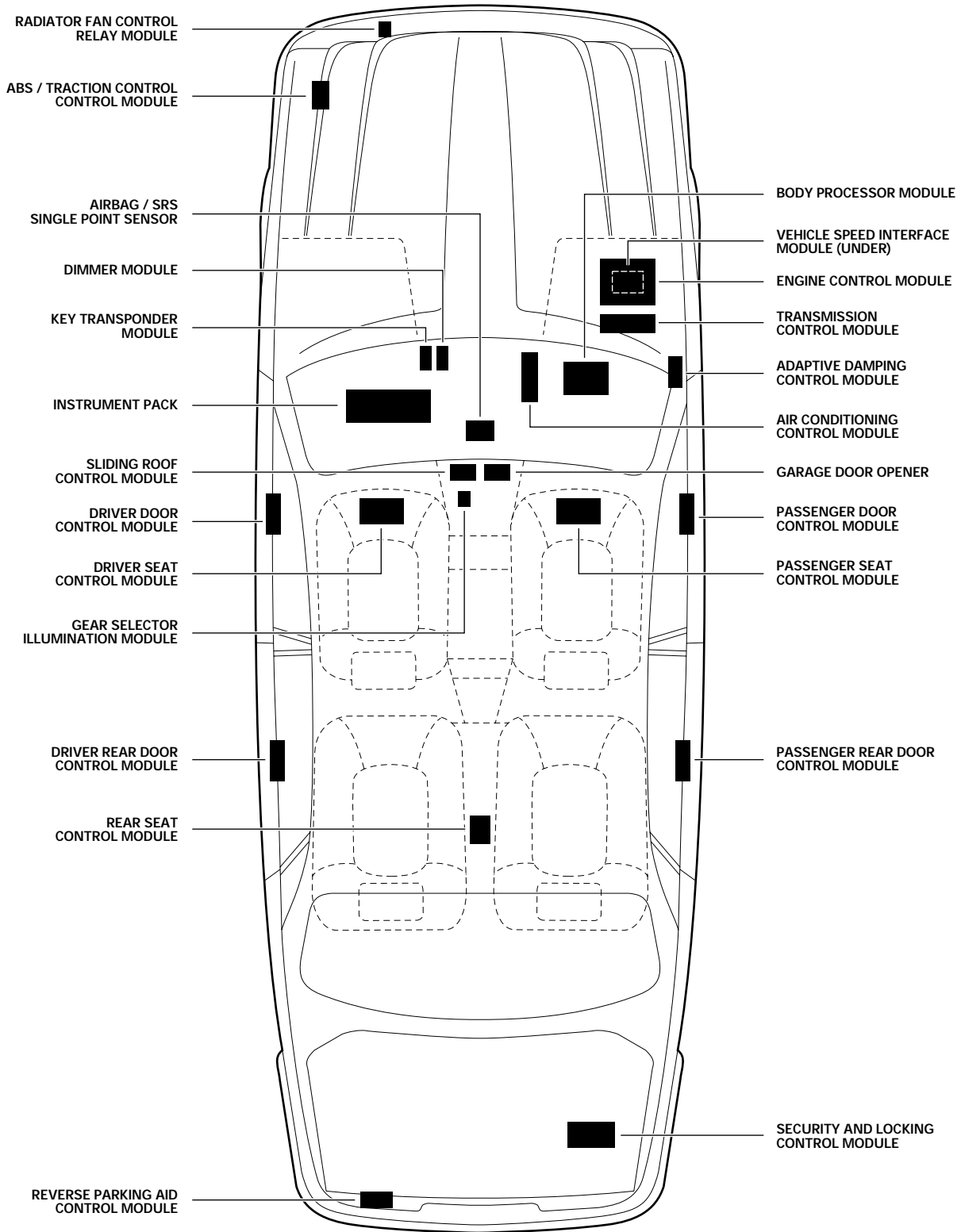
RHD

FRONT OF VEHICLE



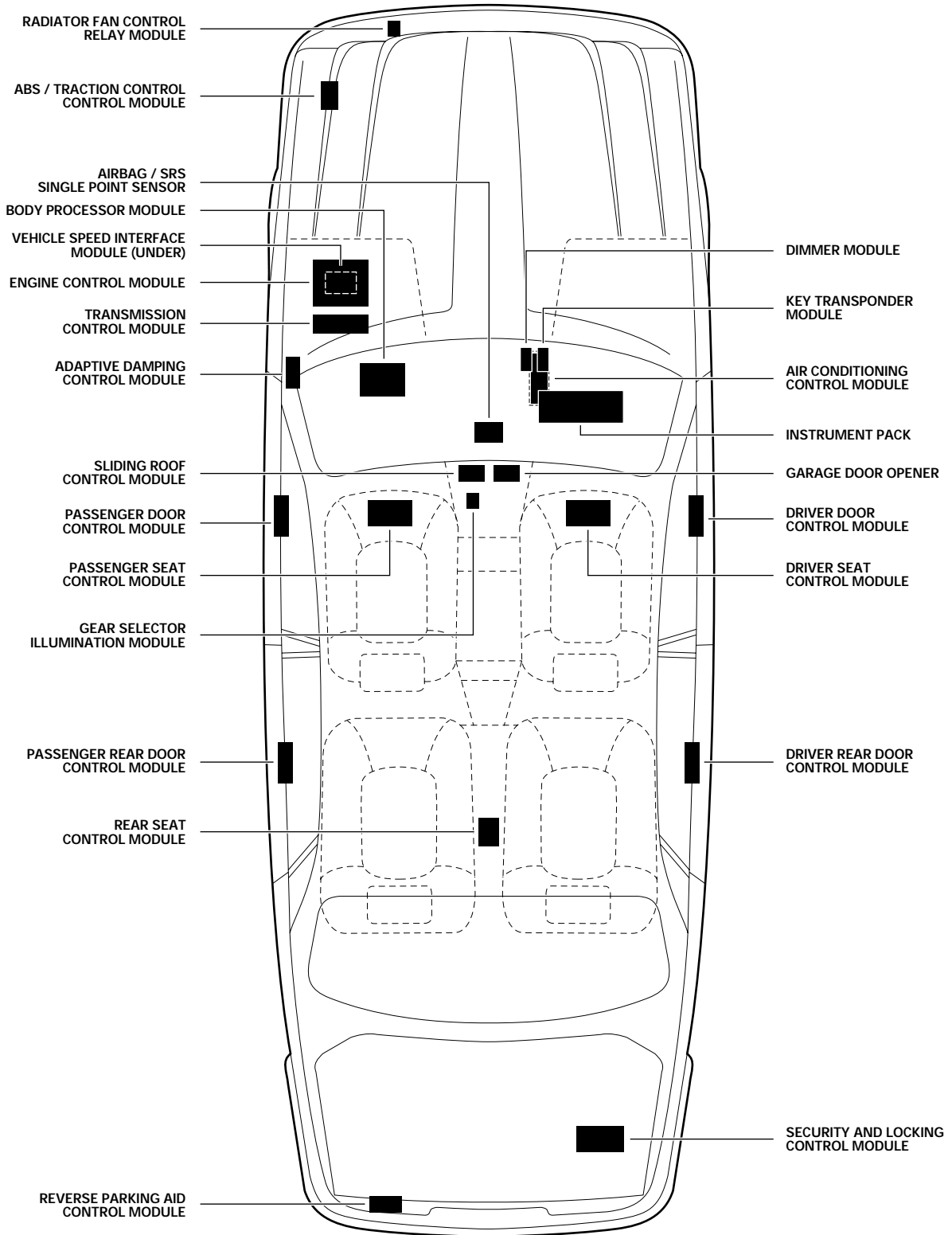


LHD



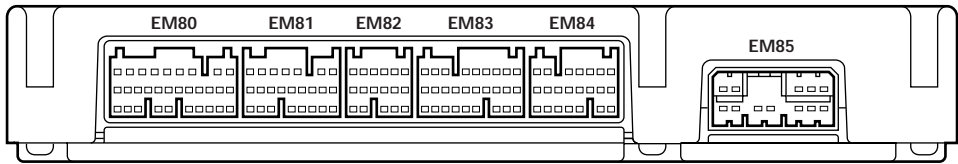


RHD





ENGINE CONTROL MODULE: AJ27 N/A



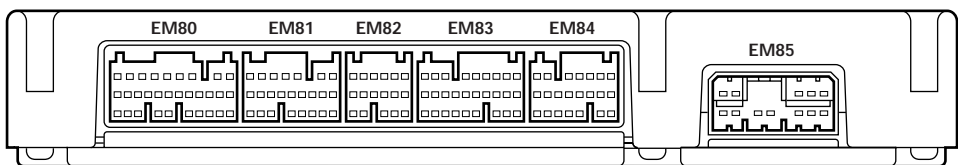
| EM80 / 31-WAY / NATURAL | | | | | | | | | | | EM81 / 24-WAY / NATURAL | | | | | EM82 / 17-WAY / NATURAL | | | | | EM83 / 28-WAY / NATURAL | | | | | | | EM84 / 22-WAY / NATURAL | | | | | | | | | | | | | | | | |
|-------------------------|---------|----------|---------|---------|----------|----------|----------|----------|----------|----------|-------------------------|-----------|----------|----------|----------|-------------------------|----------|---------|---------|---------|-------------------------|----------|----------|----------|----------|---------|---------|-------------------------|---------|---------|----------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|--------|
| 9 GW | 8 GW | 7 R | 6 R | 5 G | 4 G | 3 B | 2 GU* | 1 UY | 7 RG | 6 OG | 5 W | 4 WU | 3 U | 2 RW | 1 OY | 6 GR | 5 G | 4 R | 3 — | 2 GO | 1 OY | 9 N | 8 Y | 7 U | 6 BG | 5 OY | 4 WR | 3 RU | 2 — | 1 — | 7 U | 6 BW | 5 BW | 4 BW | 3 BO | 2 BG | 1 B | | | | | | | |
| 21 B | 20 U | 19 W | 18 W | 17 O | 16 YU | 15 YG | 14 — | 13 — | 12 U | 11 UY | 10 WU | 16 RG* | 15 YG | 14 YR | 13 WU | 12 RU | 11 — | 10 U | 9 W | 8 B | 12 GU | 11 W | 10 Y | 9 W | 8 OG | 7 BG | 19 G | 18 B | 17 O | 16 G | 15 G | 14 Y | 13 BG | 12 BR | 11 YG | 10 YG | 15 UY | 14 BG | 13 BR | 12 GU | 11 GR | 10 GO | 9 GW | 8 — |
| 31 B | 30 — | 29 BK | 28 — | 27 U | 26 — | 25 RW | 24 — | 23 UY | 22 RW | 24 BG | 23 — | 22 OY | 21 BK | 20 — | 19 G | 18 R | 17 WR | 17 O | 16 Y | 15 W | 14 UY | 13 WR | 28 GW | 27 BW | 26 BW | 25 Y | 24 Y | 23 N | 22 N | 21 U | 20 NR | 22 B | 21 BO | 20 GB | 19 GW | 18 GO | 17 GU | 16 B | 17 GU | 16 B | | | | |

* Not used - ROW vehicles.

EM85 / 12-WAY / WHITE

| | | | | | | |
|---------|---------|---------|---------|---------|--------|--------|
| 5 U | 4 — | 3 — | 2 UY | 1 RU | | |
| 12 — | 11 — | 10 — | 9 — | 8 WG | 7 B | 6 B |

ENGINE CONTROL MODULE: AJ27 SC



| EM80 / 31-WAY / NATURAL | | | | | | | | | | | EM81 / 24-WAY / NATURAL | | | | | EM82 / 17-WAY / NATURAL | | | | | EM83 / 28-WAY / NATURAL | | | | | | | EM84 / 22-WAY / NATURAL | | | | | | | | | | | | | | | | |
|-------------------------|---------|----------|-----------|---------|----------|----------|----------|----------|----------|----------|-------------------------|-----------|----------|----------|----------|-------------------------|----------|---------|---------|---------|-------------------------|----------|----------|----------|----------|---------|---------|-------------------------|---------|---------|----------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|--------|
| 9 GW | 8 GW | 7 R | 6 R | 5 G | 4 G | 3 B | 2 GU* | 1 UY | 7 — | 6 — | 5 W | 4 WU | 3 U | 2 — | 1 — | 6 GR | 5 G | 4 R | 3 WB | 2 GO | 1 OY | 9 N | 8 Y | 7 P | 6 BG | 5 OY | 4 WR | 3 — | 2 — | 1 — | 7 U | 6 BW | 5 BW | 4 BW | 3 BO | 2 BG | 1 B | | | | | | | |
| 21 B | 20 U | 19 W | 18 W | 17 O | 16 YU | 15 YG | 14 RW | 13 — | 12 U | 11 UY | 10 WU | 16 RG* | 15 YG | 14 YR | 13 WU | 12 RU | 11 — | 10 U | 9 K | 8 B | 12 GU | 11 W | 10 Y | 9 W | 8 OG | 7 BG | 19 G | 18 B | 17 O | 16 G | 15 G | 14 S | 13 BG | 12 BR | 11 YG | 10 YG | 15 UY | 14 BG | 13 BR | 12 GU | 11 GR | 10 GO | 9 GW | 8 — |
| 31 B | 30 — | 29 BK | 28 BW* | 27 U | 26 — | 25 RW | 24 — | 23 UY | 22 RW | 24 BG | 23 O | 22 OY | 21 BK | 20 — | 19 G | 18 R | 17 WR | 17 O | 16 Y | 15 W | 14 UY | 13 WR | 28 GW | 27 BW | 26 BW | 25 Y | 24 Y | 23 N | 22 N | 21 U | 20 NR | 22 B | 21 BO | 20 GB | 19 GW | 18 GO | 17 GU | 16 B | 17 GU | 16 B | | | | |

* Not used - ROW vehicles.

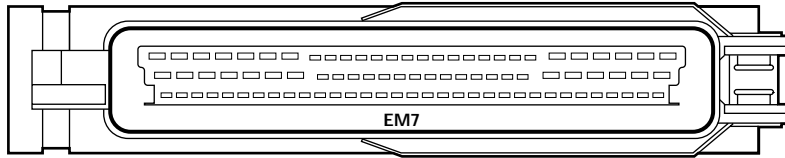
EM85 / 12-WAY / WHITE

| | | | | | | |
|---------|----------|-----------|----------|---------|--------|--------|
| 5 U | 4 YG* | 3 YU* | 2 UY | 1 RU | | |
| 12 — | 11 — | 10 YR* | 9 YR* | 8 WG | 7 B | 6 B |

* Not used - ROW vehicles.



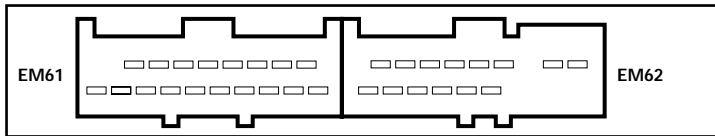
TRANSMISSION CONTROL MODULE: AJ27 N/A



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

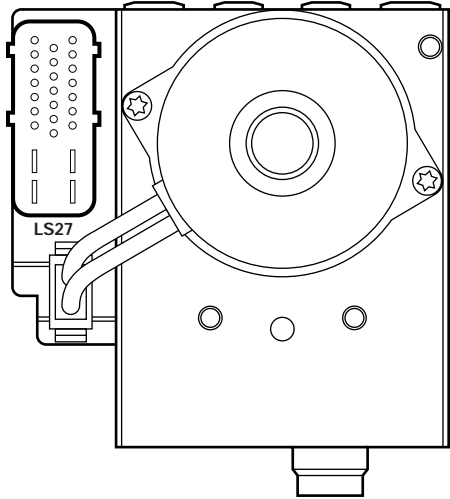
| | | | | | | | | | |
|----|----|----|----|----|----|----|----|---|----|
| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | | |
| — | — | GB | GU | GU | GR | WB | B | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| — | BW | U | — | — | — | — | — | — | — |

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

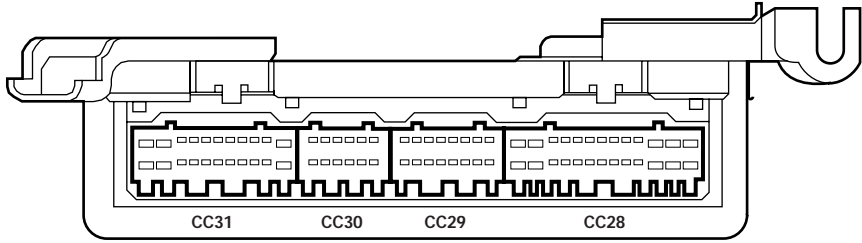


EM68 / 35-WAY / BLACK

| | | | | | | | | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|---------|---------|---------|
| 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

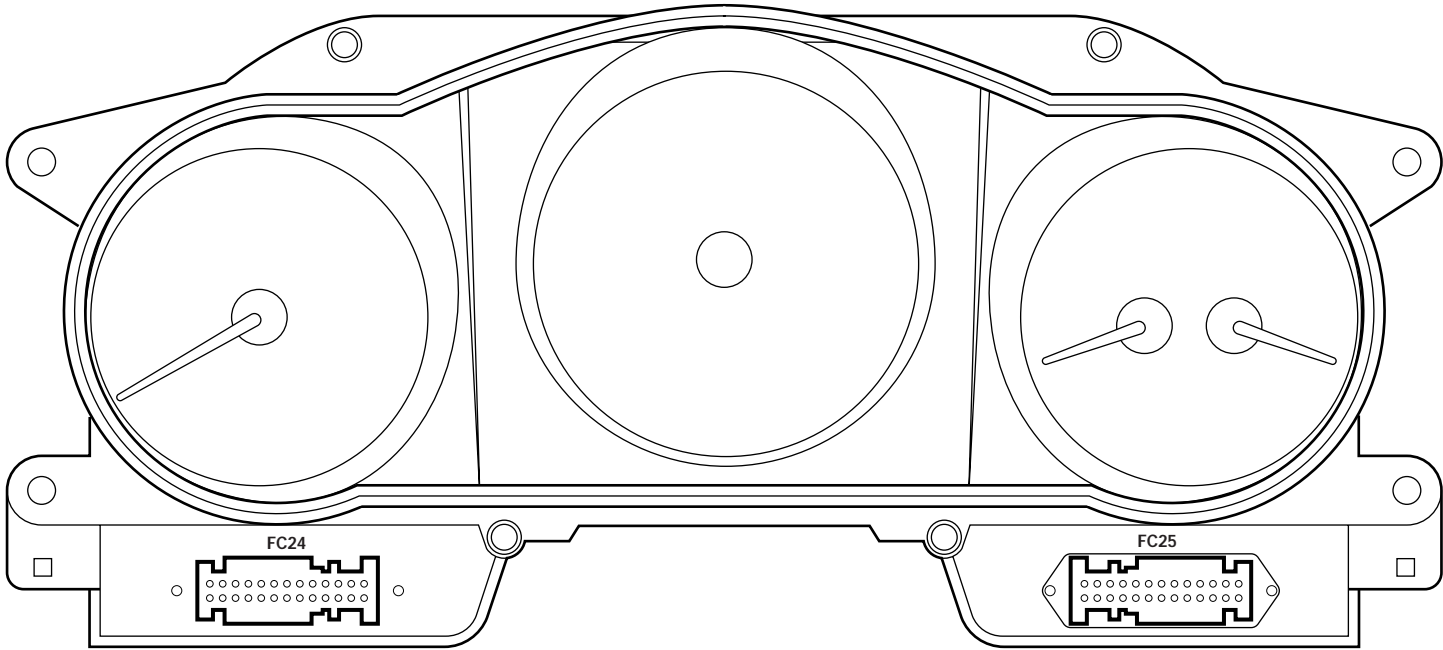
| | | | | | | | |
|---------|---------|----------|---------|----------|---------|---------|----------|
| 9 — | 10 O | 11 YG | 12 — | 13 UY | 14 — | 15 U | 16 GU |
| 1 OG | 2 RG | 3 Y | 4 — | 5 YB | 6 YG | 7 OG | 8 GO |

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

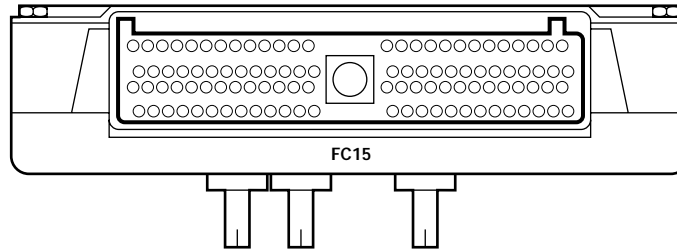
| | | | | | | | | | | | | |
|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|
| 1 WG | 2 — | 3 YR | 4 BK | 5 — | 6 RU | 7 YB | 8 UY | 9 R | 10 Y | 11 Y | 12 — | 13 Y |
| 14 U | 15 NR | 16 B | 17 — | 18 Y | 19 O | 20 — | 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

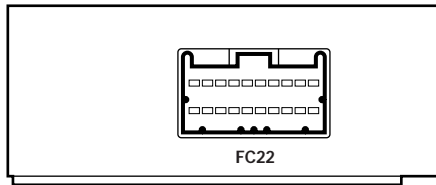


FC15 / 104-WAY / GREY

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|---------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|----------|----------|-----------|
| 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

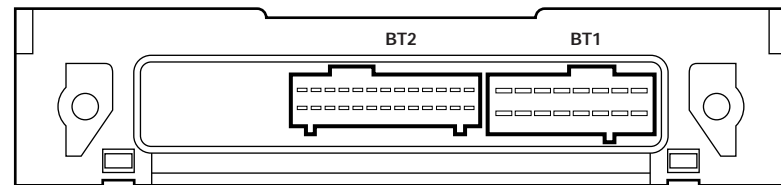


FC22 / 20-WAY / GREEN

| | | | | | | | | | |
|----------|-----------|-----------|---------|---------|----------|----------|-----------|-----------|----------|
| 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 — |

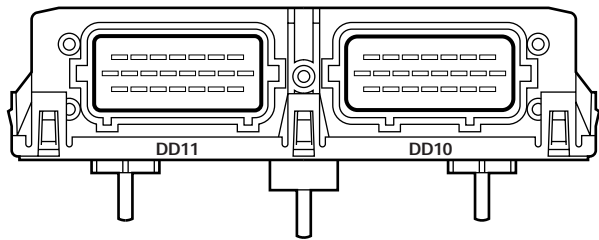
* Not used – NAS vehicles.

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

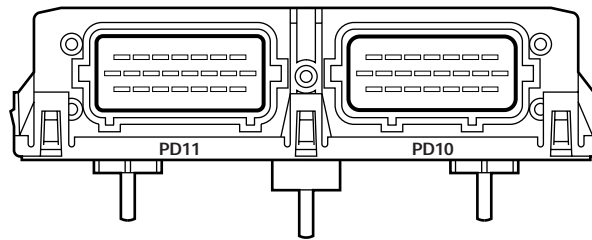
| | | | | | | | |
|----|----|----|----|----|----|----|---|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| BR | BW | GB | OY | O | U | BK | |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 |
| YG | — | OY | GU | — | YR | RG | — |
| 22 | 21 | 20 | 19 | 18 | 17 | 16 | — |
| BO | BW | G | — | — | YR | — | — |

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

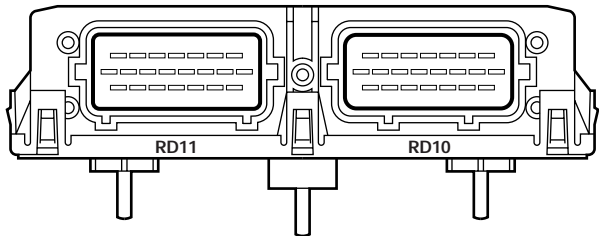
| | | | | | | | |
|----|----|----|----|----|----|----|---|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| — | BO | — | — | — | — | — | |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 |
| U | — | — | — | — | — | — | U |
| 22 | 21 | 20 | 19 | 18 | 17 | 16 | — |
| — | BG | G | — | — | — | — | — |

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

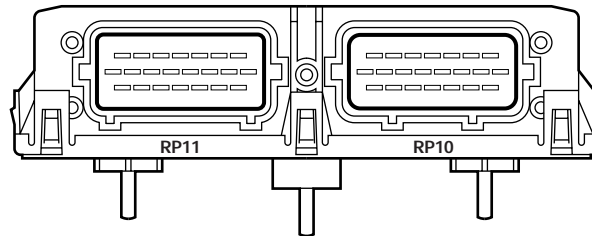
| | | | | | | | |
|----|----|----|----|----|----|----|---|
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| BK | BO | O | — | — | — | — | |
| 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 |
| OG | — | WU | — | — | — | — | — |
| 22 | 21 | 20 | 19 | 18 | 17 | 16 | — |
| — | BG | B | — | — | — | — | — |

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 | — | — | — | — | — |

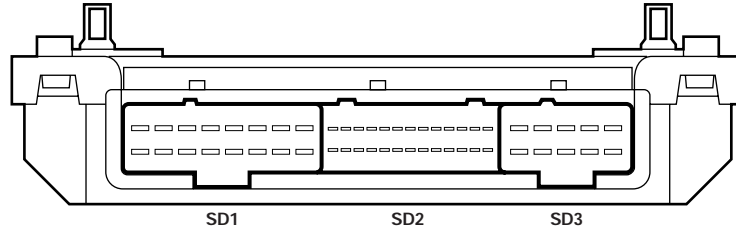
RP10 / 22-WAY / BLUE

| | | | | | | | |
|----|-----|----|----|----|----|----|----|
| 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 |

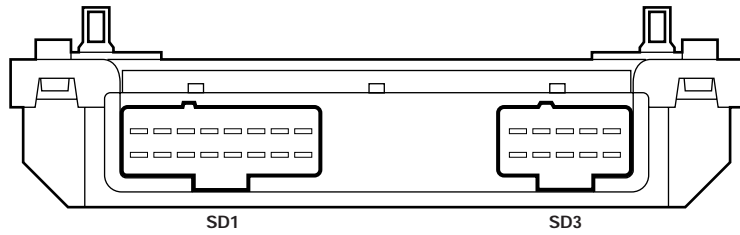
SD2 / 26-WAY / BLACK

| | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 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



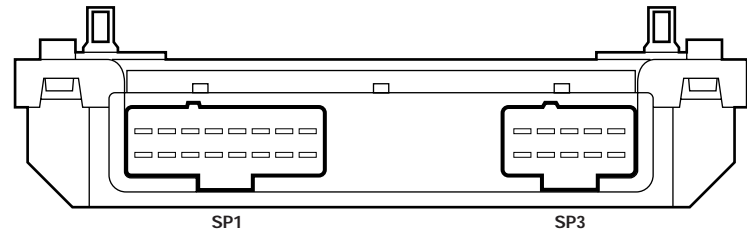
SD1 / 16-WAY / BLACK

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 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

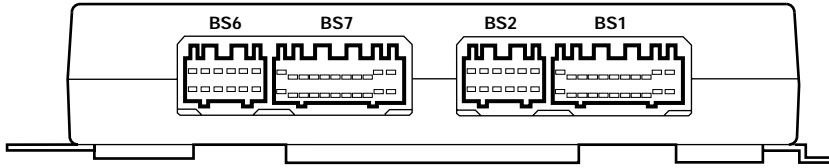
| | | | | | | | |
|---|----|----|----|----|----|----|----|
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Y | N | WG | W | OY | UY | G | RW |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| R | RU | OG | UY | GW | GO | YB | WU |

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 | — | — |

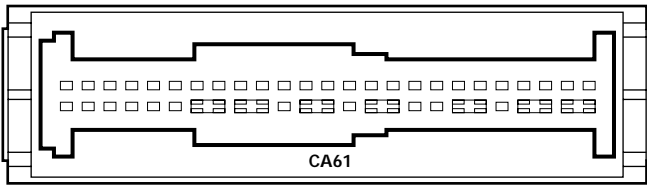
BS2 / 12-WAY / BLUE

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

BS1 / 22-WAY / BLUE

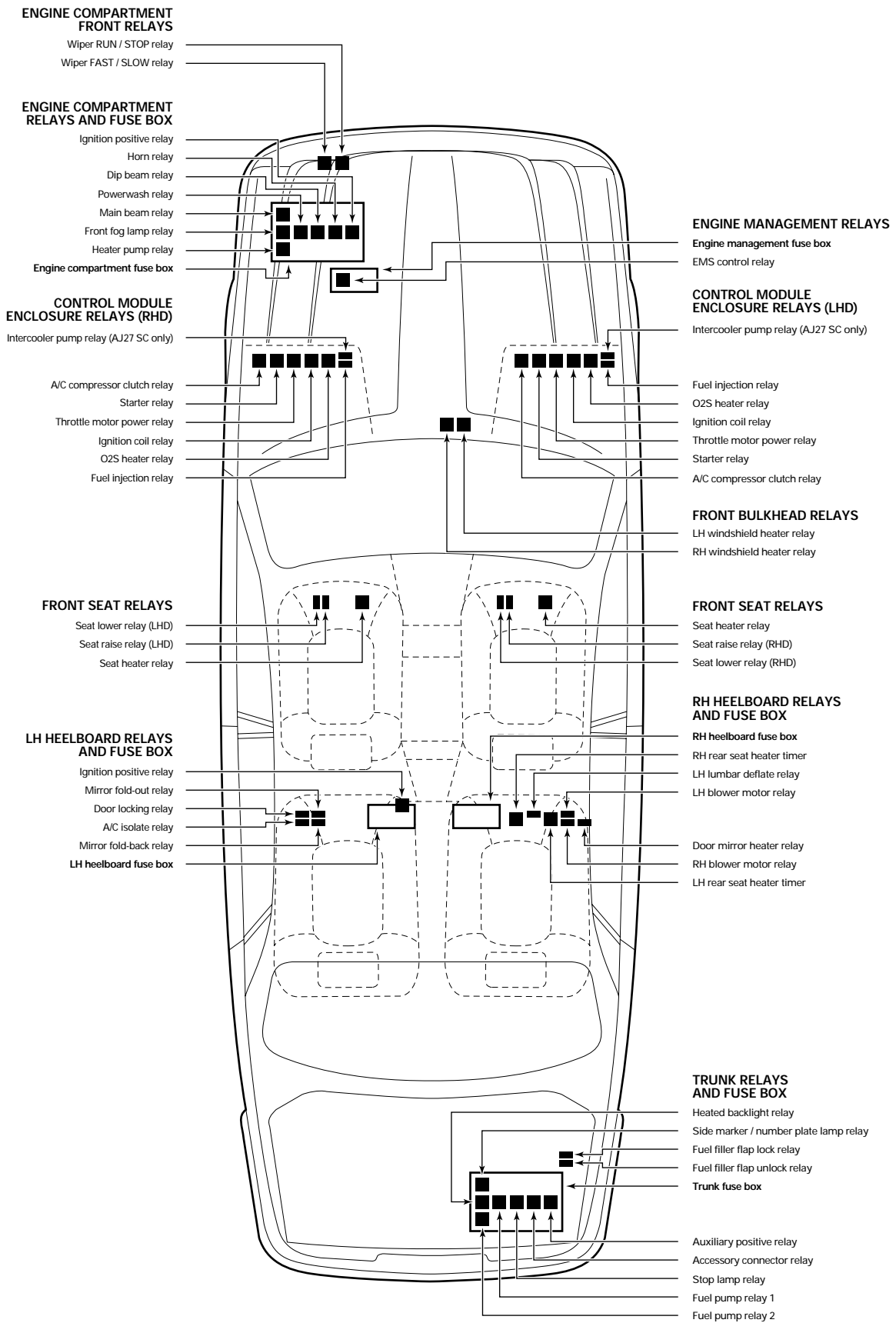
| | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|
| 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Y | B | — | — | — | — | — | — | — | — | — |
| 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 |
| B | — | — | — | — | — | — | — | — | — | B |

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.

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

FUZE BOX - LH HEELBOARD

FUZE BOX - RH HEELBOARD

SPLICE HEADER - CA222

SPLICE HEADER - CA223

SPLICE HEADER - CA224

Connector / Type / ColorCA1 / 10-WAY U.T.A. FUZE BOX / NATURAL
CA2 / 10-WAY U.T.A. FUZE BOX / BLACK
ST15 / EYELETCA41 / 10-WAY U.T.A. FUZE BOX / NATURAL
CA42 / 10-WAY U.T.A. FUZE BOX / BLACK
ST13 / EYELET
ST14 / EYELET

CA222 / 20-WAY SUMITOMO SPLICE HEADER / GREY

CA223 / 20-WAY SUMITOMO SPLICE HEADER / BLACK

CA224 / 20-WAY SUMITOMO SPLICE HEADER / GREEN

Location / Access

LH HEELBOARD / HEELBOARD COVER

RH HEELBOARD / HEELBOARD COVER

RH HEELBOARD / HEELBOARD COVER

RH HEELBOARD / HEELBOARD COVER

LH HEELBOARD / HEELBOARD COVER

HARNES-TO-HARNES CONNECTORS**Connector**

BT4

CA10

CA12

CA14

CA16

CA19

CA20

CA23

CA27

FC1

FC5

IC1

Type / Color

54-WAY THROUGH PANEL / GREY

8-WAY MULTILOCK 070 / YELLOW

8-WAY MULTILOCK 070 / YELLOW

6-WAY MULTILOCK 070 / WHITE

6-WAY MULTILOCK 070 / WHITE

20-WAY MULTILOCK 070 / YELLOW

20-WAY MULTILOCK 070 / YELLOW

10-WAY MULTILOCK 070 / WHITE

10-WAY MULTILOCK 070 / WHITE

54-WAY THROUGH PANEL CONNECTOR / GREY

54-WAY THROUGH PANEL CONNECTOR / GREY

14-WAY MULTILOCK 070 / WHITE

Location / Access

BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE

DRIVER 'A' POST / DOOR HARNES GAITER

PASSENGER 'A' POST / DOOR HARNES GAITER

DRIVER 'B/C' POST / DOOR HARNES GAITER

PASSENGER 'B/C' POST / DOOR HARNES GAITER

LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER

RH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER

BELOW DRIVER SEAT

BELOW PASSENGER SEAT

BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY

BELOW DRIVER SIDE AIR VENT / COIN TRAY

LH HEELBOARD

Refer to the front of 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 / ColorLF5 / 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**

FUZE BOX - ENGINE COMPARTMENT

Connector / Type / ColorLF5 / 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 - LH HEELBOARD

CA1 / 10-WAY U.T.A. FUZE BOX / NATURAL
CA2 / 10-WAY U.T.A. FUZE BOX / BLACK
ST15 / EYELET

LH HEELBOARD / HEELBOARD COVER

FUZE BOX - RH HEELBOARD

CA41 / 10-WAY U.T.A. FUZE BOX / NATURAL
CA42 / 10-WAY U.T.A. FUZE BOX / BLACK
ST13 / EYELET
ST14 / EYELET

RH HEELBOARD / HEELBOARD COVER

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****Type / Color**BT4 54-WAY THROUGH PANEL / GREY
CA19 20-WAY MULTILOCK 070 / YELLOW
CA20 20-WAY MULTILOCK 070 / YELLOW
CA109 12-WAY MULTILOCK 070 / WHITE
EM1 12-WAY AUGAT 1.6 / BLACK
EM42 4-WAY YAZAKI / GREY
EM51 12-WAY AUGAT 1.6 / GREY
FC1 54-WAY THROUGH PANEL CONNECTOR / GREY
FC5 54-WAY THROUGH PANEL CONNECTOR / GREY
IC1 14-WAY MULTILOCK 070 / WHITE
IC2 8-WAY MULTILOCK 070 / WHITE
LF3 54-WAY THROUGH PANEL CONNECTOR / GREY**Location / Access**BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
RH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
BELOW REAR SEAT CUSHION
ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
BULKHEAD / REAR OF ENGINE
ENGINE COMPARTMENT / ADJACENT TO ABS PUMP
BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
BELOW DRIVER SIDE AIR VENT / COIN TRAY
LH HEELBOARD
REARWARD OF FUEL TANK / BATTERY COVER
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**

FUZE BOX - ENGINE MANAGEMENT

Connector / Type / ColorEM19 / 10-WAY U.T.A. FUZE BOX / NATURAL
EM20 / 10-WAY U.T.A. FUZE 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****Component**IGNITION SWITCH
INERTIA SWITCH**Connector / Type / Color**FC4 / 8-WAY MULTILOCK 070 / WHITE
CA6 / 3-WAY ECONOSEAL III LC / BLACK**Location / Access**STEERING COLUMN
RH 'A' POST / LOWER 'A' POST FINISHER**HARNESS-TO-HARNESS CONNECTORS****Connector**BT4
CA19
CA20
EM53
FC1
FC11
LF3**Type / Color**54-WAY THROUGH PANEL / GREY
20-WAY MULTILOCK 070 / YELLOW
20-WAY MULTILOCK 070 / YELLOW
20-WAY MULTILOCK 070 / WHITE
54-WAY THROUGH PANEL CONNECTOR / GREY
18-WAY MULTILOCK 070 / WHITE
54-WAY THROUGH PANEL CONNECTOR / GREY**Location / Access**BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE
LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
RH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER
RH 'A' POST / LOWER 'A' POST FINISHER
BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY
ABOVE DIMMER MODULE / COIN TRAY
LH 'A' POST / LOWER 'A' POST FINISHER**GROUNDS****Ground**

FC17L

Location / Type

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) |
| O | EM80-02 | CANISTER CLOSE VALVE ACTIVATE | B+ |
| I | EM80-03 | GROUND (POWER) | GROUND |
| O | EM80-04 | THROTTLE MOTOR POWER SUPPLY | B+ |
| 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 (PPS/1) | 0.6 V - FOOT OFF; 3.8 V - PEDAL FULLY DEPRESSED |
| I | EM81-10 | TPS FEEDBACK (TPS/1) | 0.5 V - IDLE; 4.75 V - WOT |
| I | EM81-12 | PARK / NEUTRAL CONFIRMATION | GROUND (R,D,4,3,2) |
| I | EM81-16 | FUEL TANK PRESSURE SENSOR FEEDBACK | 4.9 V - LOW PRESSURE; 0.2 V - HIGH PRESSURE |
| I | EM81-17 | EMS SWITCHED POWER SUPPLY 1 | B+ |
| I | EM81-18 | PEDAL POSITION FEEDBACK (PPS/2) | 0.8 V - FOOT OFF; 2.4 V - PEDAL FULLY DEPRESSED |
| I | EM81-19 | TPS FEEDBACK (TPS/2) | 0.6 V - IDLE; 4.85 V - WOT |
| 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 | B+ |
| 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 |
| O | EM84-17 | IGNITION MODULE 4B SWITCHING | GROUND (85 - 90% DUTY CYCLE @ IDLE) |
| 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 | EM85-06 | GROUND (HO2S B 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. 04.1

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 |
| CCV: CANISTER CLOSE VALVE | CV1 / 2-WAY YAZAKI 90 / BLACK | UNDER VEHICLE / RH REAR |
| CKPS: CRANKSHAFT POSITION SENSOR | PI17 / 2-WAY ECONOSEAL III HC / BLACK | ENGINE / REAR OF BED PLATE |
| CMPS: CAMSHAFT POSITION SENSOR - '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 |
| FTPS: FUEL TANK PRESSURE SENSOR | FP1 / 3-WAY ECONOSEAL III LC / BLACK | TOP OF FUEL TANK / TRUNK CARPET |
| 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 |

HARNESSTO-HARNESSTO CONNECTORS

| Connector | Type / Color | Location / Access |
|-----------|---------------------------------------|--|
| BT4 | 54-WAY THROUGH PANEL / GREY | BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE |
| BT5 | 3-WAY MULTILOCK 070 / WHITE | TOP OF FUEL TANK / TRUNK CARPET |
| CA19 | 20-WAY MULTILOCK 070 / YELLOW | LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER |
| CV2 | 3-WAY MULTILOCK 070 / WHITE | UNDER REAR SEAT |
| EM1 | 12-WAY AUGAT 1.6 / BLACK | ENGINE COMPARTMENT / ADJACENT TO ABS PUMP |
| EM2 | 20-WAY MULTILOCK 070 / GREY | PASSENGER 'A' POST / LOWER 'A' POST FINISHER |
| EM3 | 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 |
| FC1 | 54-WAY THROUGH PANEL CONNECTOR / GREY | BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY |
| 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

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 V |
| I | EM81-18 | PEDAL POSITION FEEDBACK (PPS2) | 0.8 V = FOOT OFF; 2.4 V = PEDAL FULLY DEPRESSED |
| I | EM81-19 | TPS FEEDBACK (TPS2) | 0.6 V = IDLE; 4.85 V = WOT |
| 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 | B+ (ON) | 0 V |
| O | CC30-1 AIR CONDITIONING ELECTRICAL LOAD SIGNAL | B+ | 0 V |
| I | CC31-7 LOAD INHIBIT | 0 V | B+ |
| O | CC31-9 COMPRESSOR CLUTCH ON REQUEST | B+ | 0 V |
| I | CC31-17 REFRIGERANT 4-WAY PRESSURE SWITCH | 0 V (2 – 30 BAR) | B+ (OUT OF ACTIVE RANGE) |

ENGINE CONTROL MODULE

| Pin | Description | Active | Inactive |
|-----|---|-------------------------------------|----------|
| I | EM80-10 REFRIGERANT 4-WAY PRESSURE SWITCH HIGH PRESSURE | GROUND @ 20 BAR (290 PSI) | |
| I | EM80-11 A/CCM COMPRESSOR CLUTCH REQUEST | B+ | GROUND |
| O | EM80-12 ELECTRICAL LOAD INHIBIT | GROUND | B+ |
| O | EM80-16 CRUISE CONTROL ON STATUS LED | GROUND | B+ |
| D | EM80-17 SERIAL COMMUNICATIONS | | |
| D | EM80-18 SERIAL COMMUNICATIONS | | |
| D | EM80-19 ECM PROGRAMMING | | |
| I | EM80-20 CRUISE CONTROL BRAKE CANCEL REQUEST | GROUND | B+ |
| 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+ | GROUND |
| O | EM80-25 AIR CONDITIONING COMPRESSOR RELAY ACTIVATE | GROUND | B+ |
| O | EM81-04 PARALLEL (HIGH) SPEED FAN ACTIVATE | GROUND | B+ |
| O | EM81-05 SERIES (LOW) SPEED FAN ACTIVATE | GROUND | B+ |
| I | EM81-13 CRUISE CONTROL ON REQUEST | B+ | GROUND |
| 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 | B+ |
| 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 | B+ |
| O | EM84-03 INJECTOR 3B ACTIVATE | GROUND | B+ |
| O | EM84-04 INJECTOR 2B ACTIVATE | GROUND | B+ |
| O | EM84-05 INJECTOR 4A ACTIVATE | GROUND | B+ |
| O | EM84-06 INJECTOR 1B ACTIVATE | GROUND | B+ |
| O | EM84-09 IGNITION MODULE 4A SWITCHING | GROUND (85 – 90% DUTY CYCLE @ IDLE) | B+ |
| O | EM84-10 IGNITION MODULE 3A SWITCHING | GROUND (85 – 90% DUTY CYCLE @ IDLE) | B+ |
| O | EM84-11 IGNITION MODULE 2A SWITCHING | GROUND (85 – 90% DUTY CYCLE @ IDLE) | B+ |
| O | EM84-12 IGNITION MODULE 1A SWITCHING | GROUND (85 – 90% DUTY CYCLE @ IDLE) | B+ |
| I | EM84-13 INJECTOR 4B ACTIVATE | GROUND | B+ |
| I | EM84-14 INJECTOR 3A ACTIVATE | GROUND | B+ |
| O | EM84-17 IGNITION MODULE 4B SWITCHING | GROUND (85 – 90% DUTY CYCLE @ IDLE) | B+ |
| O | EM84-18 IGNITION MODULE 3B SWITCHING | GROUND (85 – 90% DUTY CYCLE @ IDLE) | B+ |
| O | EM84-19 IGNITION MODULE 2B SWITCHING | GROUND (85 – 90% DUTY CYCLE @ IDLE) | B+ |
| O | EM84-20 IGNITION MODULE 1B SWITCHING | GROUND (85 – 90% DUTY CYCLE @ IDLE) | B+ |
| O | EM84-21 INJECTOR 2A ACTIVATE | GROUND | B+ |

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 CC40 / 4-WAY MULTILOCK 070 / WHITE CC20 / 10-WAY AMP MICRO QUAD LOCK / NATURAL SW3 / 3-WAY EPC / BLACK | 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 | 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 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. 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 | ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY CENTER CONSOLE ASSEMBLY CENTER OF STEERING WHEEL ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE |
| FUEL INJECTOR – 1A FUEL INJECTOR – 1B FUEL INJECTOR – 2A FUEL INJECTOR – 2B FUEL INJECTOR – 3A FUEL INJECTOR – 3B FUEL INJECTOR – 4A FUEL INJECTOR – 4B FUEL PUMP FUZE BOX – TRUNK | PI17 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI11 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI8 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI12 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI9 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI13 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI10 / 2-WAY AMP JUNIOR POWER TIMER / BLACK PI14 / 2-WAY AMP JUNIOR POWER TIMER / BLACK BT9 / 4-WAY SUMITOMO DL90 / NATURAL BT10 / 10-WAY U.T.A. 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 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 / 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 FUSE 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

Fig. 04.4

ENGINE CONTROL MODULE

| Pin | Description | Active | Inactive |
|-----|-------------|---|--|
| O | EM80-01 | EVAP VALVE ACTIVATE | GROUND (VALVE OPEN) |
| O | EM80-02 | CANISTER CLOSE VALVE ACTIVATE | B+ |
| 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 | EM80-28 | MAPS FEEDBACK | 1.2 V = IDLE; 3.6 V = ENGINE SWITCHED OFF |
| I | EM80-29 | GROUND (LOGIC 2) | GROUND |
| I | EM80-31 | GROUND (THROTTLE MOTOR 2) | GROUND |
| O | EM81-03 | EMS CONTROLLED RELAY ACTIVATE | GROUND |
| I | EM81-08 | GROUND (POWER) | B+ |
| I | EM81-09 | PEDAL POSITION FEEDBACK (PPS/1) | 0.6 V = FOOT OFF; 3.8 V = PEDAL FULLY DEPRESSED |
| I | EM81-10 | TPS FEEDBACK (TPS/1) | 0.5 V = IDLE; 4.75 V = WOT |
| I | EM81-12 | PAK / NEUTRAL CONFIRMATION | B- (P, N) |
| I | EM81-16 | FUEL TANK PRESSURE SENSOR FEEDBACK | 4.9 V = LOW PRESSURE; 0.2 V = HIGH PRESSURE |
| I | EM81-17 | EMS SWITCHED POWER SUPPLY 1 | B+ |
| I | EM81-18 | PEDAL POSITION FEEDBACK (PPS/2) | 0.8 V = FOOT OFF; 2.4 V = PEDAL FULLY DEPRESSED |
| I | EM81-19 | TPS FEEDBACK (TPS/2) | 0.6 V = IDLE; 4.85 V = WOT |
| I | EM81-21 | GROUND (LOGIC 1) | GROUND |
| I | EM81-22 | PARKING BRAKE SWITCH | GROUND (APPLIED) |
| I | EM81-23 | IATS 2 FEEDBACK | B+ |
| I | EM81-24 | PEDAL POSITION / THROTTLE POSITION SENSORS SHIELD | 2.38 V @ 20 °C; (DECREASING VOLTAGE WITH TEMPERATURE INCREASE) |
| SG | EM82-01 | SENSOR SUPPLY VOLTAGE 1 | GROUND |
| O | EM82-02 | ENGINE CRANK | 5 V |
| I | EM82-04 | HO2S, UPSTREAM 'A' BANK - VARIABLE CURRENT (µA) | GROUND (CRANKING) |
| I | EM82-05 | HO2S, UPSTREAM 'B' BANK - VARIABLE CURRENT (µA) | 3.5 V |
| O | EM82-06 | THROTTLE MOTOR POWER RELAY ACTIVATE | 3.5 V |
| 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 | EM83-05 | 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 | EM85-03 | EGR STEPPER MOTOR 'S1' WINDING SUPPLY | GROUND |
| O | EM85-04 | EGR STEPPER MOTOR 'S2' WINDING SUPPLY | GROUND |
| 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 |
| O | EM85-09 | EGR STEPPER MOTOR 'S3' WINDING SUPPLY | GROUND |
| O | EM85-10 | EGR STEPPER MOTOR 'S4' WINDING SUPPLY | GROUND |

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.

COMPONENTS

| Component | Connector / Type / Color | Location / Access |
|--|--|---|
| BRAKE SWITCH | CC40 / 4-WAY MULTILOCK 070 / WHITE | ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY |
| CCV: CANISTER CLOSE VALVE | CV1 / 2-WAY YAZAKI 90 / BLACK | UNDER VEHICLE / RH REAR |
| 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 |
| EGR VALVE | P134 / 6-WAY SUMITOMO 0902 / GREY | ENGINE COMPARTMENT / REAR OF THROTTLE ASSEMBLY |
| ENGINE CONTROL MODULE | EM80 / 31-WAY AMP 403 / NATURAL | ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE |
| | 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 | |
| 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 |
| FTPS: FUEL TANK PRESSURE SENSOR | FP1 / 3-WAY ECONOSEAL III LC / BLACK | TOP OF FUEL TANK / TRUNK CARPET |
| 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 |
| MAPS: MANIFOLD ABSOLUTE PRESSURE SENSOR | EM10 / 3-WAY SUMITOMO / BLACK | ENGINE COMPARTMENT / CONTROL MODULE ENCLOSURE |
| 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 | 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 |
|-----------|---------------------------------------|--|
| BT4 | 54-WAY THROUGH PANEL / GREY | BELOW PARCEL SHELF / TRUNK / REAR BULKHEAD / RH SIDE |
| BT5 | 3-WAY MULTILOCK 070 / WHITE | TOP OF FUEL TANK / TRUNK CARPET |
| CA19 | 20-WAY MULTILOCK 070 / YELLOW | LH 'A' POST CONNECTOR MOUNTING BRACKET / LOWER 'A' POST FINISHER |
| CV2 | 3-WAY MULTILOCK 070 / WHITE | UNDER REAR SEAT |
| EM1 | 12-WAY AUGAT 1.6 / BLACK | ENGINE COMPARTMENT / ADJACENT TO ABS PUMP |
| EM2 | 20-WAY MULTILOCK 070 / GREY | PASSENGER 'A' POST / LOWER 'A' POST FINISHER |
| EM3 | 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 |
| FC1 | 54-WAY THROUGH PANEL CONNECTOR / GREY | BELOW PASSENGER SIDE AIR VENT / GLOVE BOX ASSEMBLY |
| 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

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 | EM81-03 | EMS CONTROLLED RELAY ACTIVATE | GROUND |
| I | EM81-08 | GROUND (POWER) | GROUND |
| I | EM81-09 | PEDAL POSITION FEEDBACK (PPS1) | 0.5 V = IDLE; 4.75 V = WOT |
| 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 | 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 |
| I | EM81-22 | PARKING BRAKE SWITCH | GROUND (APPLIED) |
| 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 |
| 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 | EM83-05 | 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. 04.5

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.

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 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.

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. 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 EEEC / 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 |

GROUND

| 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 |

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

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 |

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

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.

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. 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 |

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. 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 |

GROUNDS

| Ground | Location / Type |
|--------|--|
| CA31L | EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD |
| CC3R | EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE |
| FC29L | EYELET (PAIR) - LH BULKHEAD GROUND STUD / CABIN SIDE |

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

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 |

Fig. 07.2

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 | PD8 / 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 | PASSENGER 'A' POST / LOWER 'A' POST FINISHER |
| LF3 | 54-WAY THROUGH PANEL CONNECTOR / GREY | LH 'A' POST / LOWER 'A' POST FINISHER |
| LF32 | 4-WAY YAZAKI / GREY | FORWARD OF LH FRONT SUSPENSION ARM |
| PI1 | 57-WAY SUMITOMO TS090 / BLACK | 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.

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 |
|-----|-------------|---|---|
| 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 |

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 |
|-----|-------------|--------------------------|---------------|
| 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 |

GROUND

| 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

Fig. 09.2

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.

COMPONENTS

| Component | Connector / Type / Color | Location / Access |
|-------------------------------------|--|---|
| BODY PROCESSOR MODULE | FC15 / 14-WAY AMP EEEEC / GREY | BULKHEAD / BEHIND GLOVE BOX |
| BRAKE SWITCH | CC40 / 4-WAY MULTILOCK 070 / WHITE | ADJACENT TO THE BRAKE PEDAL MOUNTING ASSEMBLY |
| CENTER CONSOLE SWITCH PACK | CC1 / 16-WAY FORD IDC S.U. / BLACK | CENTER CONSOLE SWITCH PACK |
| DIODE (BT40) - NUMBER PLATE | BT40 / 2-WAY DIODE MODULE ASSEMBLY | ADJACENT TO BATTERY / BATTERY COVER |
| FOG LAMP SWITCHES | FC3 / 10-WAY AMP MICRO QUAD LOCK / NATURAL | FASCIA / OUTBOARD OF STEERING COLUMN |
| FUSE BOX - TRUNK | BT10 / 10-WAY U.T.A. FUSE BOX / NATURAL BT11 / 10-WAY U.T.A. FUSE BOX / BLACK BT12 / 10-WAY U.T.A. FUSE BOX / GREEN BT13 / 10-WAY U.T.A. FUSE BOX / BLUE BT64 / EYELET | TRUNK ELECTRICAL CARRIER |
| HIGH MOUNTED STOP LAMP | CA35 / 2-WAY YAZAKI / NATURAL | BACKLIGHT |
| INSTRUMENT PACK | FC24 / 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 | GROUND |
| O DD10-14 | DRIVER DOOR PUDDLE LAMP SUPPLY | B+ | GROUND |
| S DD10-16 | SCP NETWORK | 2 - 1600 Hz | GROUND |
| I DD10-17 | POWER GROUND | GROUND | GROUND |
| I DD11-4 | DRIVER DOOR LOCK BARREL UNLOCK REQUEST | B+ (MOMENTARY) | GROUND |
| I DD11-12 | DRIVER DOOR LOCK BARREL LOCK REQUEST | B+ (MOMENTARY) | GROUND |
| I DD11-20 | DRIVER DOOR SWITCH | GROUND (DOOR OPEN) | B+ |

DRIVER REAR DOOR CONTROL MODULE

| Pin | Description | Active | Inactive |
|-----------|-----------------------------------|--------------------|----------|
| I RD10-1 | BATTERY POWER SUPPLY | B+ | B+ |
| I RD10-8 | LOGIC GROUND | GROUND | GROUND |
| S RD10-9 | SCP NETWORK | 2 - 1600 Hz | GROUND |
| O RD10-14 | PASSENGER DOOR PUDDLE LAMP SUPPLY | B+ (LIGHT ON) | GROUND |
| S RD10-16 | SCP NETWORK | 2 - 1600 Hz | GROUND |
| 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 | GROUND |
| O PD10-14 | PASSENGER DOOR PUDDLE LAMP SUPPLY | B+ (LIGHT ON) | GROUND |
| S PD10-16 | SCP NETWORK | 2 - 1600 Hz | GROUND |
| I PD10-17 | POWER GROUND | GROUND | GROUND |
| I PD11-20 | PASSENGER DOOR SWITCH | GROUND (DOOR OPEN) | B+ |

PASSENGER REAR DOOR CONTROL MODULE

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

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 | B+ |
| S FC15-85 | SCP NETWORK | 2 - 1600 Hz | B+ |
| 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

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+ |

Fig. 10.2

COMPONENTS

| Component | Connector / Type / Color | Location / Access |
|------------------------------------|---|---|
| AIR CONDITIONING CONTROL PANEL | CC27 / 12-WAY MULTILOCK 040 / BLUE | CENTER CONSOLE |
| CENTER CONSOLE SWITCH PACK | CC1 / 16-WAY FORD IDC S.U. / BLACK | CENTER CONSOLE SWITCH PACK |
| CIGAR LIGHTER - FRONT | CA74 / 3-WAY MULTILOCK 070 / WHITE | CENTER CONSOLE ASSEMBLY |
| CIGAR LIGHTER - REAR | CA75 / 2-WAY 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

| 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 |

GROUNDS

| Ground | Location / Type |
|--------|--|
| CA33L | EYELET (PAIR) - RH 'A' POST GROUND SCREW |
| CA36L | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CC3L | EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE |
| FC17L | EYELET (PAIR) - EMS BULKHEAD GROUND STUD |
| 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 | B+ |
| 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) | B+ |
| 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 = LEFT |
| I DD11-10 | LH HORIZONTAL MOVEMENT REQUEST | B+ = LEFT | GROUND |
| I DD11-13 | DRIVER MIRROR SELECT | B+ | GROUND = RIGHT |
| I DD11-17 | RH HORIZONTAL MOVEMENT REQUEST | B+ = LEFT | B+ |
| I DD11-20 | DRIVER DOOR SWITCH | GROUND (DOOR OPEN) | B+ |

DRIVER REAR DOOR CONTROL MODULE

| Pin | Description | Active | Inactive |
|-----------|-----------------------|-------------|----------|
| I RD10-1 | BATTERY POWER SUPPLY | B+ | B+ |
| I RD10-8 | LOGIC GROUND | GROUND | 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.

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 | FC15-32 | 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 SD7 / 3-WAY MULTILOCK 070 / YELLOW | DRIVER SEAT / UNDER |
| SEAT CUSHION HEATERS - DRIVER | CC1 / 16-WAY FORD IDC S.U. / BLACK | DRIVER SEAT |
| SEAT HEATER SWITCH (CENTER CONSOLE SWITCH PACK) | SD10 / 3-WAY MULTILOCK 070 / YELLOW | DRIVER SEAT |
| SEAT LUMBAR PUMP - DRIVER | SD4 / 6-WAY MULTILOCK 070 / GREY | DRIVER SEAT / UNDER |
| SEAT MOTORS - DRIVER | 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 |
| 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.

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

Fig. 12.3

COMPONENTS

| Component | Connector / Type / Color | Location / Access |
|--|---|-----------------------------|
| BODY PROCESSOR MODULE | FC15 / 14-WAY AMP EEEC / GREY | BULKHEAD / BEHIND GLOVE BOX |
| DOOR CONTROL MODULE - DRIVER | DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK | DOOR CASING / TRIM PANEL |
| DOOR CONTROL MODULE - DRIVER REAR | RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK | DOOR CASING / TRIM PANEL |
| SEAT CUSHION HEATERS - DRIVER | 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 |

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 | 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 | SD1-1 | PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY | B+ |
| O | SD1-2 | PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY | B+ |
| O | SD1-3 | PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY | B+ |
| O | SD1-4 | PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY | B+ |
| O | SD1-5 | PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY | B+ |
| O | SD1-6 | PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY | B+ |
| O | SD1-7 | PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY | B+ |
| O | SD1-8 | PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY | B+ |
| I | SD1-9 | PASSENGER SEAT CUSHION FORE MOVEMENT REQUEST | B+ |
| I | SD1-10 | PASSENGER SEAT CUSHION AFT MOVEMENT REQUEST | B+ |
| I | SD1-11 | PASSENGER SEAT CUSHION LOWER REAR MOVEMENT REQUEST | B+ |
| I | SD1-12 | PASSENGER SEAT CUSHION RAISE REAR MOVEMENT REQUEST | B+ |
| I | SD1-13 | PASSENGER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST | B+ |
| I | SD1-14 | PASSENGER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST | B+ |
| I | SD1-15 | PASSENGER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST | B+ |
| I | SD1-16 | PASSENGER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST | B+ |
| I | SD3-2 | COMMON GROUND SUPPLY | GROUND |
| O | SD3-3 | PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY | B+ |
| O | SD3-4 | PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY | B+ |
| I | SD3-5 | BATTERY SUPPLY | B+ |
| I | SD3-6 | PASSENGER SEAT HEADREST RAISE MOVEMENT REQUEST | B+ |
| I | SD3-8 | PASSENGER SEAT HEADREST LOWER MOVEMENT REQUEST | B+ |
| 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 | 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 SP1-1 | PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY | B+ | GROUND |
| O SP1-2 | PASSENGER SEAT SQUAB FORE / AFT RECLINE MOTOR SUPPLY | B+ | GROUND |
| O SP1-3 | PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY | B+ | GROUND |
| O SP1-4 | PASSENGER SEAT CUSHION RAISE / LOWER FRONT MOTOR SUPPLY | B+ | GROUND |
| O SP1-5 | PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY | B+ | GROUND |
| O SP1-6 | PASSENGER SEAT HEADREST RAISE / LOWER MOTOR SUPPLY | B+ | GROUND |
| O SP1-7 | PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY | B+ | GROUND |
| O SP1-8 | PASSENGER SEAT CUSHION FORE / AFT MOTOR SUPPLY | B+ | GROUND |
| I SP1-9 | PASSENGER SEAT CUSHION FORE MOVEMENT REQUEST | B+ | GROUND |
| I SP1-10 | PASSENGER SEAT CUSHION AFT MOVEMENT REQUEST | B+ | GROUND |
| I SP1-11 | PASSENGER SEAT CUSHION LOWER REAR MOVEMENT REQUEST | B+ | GROUND |
| I SP1-12 | PASSENGER SEAT CUSHION RAISE REAR MOVEMENT REQUEST | B+ | GROUND |
| I SP1-13 | PASSENGER SEAT CUSHION RAISE FRONT MOVEMENT REQUEST | B+ | GROUND |
| I SP1-14 | PASSENGER SEAT CUSHION LOWER FRONT MOVEMENT REQUEST | B+ | GROUND |
| I SP1-15 | PASSENGER SEAT SQUAB AFT RECLINE MOVEMENT REQUEST | B+ | GROUND |
| I SP1-16 | PASSENGER SEAT SQUAB FORE RECLINE MOVEMENT REQUEST | B+ | GROUND |
| I SP3-2 | COMMON GROUND SUPPLY | GROUND | GROUND |
| O SP3-3 | PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY | B+ | GROUND |
| O SP3-4 | PASSENGER SEAT CUSHION RAISE / LOWER REAR MOTOR SUPPLY | B+ | GROUND |
| I SP3-5 | BATTERY SUPPLY | B+ | B+ |
| I SP3-6 | PASSENGER SEAT HEADREST RAISE MOVEMENT REQUEST | B+ | GROUND |
| I SP3-8 | PASSENGER SEAT HEADREST LOWER MOVEMENT REQUEST | B+ | GROUND |
| S SP3-9 | SCP NETWORK | 2 - 1600 Hz | GROUND |
| S SP3-10 | SCP NETWORK | 2 - 1600 Hz | GROUND |

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

Fig. 12.5

COMPONENTS

| Component | Connector / Type / Color | Location / Access |
|---|---|-----------------------------|
| BODY PROCESSOR MODULE | FC15 / 14-WAY AMP 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 |

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 |
| SP25 | 10-WAY MULTILOCK 070 / WHITE | BEHIND PASSENGER SEAT BACK FINISHER |

GROUNDSTO

| 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 | Connector / Type / Color | Location / Access |
|---|------------------------------------|-----------------------------|
| Component | | |
| 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 | Case Color | Connector / Color | Location / Access |
|-------------------------------|------------|-------------------|--------------------------------|
| Relay | | | |
| 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 |
| 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 |

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

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

HARNESS-TO-HARNESS 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.

CONTROL MODULE PIN OUT INFORMATION

BODY PROCESSOR MODULE

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

DRIVER DOOR CONTROL MODULE

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

DRIVER REAR DOOR CONTROL MODULE

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

PASSENGER DOOR CONTROL MODULE

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

PASSENGER REAR DOOR CONTROL MODULE

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

SECURITY AND LOCKING CONTROL MODULE

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

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

The following 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. 13.1

COMPONENTS

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

RELAYS

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

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 HARNESS GAITER |
| CA10 | 8-WAY MULTILOCK 070 / YELLOW | DRIVER 'A' POST / DOOR HARNESS GAITER |
| CA11 | 20-WAY MULTILOCK 070 / WHITE | PASSENGER 'A' POST / DOOR HARNESS GAITER |
| CA11 | 20-WAY MULTILOCK 070 / WHITE | PASSENGER 'A' POST / DOOR HARNESS GAITER |
| CA12 | 8-WAY MULTILOCK 070 / YELLOW | PASSENGER 'A' POST / DOOR HARNESS GAITER |
| CA14 | 6-WAY MULTILOCK 070 / WHITE | DRIVER 'B/C' POST / DOOR HARNESS GAITER |
| CA16 | 6-WAY MULTILOCK 070 / WHITE | PASSENGER 'B/C' POST / DOOR HARNESS GAITER |
| CA45 | 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 |
| 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 |

GROUNDS

| Ground | Location / Type |
|--------|---|
| BT22L* | EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD (*PREMIUM ICE) |
| BT24* | EYELET (SINGLE) - TRUNK / RH CENTER GROUND STUD (*STANDARD ICE) |
| BT28L | EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD |
| BT34 | EYELET (SINGLE) - KEY FOB ANTENNA GROUND / BACKLIGHT / CENTER |
| CA30R | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CA31L | EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD |
| CA33L | EYELET (PAIR) - RH 'A' POST GROUND SCREW |
| CA33R | EYELET (PAIR) - RH 'A' POST GROUND SCREW |
| CA36L | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CA36R | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CC3L | EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE |
| CC3R | EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE |
| FC17L | EYELET (PAIR) - EMS BULKHEAD GROUND STUD |

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

CONTROL MODULE PIN OUT INFORMATION

BODY PROCESSOR MODULE

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

DRIVER DOOR CONTROL MODULE

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

DRIVER REAR DOOR CONTROL MODULE

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

PASSENGER DOOR CONTROL MODULE

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

PASSENGER REAR DOOR CONTROL MODULE

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

SECURITY AND LOCKING CONTROL MODULE

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

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

The following 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. 13.2

COMPONENTS

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

RELAYS

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

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 |
| CA11 | 20-WAY MULTILOCK 070 / WHITE | PASSENGER 'A' POST / DOOR HARNESS GAITER |
| CA12 | 8-WAY MULTILOCK 070 / YELLOW | PASSENGER 'A' POST / DOOR HARNESS GAITER |
| CA14 | 6-WAY MULTILOCK 070 / WHITE | DRIVER 'B/C' POST / DOOR HARNESS GAITER |
| CA16 | 6-WAY MULTILOCK 070 / WHITE | PASSENGER 'B/C' POST / DOOR HARNESS GAITER |
| CA45 | 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 |
| 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 |

GROUNDS

| Ground | Location / Type |
|--------|---|
| BT22L* | EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD (*PREMIUM ICE) |
| BT24* | EYELET (SINGLE) - TRUNK / RH CENTER GROUND STUD (*STANDARD ICE) |
| BT28L | EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD |
| BT34 | EYELET (SINGLE) - KEY FOB ANTENNA GROUND / BACKLIGHT / CENTER |
| CA30R | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CA31L | EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD |
| CA33L | EYELET (PAIR) - RH 'A' POST GROUND SCREW |
| CA33R | EYELET (PAIR) - RH 'A' POST GROUND SCREW |
| CA36L | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CA36R | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CC3L | EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE |
| CC3R | EYELET (PAIR) - RH FRONT BULKHEAD STUD / CABIN SIDE |
| FC17L | EYELET (PAIR) - EMS BULKHEAD GROUND STUD |

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

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

BODY PROCESSOR MODULE

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

DRIVER DOOR CONTROL MODULE

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

DRIVER REAR DOOR CONTROL MODULE

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

PASSENGER DOOR CONTROL MODULE

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

PASSENGER REAR DOOR CONTROL MODULE

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

SECURITY AND LOCKING CONTROL MODULE

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

SLIDING ROOF CONTROL MODULE

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

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

The following 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 | H | Frequency | mV | Millivolts |

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

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

Fig. 15.1

COMPONENTS

| Component | Connector / Type / Color | Location / Access |
|--|--|--|
| BODY PROCESSOR MODULE | FC15 / 14-WAY AMP EEEEC / GREY | BULKHEAD / BEHIND GLOVE BOX |
| CENTRAL LOCKING SWITCH (CENTER CONSOLE SWITCH PACK) | CC1 / 16-WAY FORD IDC S.U. / BLACK | CENTER CONSOLE SWITCH PACK |
| DOOR CONTROL MODULE - DRIVER | DD10 / 22-WAY FORD 2.8 TIMER / BLUE DD11 / 22-WAY FORD 2.8 TIMER / BLACK | DOOR CASING / TRIM PANEL |
| DOOR CONTROL MODULE - DRIVER REAR | RD10 / 22-WAY FORD 2.8 TIMER / BLUE RD11 / 22-WAY FORD 2.8 TIMER / BLACK | DOOR CASING / TRIM PANEL |
| DOOR CONTROL MODULE - PASSENGER | PD10 / 22-WAY FORD 2.8 TIMER / BLUE PD11 / 22-WAY FORD 2.8 TIMER / BLACK | DOOR CASING / TRIM PANEL |
| DOOR CONTROL MODULE - PASSENGER REAR | RP10 / 22-WAY FORD 2.8 TIMER / BLUE RP11 / 22-WAY FORD 2.8 TIMER / BLACK | DOOR CASING / TRIM PANEL |
| DOOR LOCK SWITCHES - DRIVER INSTRUMENT PACK | DD3 / 13-WAY ECONOSEAL III LC / BLACK FC24 / 26-WAY AMP MICRO QUAD LOCK / BLACK FC25 / 26-WAY AMP MICRO QUAD LOCK / YELLOW | DOOR CASING / TRIM PANEL FASCIA |
| KEY FOB ANTENNA | BT33 / 1-WAY COAXIAL CONNECTOR / BLACK | TOP OF BACKLIGHT |
| REAR WINDOW INHIBIT SWITCH (DRIVER DOOR SWITCH PACK) | DD1 / 26-WAY AMP MICRO QUAD LOCK / YELLOW | DOOR TRIM PANEL |
| 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 |
| SLIDING ROOF CONTROL MODULE | CA64 / 6-WAY MULTILOCK 070 / WHITE SR2 / 3-WAY MULTILOCK 070 / WHITE CA53 / 8-WAY MULTILOCK 040 / BLACK | ROOF CONSOLE ROOF CONSOLE ROOF CONSOLE |
| SLIDING ROOF MOTOR | | |
| SLIDING ROOF SWITCH (ROOF CONSOLE) | | |
| 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 |
| WINDOW LIFT MOTOR - DRIVER | DD16 / 2-WAY ECONOSEAL III LC / BLACK | DOOR CASING / TRIM PANEL |
| WINDOW LIFT MOTOR - DRIVER REAR | RD16 / 2-WAY ECONOSEAL III LC / BLACK | DOOR CASING / TRIM PANEL |
| WINDOW LIFT MOTOR - PASSENGER | PD16 / 2-WAY ECONOSEAL III LC / BLACK | DOOR CASING / TRIM PANEL |
| WINDOW LIFT MOTOR - PASSENGER REAR | RP16 / 2-WAY ECONOSEAL III LC / BLACK | DOOR CASING / TRIM PANEL |
| WINDOW LIFT SWITCH (DRIVER DOOR SWITCH PACK) | DD1 / 26-WAY AMP MICRO QUAD LOCK / YELLOW | DOOR TRIM PANEL |

HARNESS-TO-HARNESS CONNECTORS

| Connector | Type / Color | Location / Access |
|-----------|---------------------------------------|--|
| CA8 | 20-WAY MULTILOCK 070 / WHITE | DRIVER 'A' POST / DOOR HARNESS GAITER |
| CA10 | 8-WAY MULTILOCK 070 / YELLOW | DRIVER 'A' POST / DOOR HARNESS GAITER |
| CA11 | 20-WAY MULTILOCK 070 / WHITE | PASSENGER 'A' POST / DOOR HARNESS GAITER |
| CA12 | 8-WAY MULTILOCK 070 / YELLOW | PASSENGER 'A' POST / DOOR HARNESS GAITER |
| CA14 | 6-WAY MULTILOCK 070 / WHITE | DRIVER 'B/C' POST / DOOR HARNESS GAITER |
| CA16 | 6-WAY MULTILOCK 070 / WHITE | PASSENGER 'B/C' POST / DOOR HARNESS GAITER |
| FC5 | 54-WAY THROUGH PANEL CONNECTOR / GREY | BELOW DRIVER SIDE AIR VENT / COIN TRAY |
| FC7 | 20-WAY MULTILOCK 070 / YELLOW | ABOVE DIMMER MODULE / COIN TRAY |

GROUNDS

| Ground | Location / Type |
|--------|---|
| BT22L* | EYELET (PAIR) - TRUNK / RH CENTER GROUND STUD (*PREMIUM ICE) |
| BT24* | EYELET (SINGLE) - TRUNK / RH CENTER GROUND STUD (*STANDARD ICE) |
| BT34 | EYELET (SINGLE) - KEY FOB ANTENNA GROUND / BACKLIGHT / CENTER |
| CA30L | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CA30R | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CA33L | EYELET (PAIR) - RH 'A' POST GROUND SCREW |
| CA33R | EYELET (PAIR) - RH 'A' POST GROUND SCREW |
| CA36L | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CA36R | EYELET (PAIR) - LH 'A' POST GROUND SCREW |
| CC3R | 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

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****Component**

TELEPHONE ANTENNA

TELEPHONE HANDSET – FRONT

TELEPHONE HANDSET – REAR

TELEPHONE MICROPHONE

CELLULAR TELEPHONE CONTROL MODULE

Connector / Type / Color

RT64 / COAXIAL CONNECTOR

RT65 / COAXIAL CONNECTOR

RT66 / COAXIAL CONNECTOR

RT5 / TELEPHONE / PROPRIETARY

RT10 / TELEPHONE / PROPRIETARY

CA67 / 2-WAY MULTILOCK 040 / BLUE

RT3 / TELEPHONE / PROPRIETARY

RT4 / TELEPHONE / PROPRIETARY

Location / Access

BELOW CENTER CONSOLE GLOVE BOX

HEATED BACKLIGHT / HEADLINING / REAR

CENTER CONSOLE

CENTER CONSOLE

CENTER CONSOLE

ROOF CONSOLE

CENTER CONSOLE

HARNESS-TO-HARNESS CONNECTORS**Connector**

RT1

RT2

Type / Color

TELEPHONE / PROPRIETARY

10-WAY MULTILOCK 070 / WHITE

Location / Access

CENTER CONSOLE

BELOW CENTER CONSOLE GLOVE BOX

GROUNDS**Ground**

CA38R

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. 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 |

GROUNDS

| 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

Component

PARKING AID CONTROL MODULE

PARKING AID SENSOR – LH
PARKING AID SENSOR – CENTER LH
PARKING AID SENSOR – RH
PARKING AID SENSOR – CENTER RH
PARKING AID SOUNDER

Connector / Type / Color

RB1 / 16-WAY / BLACK
BT71 / 12-WAY BLACK
RB2 / 3-WAY / BLACK
RB3 / 3-WAY / BLACK
RB5 / 3-WAY / BLACK
RB4 / 3-WAY / BLACK
BT70 / 2-WAY / GREY

Location / Access

TRUNK / LH REAR

REAR BUMPER
REAR BUMPER
REAR BUMPER
REAR BUMPER
PARCEL SHELF

GROUND

Ground

Location / Type

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 |

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 |
| 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 |

GROUNDS

| Ground | Location / Type |
|--------|--|
| BT21R | EYELET (PAIR) - TRUNK / RH REAR GROUND STUD |
| CA31R | EYELET (PAIR) - RH DRIVE SHAFT TUNNEL GROUND STUD |
| CA47L | EYELET (PAIR) - DRIVE SHAFT TUNNEL GROUND STUD - RH SIDE |
| CA47R | EYELET (PAIR) - DRIVE SHAFT TUNNEL GROUND STUD - RH SIDE |
| FC17R | EYELET (PAIR) - EMS BULKHEAD GROUND STUD |
| 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 |

GROUNDSTO

| 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 ELO50 / YELLOW | BELOW CENTER CONSOLE ASSEMBLY |
| BODY PROCESSOR MODULE | FC15 / 14-WAY AMP EEEC / GREY | BULKHEAD / BEHIND GLOVE BOX |
| DATA LINK CONNECTOR | CC6 / 16-WAY AMP (OBD2) / BLACK | TRANSMISSION TUNNEL |
| ENGINE CONTROL MODULE | 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 |

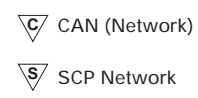
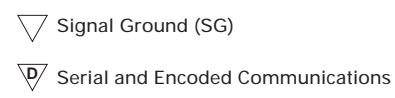
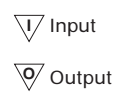
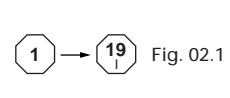
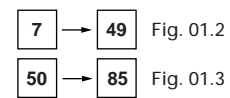
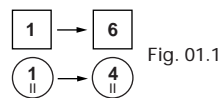
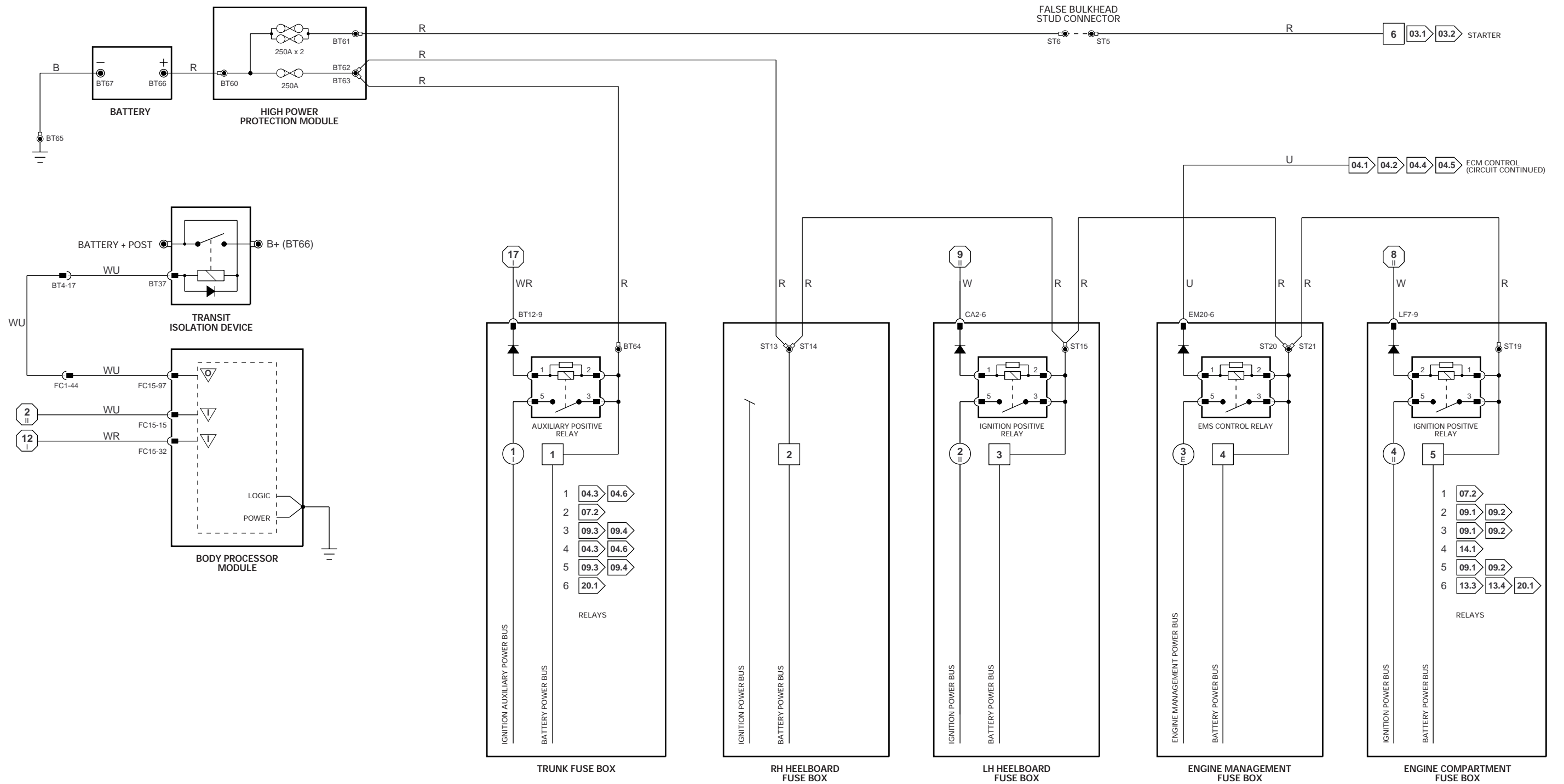
The following abbreviations are used to represent values for Control Module Pin-Out data

| | | | | | | | |
|----|---------------|---|-------------------------|----|-----------------|-----|------------------|
| 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 |

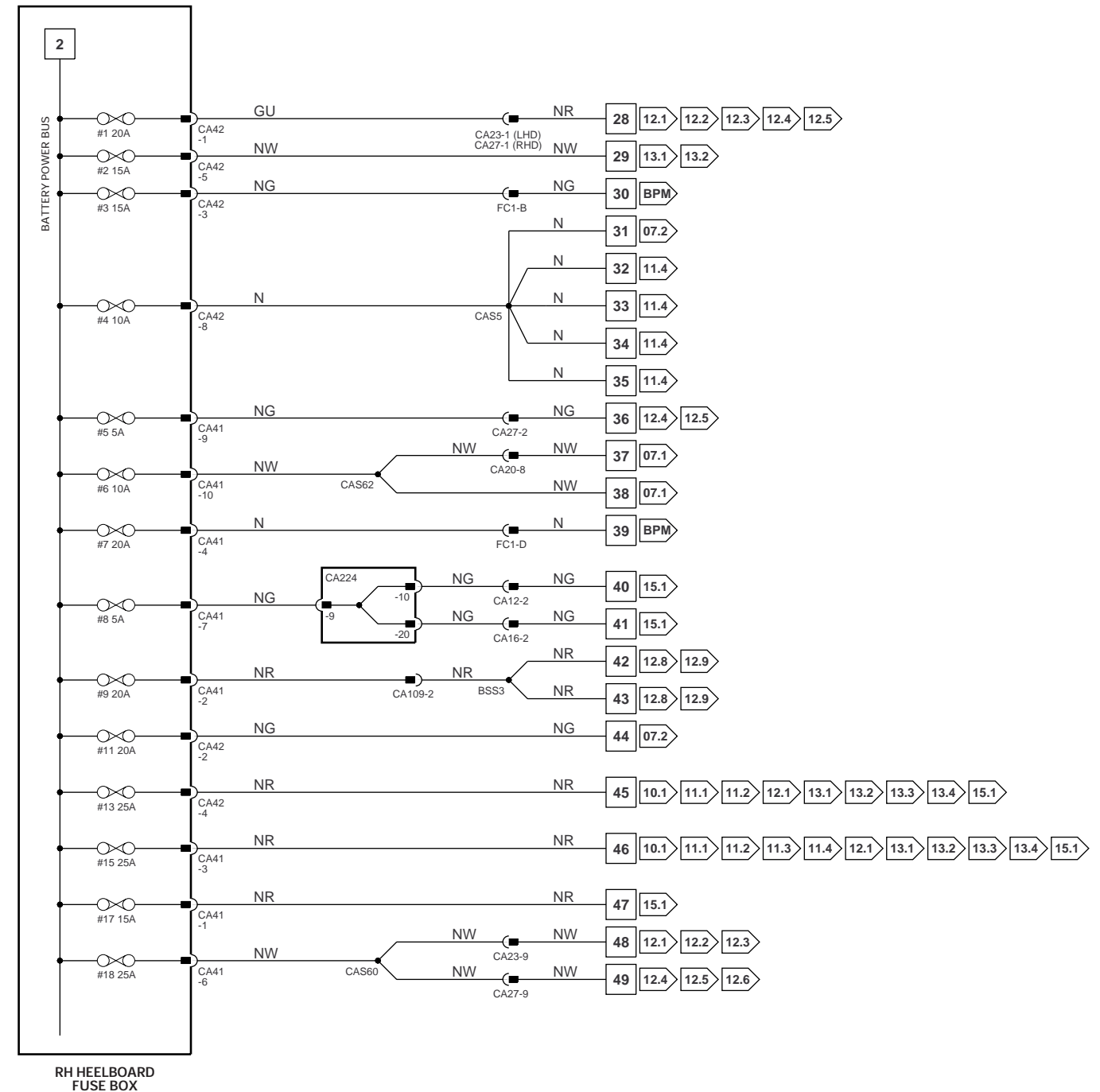
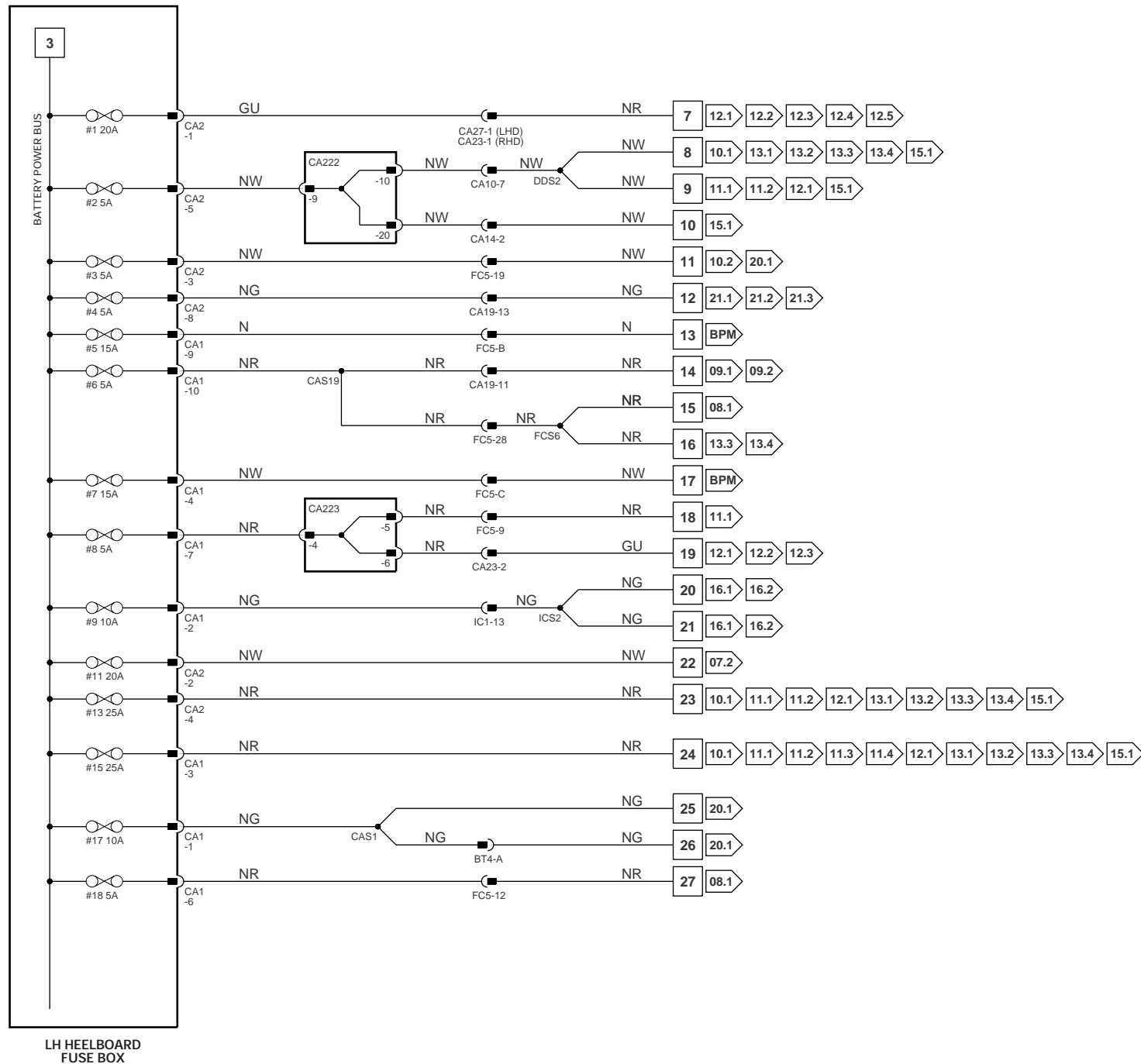
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NOTE: The values listed are approximately those that can be expected at the control module connector pins with all circuit connections made and all components connected and fitted. "Active" means a load is applied or a switch is ON; "Inactive" means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

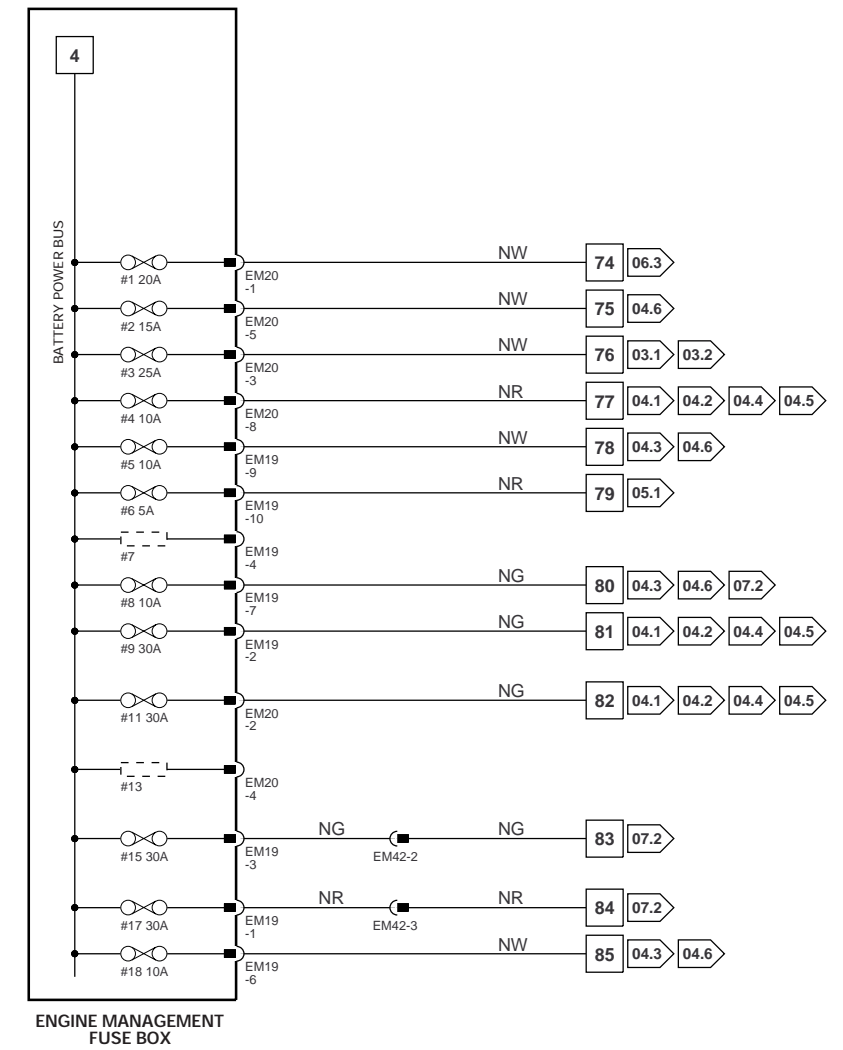
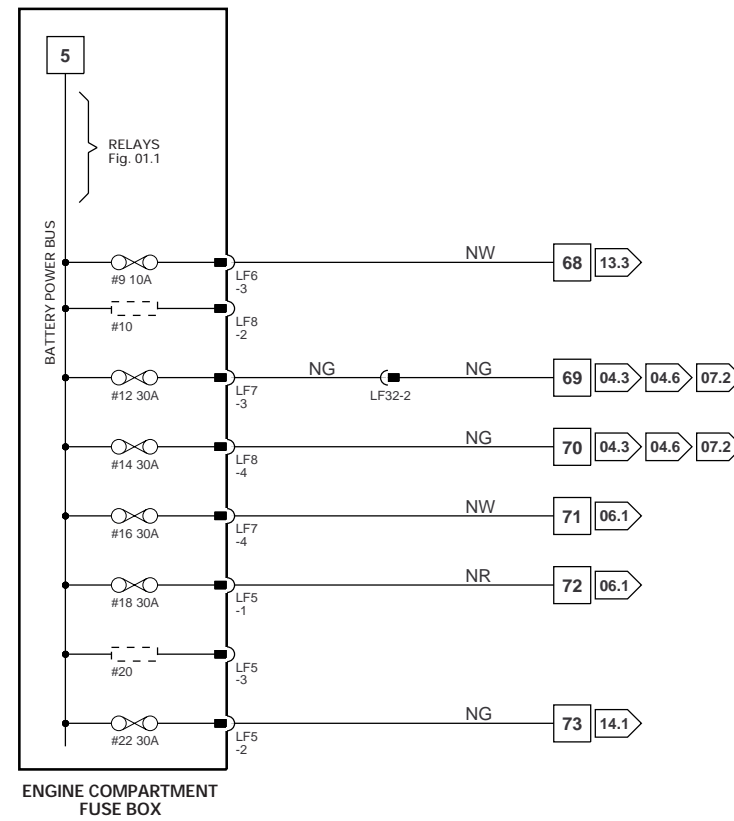
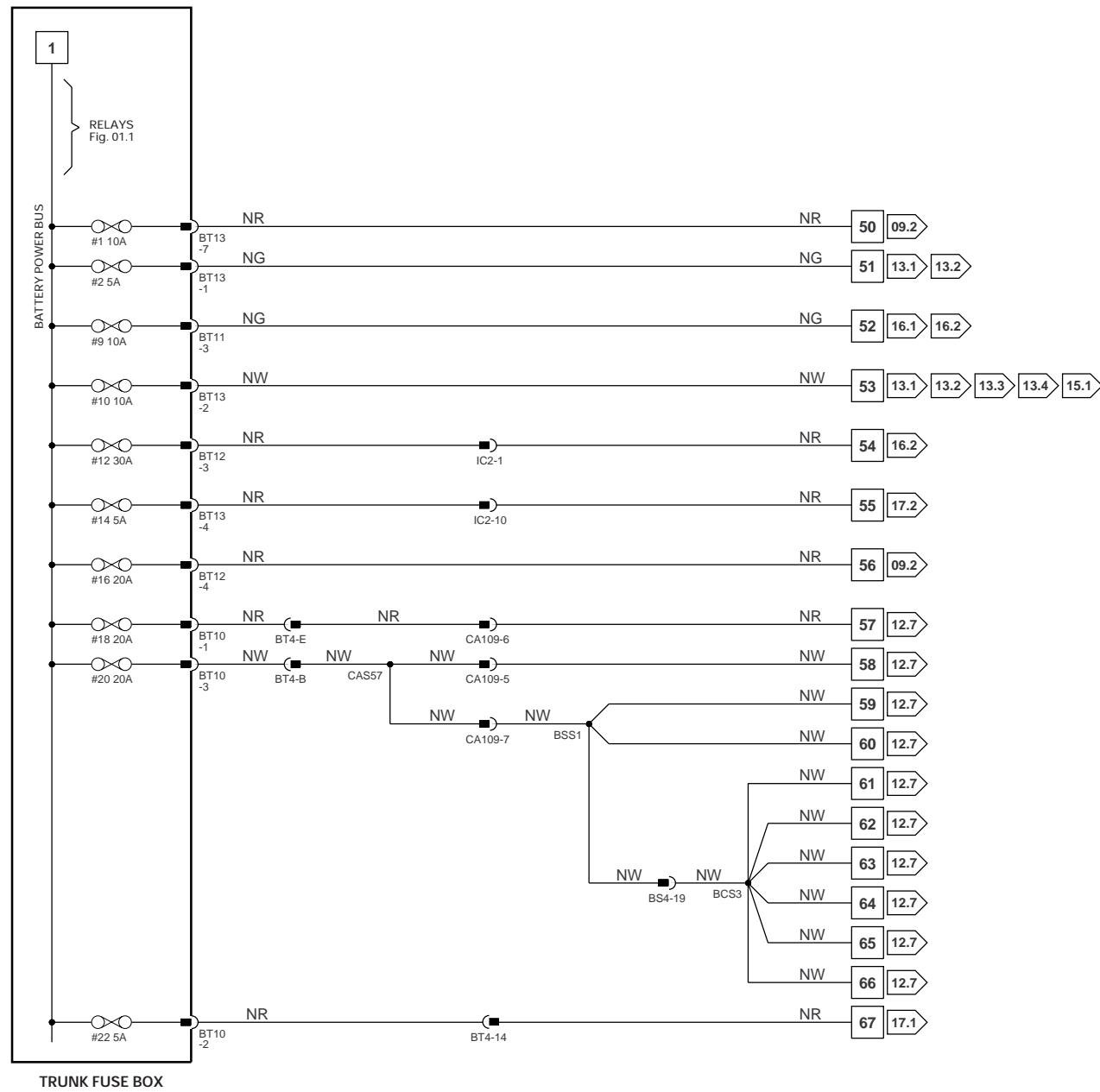
Refer to the front of this book for detailed information and illustrations regarding the location and identification of harnesses, relays, grounds, control modules and control module pins.

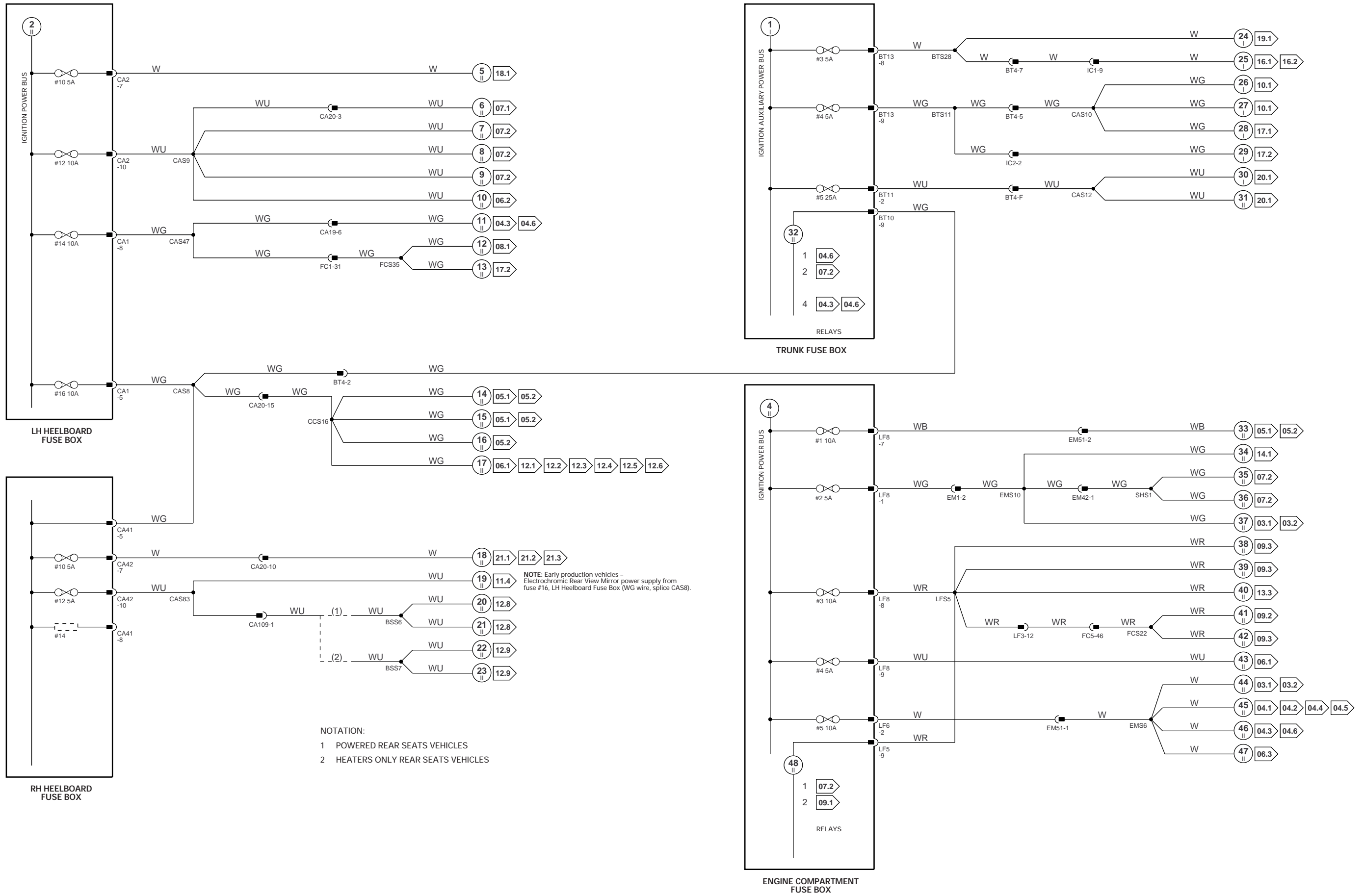


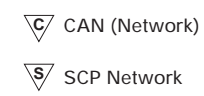
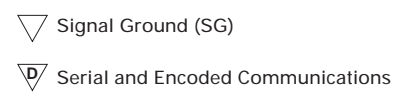
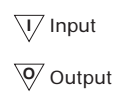
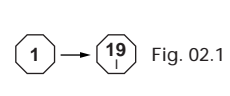
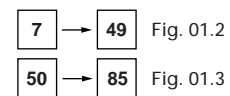
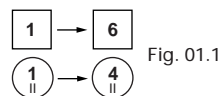
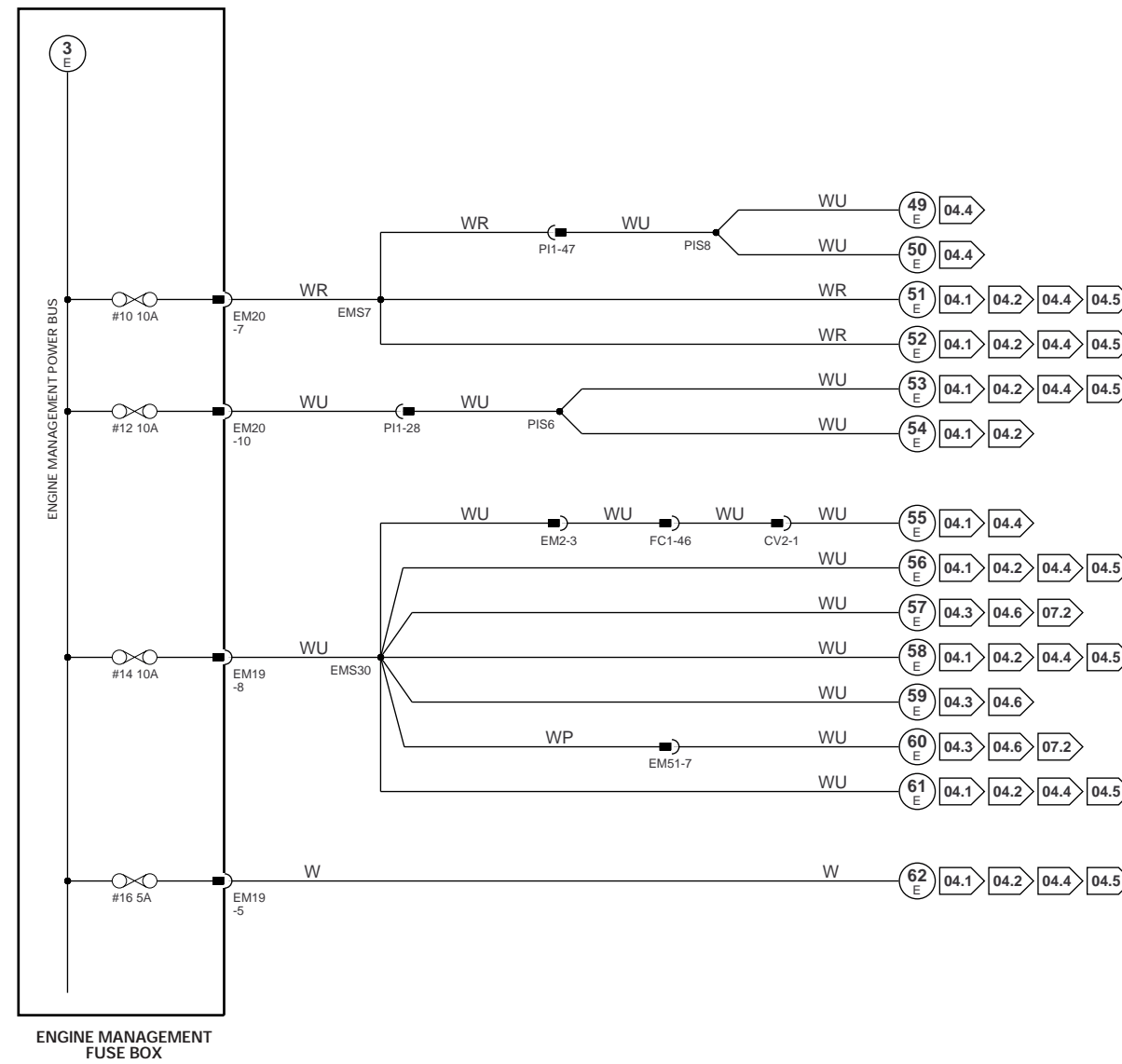
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DATE OF ISSUE: October 1999



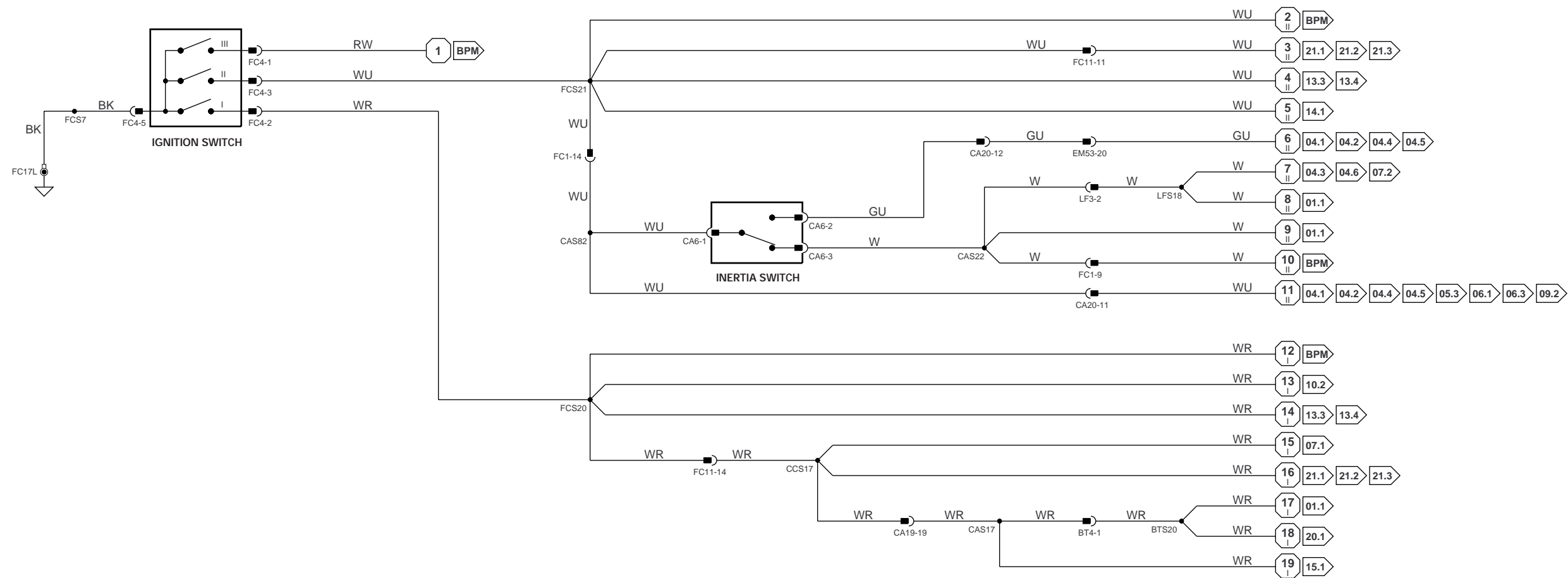
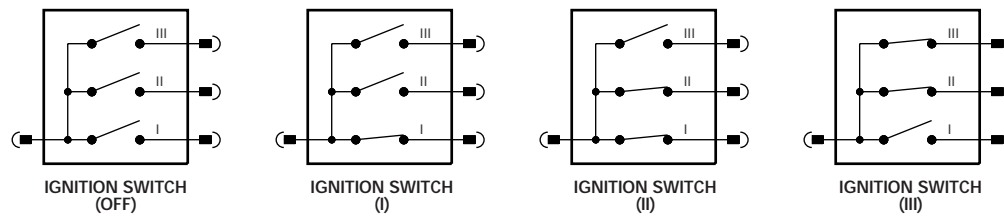
BPM NOTE: Body Processor Module appears in numerous figures.



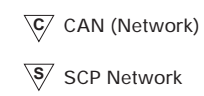
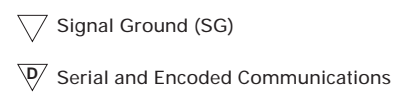
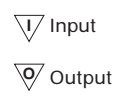
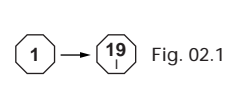
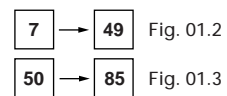
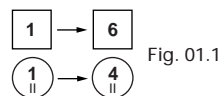




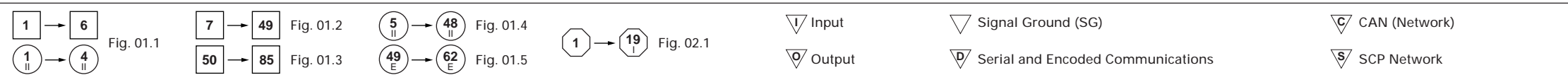
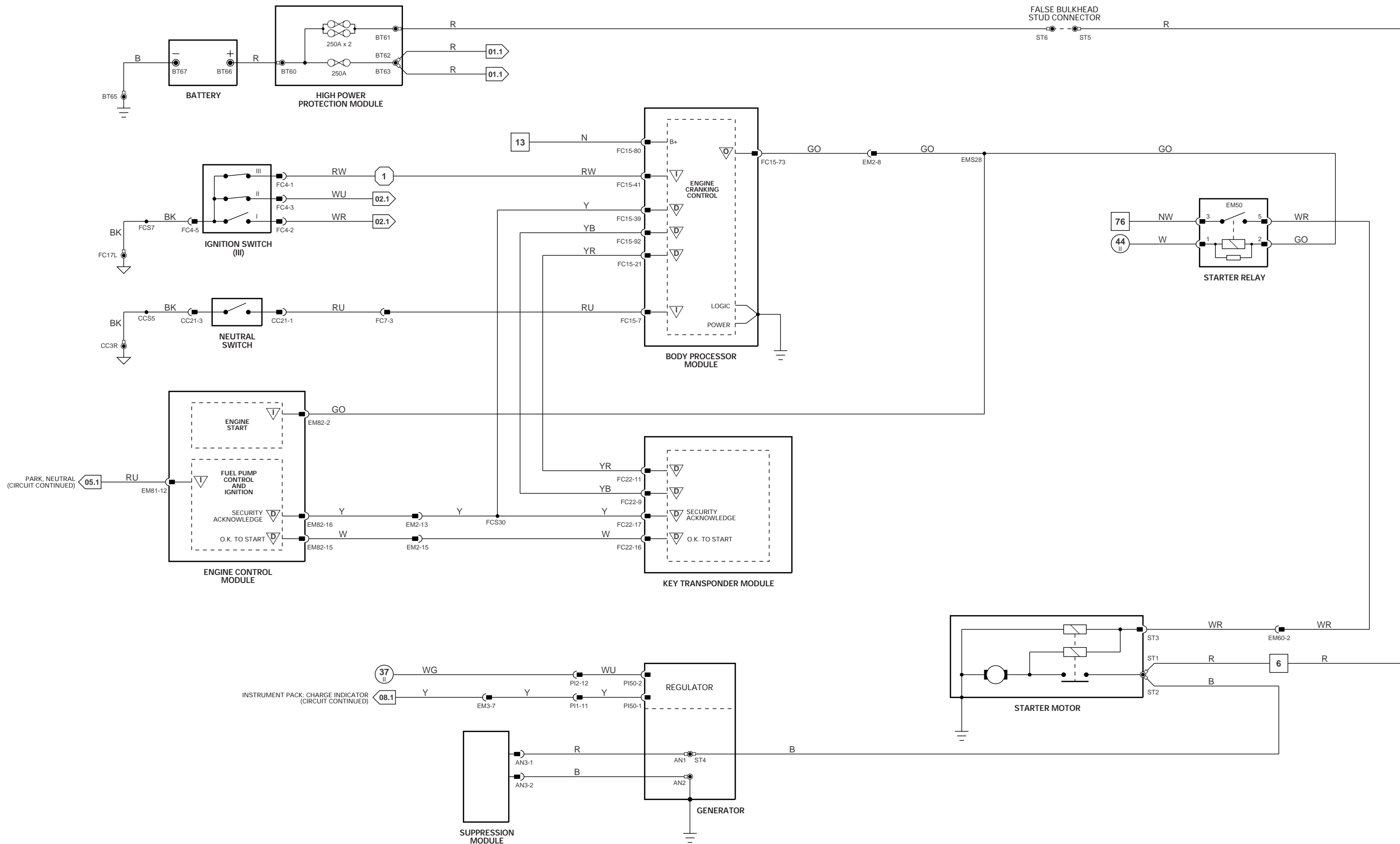
VARIANT: All Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999



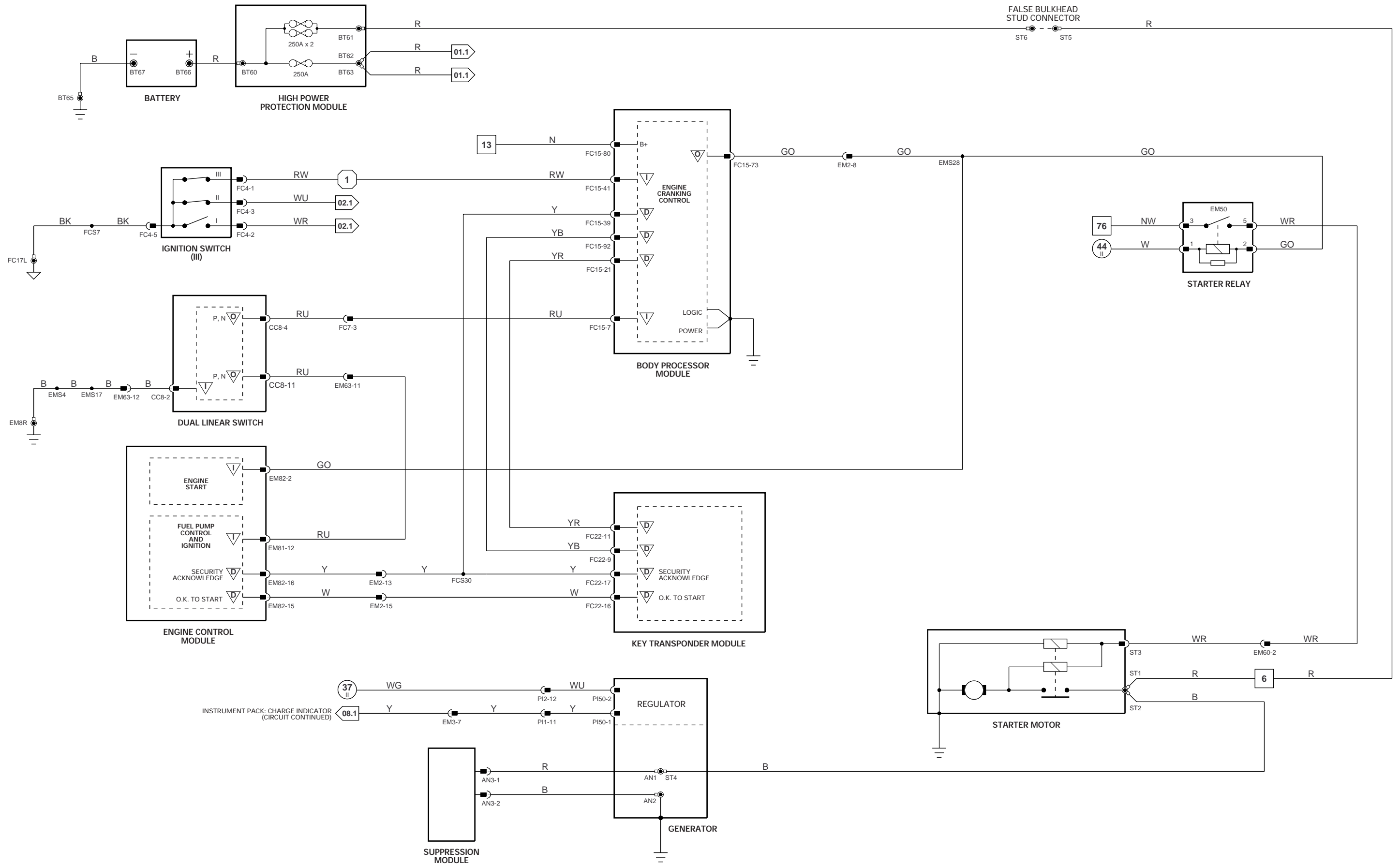
BPM NOTE: Body Processor Module appears in numerous figures.



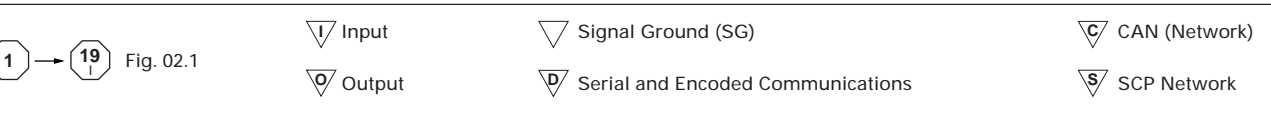
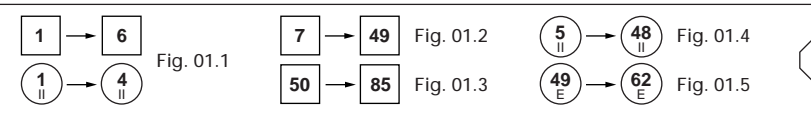
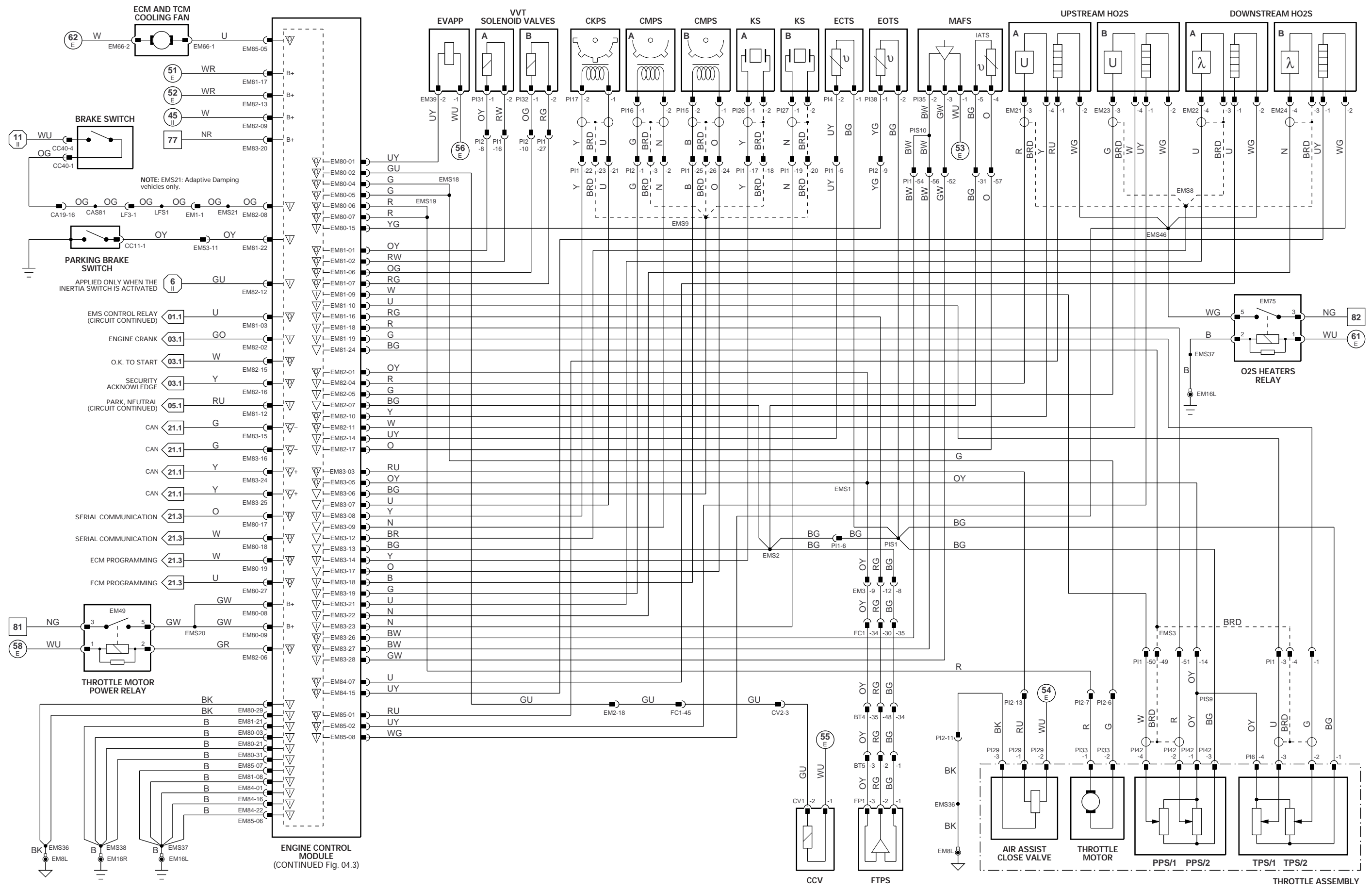
VARIANT: All Vehicles
VIN RANGE: F00103 →
DATE OF ISSUE: October 1999



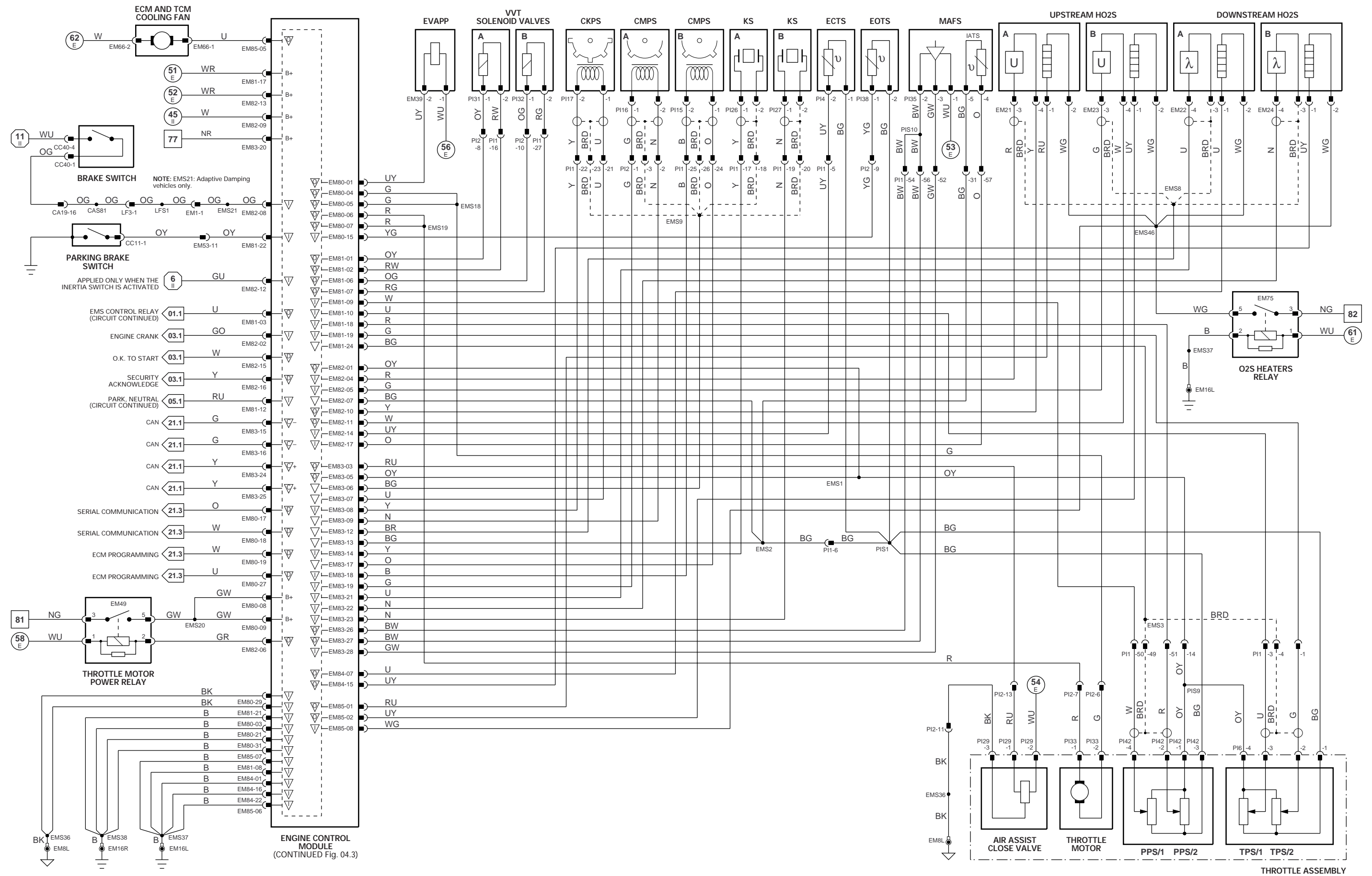
VARIANT: AJ27 N/A Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999

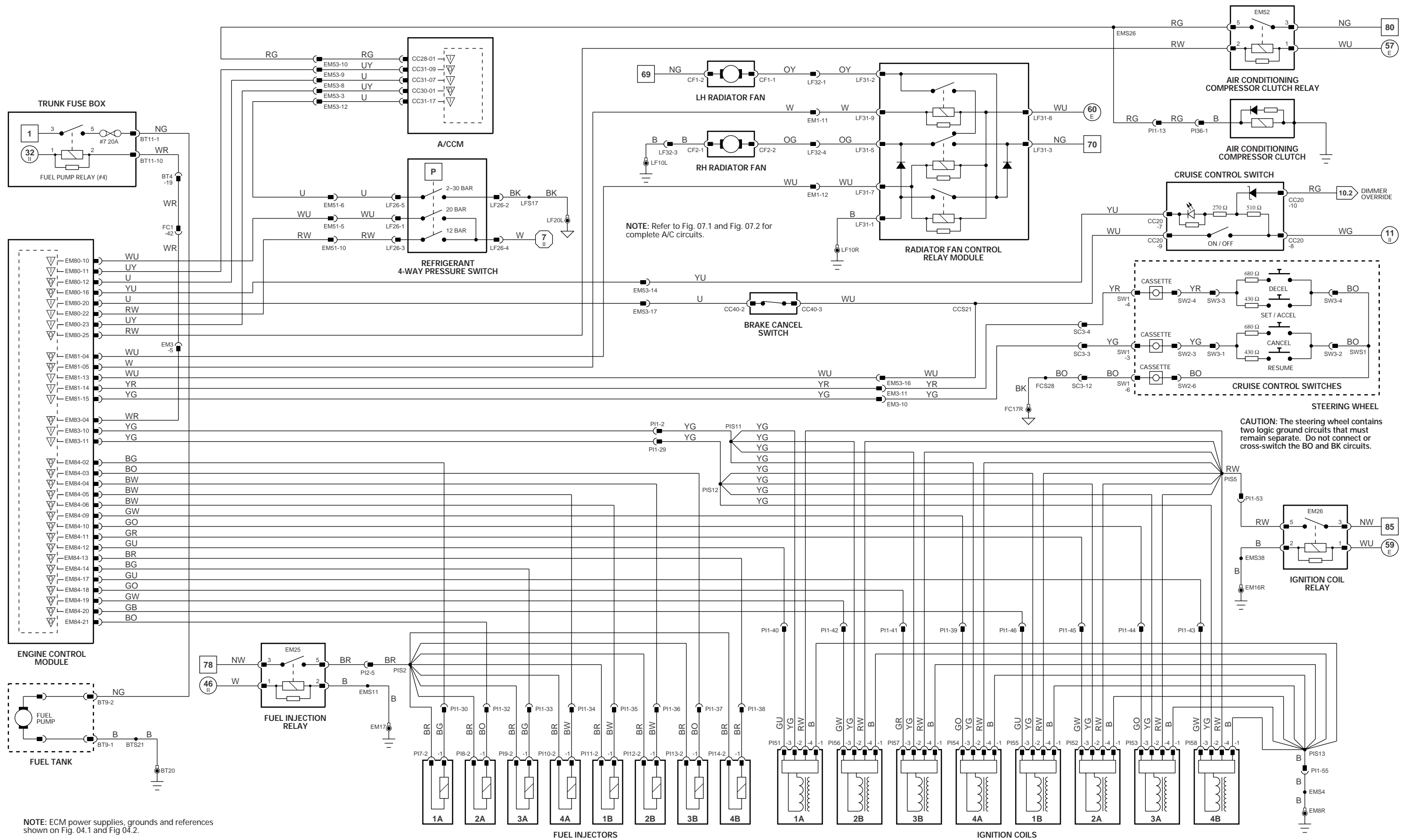


| | | | | | | | |
|---------------|------------------------|------------------------|-----------|-----------------|---|------------------------------|--|
| Fig. 01.1 | Fig. 01.2 Fig. 01.3 | Fig. 01.4 Fig. 01.5 | Fig. 02.1 | Input Output | Signal Ground (SG) Serial and Encoded Communications | CAN (Network)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

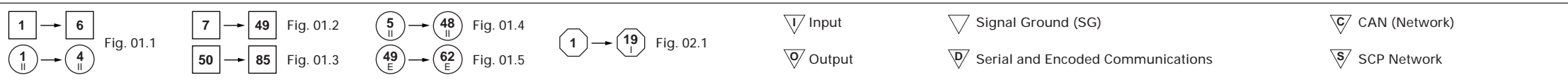


VARIANT: AJ27 4.0 N/A NAS Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999

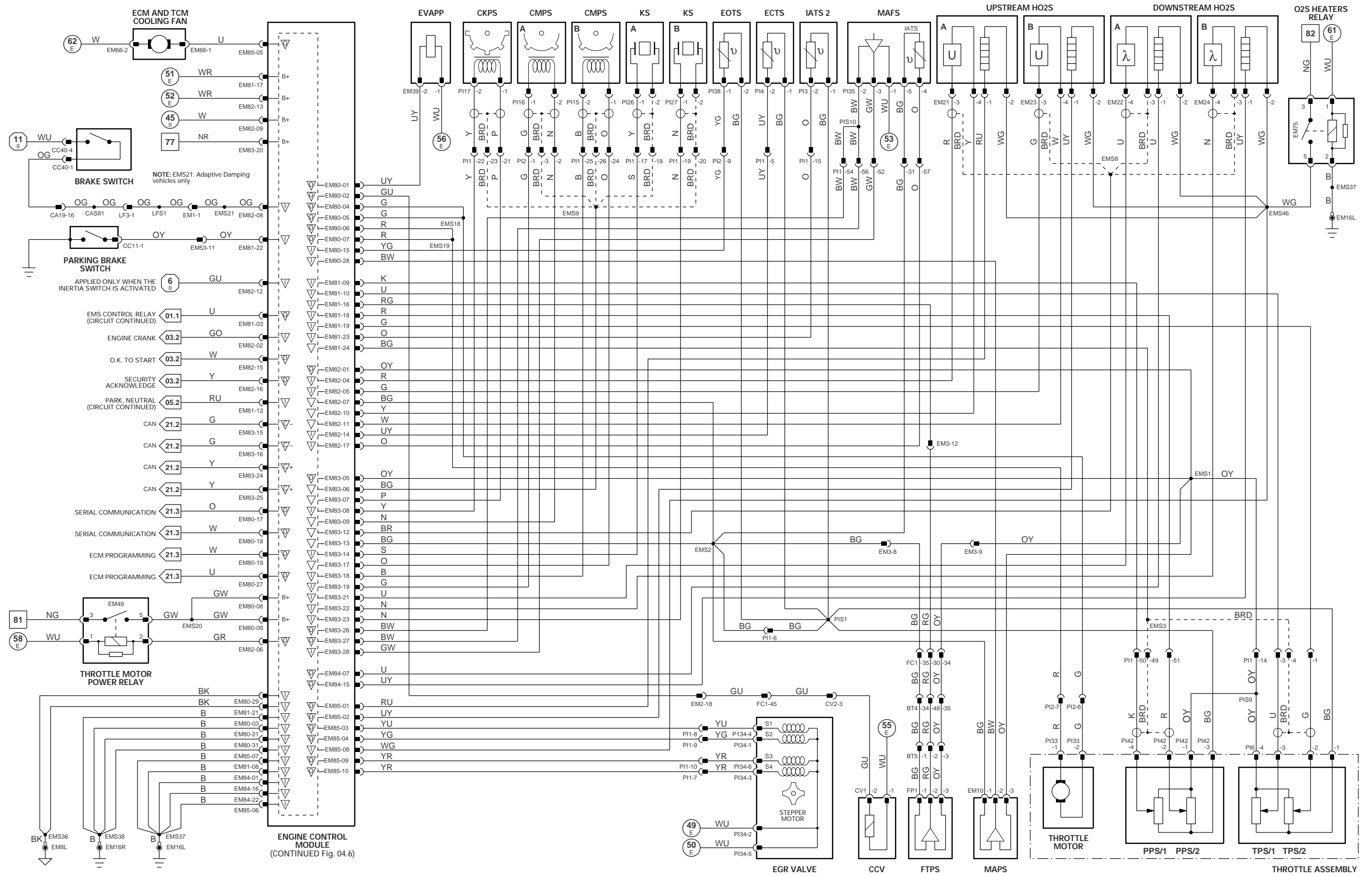


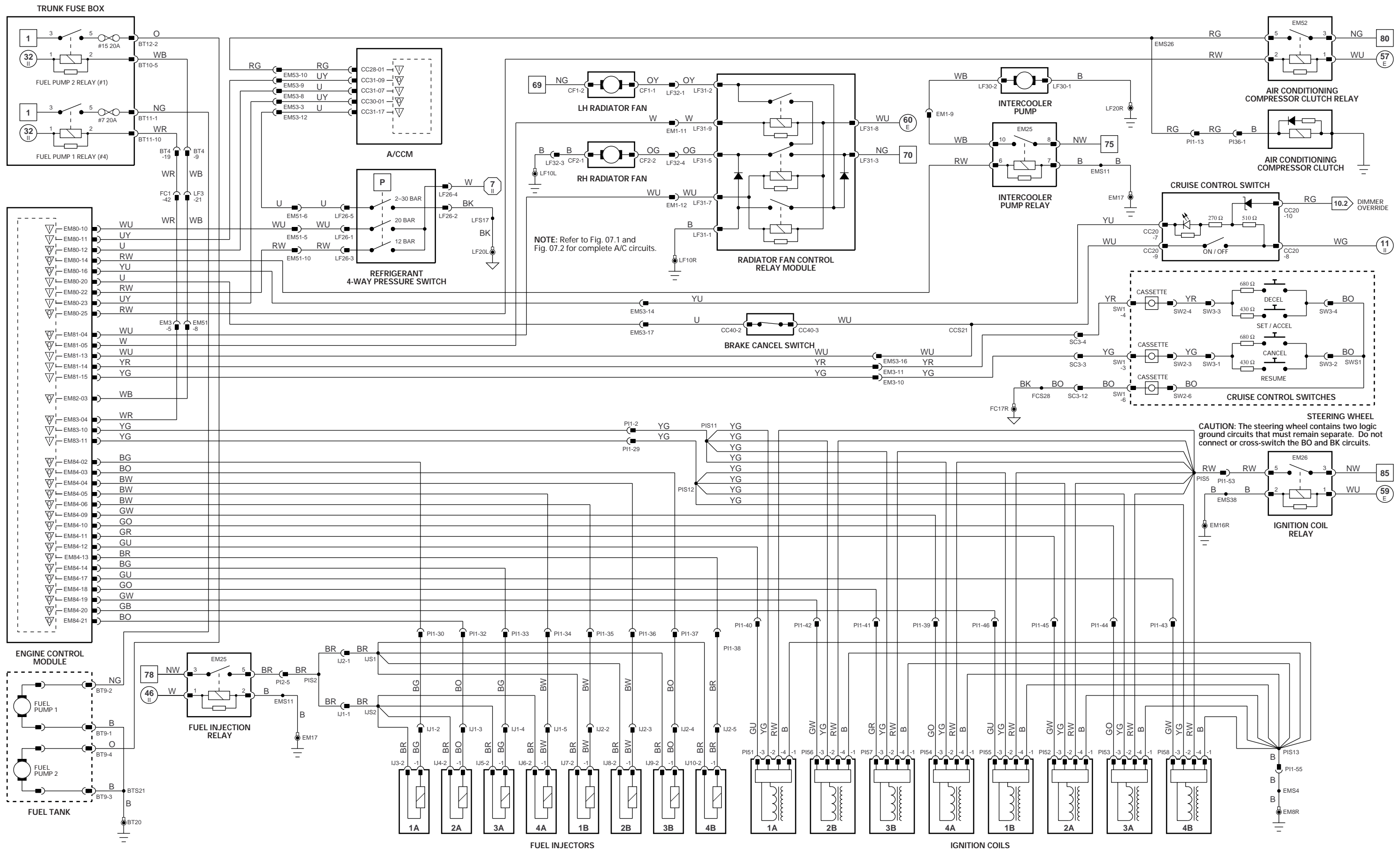


NOTE: ECM power supplies, grounds and references shown on Fig. 04.1 and Fig 04.2.



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



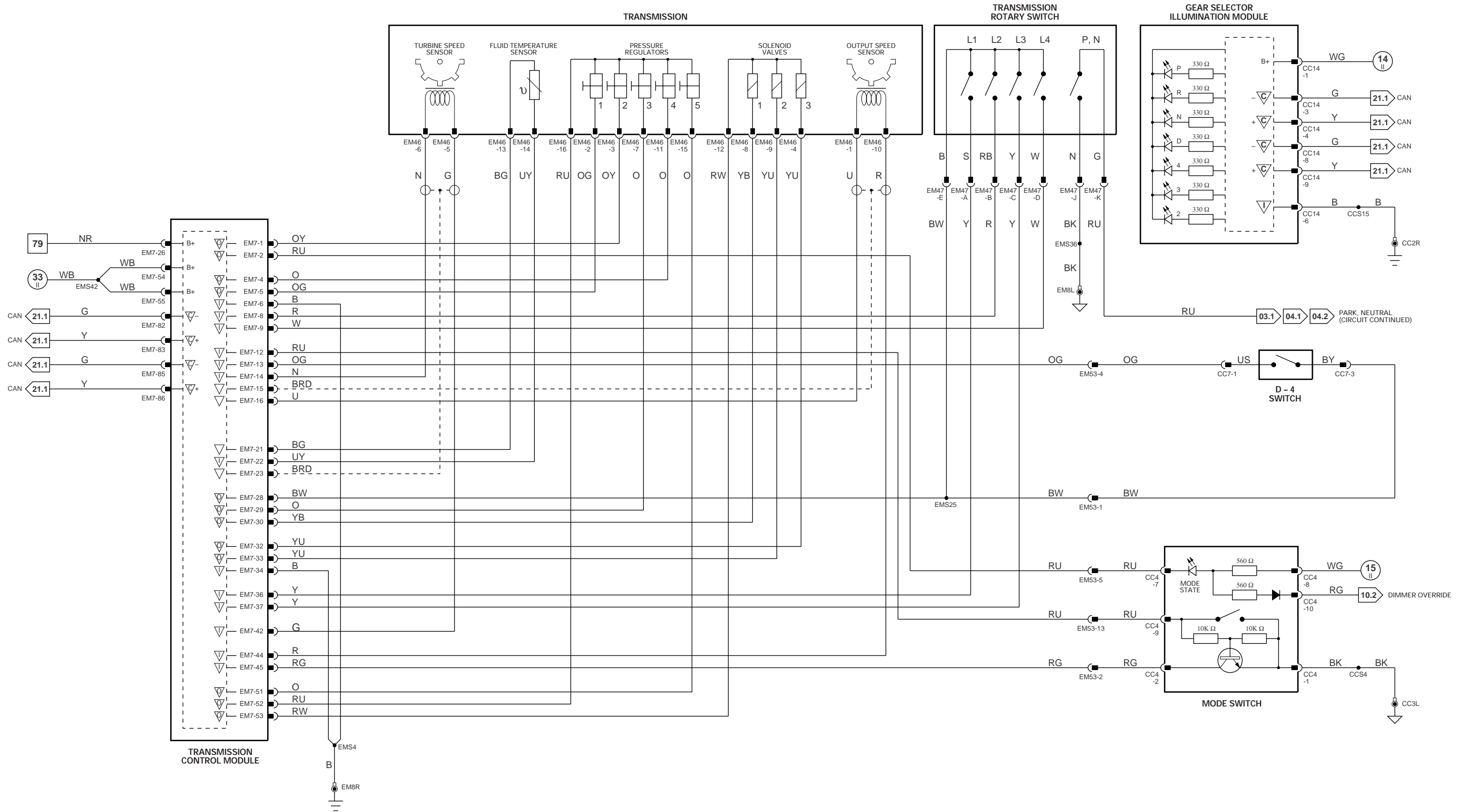


NOTE: ECM power supplies, grounds and references shown on Fig. 04.4 and Fig 04.5.

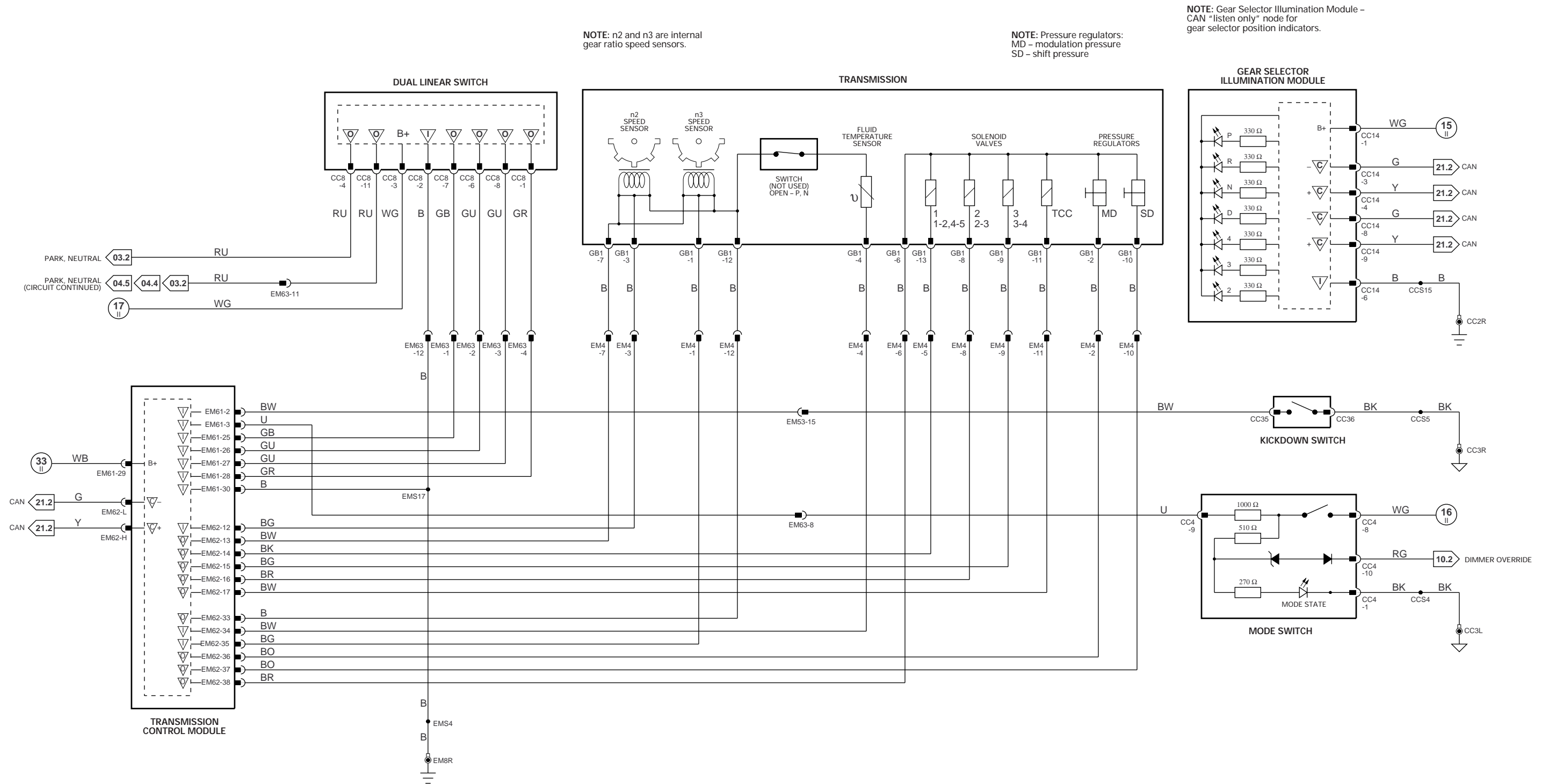
| | | | |
|--|---|---|--|
| | <p>1 → 6 Fig. 01.1</p> <p>1 → 4 Fig. 01.3</p> <p>7 → 49 Fig. 01.2</p> <p>50 → 85 Fig. 01.3</p> <p>5 → 48 Fig. 01.4</p> <p>49 → 62 Fig. 01.5</p> <p>1 → 19 Fig. 02.1</p> | <p>▽ Input</p> <p>▽ Output</p> <p>▽ Signal Ground (SG)</p> <p>▽ Serial and Encoded Communications</p> <p>▽ CAN (Network)</p> <p>▽ SCP Network</p> | <p>VARIANT: AJ27 4.0 SC Vehicles</p> <p>VIN RANGE: F00103 →</p> <p>DATE OF ISSUE: October 1999</p> |
|--|---|---|--|

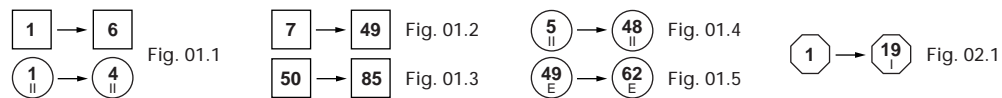
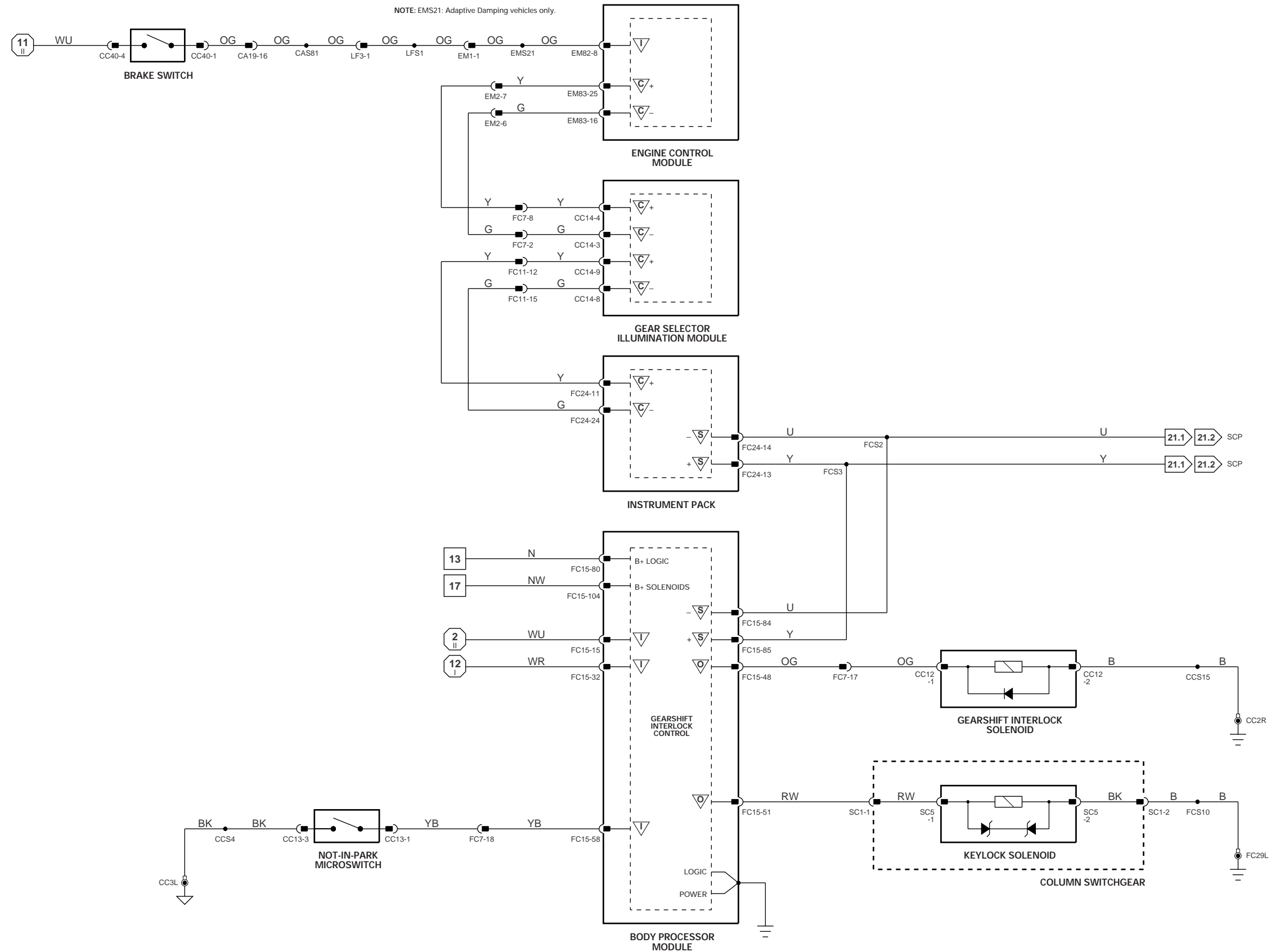


NOTE: Gear Selector Illumination Module - CAN "listen only" node for gear selector position indicators.

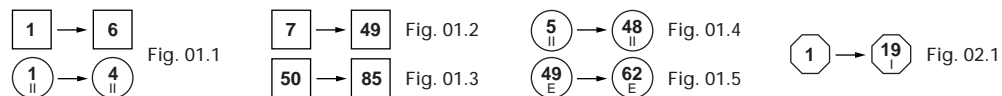
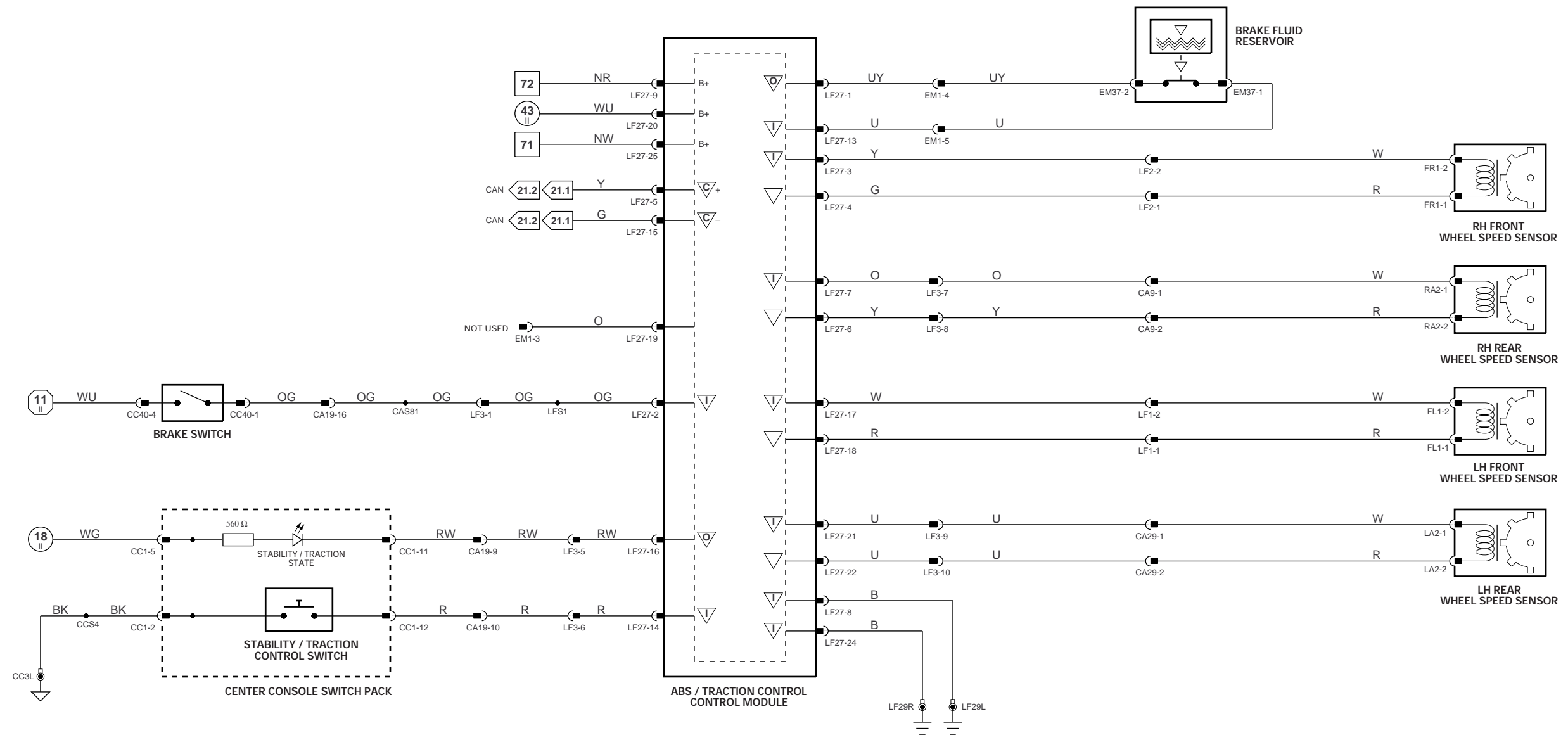


| | | | |
|--|--|--|---|
| | | | <p>VARIANT: AJ27 N/A Vehicles VIN RANGE: F00103 → DATE OF ISSUE: October 1999</p> |
|--|--|--|---|

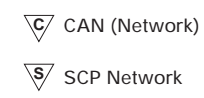
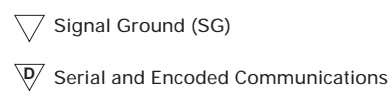
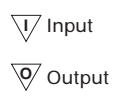
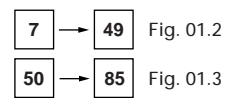
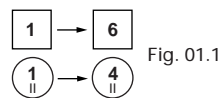
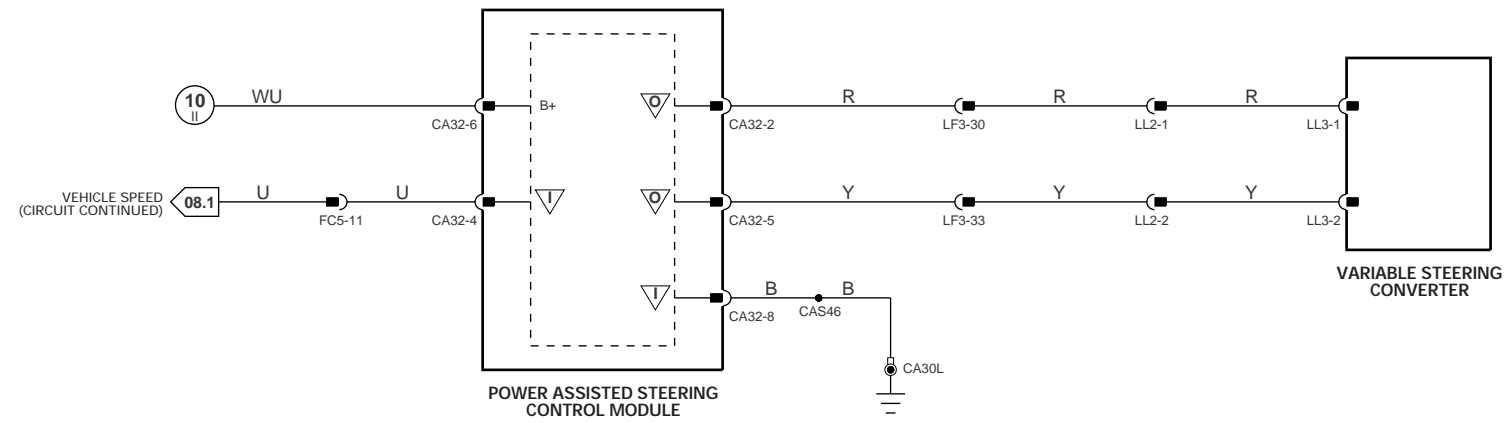




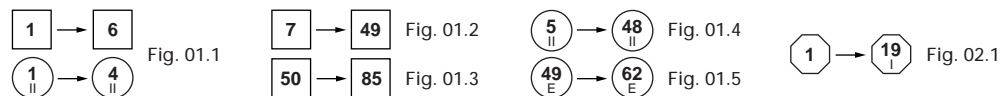
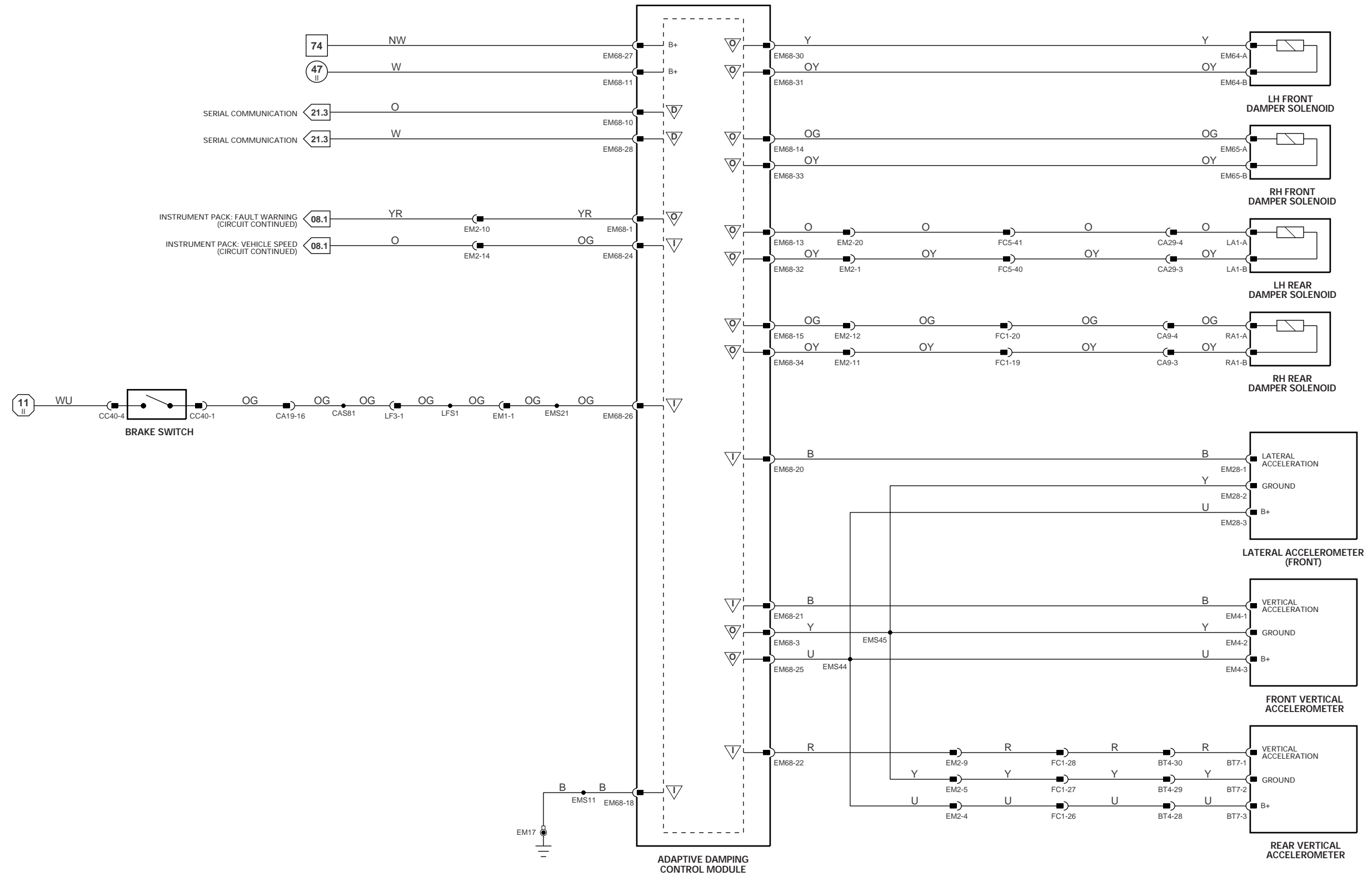
VARIANT: All Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999



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



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

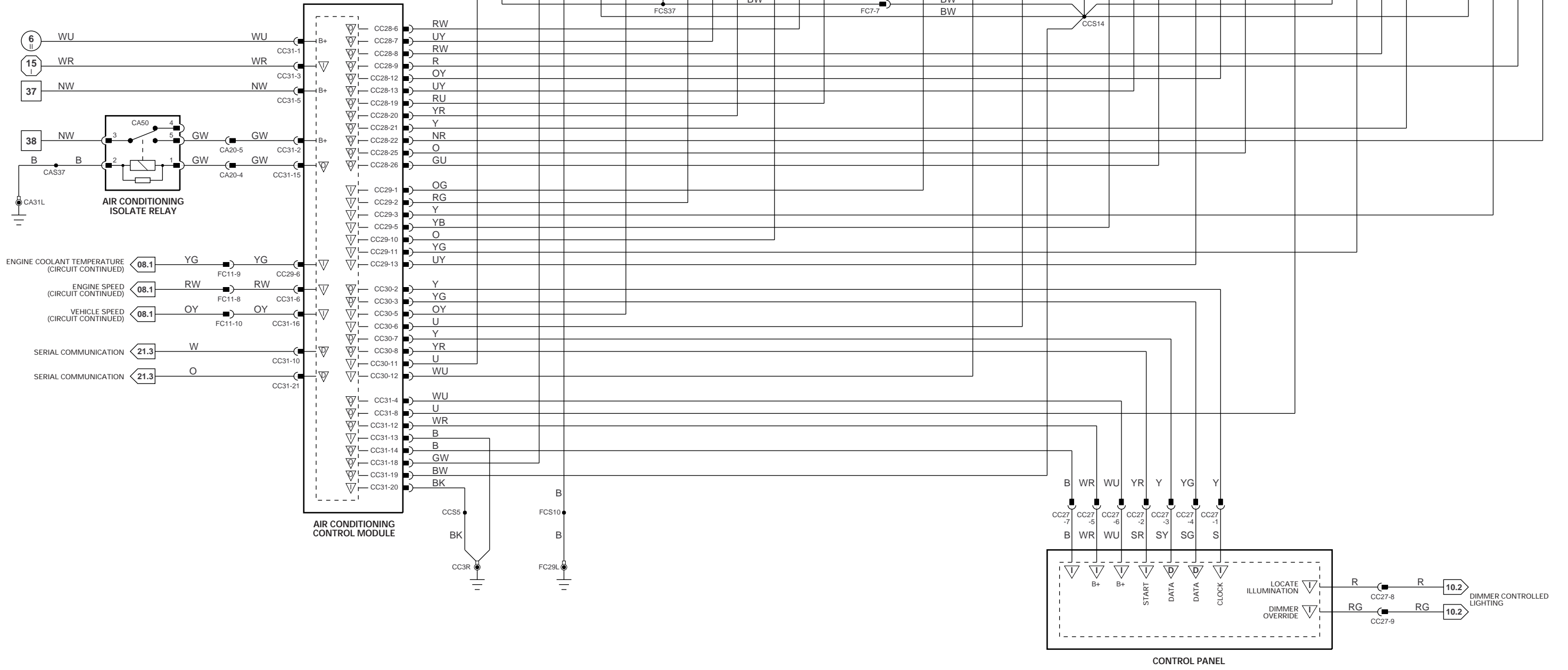
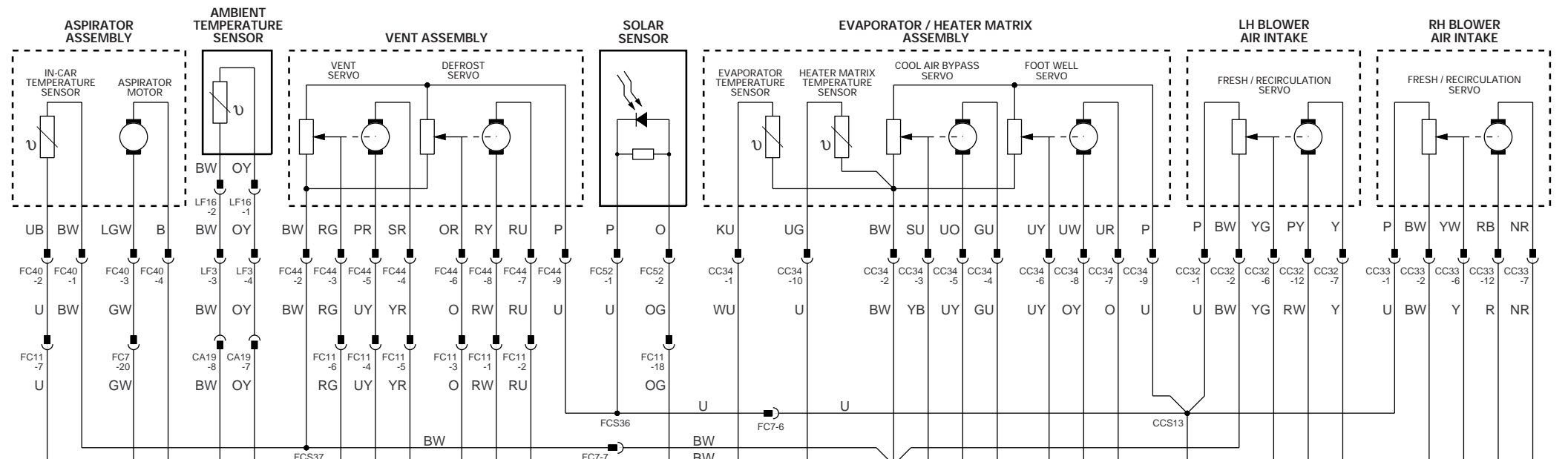


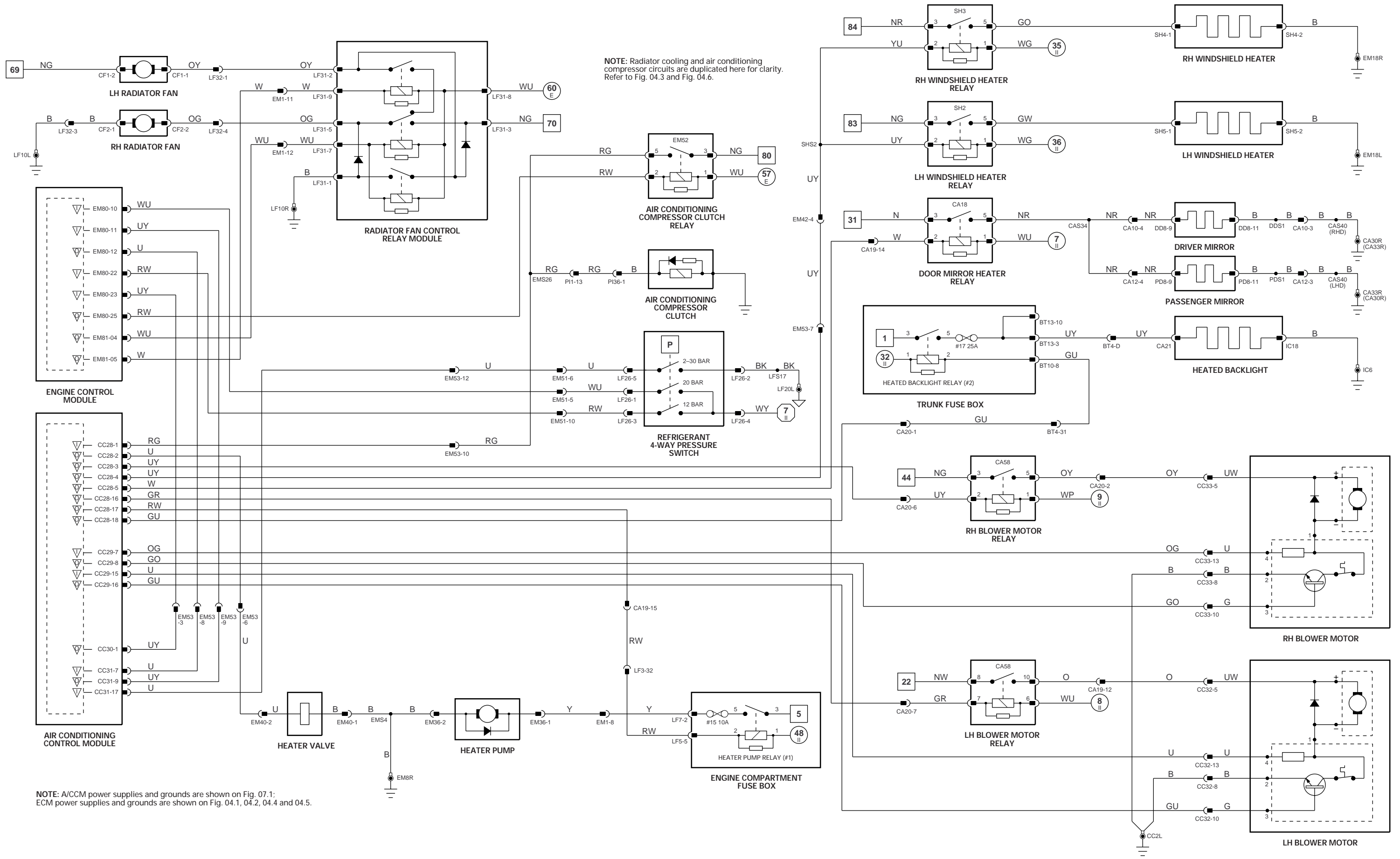
VARIANT: Adaptive Damping Vehicles
VIN RANGE: F00103 →
DATE OF ISSUE: October 1999



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.

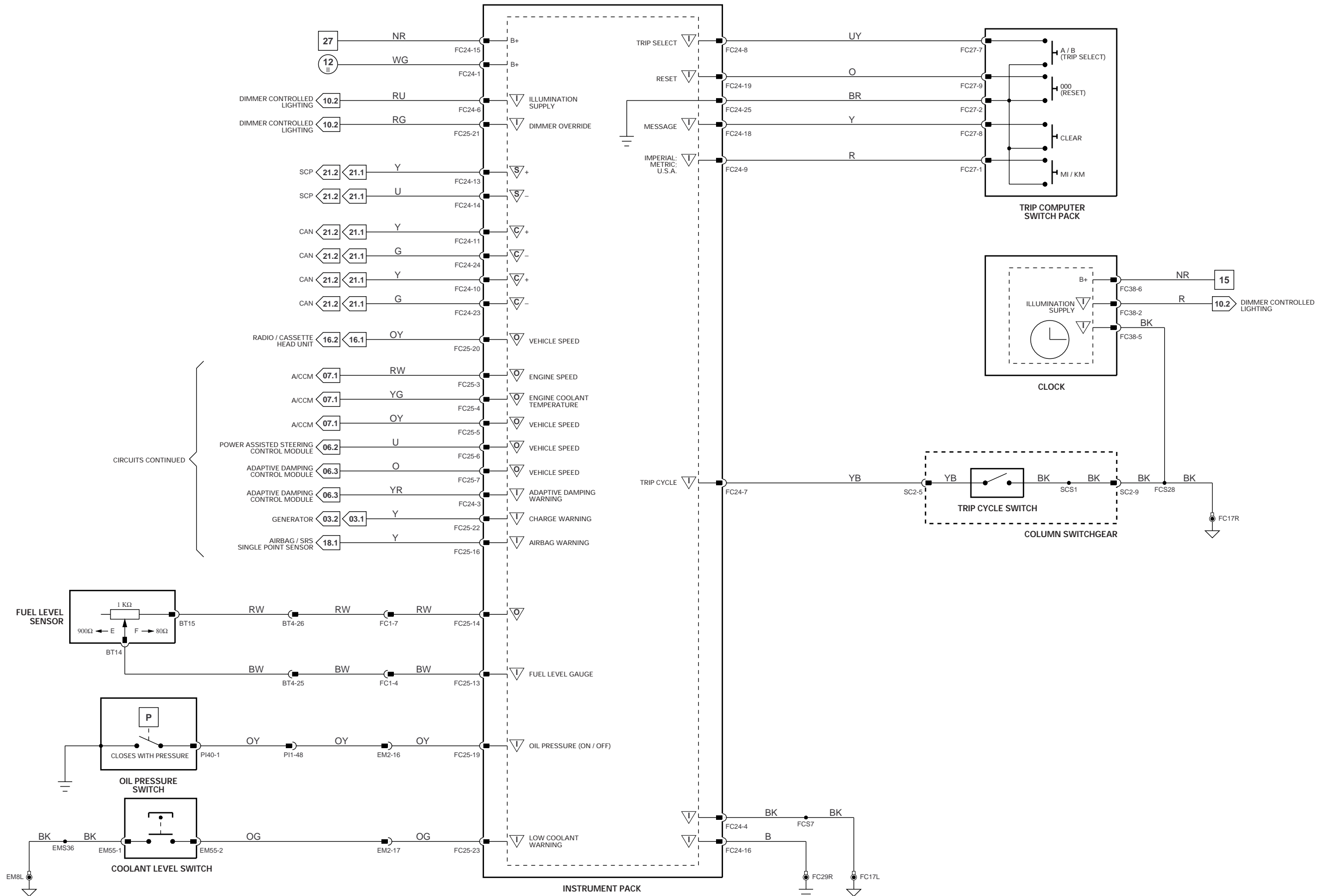




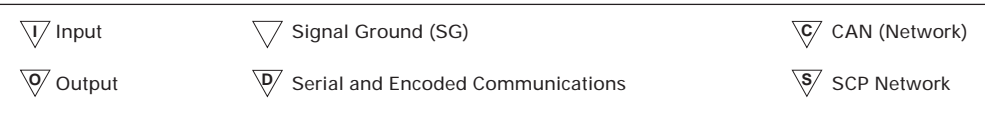
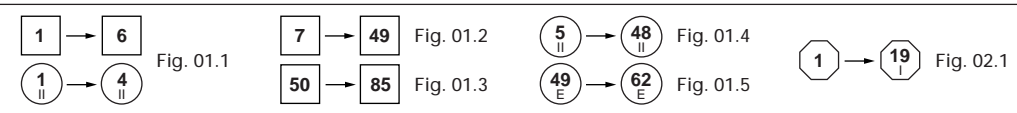
NOTE: Radiator cooling and air conditioning compressor circuits are duplicated here for clarity. Refer to Fig. 04.3 and Fig. 04.6.

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.

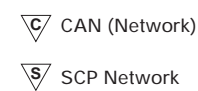
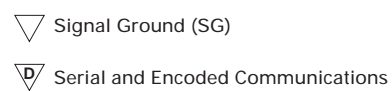
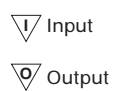
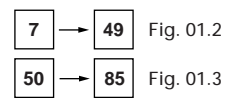
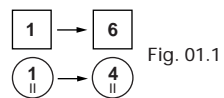
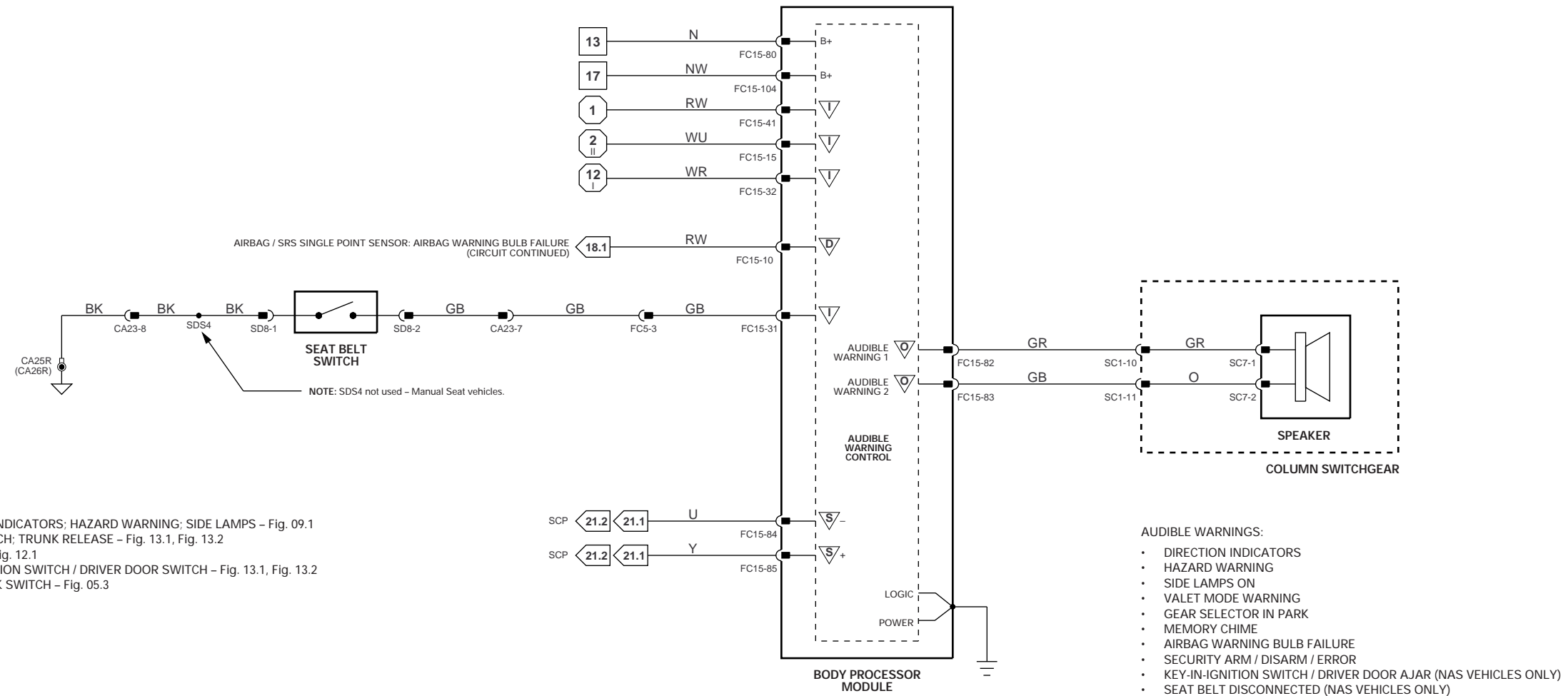
| | | | |
|--|---|---|--|
| | <p>1 → 6 Fig. 01.1</p> <p>1 → 4 Fig. 01.1</p> <p>7 → 49 Fig. 01.2</p> <p>50 → 85 Fig. 01.3</p> <p>5 → 48 Fig. 01.4</p> <p>49 → 62 Fig. 01.5</p> <p>1 → 19 Fig. 02.1</p> | <p>▽ Input</p> <p>▽ Output</p> <p>▽ Signal Ground (SG)</p> <p>▽ Serial and Encoded Communications</p> <p>▽ CAN (Network)</p> <p>▽ SCP Network</p> | <p>VARIANT: All Vehicles</p> <p>VIN RANGE: F00103 →</p> <p>DATE OF ISSUE: October 1999</p> |
|--|---|---|--|



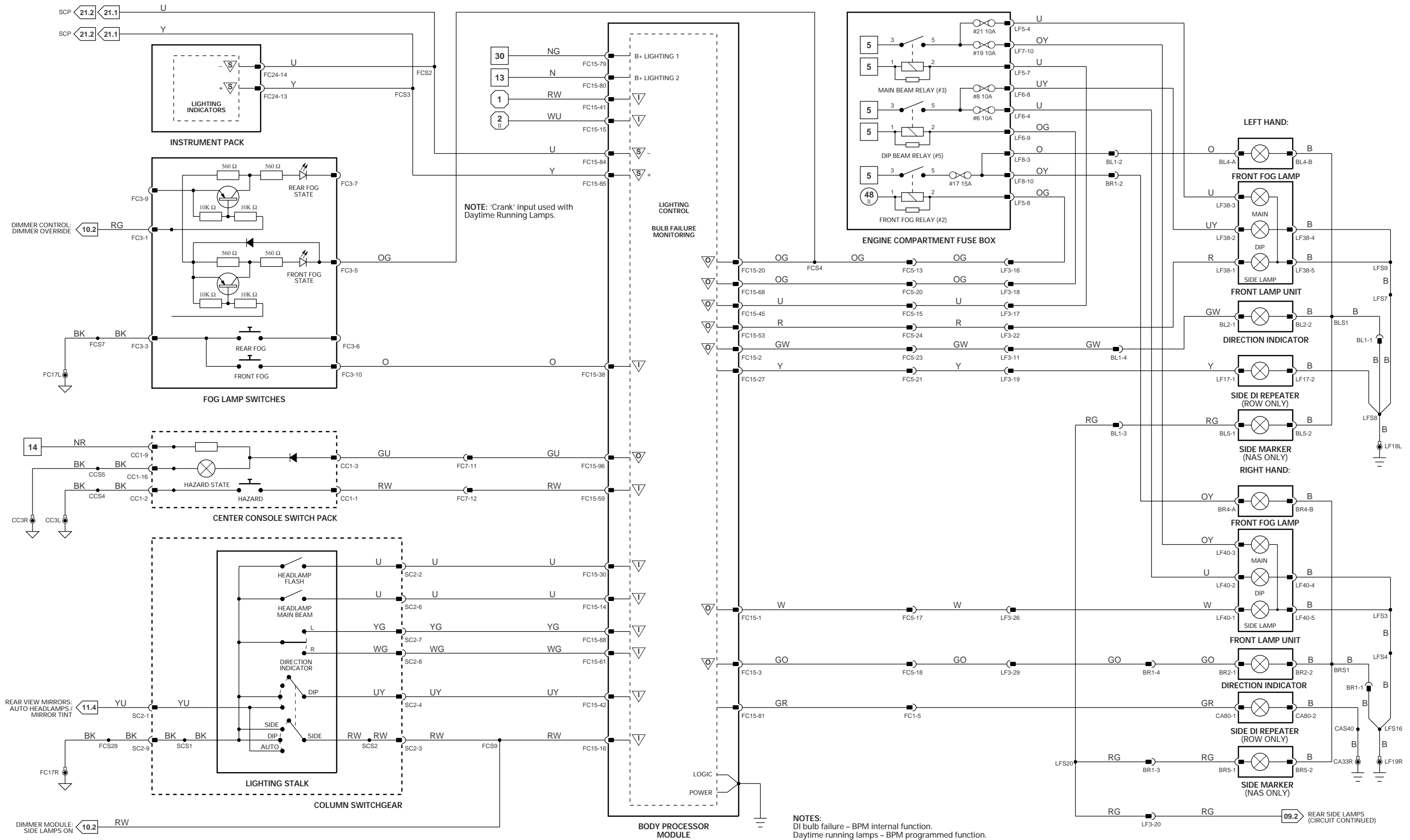
CIRCUITS CONTINUED



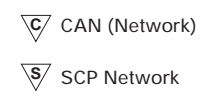
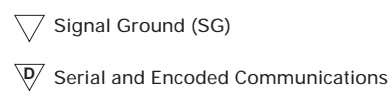
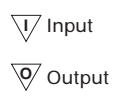
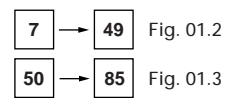
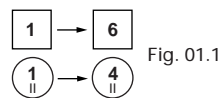
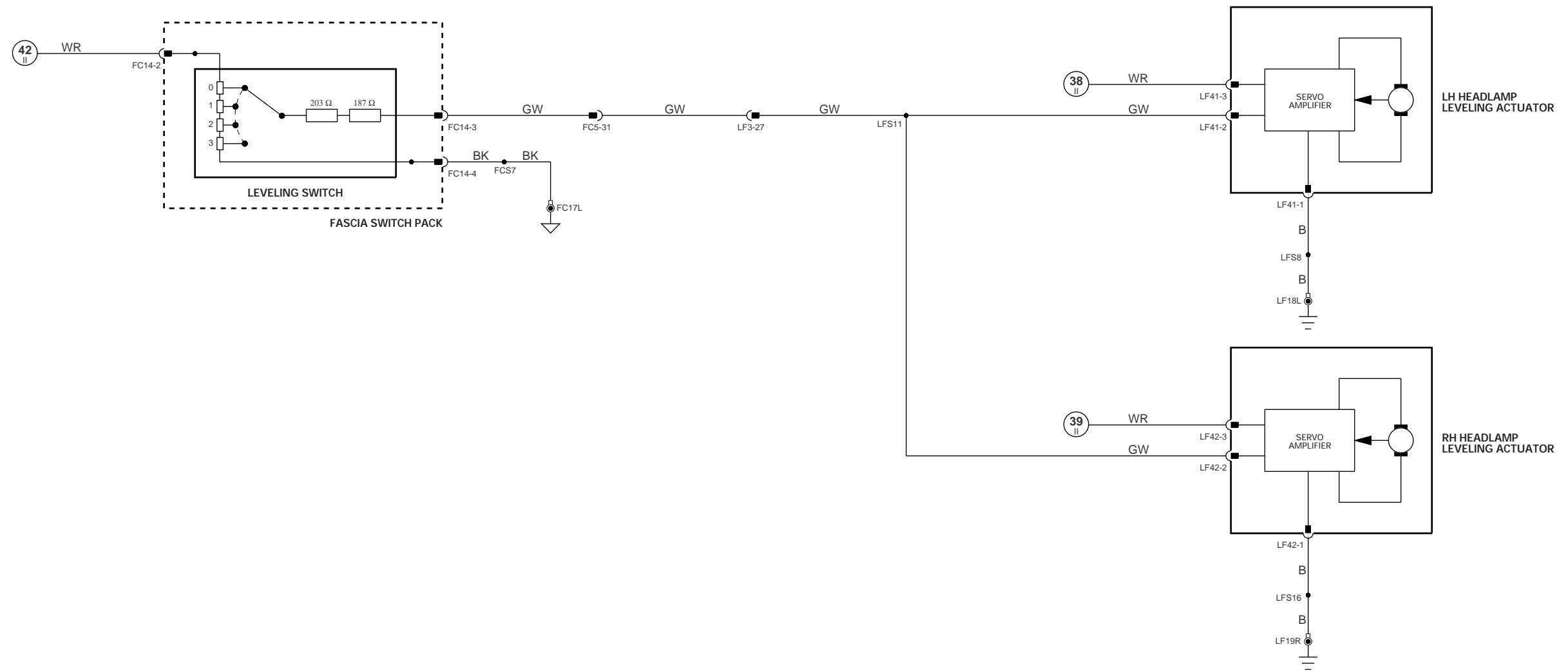
VARIANT: All Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999



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



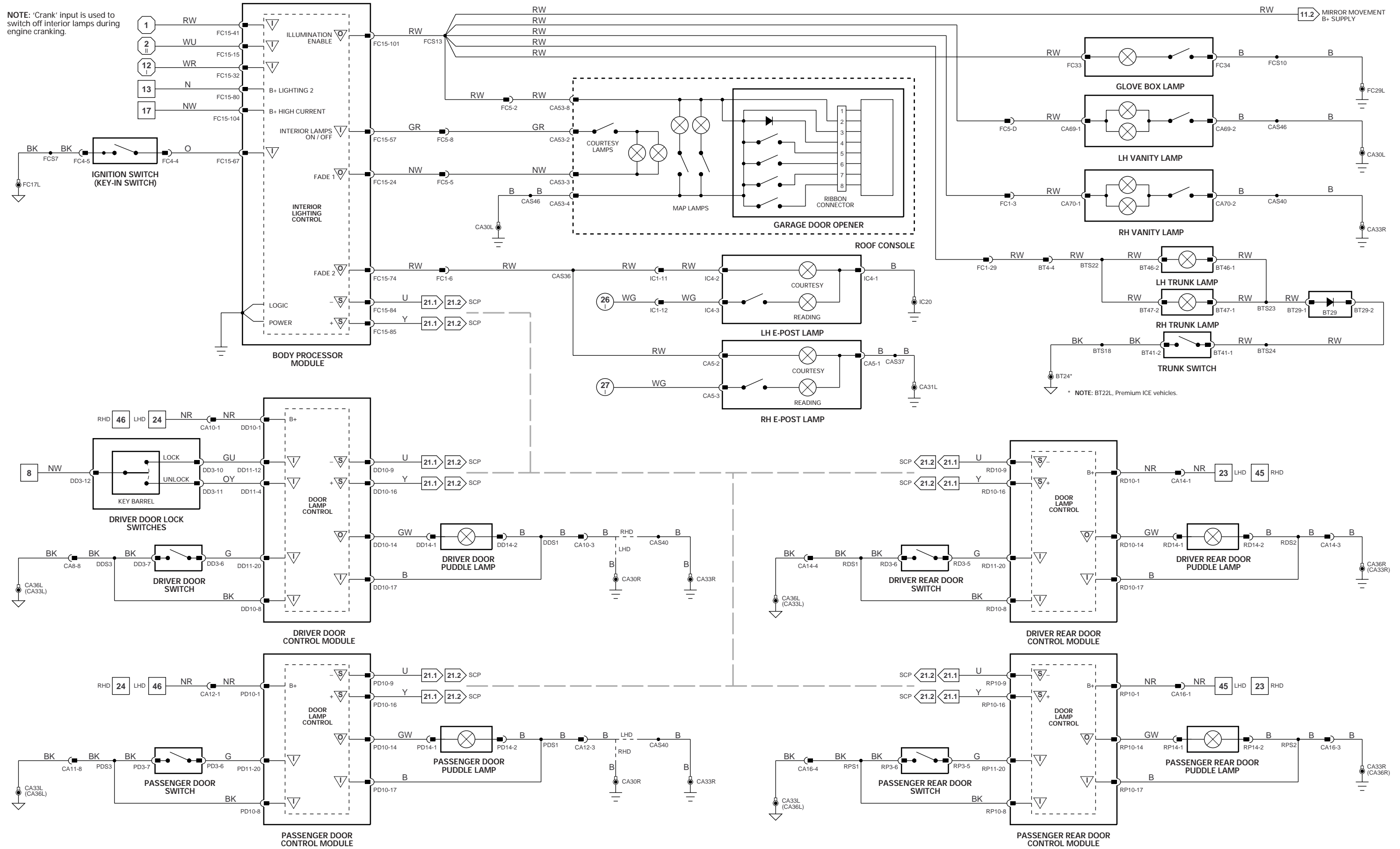
| | | | | | | | |
|---------------|------------------------|------------------------|-----------|-----------------|---|------------------------------|--|
| Fig. 01.1 | Fig. 01.2 Fig. 01.3 | Fig. 01.4 Fig. 01.5 | Fig. 02.1 | Input Output | Signal Ground (SG) Serial and Encoded Communications | CAN (Network) SCP Network | VARIANT: All Vehicles VIN RANGE: F00103 → DATE OF ISSUE: October 1999 |
|---------------|------------------------|------------------------|-----------|-----------------|---|------------------------------|--|



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

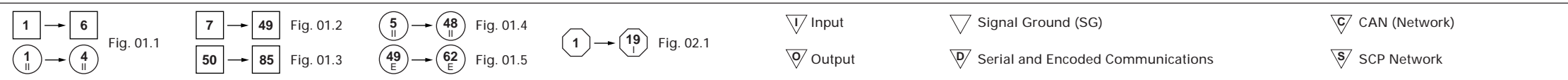
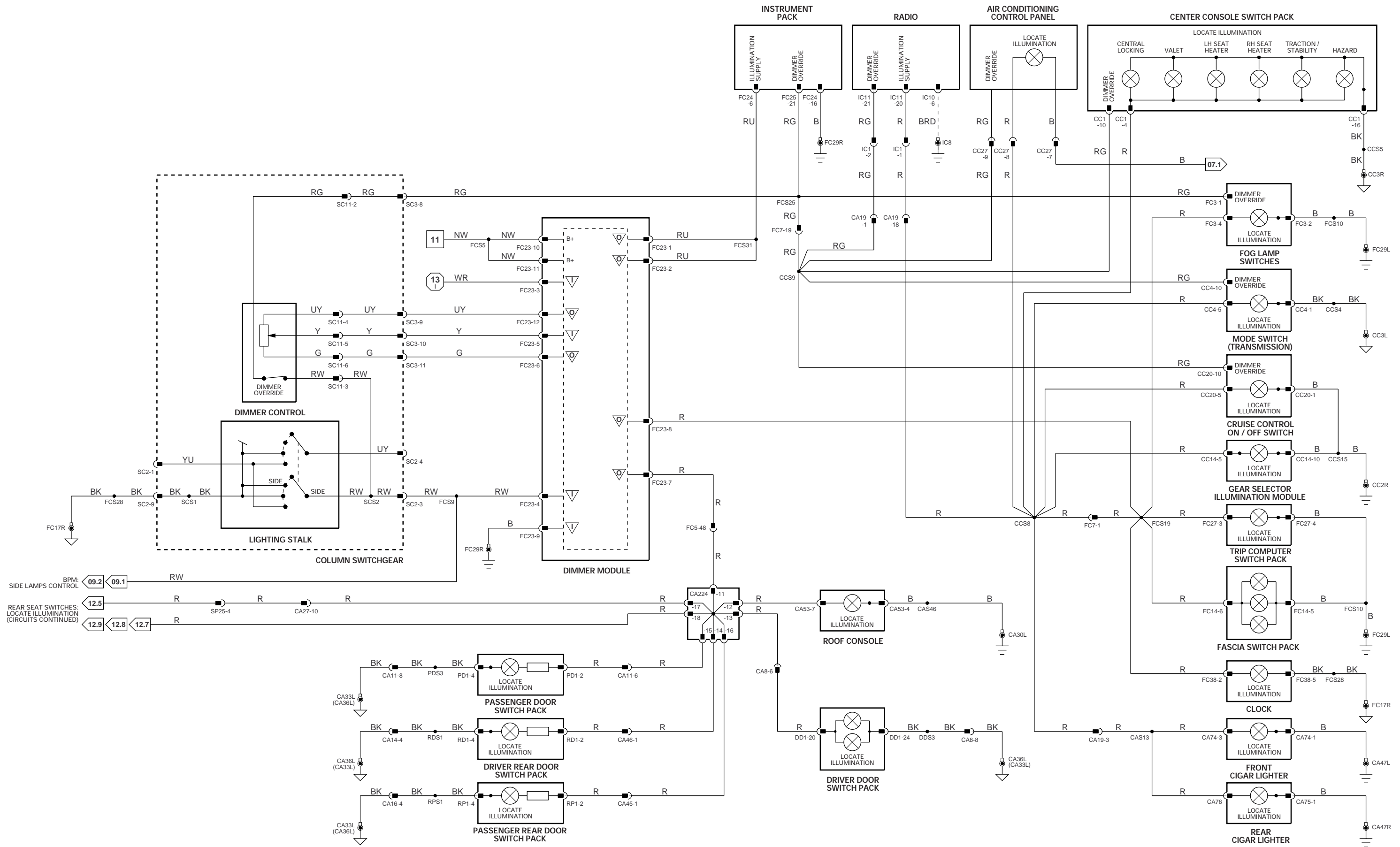


NOTE: 'Crank' input is used to switch off interior lamps during engine cranking.

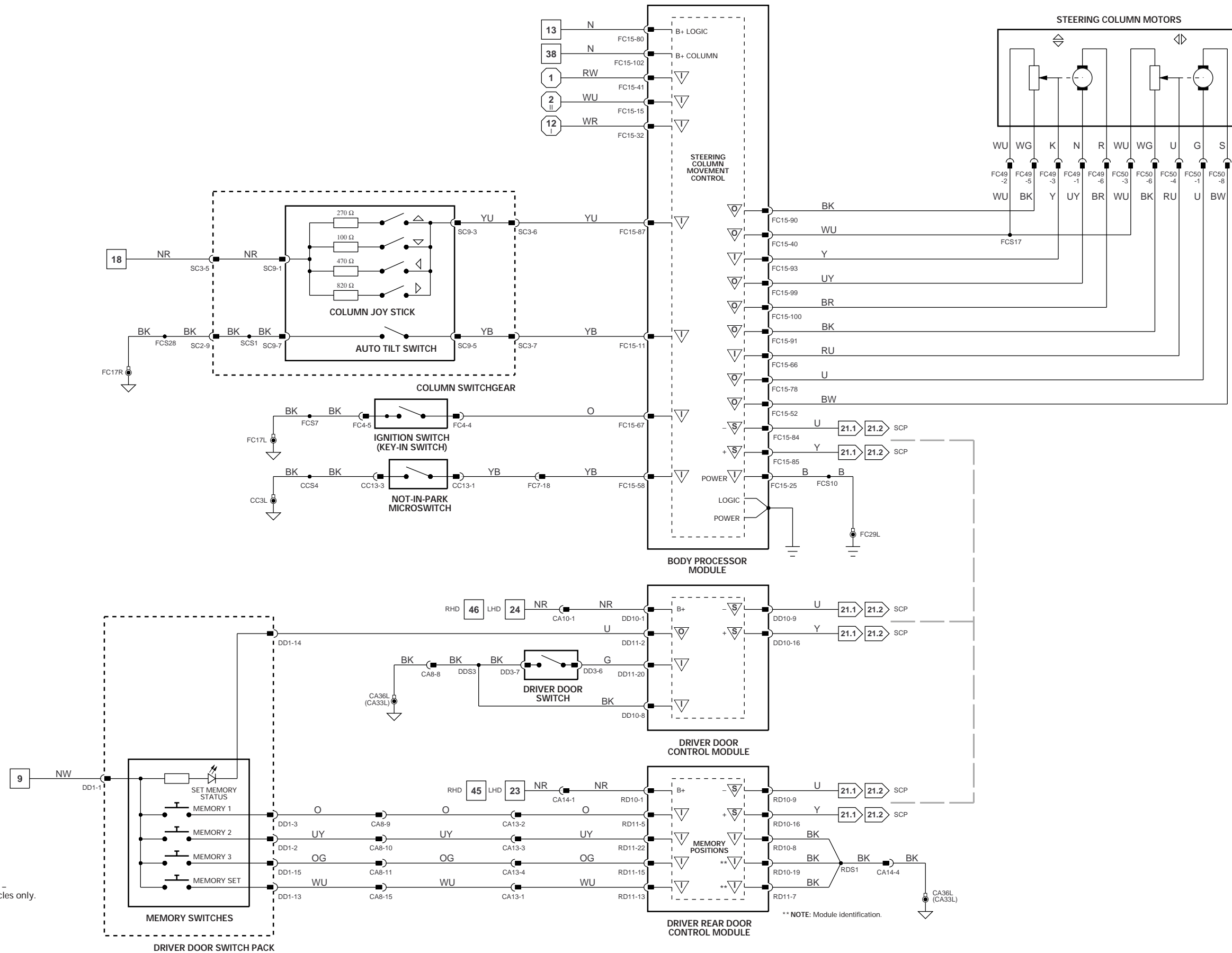


* NOTE: BT22L, Premium ICE vehicles.

| | | | | |
|--|---|--------------------------|---|--|
| | <p>Fig. 01.1: 1 → 6, 1 → 4</p> <p>Fig. 01.2: 7 → 49, 50 → 85</p> <p>Fig. 01.3: 5 → 48, 49 → 62</p> <p>Fig. 01.4: 5 → 48, 49 → 62</p> <p>Fig. 01.5: 1 → 19</p> | <p>Fig. 02.1: 1 → 19</p> | <p>Legend:</p> <ul style="list-style-type: none"> Input Output Signal Ground (SG) Serial and Encoded Communications CAN (Network) SCP Network | <p>VARIANT: All Vehicles</p> <p>VIN RANGE: F00103 →</p> <p>DATE OF ISSUE: October 1999</p> |
|--|---|--------------------------|---|--|



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



NOTE: Memory switches – driver memory seat vehicles only.

** NOTE: Module identification.

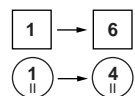


Fig. 01.1

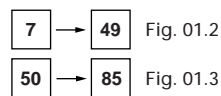


Fig. 01.2

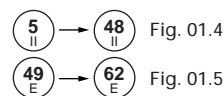


Fig. 01.4

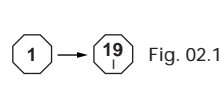
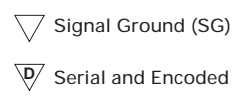
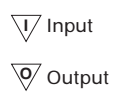
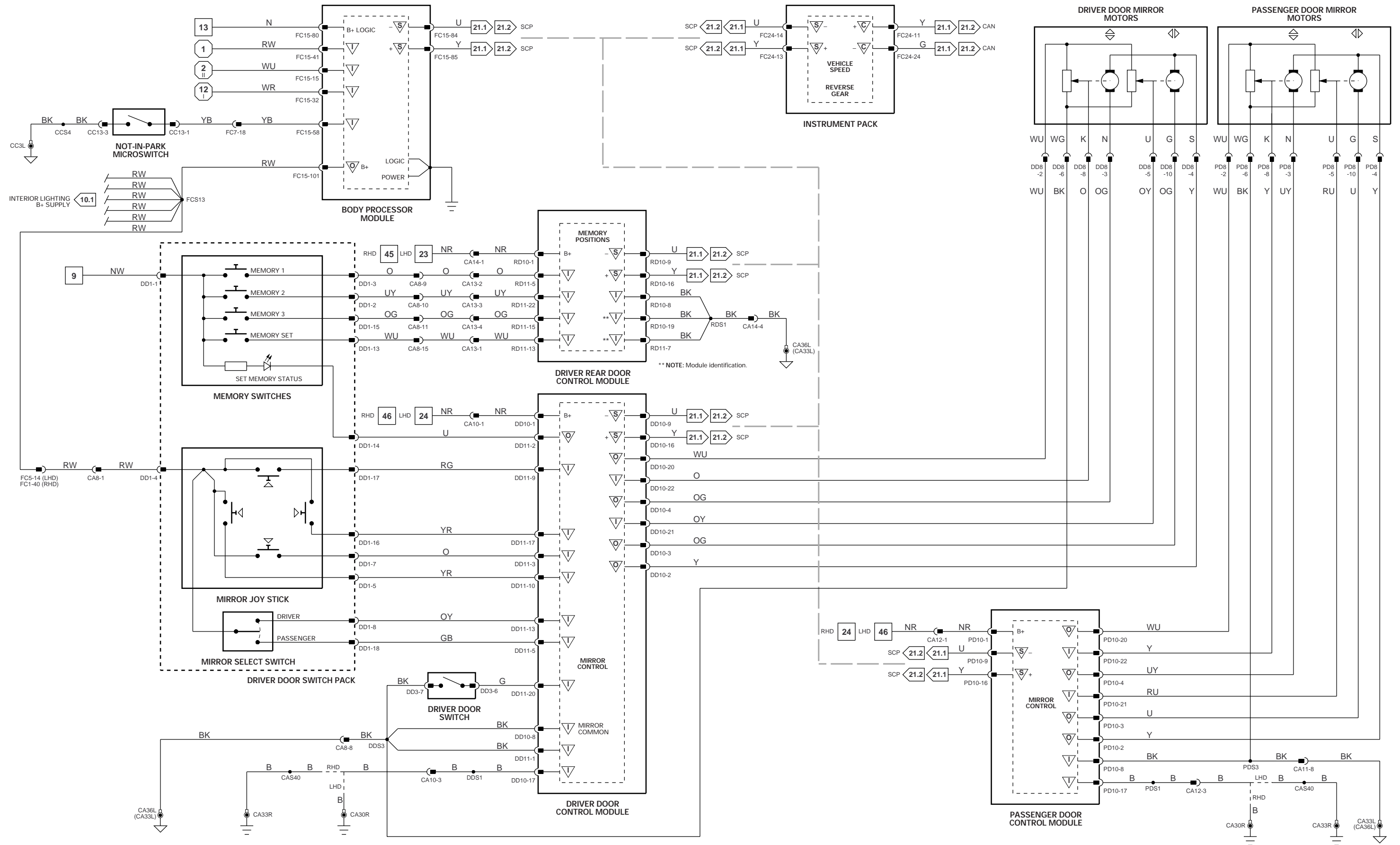
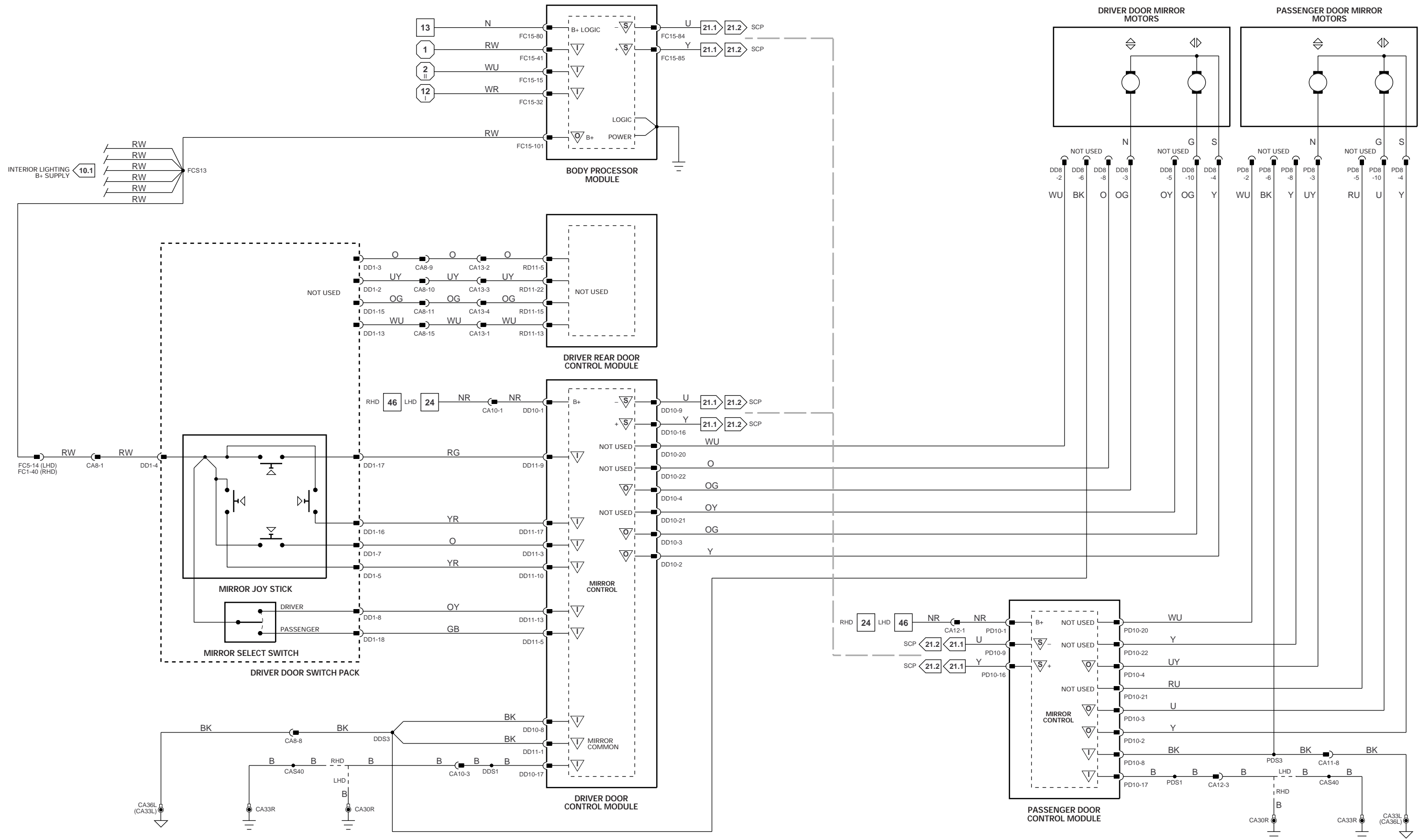


Fig. 02.1



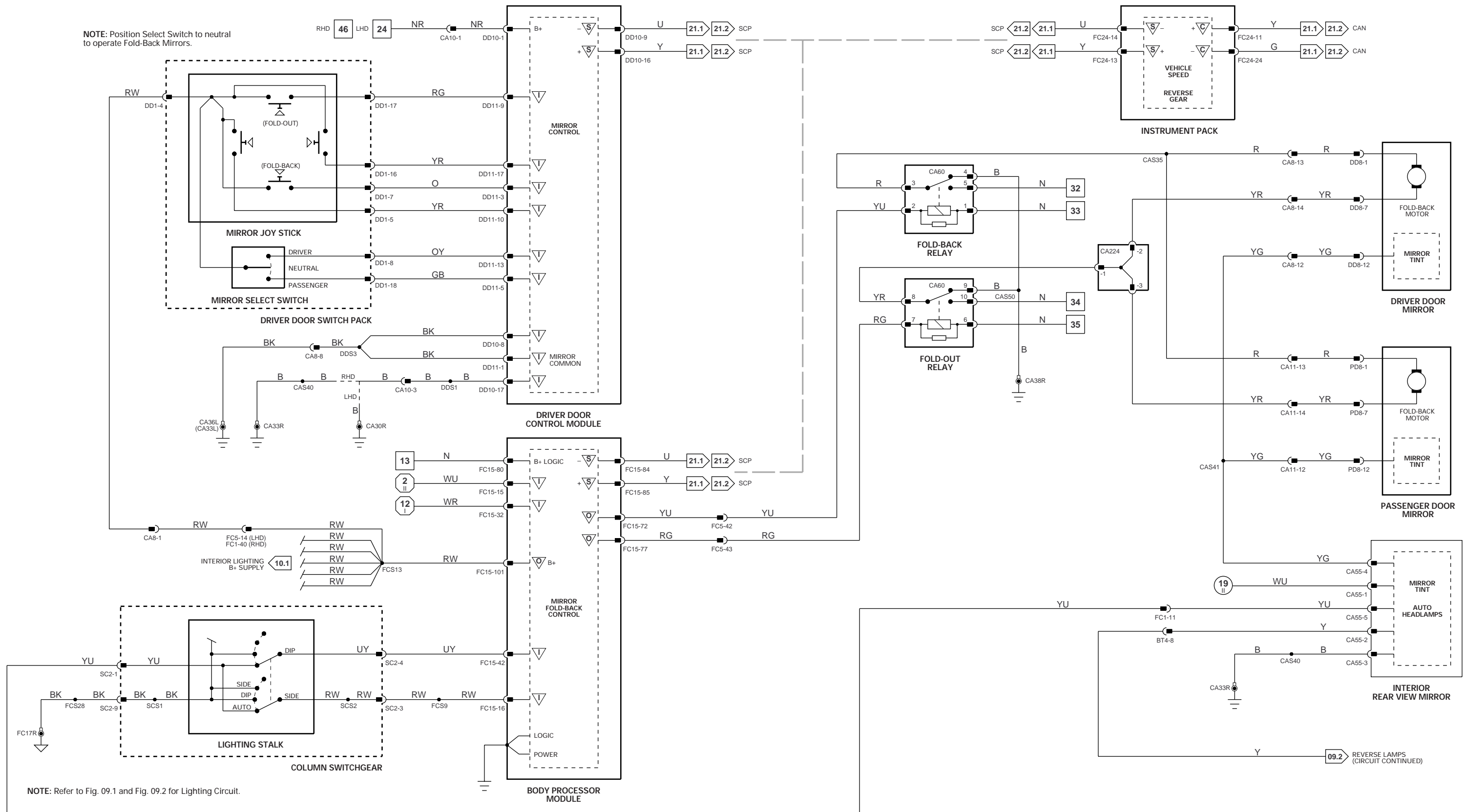
VARIANT: Powered Column Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999



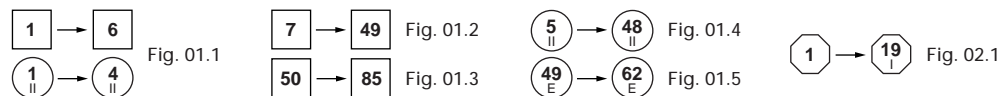




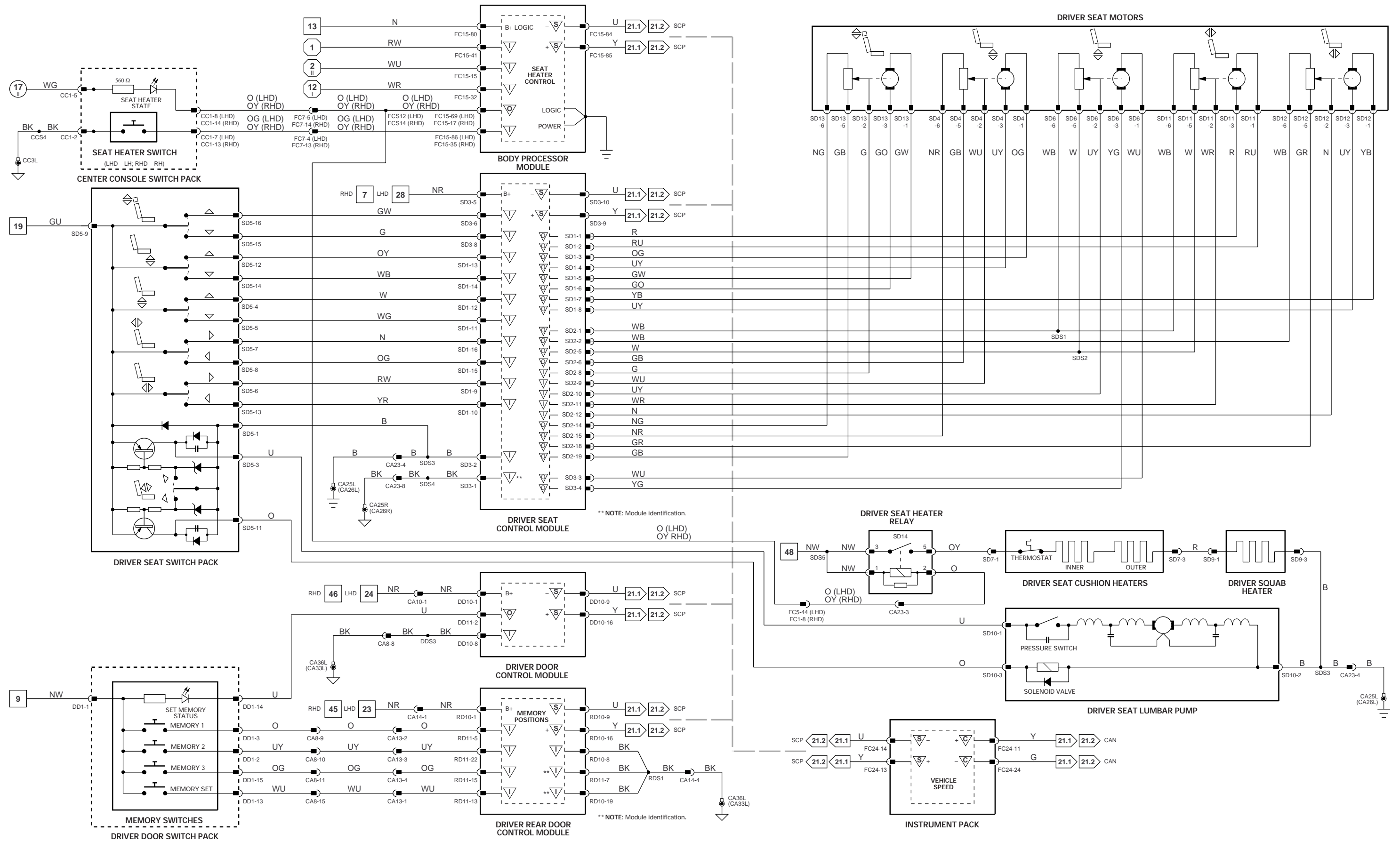
NOTE: Position Select Switch to neutral to operate Fold-Back Mirrors.

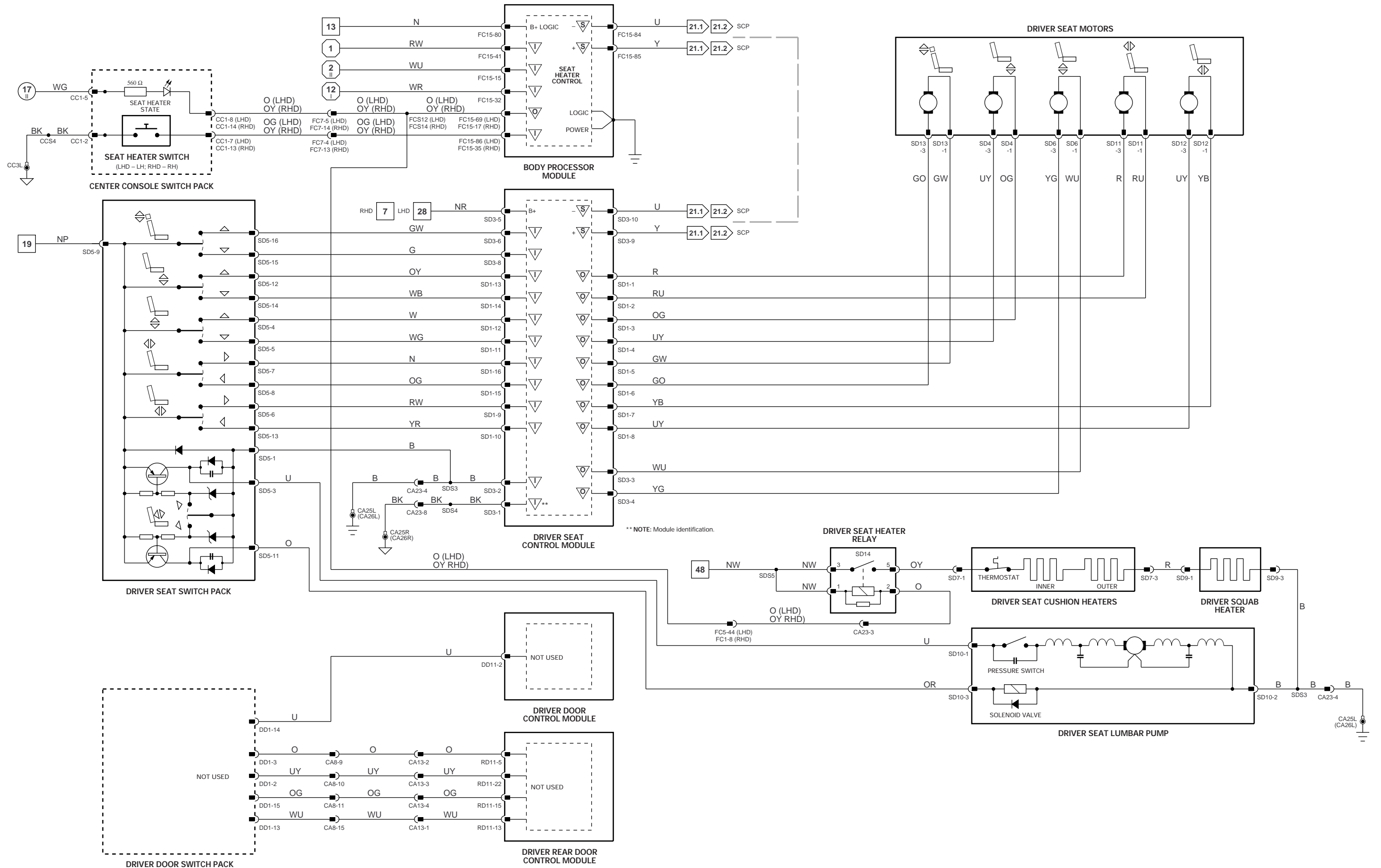


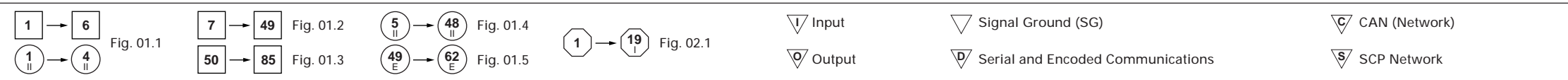
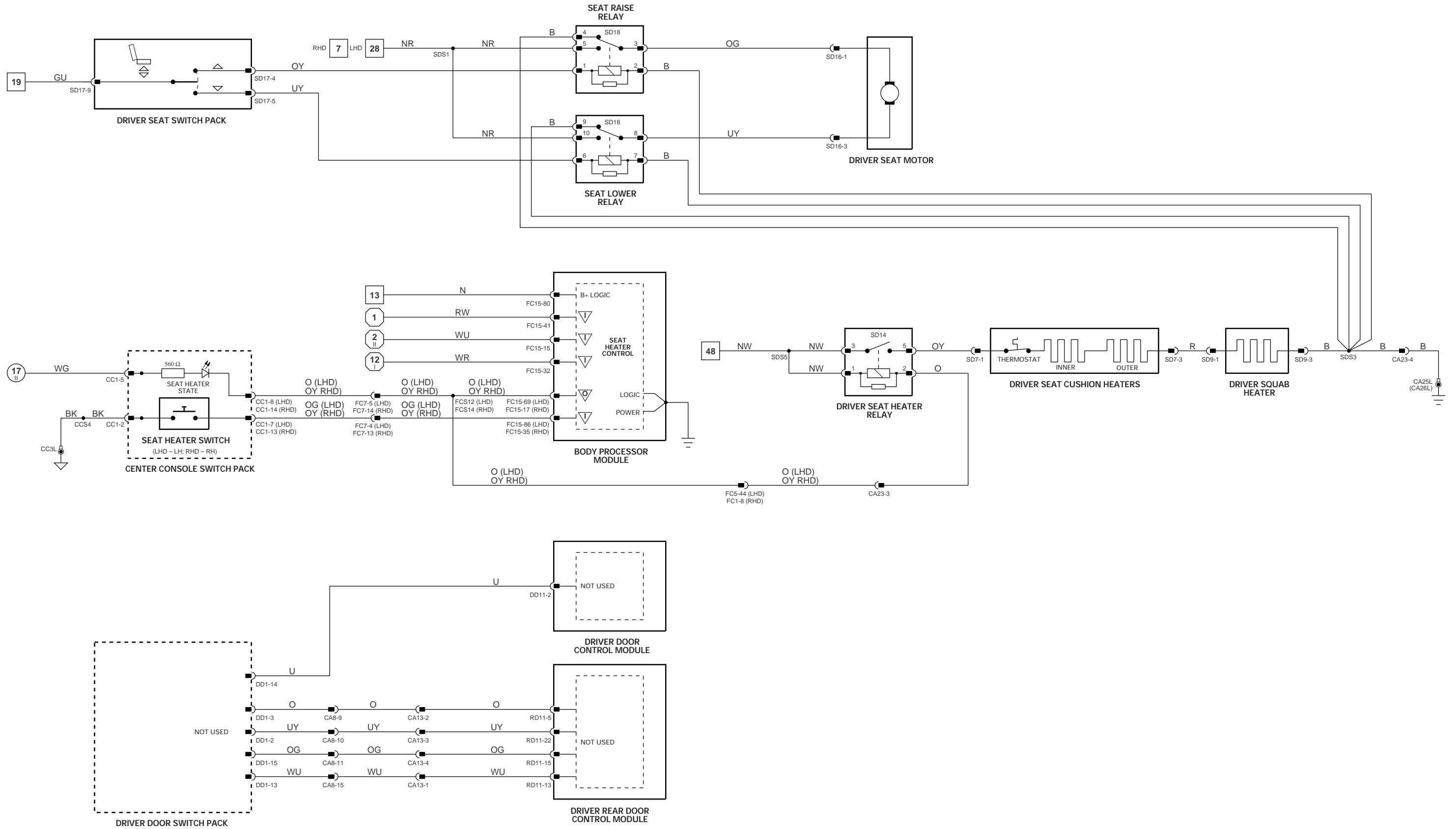
NOTE: Refer to Fig. 09.1 and Fig. 09.2 for Lighting Circuit.



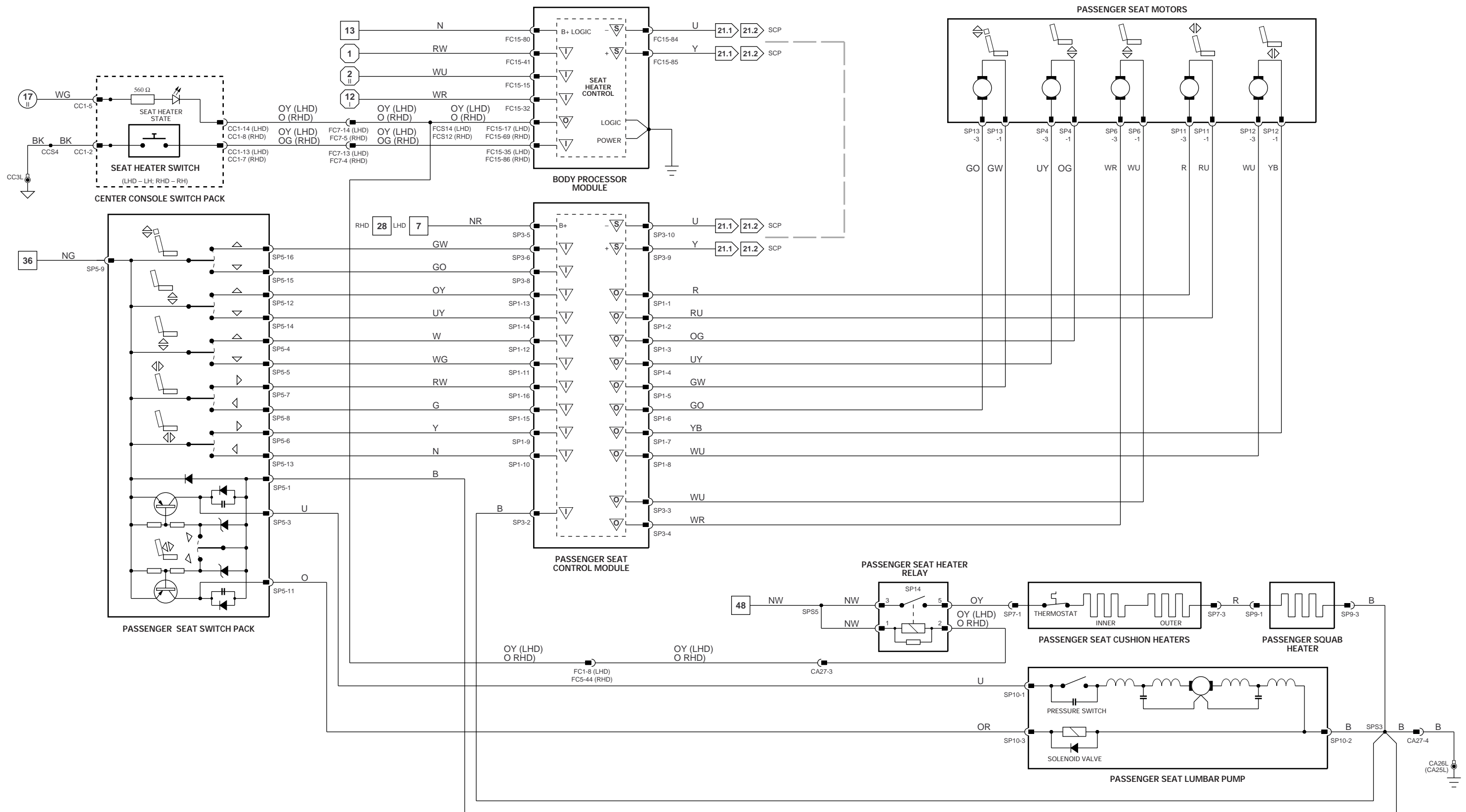
VARIANT: All Vehicles
VIN RANGE: F00103 →
DATE OF ISSUE: October 1999

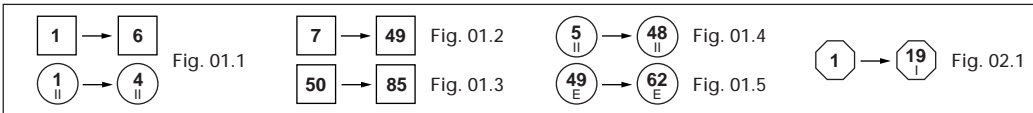
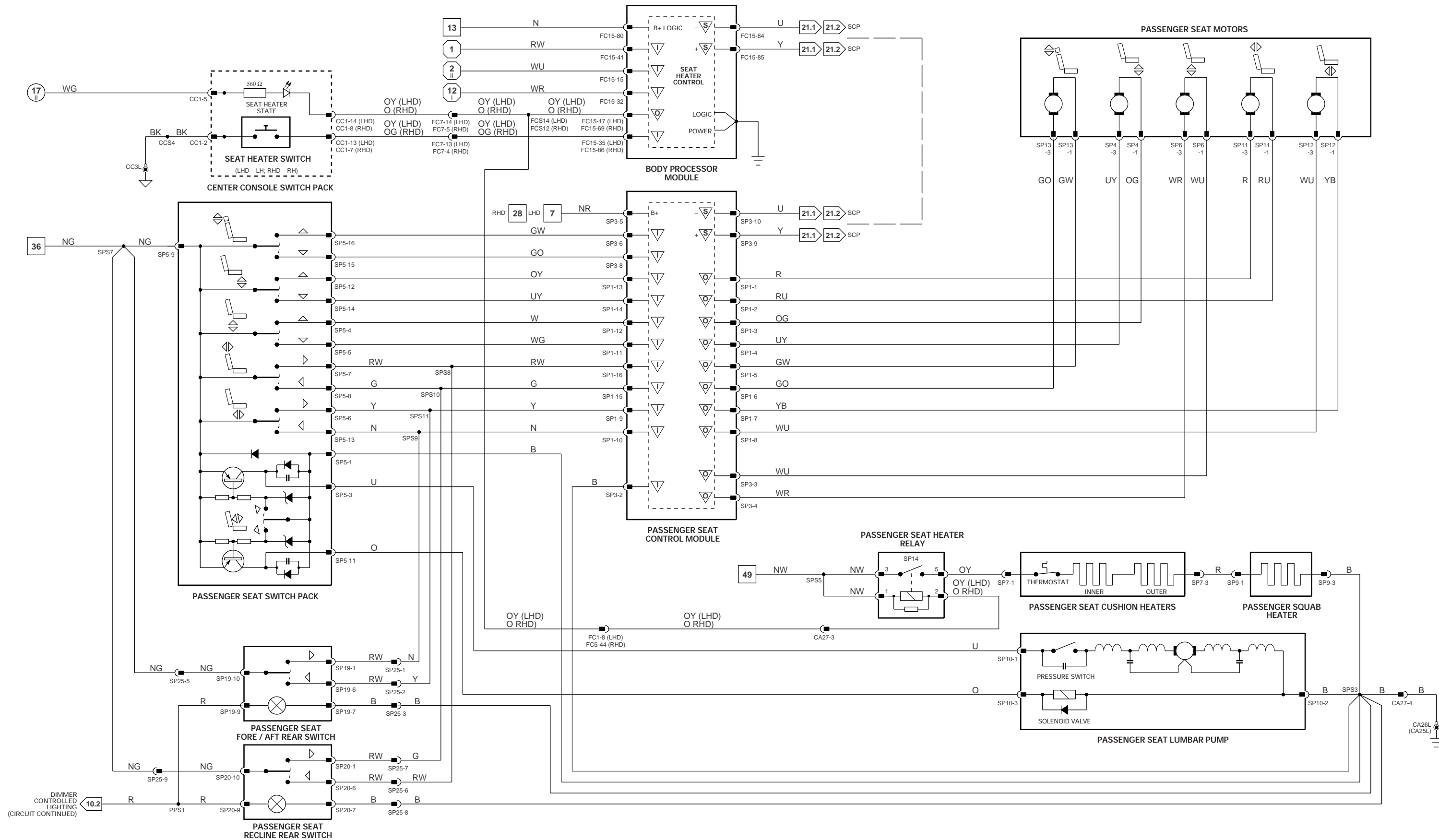




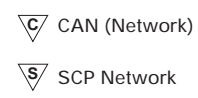
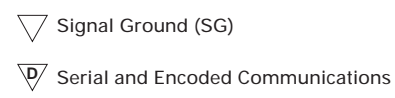
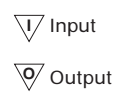
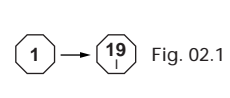
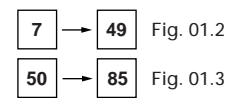
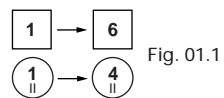
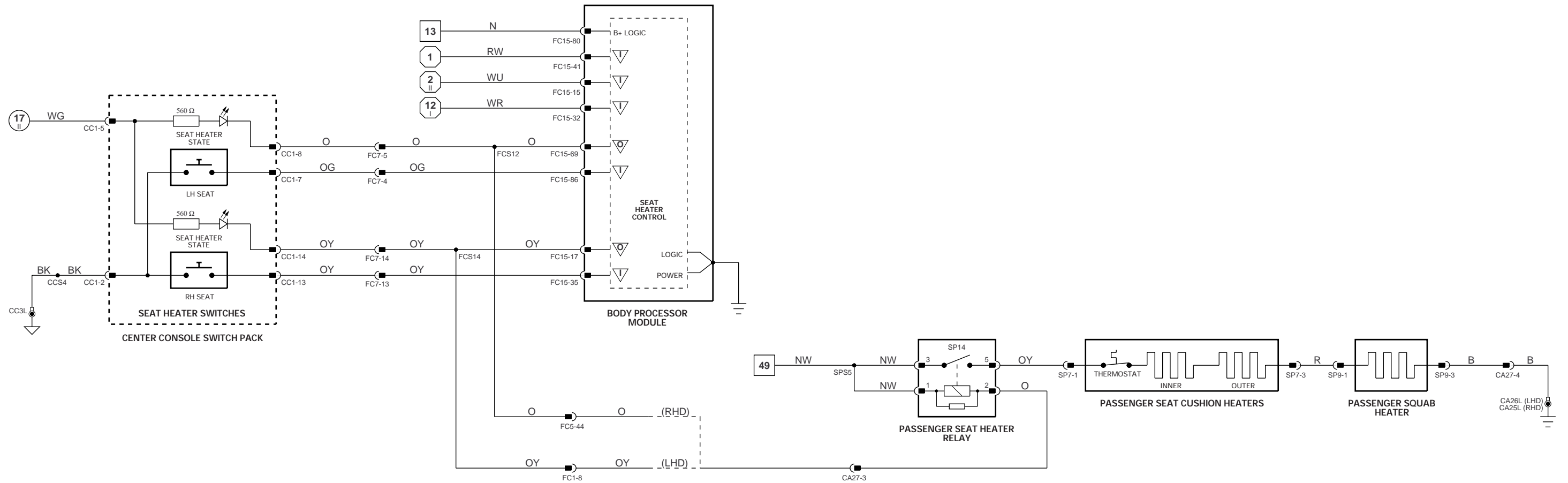


VARIANT: Driver Raise / Lower Seat Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999

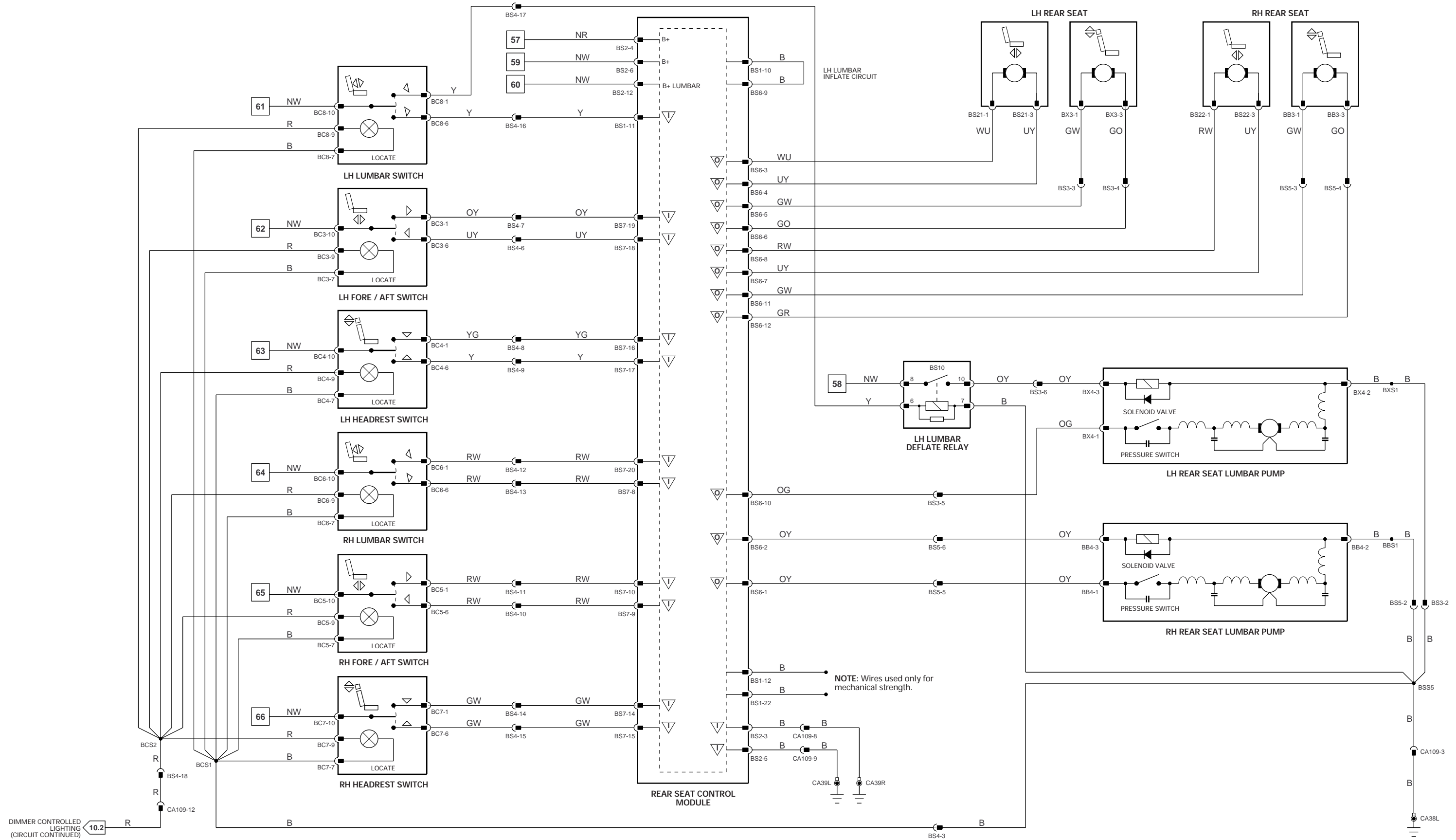


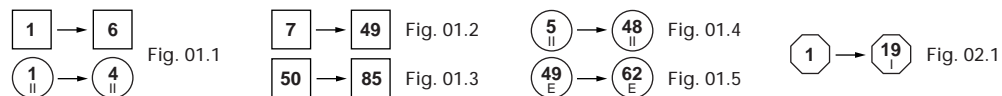
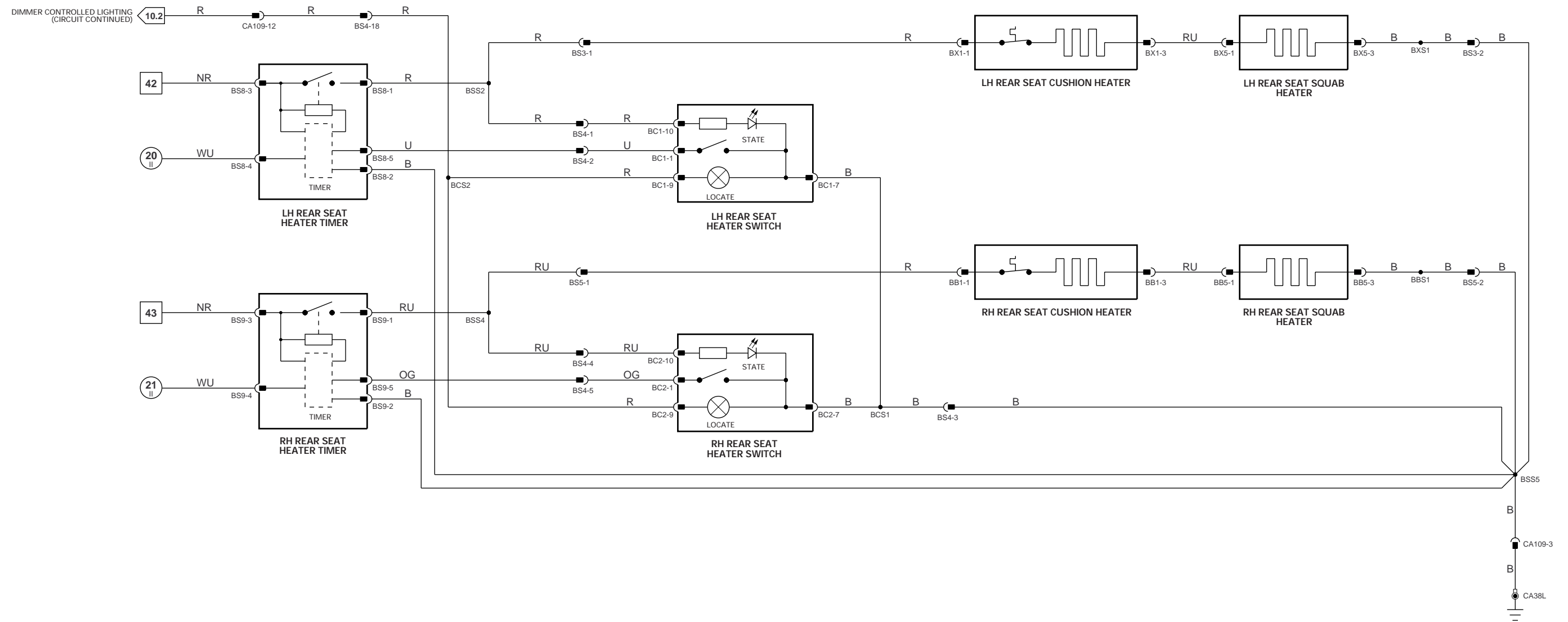


VARIANT: LWB Powered Rear Seat Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999



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



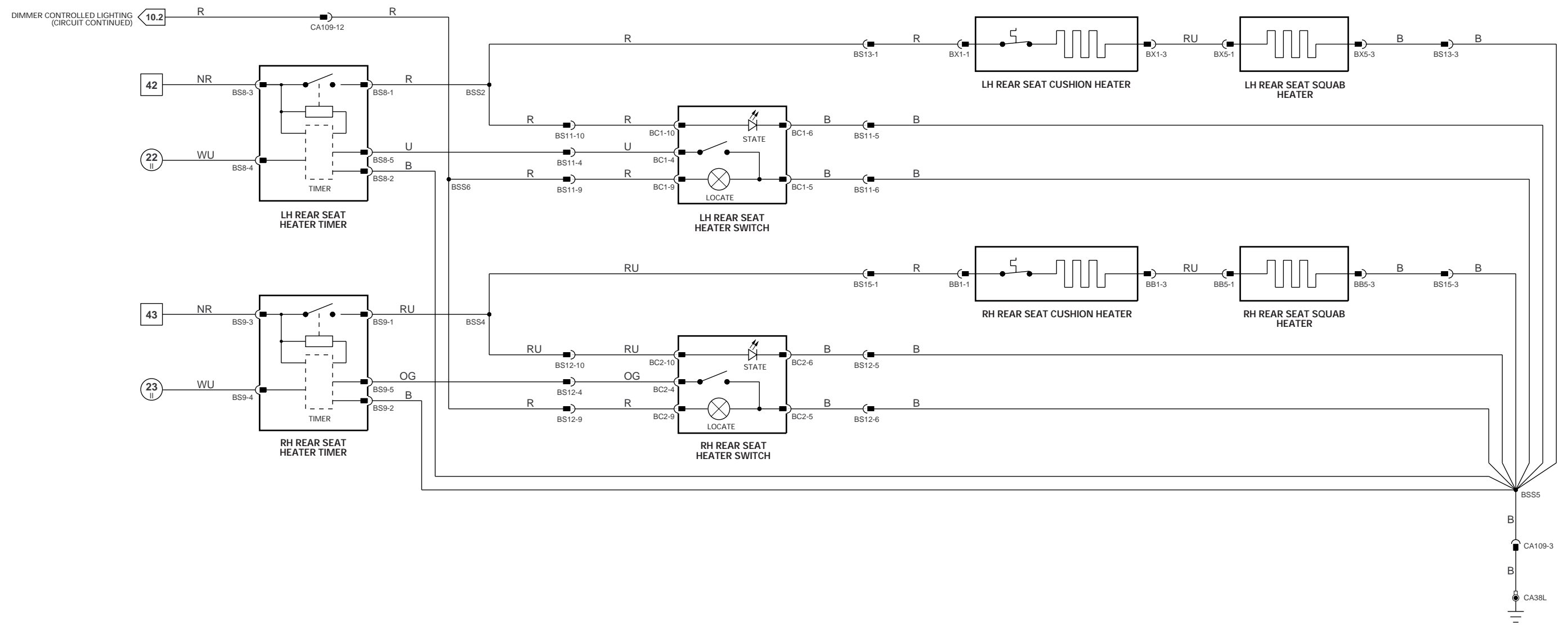


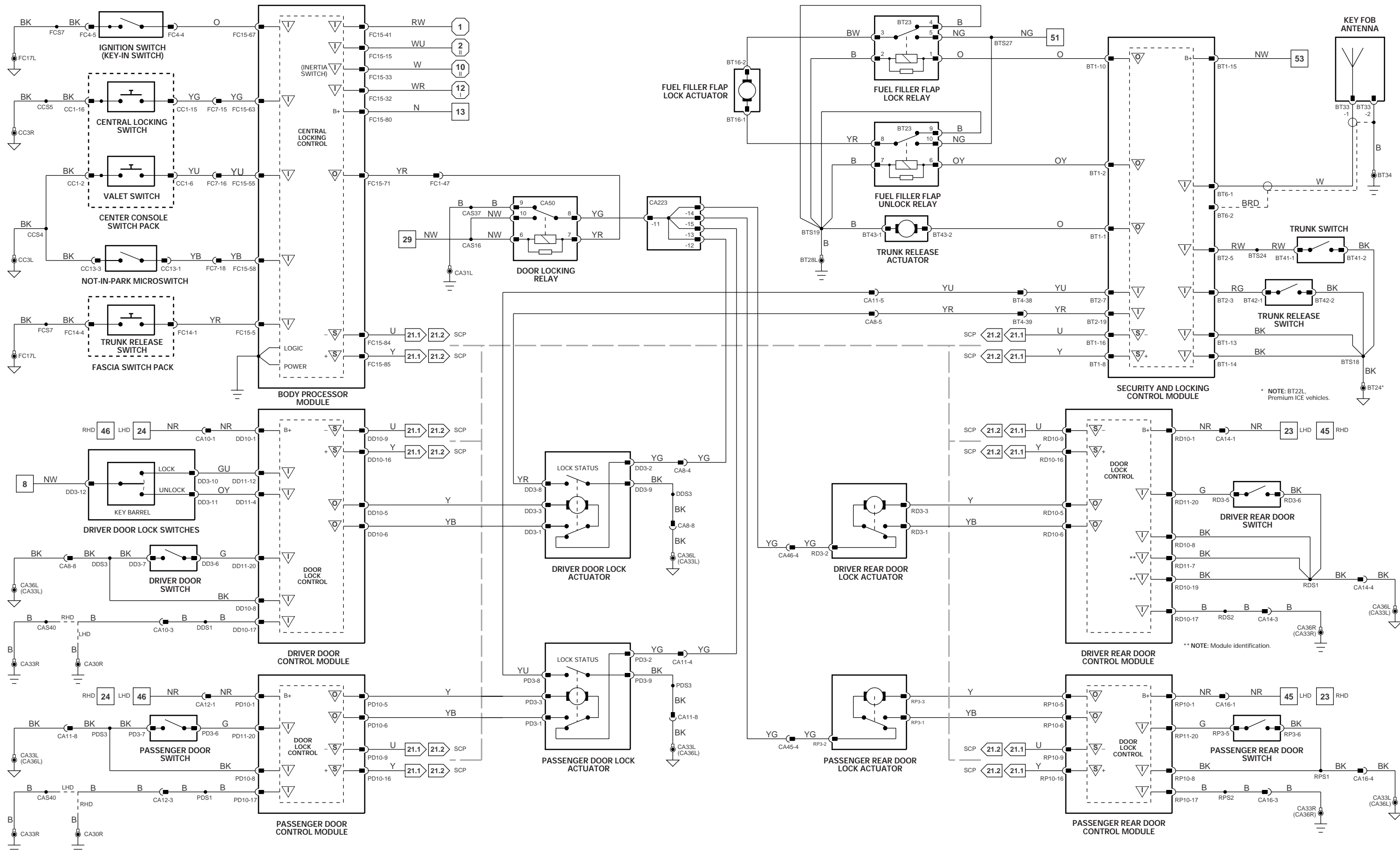
▽ Input
▽ Output

▽ Signal Ground (SG)
▽ Serial and Encoded Communications

▽ CAN (Network)
▽ SCP Network

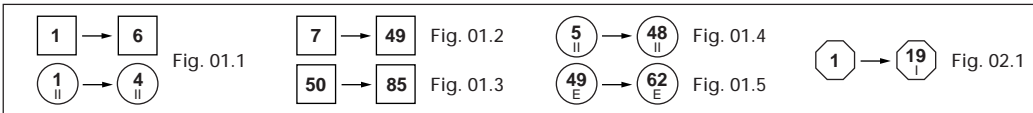
VARIANT: Powered / Heated Rear Seat Vehicles
VIN RANGE: F00103 →
DATE OF ISSUE: October 1999



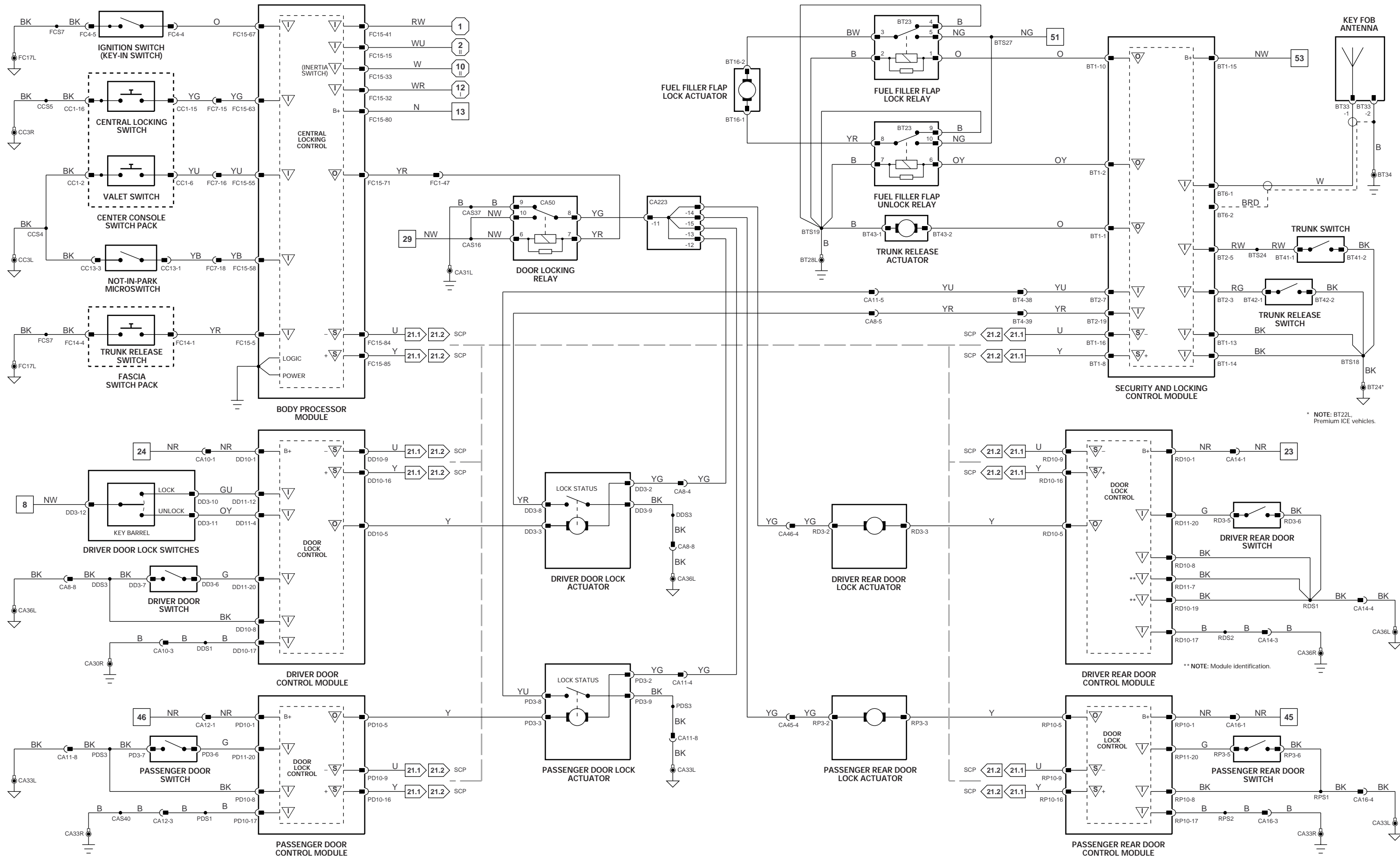


* NOTE: BT22L Premium ICE vehicles.

** NOTE: Module identification.

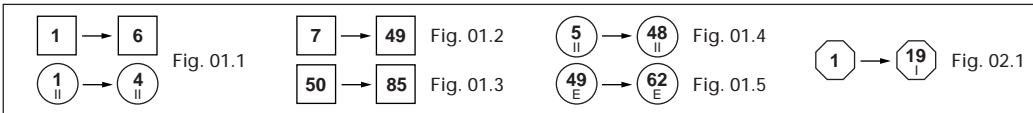


VARIANT: ROW Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999

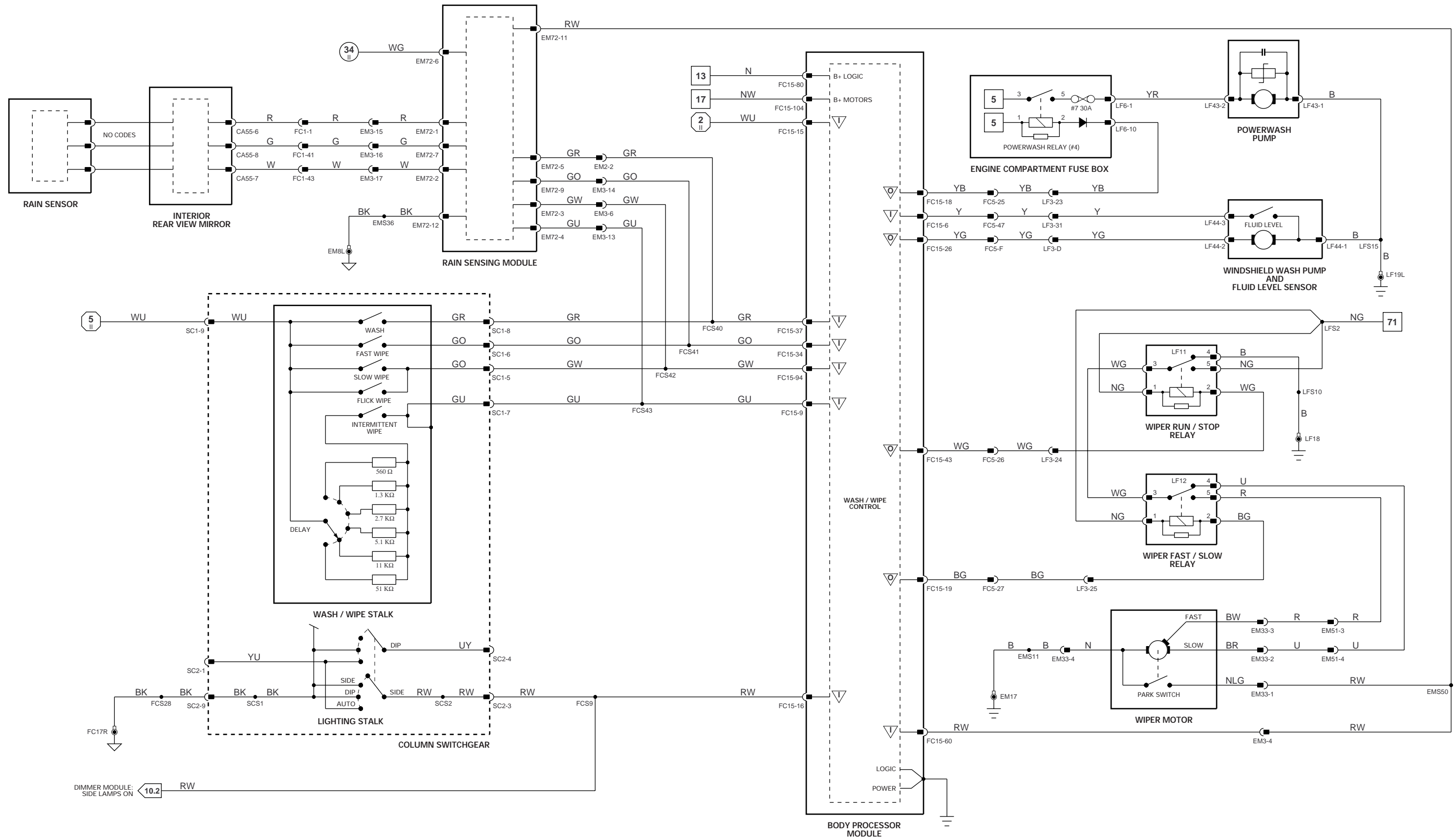


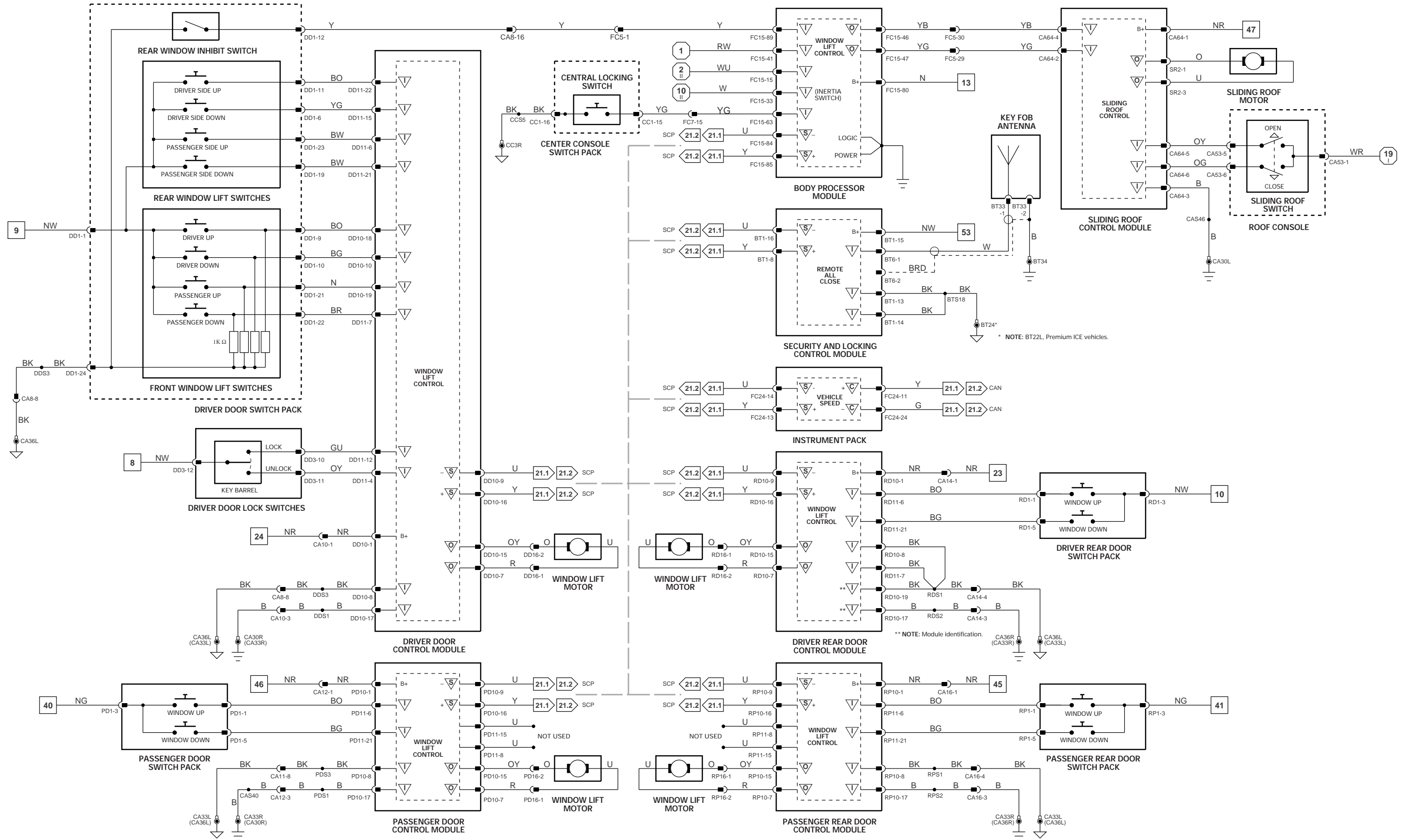
* NOTE: BT22L Premium ICE vehicles.

** NOTE: Module identification.



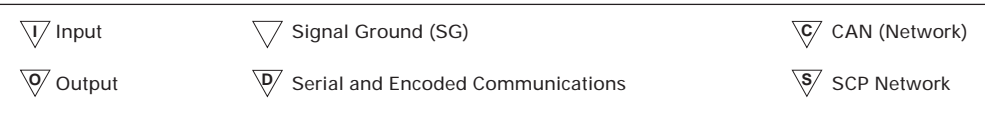
VARIANT: NAS Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999



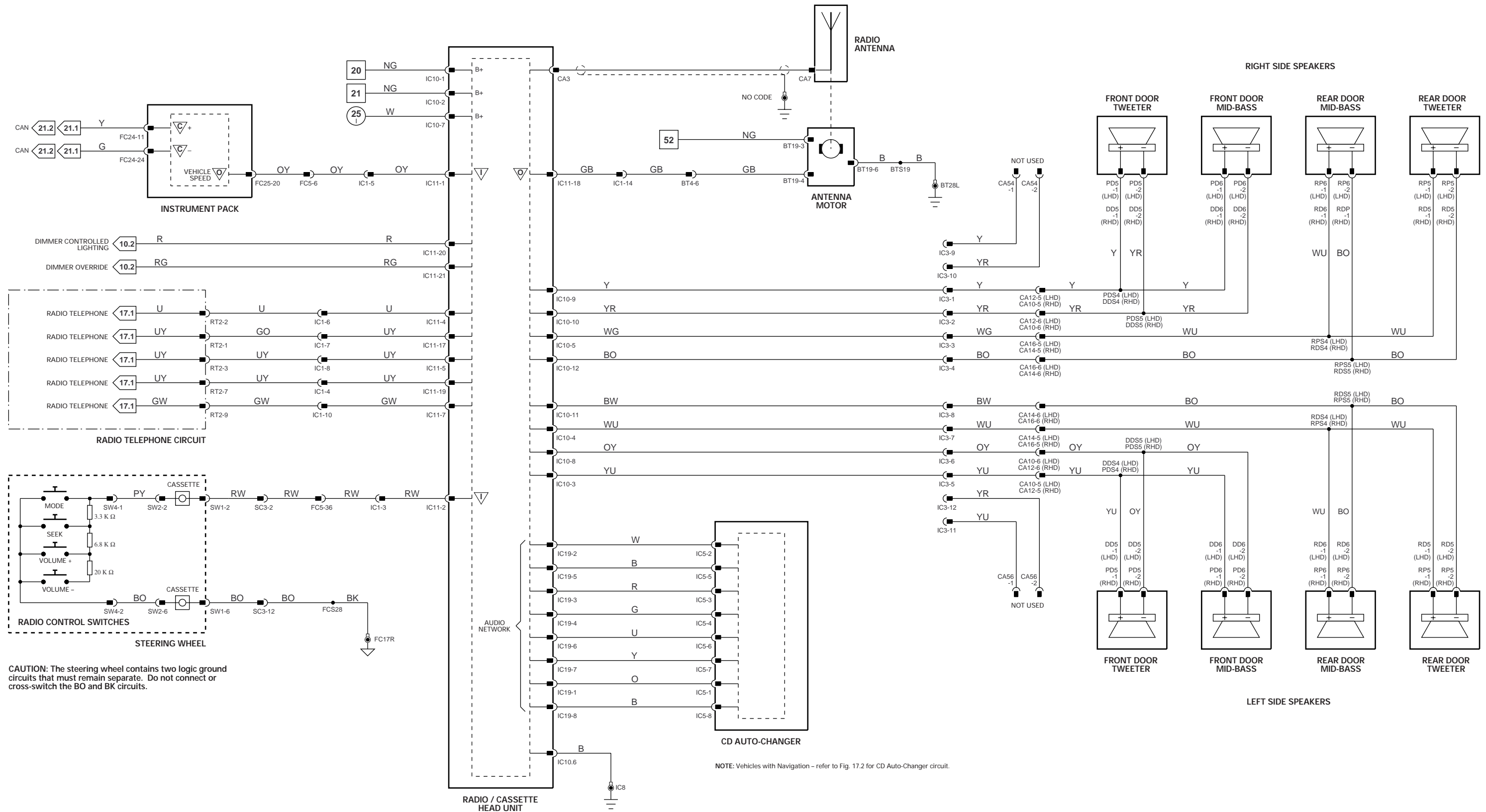


* NOTE: BT22L, Premium ICE vehicles.

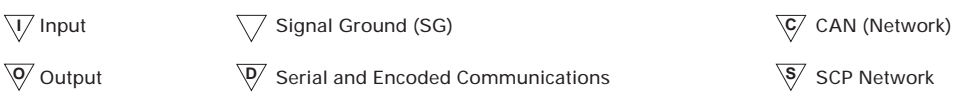
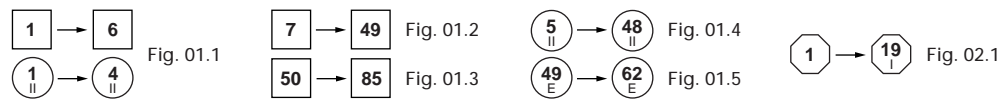
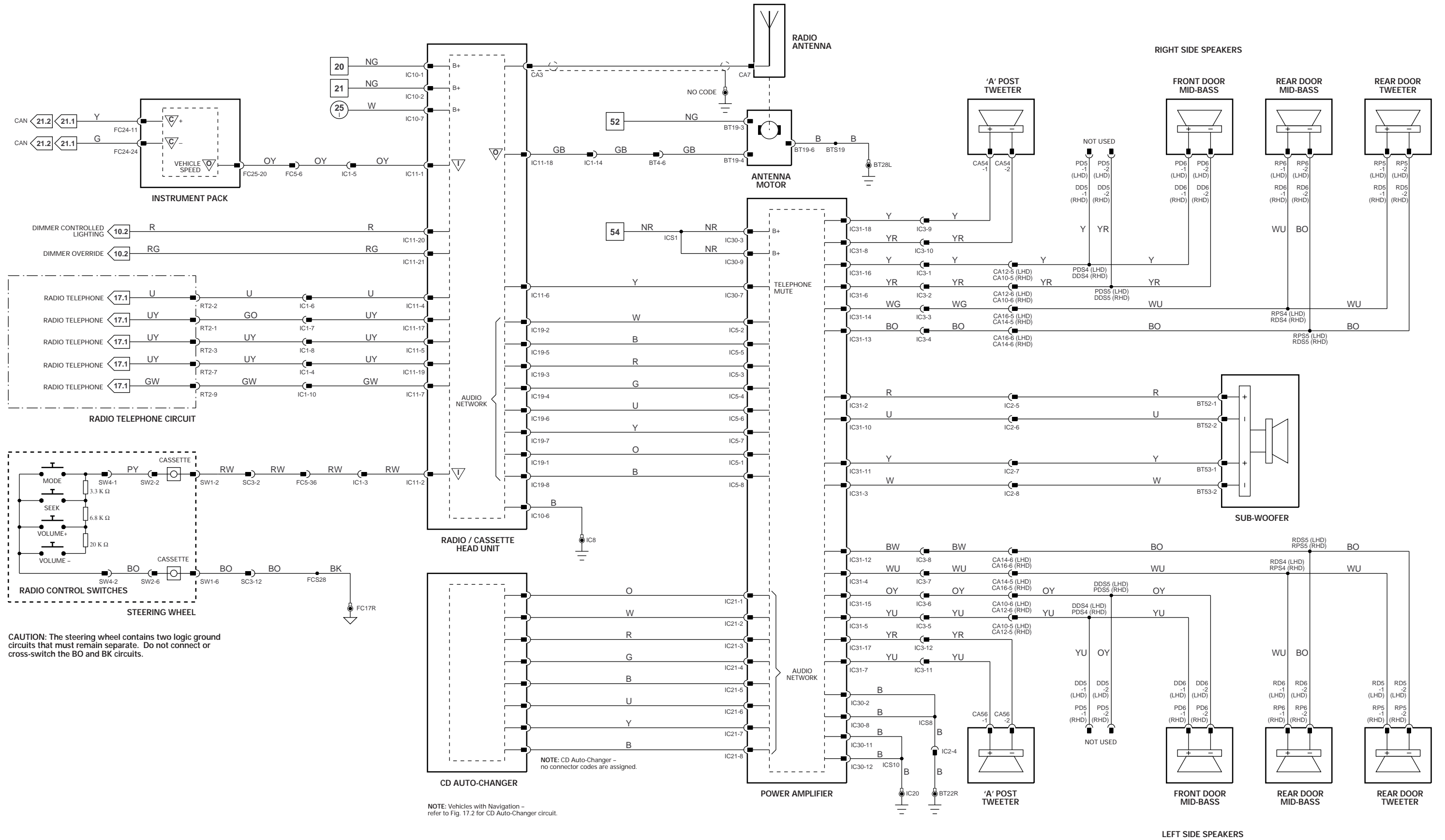
** NOTE: Module identification.



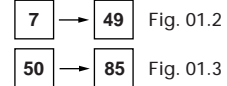
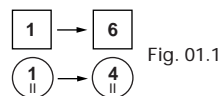
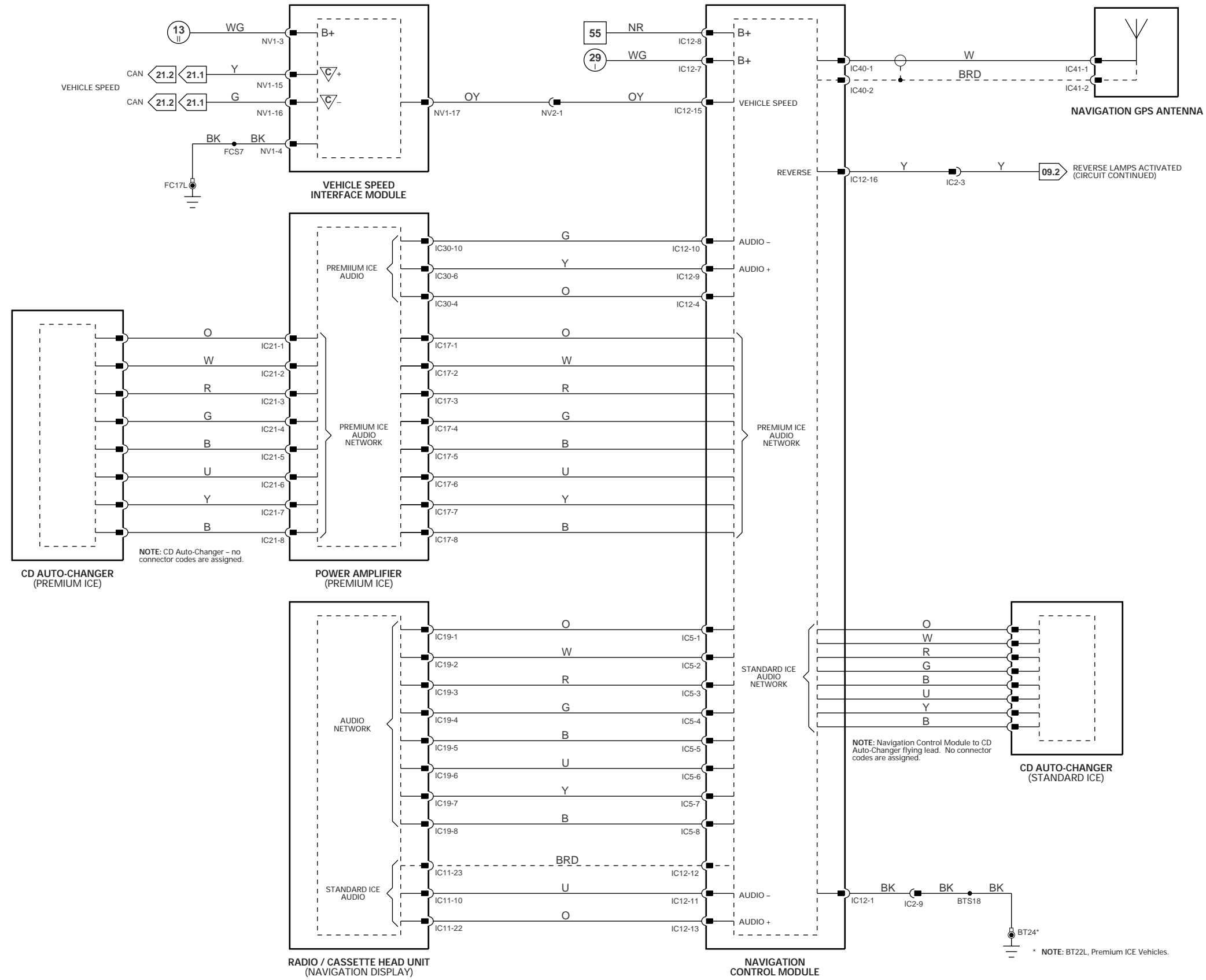
VARIANT: All Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999



| | | | |
|--|--|---|--|
| | <p>1 → 6 Fig. 01.1</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>1 → 19 Fig. 02.1</p> | <p>▽ Input</p> <p>▽ Output</p> <p>▽ Signal Ground (SG)</p> <p>▽ Serial and Encoded Communications</p> <p>▽ CAN (Network)</p> <p>▽ SCP Network</p> | <p>VARIANT: Standard ICE Vehicles</p> <p>VIN RANGE: F00103 →</p> <p>DATE OF ISSUE: October 1999</p> |
|--|--|---|--|



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

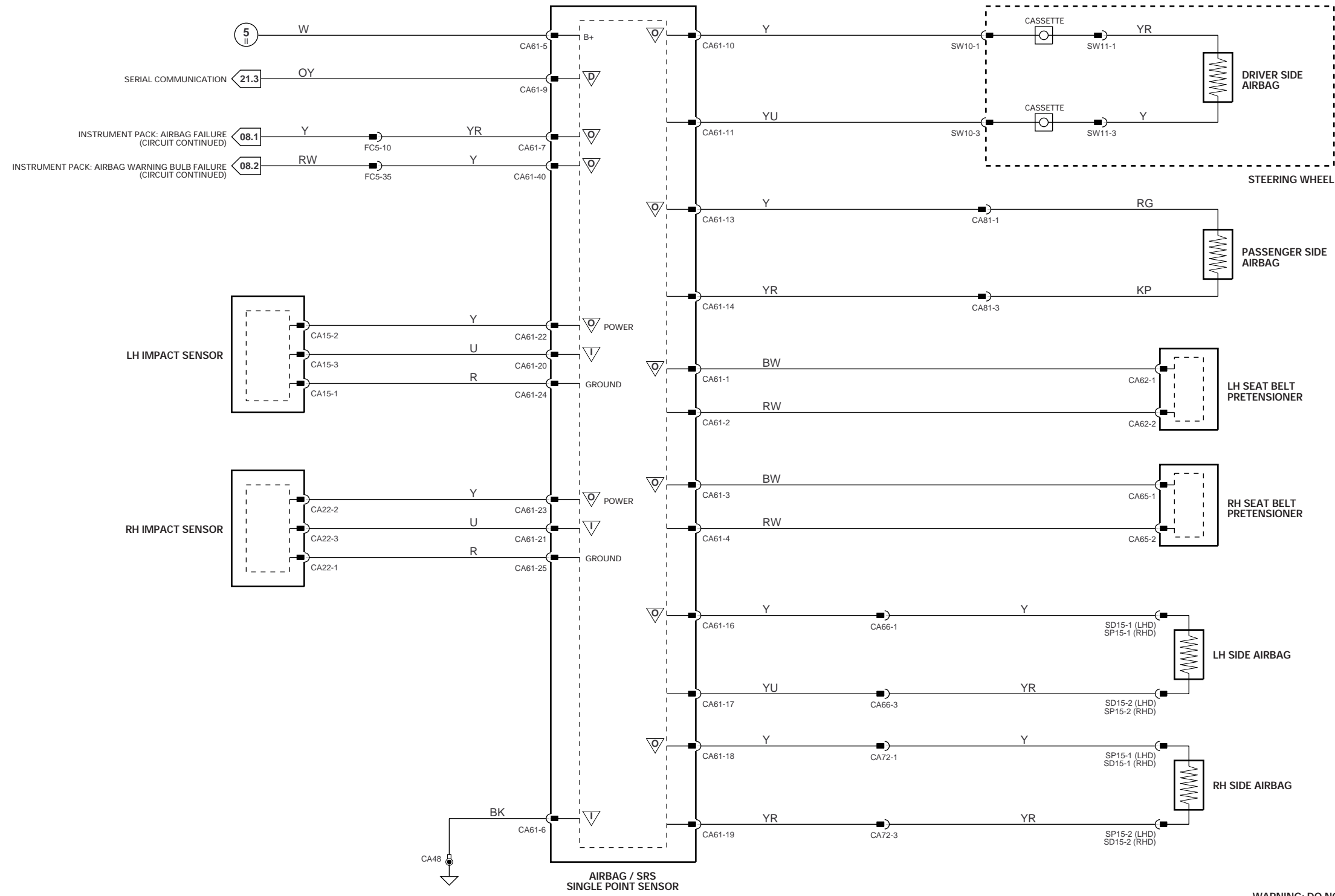


∇ Input
 ∇ Output

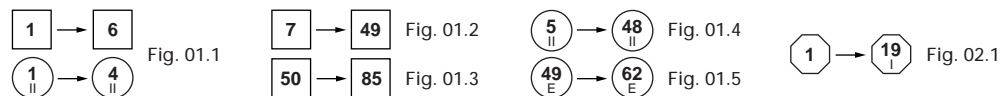
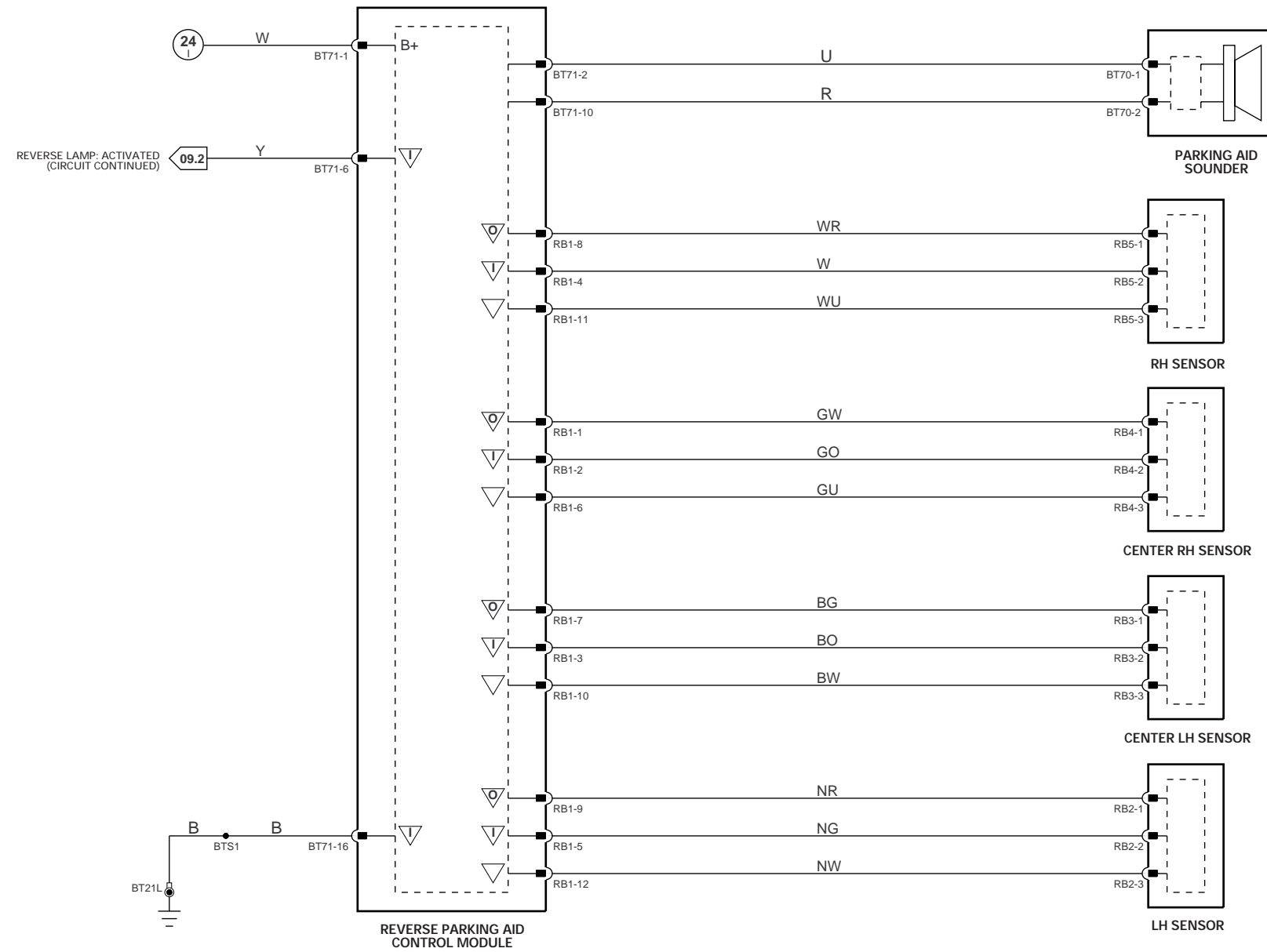
∇ Signal Ground (SG)
 ∇ Serial and Encoded Communications

∇ CAN (Network)
 ∇ SCP Network

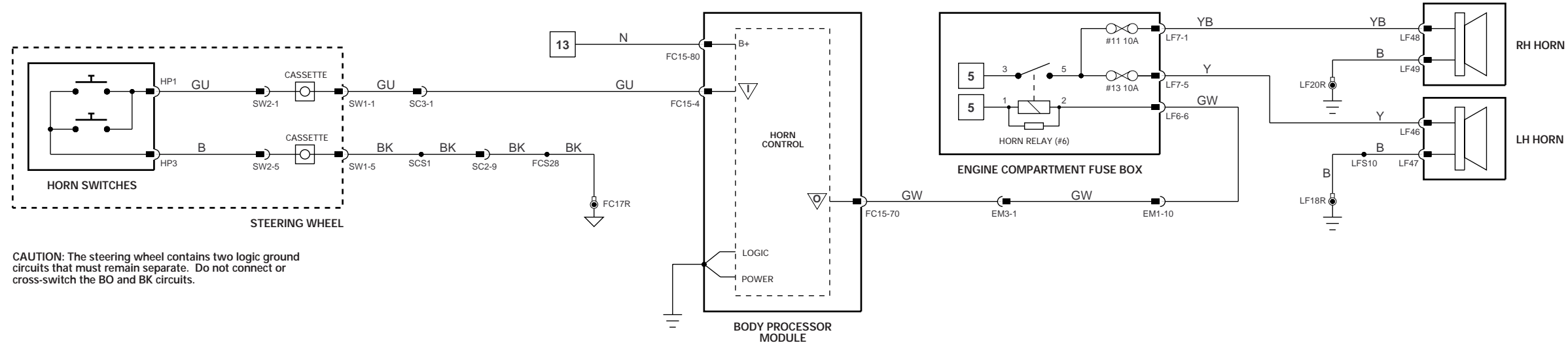
VARIANT: Navigation Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999



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

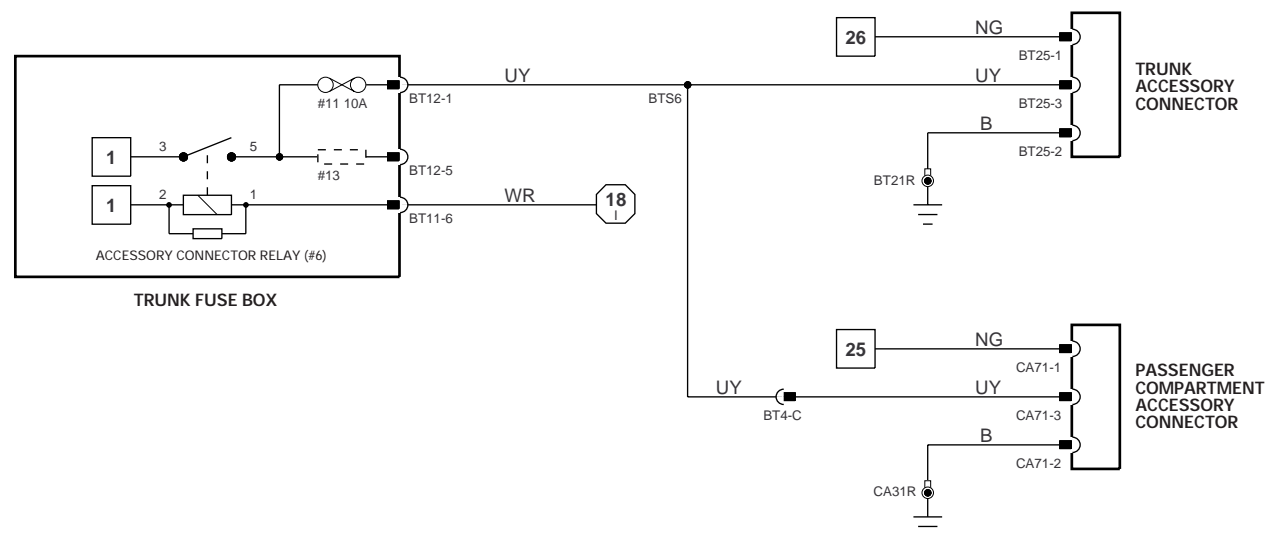


VARIANT: All Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999

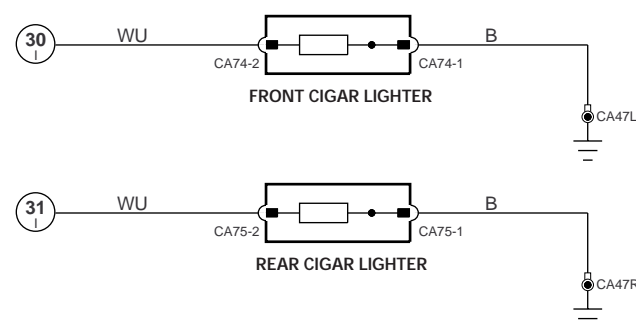


CAUTION: The steering wheel contains two logic ground circuits that must remain separate. Do not connect or cross-switch the BO and BK circuits.

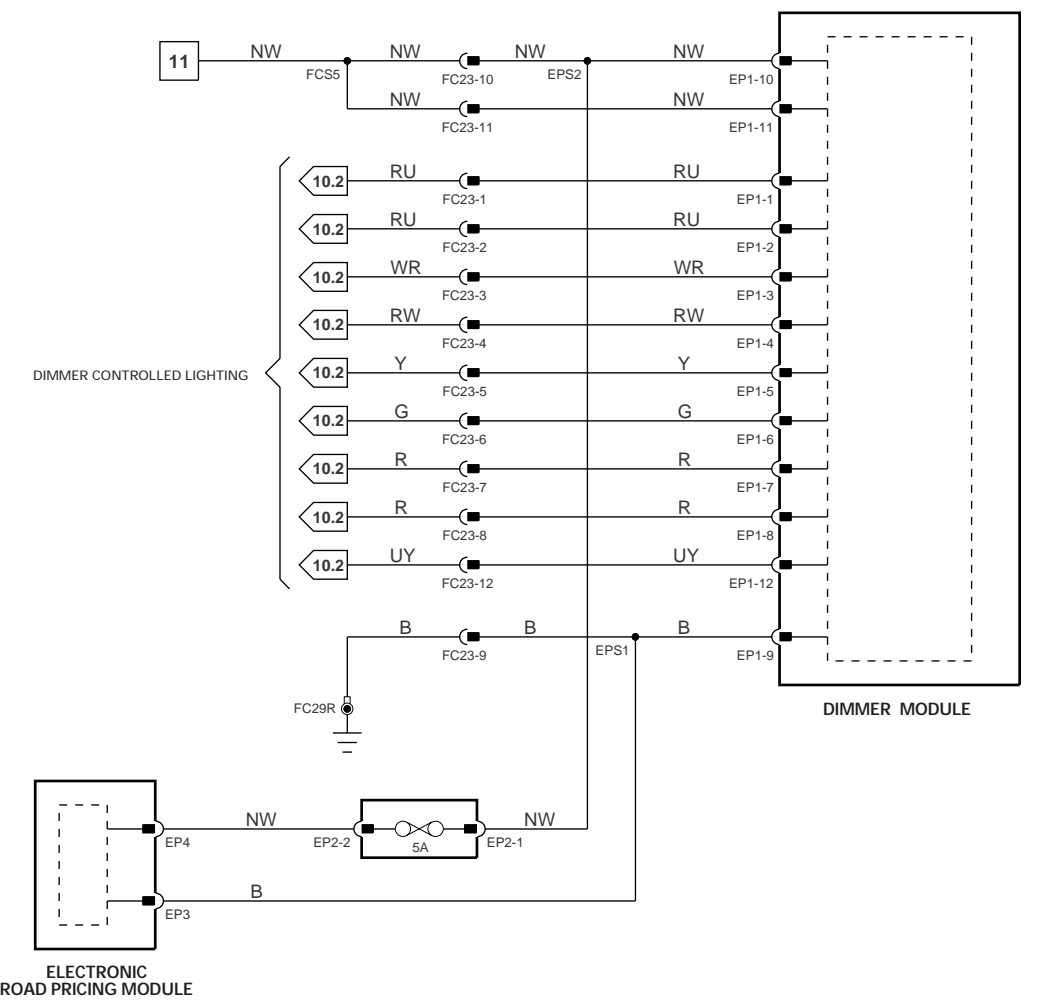
HORNS



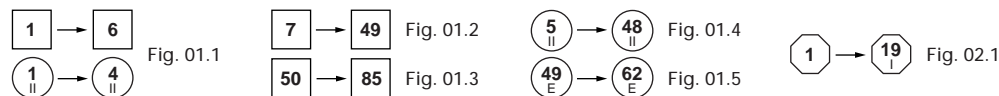
ACCESSORY CONNECTORS



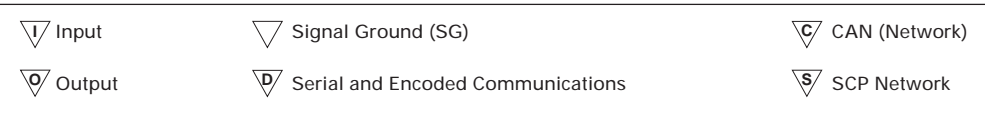
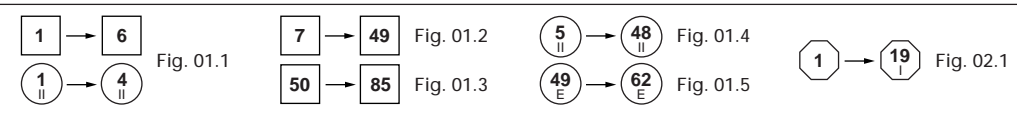
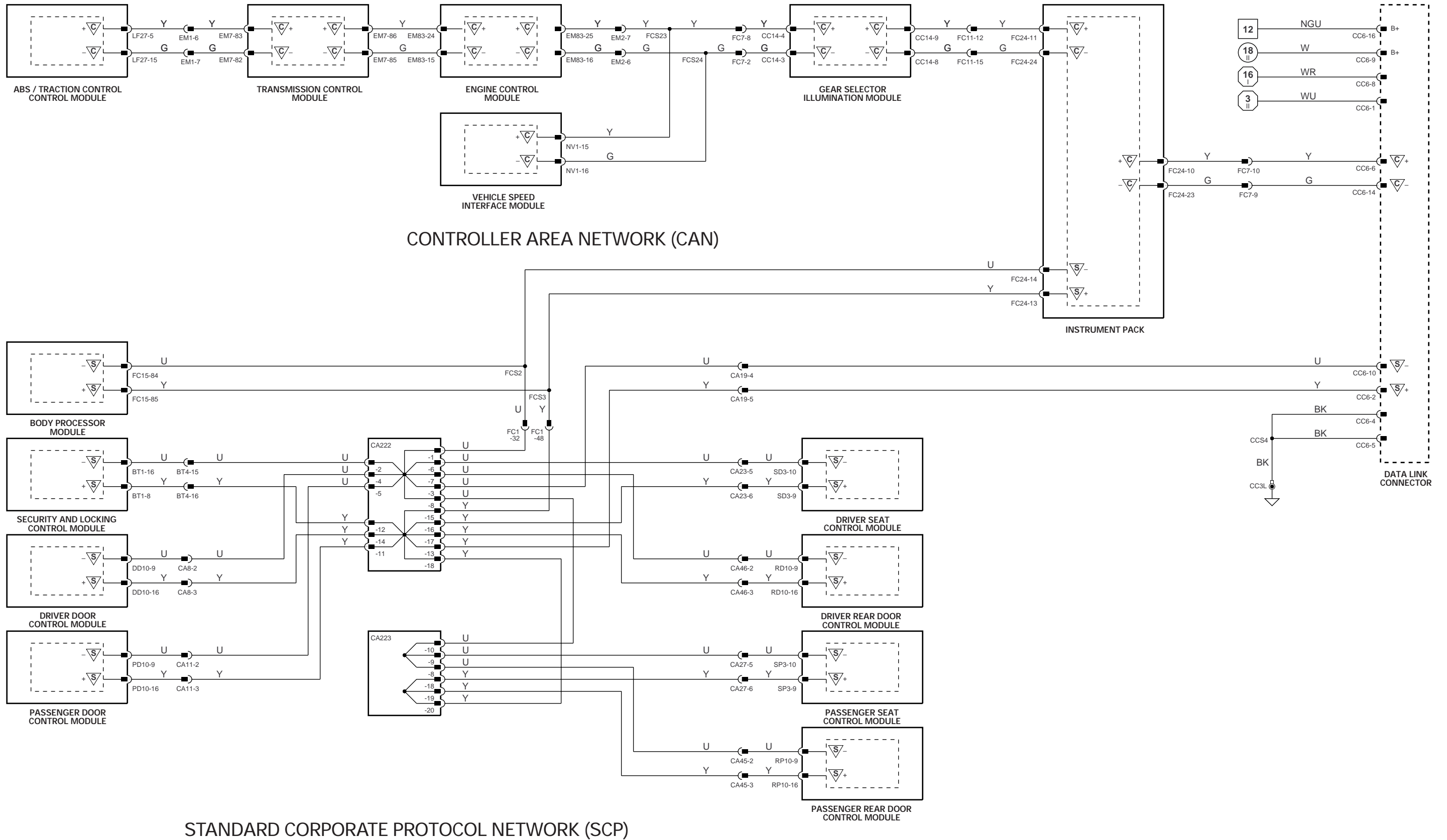
CIGAR LIGHTERS



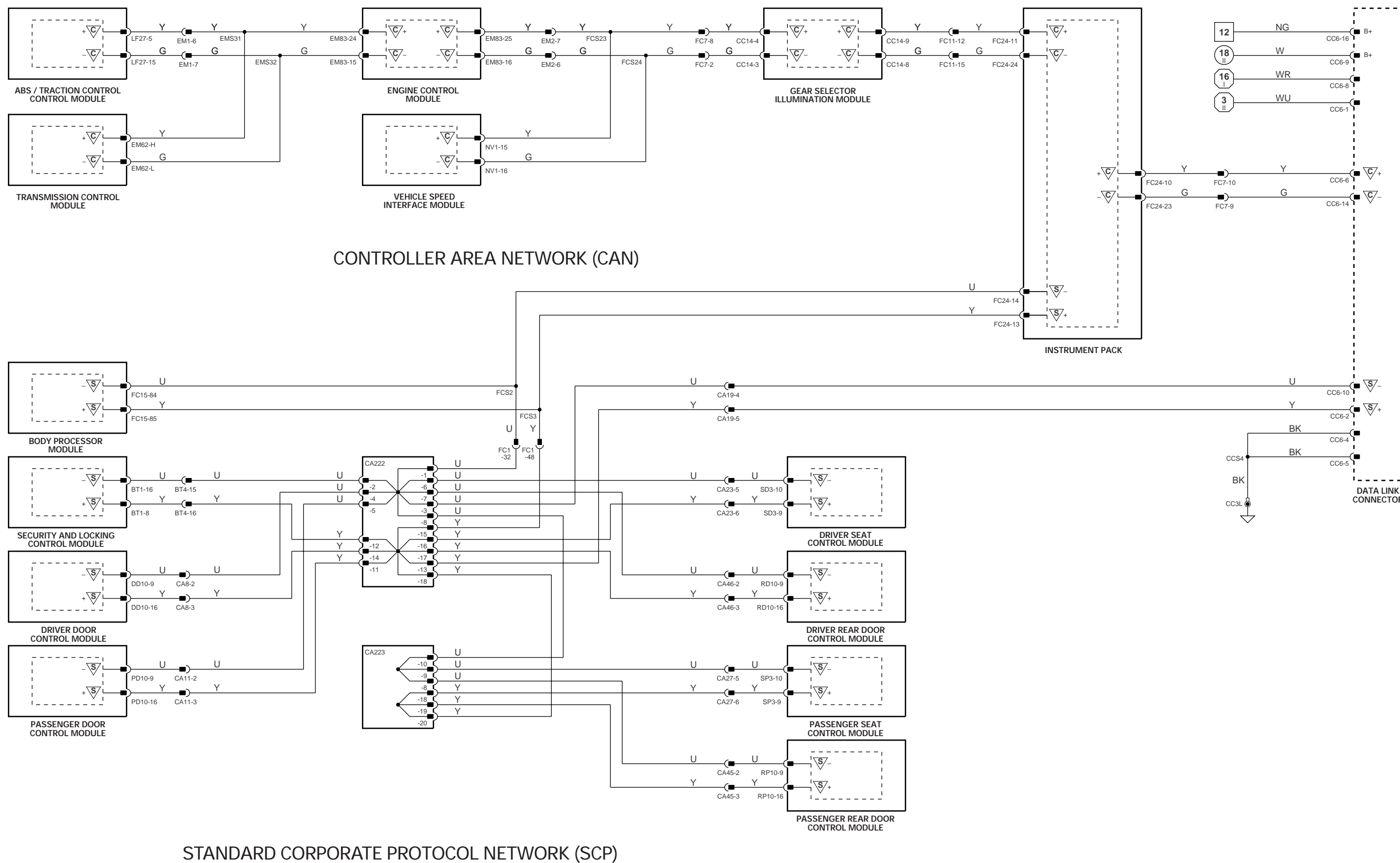
ELECTRONIC ROAD PRICING



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

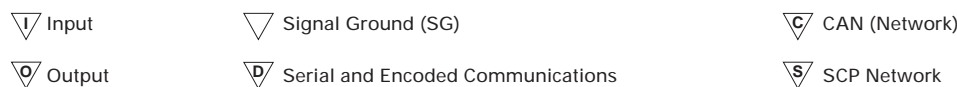
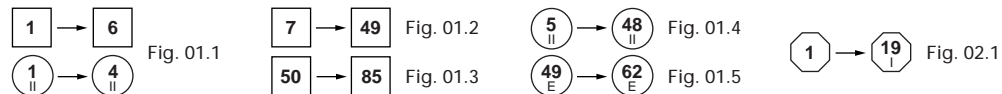


VARIANT: AJ27 N/A Vehicles
 VIN RANGE: F00103 →
 DATE OF ISSUE: October 1999

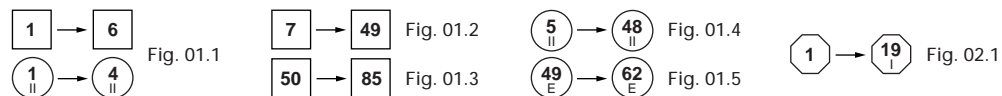
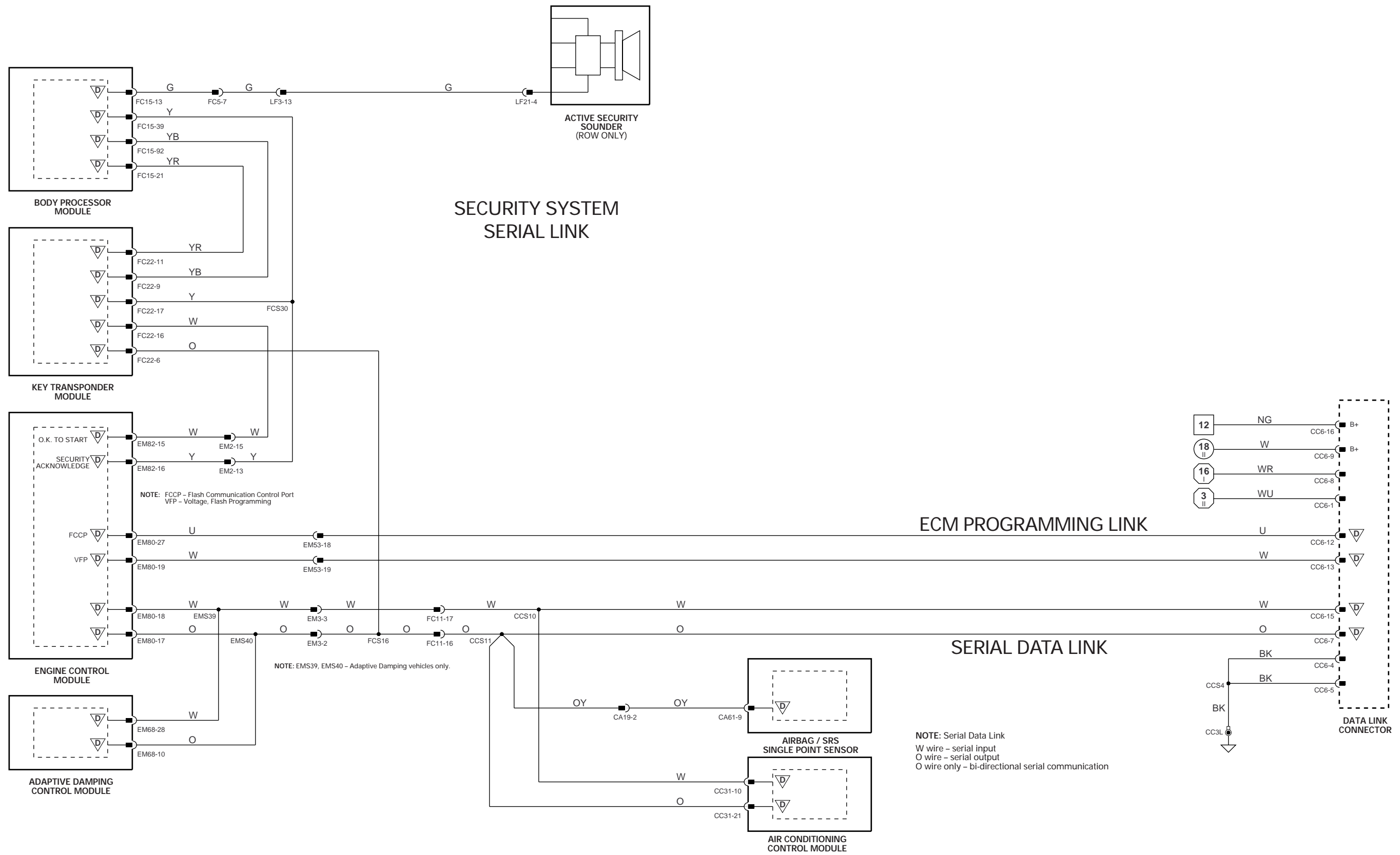


CONTROLLER AREA NETWORK (CAN)

STANDARD CORPORATE PROTOCOL NETWORK (SCP)



VARIANT: AJ27 SC 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



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 |