

## CONTROL MODULE PIN-OUT INFORMATION

### Engine Control Module – 2.5 L, 3.0 L

| Pin        | Description and Characteristic  |
|------------|---|
| I EN16-006 | ENGINE CRANK: B+  |
| I EN16-031 | PARK / NEUTRAL SWITCH (AUTOMATIC TRANSMISSION): NORMALLY CLOSED / B+ IN P, N                                    |
| O EN16-041 | STARTER RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND  |
| O EN16-053 | GENERATOR CONTROL: VARIABLE VOLTAGE   |
| I EN16-065 | GENERATOR FIELD RETURN SIGNAL: VARIABLE VOLTAGE BY GENERATOR OPERATING CONDITION                                |
| I EN16-079 | GENERATOR CHARGE / FAULT: B+ = NORMAL, AFTER-START SWITCH-ON; GROUND = GENERATOR FAILURE, AFTER-START SWITCH-ON |
| C EN16-123 | CAN -   |
| C EN16-124 | CAN +   |

### General Electronic Module

| Pin      | Description and Characteristic         |
|----------|--|
| S IP5-18 | SCP -                                  |
| S IP5-19 | SCP +                                  |
| I IP6-08 | KEY-IN IGNITION SWITCH: B+ WHEN KEY IN |

### Instrument Cluster

| Pin       | Description and Characteristic         |
|-----------|--|
| D IP10-03 | PATS 1: ENCODED COMMUNICATION          |
| D IP10-04 | PATS 2: ENCODED COMMUNICATION          |
| I IP10-05 | PATS GROUND: GROUND                    |
| O IP10-06 | PATS TRANSCIEVER POWER: B+             |
| C IP10-17 | CAN +                                  |
| C IP10-18 | CAN -                                  |
| S IP10-22 | SCP +                                  |
| S IP10-23 | SCP -                                  |
| I IP11-08 | POWER GROUND: GROUND                   |
| I IP11-13 | IGNITION SWITCHED POWER SUPPLY (I): B+ |

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

## Fig. 02.1

### COMPONENTS

| Component                             | Connector(s)                        | Connector Description  | Location                                     |
|---------------------------------------|-------------------------------------|--|--|
| BATTERY                               | -                                   | -  | ENGINE COMPARTMENT                           |
| CLUTCH PEDAL SAFETY SWITCH            | PA5                                 | 2-WAY / WHITE  | TOP OF CLUTCH PEDAL                          |
| ENGINE CONTROL MODULE – 2.5 L, 3.0 L  | EN16                                | 134-WAY / BLACK  | ENGINE COMPARTMENT, FRONT BULKHEAD / RH SIDE |
| GENERAL ELECTRONIC MODULE             | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / NATURAL<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL / RH SIDE            |
| GENERATOR – 2.0 L, 2.5 L, 3.0 L       | EN49                                | 4-WAY / BLACK  | ENGINE BANK 1 / FRONT                        |
| IGNITION SWITCH                       | IP18                                | 7-WAY / BLACK  | STEERING COLUMN                              |
| INSTRUMENT CLUSTER                    | IP10<br>IP11                        | 26-WAY / WHITE<br>26-WAY / WHITE   | INSTRUMENT PANEL                             |
| PASSIVE ANTI-THEFT SYSTEM TRANSCIEVER | IP15                                | 4-WAY / BLACK  | STEERING COLUMN, IGNITION SWITCH             |
| POWER DISTRIBUTION FUSE BOX           | -                                   | -  | ENGINE COMPARTMENT                           |
| STARTER MOTOR – 2.0 L, 2.5 L, 3.0 L   | EN700<br>ST2                        | EYELET<br>EYELET   | ENGINE BLOCK / RH SIDE                       |
| STARTER RELAY                         | -                                   | -  | POWER DISTRIBUTION FUSE BOX – R12            |
| TRANSMISSION RANGE SENSOR             | JB156                               | 10-WAY / BLACK   | TOP OF TRANSMISSION                          |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description   | Location                             |
|-----------|---|--------------------------------------|
| JB1       | 42-WAY / BLACK / ENGINE MANAGEMENT HARNESS TO JUNCTION BOX HARNESS                  | ENGINE COMPARTMENT / LH SIDE         |
| JB2       | 16-WAY / GREEN / ENGINE MANAGEMENT HARNESS TO JUNCTION BOX HARNESS (PEDAL ASSEMBLY) | BELOW INSTRUMENT PANEL / DRIVER SIDE |
| JB129     | 22-WAY / GREY / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS                    | BELOW INSTRUMENT PANEL / LH SIDE     |
| JB145     | 8-WAY / BLACK / ENGINE MANAGEMENT HARNESS TO JUNCTION BOX HARNESS                   | ENGINE COMPARTMENT / LH SIDE         |

### GROUNDINGS

| Ground | Harness | Location  |
|--------|---------|---|
| G13    | B03     | BATTERY ENGINE GROUND                               |
| G16    | B03     | ENGINE COMPARTMENT / UNDER BATTERY TRAY             |
| G36    | IP      | BEHIND INSTRUMENT PANEL / LH SIDE OF CROSS CAR BEAM |
| G37    | IP      | BEHIND INSTRUMENT PANEL / RH SIDE OF CROSS CAR BEAM |

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

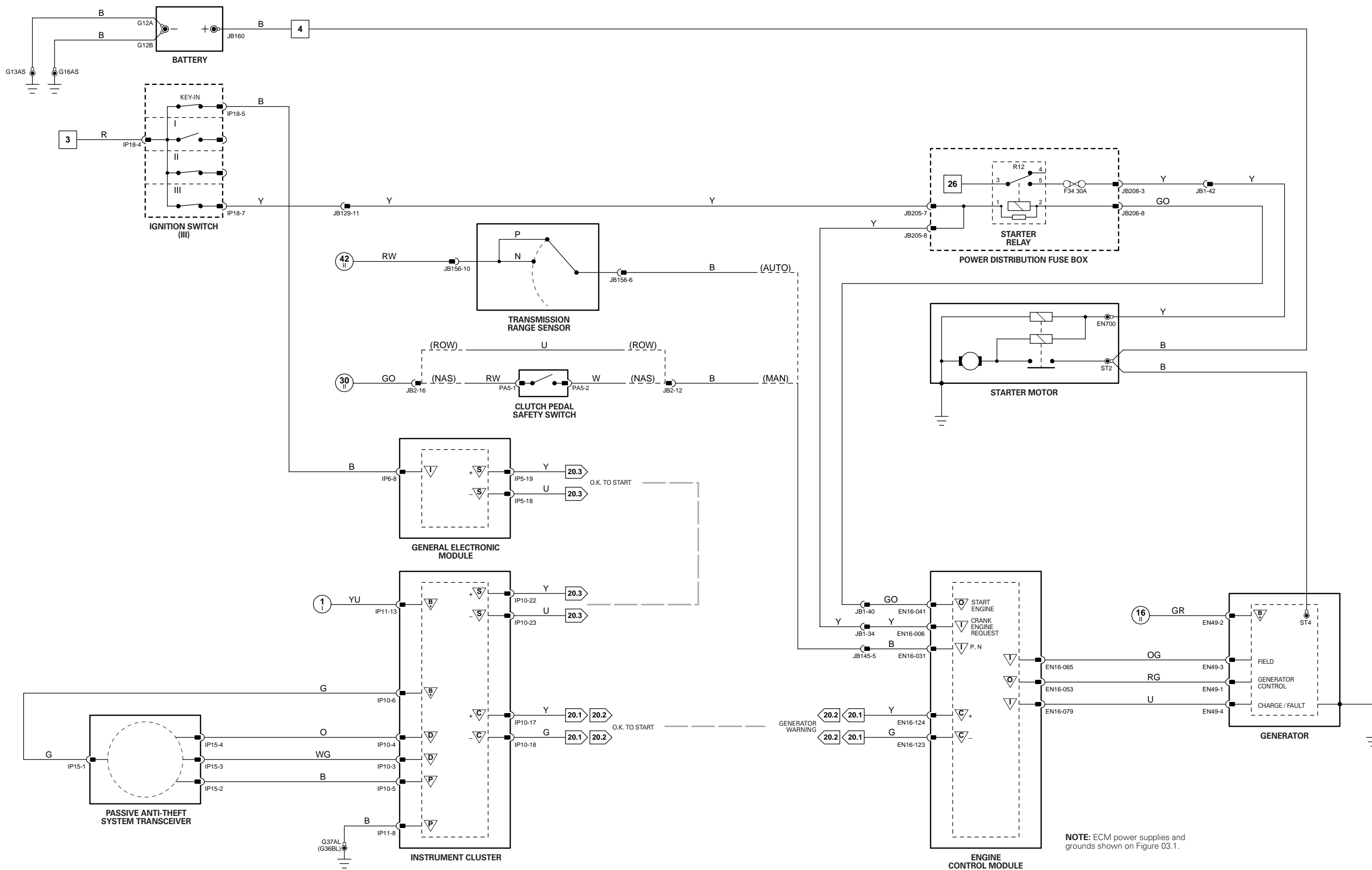
The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |    |             |     |                         |
|----|-----------------|----|--------------------------|----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | C  | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | S  | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2 | D2B Network | PWM | Pulse Width Modulated   |

**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.

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



NOTE: ECM power supplies and grounds shown on Figure 03.1.

## CONTROL MODULE PIN-OUT INFORMATION

### Engine Control Module – 2.0 L

| Pin        | Description and Characteristic  |
|------------|---|
| I EN65-006 | ENGINE CRANK: B+  |
| O EN65-008 | GENERATOR FIELD RETURN SIGNAL: VARIABLE VOLTAGE BY GENERATOR OPERATING CONDITION                                |
| I EN65-035 | GENERATOR CHARGE / FAULT: B+ = NORMAL, AFTER-START SWITCH-ON; GROUND = GENERATOR FAILURE, AFTER-START SWITCH-ON |
| I EN65-043 | GENERATOR CONTROL: VARIABLE VOLTAGE   |
| O EN65-068 | STARTER RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND  |
| I EN65-085 | PARK / NEUTRAL SWITCH (AUTOMATIC TRANSMISSION): NORMALLY CLOSED / GROUND WHEN ACTIVATED                         |
| C EN65-088 | CAN -   |
| C EN65-089 | CAN +   |

### General Electronic Module

| Pin      | Description and Characteristic         |
|----------|--|
| S IP5-18 | SCP -                                  |
| S IP5-19 | SCP +                                  |
| I IP6-08 | KEY-IN IGNITION SWITCH: B+ WHEN KEY IN |

### Instrument Cluster

| Pin       | Description and Characteristic         |
|-----------|--|
| D IP10-03 | PATS 1: ENCODED COMMUNICATION          |
| D IP10-04 | PATS 2: ENCODED COMMUNICATION          |
| I IP10-05 | PATS GROUND: GROUND                    |
| O IP10-06 | PATS TRANSCIEVER POWER: B+             |
| C IP10-17 | CAN +                                  |
| C IP10-18 | CAN -                                  |
| S IP10-22 | SCP +                                  |
| S IP10-23 | SCP -                                  |
| I IP11-08 | POWER GROUND: GROUND                   |
| I IP11-13 | IGNITION SWITCHED POWER SUPPLY (I): B+ |

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

**Fig. 02.2**

### COMPONENTS

| Component                             | Connector(s)                        | Connector Description  | Location                                     |
|---------------------------------------|-------------------------------------|--|--|
| BATTERY                               | -                                   | -  | ENGINE COMPARTMENT                           |
| ENGINE CONTROL MODULE – 2.0 L         | EN65                                | 104-WAY / BLACK  | ENGINE COMPARTMENT, FRONT BULKHEAD / RH SIDE |
| GENERAL ELECTRONIC MODULE             | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / NATURAL<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL / RH SIDE            |
| GENERATOR – 2.0 L, 2.5 L, 3.0 L       | EN49                                | 4-WAY / BLACK  | ENGINE BANK 1 / FRONT                        |
| IGNITION SWITCH                       | IP18                                | 7-WAY / BLACK  | STEERING COLUMN                              |
| INSTRUMENT CLUSTER                    | IP10<br>IP11                        | 26-WAY / WHITE<br>26-WAY / WHITE   | INSTRUMENT PANEL                             |
| PASSIVE ANTI-THEFT SYSTEM TRANSCIEVER | IP15                                | 4-WAY / BLACK  | STEERING COLUMN, IGNITION SWITCH             |
| POWER DISTRIBUTION FUSE BOX           | -                                   | -  | ENGINE COMPARTMENT                           |
| STARTER MOTOR – 2.0 L, 2.5 L, 3.0 L   | EN700<br>ST2                        | EYELET<br>EYELET   | ENGINE BLOCK / RH SIDE                       |
| STARTER RELAY                         | -                                   | -  | POWER DISTRIBUTION FUSE BOX – R12            |
| TRANSMISSION RANGE SENSOR             | JB156                               | 10-WAY / BLACK   | TOP OF TRANSMISSION                          |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description  | Location                         |
|-----------|--|----------------------------------|
| JB1       | 42-WAY / BLACK / ENGINE MANAGEMENT HARNESS TO JUNCTION BOX HARNESS | ENGINE COMPARTMENT / LH SIDE     |
| JB129     | 22-WAY / GREY / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS   | BELOW INSTRUMENT PANEL / LH SIDE |

### GROUND S

| Ground | Harness | Location  |
|--------|---------|---|
| G13    | B03     | BATTERY ENGINE GROUND                               |
| G16    | B03     | ENGINE COMPARTMENT / UNDER BATTERY TRAY             |
| G36    | IP      | BEHIND INSTRUMENT PANEL / LH SIDE OF CROSS CAR BEAM |
| G37    | IP      | BEHIND INSTRUMENT PANEL / RH SIDE OF CROSS CAR BEAM |

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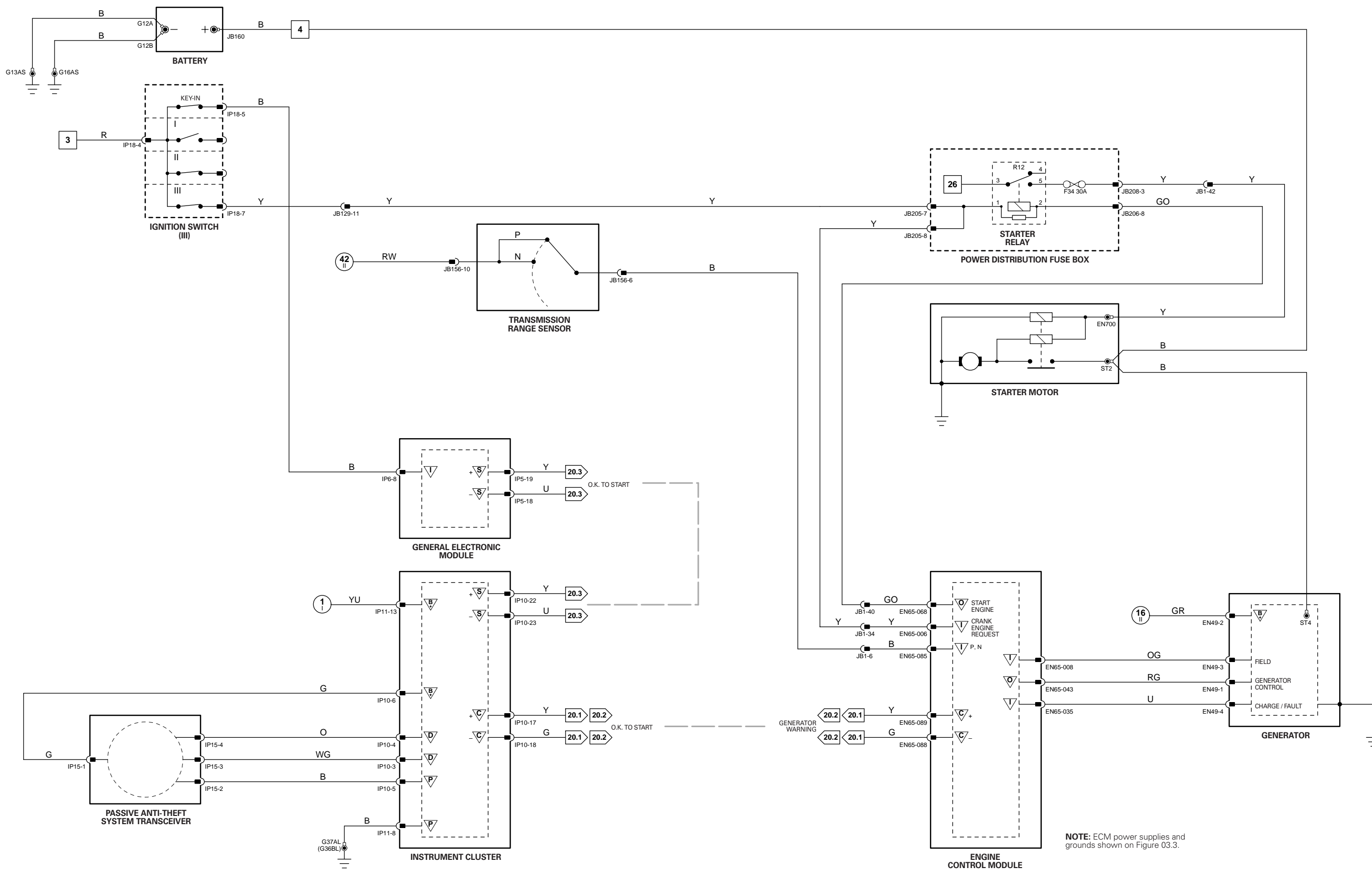
The following abbreviations are used to represent values for Control Module Pin-Out data

|    |                 |    |                          |    |             |     |                         |
|----|-----------------|----|--------------------------|----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | C  | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | S  | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2 | D2B Network | PWM | Pulse Width Modulated   |

**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.

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



|                  |                   |                   |                   |                    |          |                   |                          |       |                           |
|------------------|-------------------|-------------------|-------------------|--------------------|----------|-------------------|--------------------------|-------|---------------------------|
| 1 → 6 Fig. 01.1  | 34 → 79 Fig. 01.3 | 11 → 31 Fig. 01.5 | 67 → 76 Fig. 01.7 | 98 → 107 Fig. 01.9 | ▽ Input  | ▽ Battery Voltage | ▽ Sensor/Signal Supply V | ▽ CAN | ▽ D2B Network             |
| 7 → 33 Fig. 01.2 | 1 → 10 Fig. 01.4  | 32 → 66 Fig. 01.6 | 77 → 97 Fig. 01.8 |                    | ▽ Output | ▽ Power Ground    | ▽ Sensor/Signal Ground   | ▽ SCP | ▽ Serial and Encoded Data |

VARIANT: 2.0 L Gasoline Engine Vehicles  
VIN RANGE: All  
DATE OF ISSUE: August 2003

## CONTROL MODULE PIN-OUT INFORMATION

### Engine Control Module – 2.0 L D

| Pin       | Description and Characteristic                                   |
|-----------|--|
| O DL1-021 | STARTER RELAY DRIVE: TO ACTIVATE, ECM SWITCHES CIRCUIT TO GROUND |
| O DL1-047 | GENERATOR MONITOR  |
| C DL1-054 | CAN +  |
| C DL1-073 | CAN -  |
| O DL1-112 | GENERATOR COMMON   |

### Instrument Cluster

| Pin      | Description and Characteristic         |
|----------|--|
| S IP5-18 | SCP -                                  |
| S IP5-19 | SCP +                                  |
| I IP6-08 | KEY-IN IGNITION SWITCH: B+ WHEN KEY IN |

### Instrument Cluster

| Pin       | Description and Characteristic         |
|-----------|--|
| D IP10-03 | PATS 1: ENCODED COMMUNICATION          |
| D IP10-04 | PATS 2: ENCODED COMMUNICATION          |
| I IP10-05 | PATS GROUND: GROUND                    |
| O IP10-06 | PATS TRANSCIEVER POWER: B+             |
| C IP10-17 | CAN +                                  |
| C IP10-18 | CAN -                                  |
| S IP10-22 | SCP +                                  |
| S IP10-23 | SCP -                                  |
| I IP11-08 | POWER GROUND: GROUND                   |
| I IP11-13 | IGNITION SWITCHED POWER SUPPLY (I): B+ |

NOTE: Refer to the Appendix at the rear of this book for Network Messages.

## Fig. 02.3

### COMPONENTS

| Component                             | Connector(s)                        | Connector Description  | Location                                     |
|---------------------------------------|-------------------------------------|--|--|
| BATTERY                               | -                                   | -  | ENGINE COMPARTMENT                           |
| ENGINE CONTROL MODULE – 2.0 L D       | DL1                                 | 121-WAY / BLACK  | ENGINE COMPARTMENT, FRONT BULKHEAD / RH SIDE |
| GENERAL ELECTRONIC MODULE             | CA86<br>CA87<br>IP5<br>IP6<br>JB172 | 23-WAY / GREY<br>23-WAY / GREEN<br>23-WAY / BROWN<br>23-WAY / NATURAL<br>23-WAY / BLUE | BEHIND INSTRUMENT PANEL / RH SIDE            |
| GENERATOR – 2.0 L D                   | DE2                                 | 4-WAY / BLACK  | ENGINE BLOCK / RH SIDE / FRONT               |
| IGNITION SWITCH                       | IP18                                | 7-WAY / BLACK  | STEERING COLUMN                              |
| INSTRUMENT CLUSTER                    | IP10<br>IP11                        | 26-WAY / WHITE<br>26-WAY / WHITE   | INSTRUMENT PANEL                             |
| PASSIVE ANTI-THEFT SYSTEM TRANSCIEVER | IP15                                | 4-WAY / BLACK  | STEERING COLUMN, IGNITION SWITCH             |
| POWER DISTRIBUTION FUSE BOX           | -                                   | -  | ENGINE COMPARTMENT                           |
| STARTER MOTOR – 2.0 L D               | DL8<br>ST2                          | EYELET<br>EYELET   | ENGINE BLOCK / LH SIDE                       |
| STARTER RELAY                         | -                                   | -  | POWER DISTRIBUTION FUSE BOX – R12            |

### HARNESS IN-LINE CONNECTORS

| Connector | Connector Description  | Location                         |
|-----------|--|----------------------------------|
| DL2       | 42-WAY / BLACK / ENGINE HARNESS TO ENGINE MANAGEMENT HARNESS       | ENGINE COMPARTMENT / RH SIDE     |
| JB1       | 42-WAY / BLACK / ENGINE MANAGEMENT HARNESS TO JUNCTION BOX HARNESS | ENGINE COMPARTMENT / LH SIDE     |
| JB129     | 22-WAY / GREY / JUNCTION BOX HARNESS TO INSTRUMENT PANEL HARNESS   | BELOW INSTRUMENT PANEL / LH SIDE |

### GROUNDINGS

| Ground | Harness | Location  |
|--------|---------|---|
| G13    | B03     | BATTERY ENGINE GROUND                               |
| G16    | B03     | ENGINE COMPARTMENT / UNDER BATTERY TRAY             |
| G36    | IP      | BEHIND INSTRUMENT PANEL / LH SIDE OF CROSS CAR BEAM |
| G37    | IP      | BEHIND INSTRUMENT PANEL / RH SIDE OF CROSS CAR BEAM |

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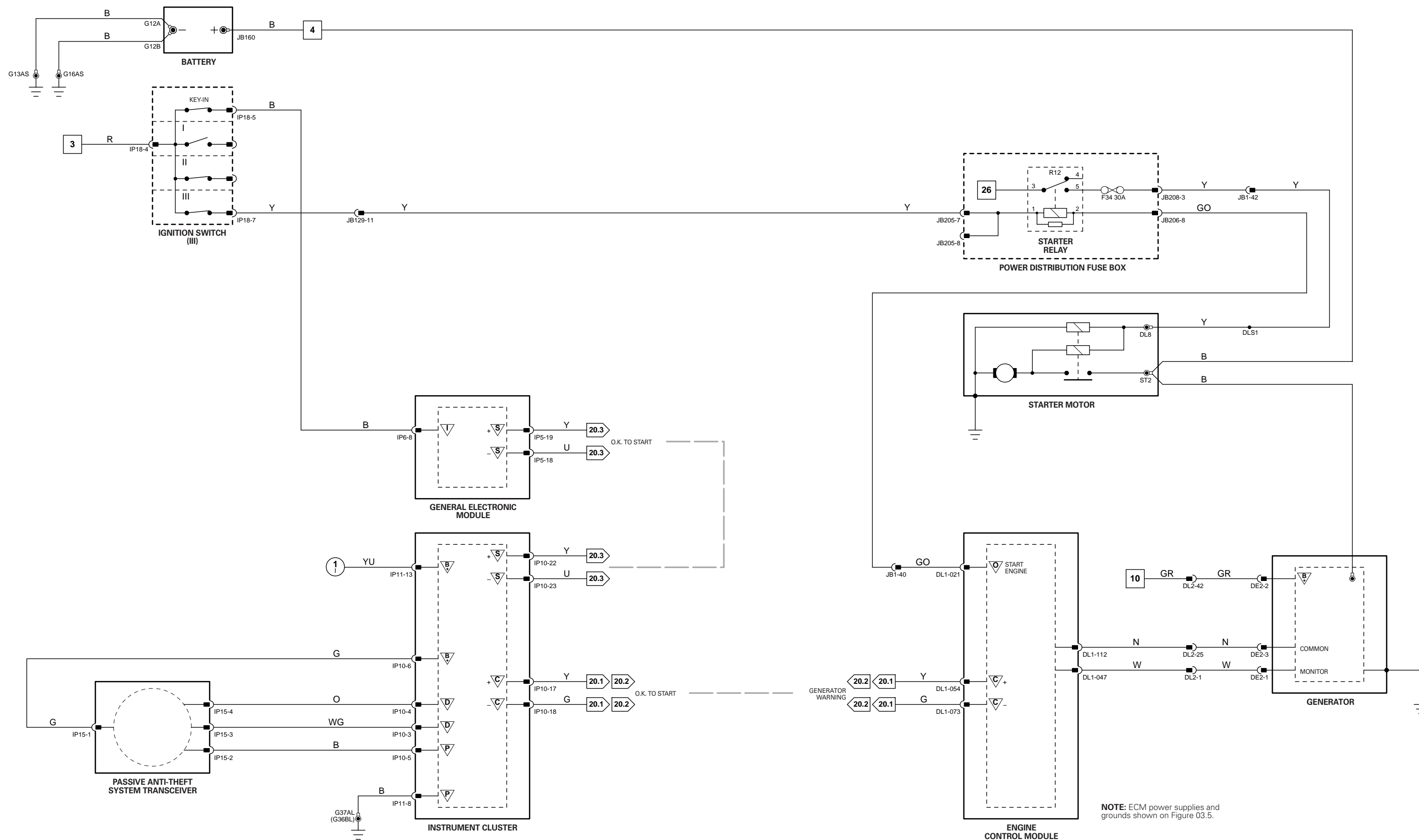
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|    |                 |    |                          |    |             |     |                         |
|----|-----------------|----|--------------------------|----|-------------|-----|-------------------------|
| I  | Input           | PG | Power Ground             | C  | CAN Network | D   | Serial and Encoded Data |
| O  | Output          | SS | Sensor / Signal Supply V | S  | SCP Network | V   | Voltage (DC)            |
| B+ | Battery Voltage | SG | Sensor / Signal Ground   | D2 | D2B Network | PWM | Pulse Width Modulated   |

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NOTE: ECM power supplies and grounds shown on Figure 03.5.