

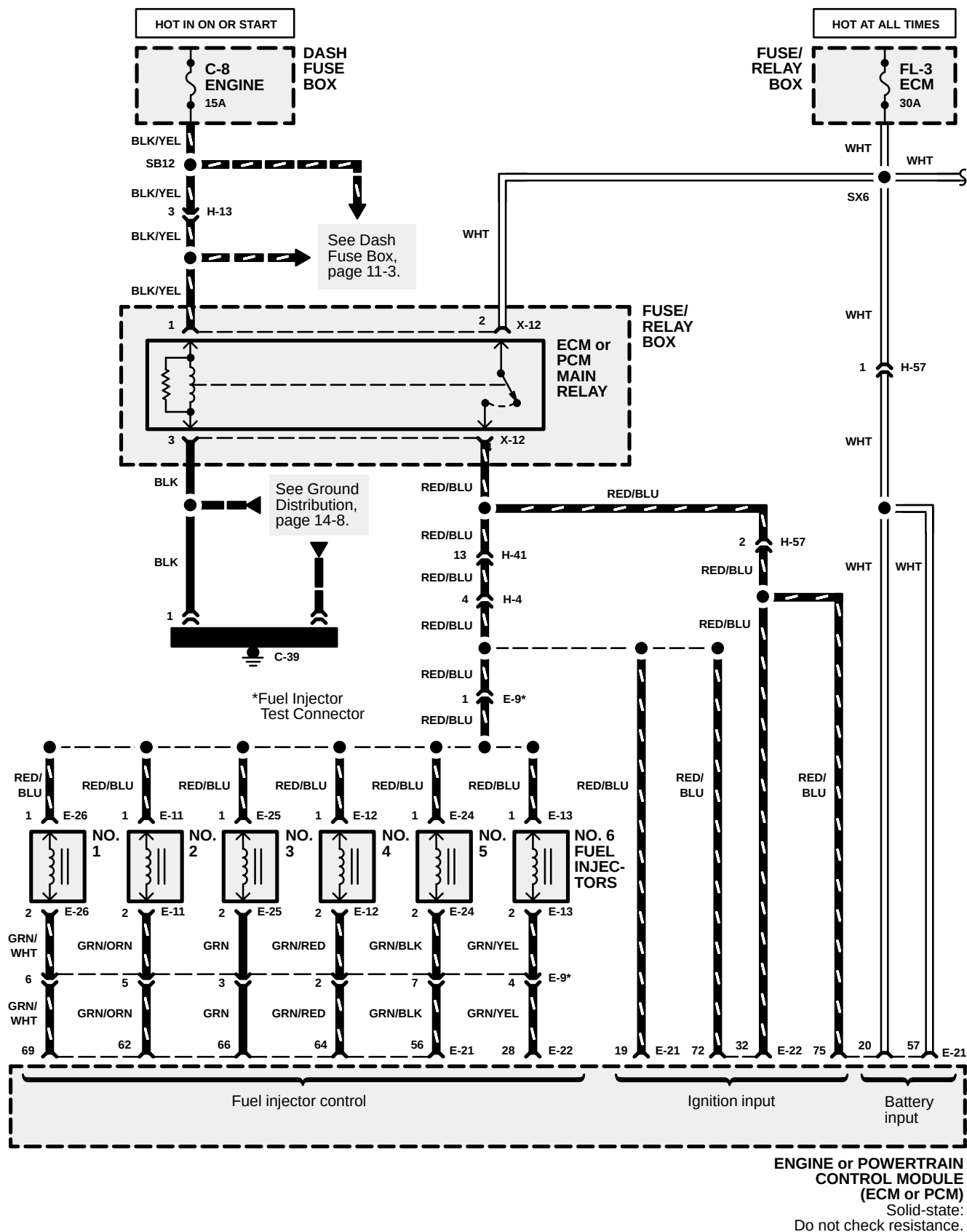
# ENGINE CONTROLS

## Component Index

|                              |                                |                            |
|------------------------------|--------------------------------|----------------------------|
| Acceleration Position        | Variable Intake Manifold (VIM) | Heated Oxygen Sensor       |
| Sensor Assembly              | Vacuum Switching Valve         | (HO2S) (B2S2)              |
| Camshaft Position (CMP)      | Evaporative Emission (EVAP)    | Intake Air Temperature     |
| Sensor                       | Canister Cut Valve             | (IAT) Sensor               |
| Clutch Switch                | Evaporative Emission (EVAP)    | Manifold Absolute Pressure |
| Crankshaft Position (CKP)    | Canister Purge Valve           | (MAP) Sensor               |
| Sensor                       | Exhaust Gas Recirculation      | Mass Air Flow (MAF) Sensor |
| Dash Fuse Box                | (EGR) Solenoid Valve           | Power Steering Pressure    |
| Data Link Connector (DLC)    | Fuel Injectors                 | (PSP) Switch               |
| C63 (16-BLK)                 | Fuel Pump                      | Taillight Relay            |
| ECM or PCM Main Relay        | Fuel Pump Relay                | Throttle Valve Assembly    |
| Electronic Brake Control     | Fuel Vapor Pressure Sensor     | Throttle Valve Motor       |
| Module (EBCM)                | Fuse/Relay Box                 | T.O.D. Control Unit        |
| Engine Control Module        | Heated Oxygen Sensor           | Transmission Switch 1-2    |
| (ECM)                        | (HO2S) (B1S1)                  | Upshift Relay-1            |
| Engine Coolant Temperature   | Heated Oxygen Sensor           | Upshift Resistor           |
| (ECT) Sensor                 | (HO2S) (B2S1)                  |                            |
| Engine or Powertrain Control | Heated Oxygen Sensor           |                            |
| Module (ECM or PCM)          | (HO2S) (B1S2)                  |                            |

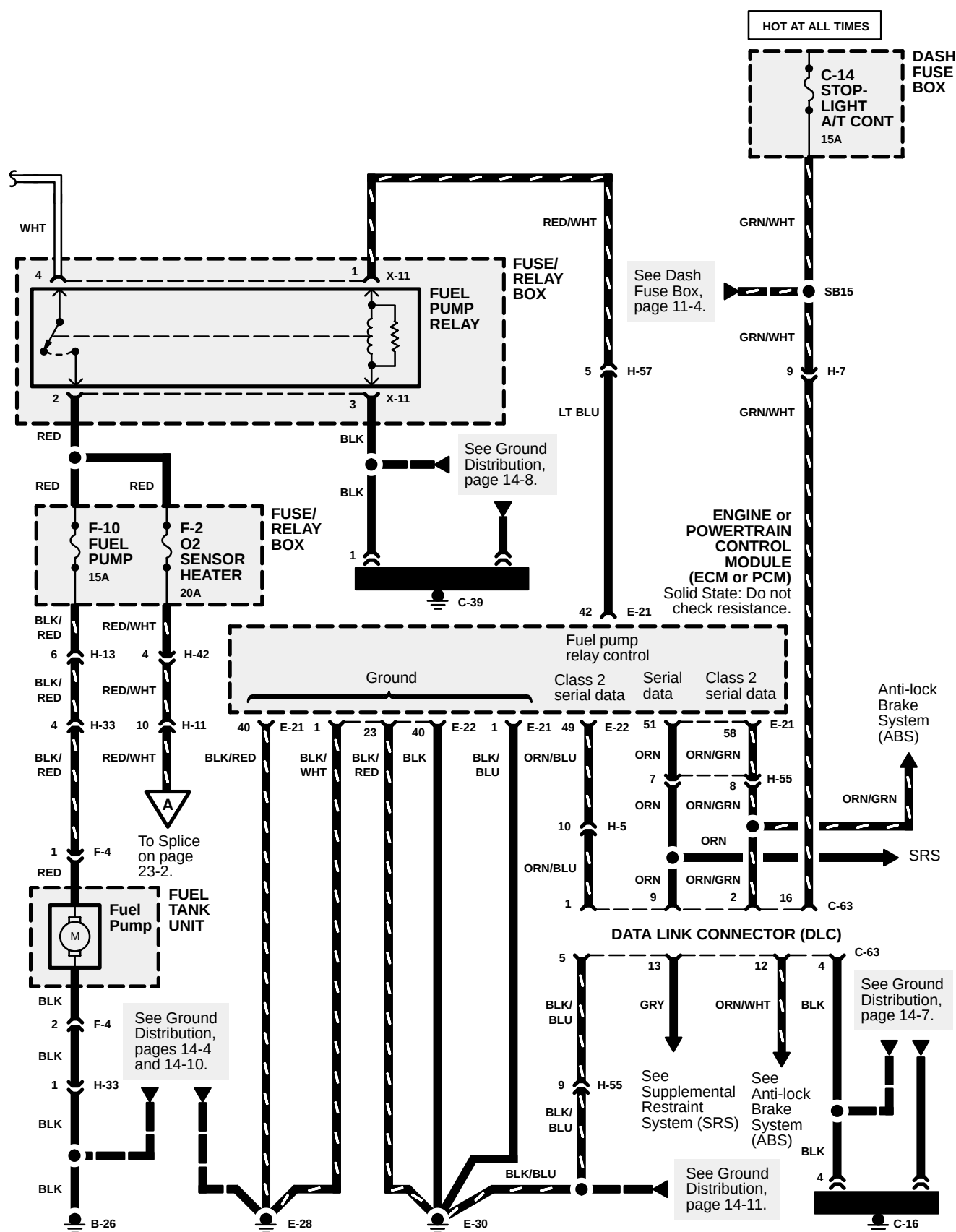
# ENGINE CONTROLS

## Circuit Schematic



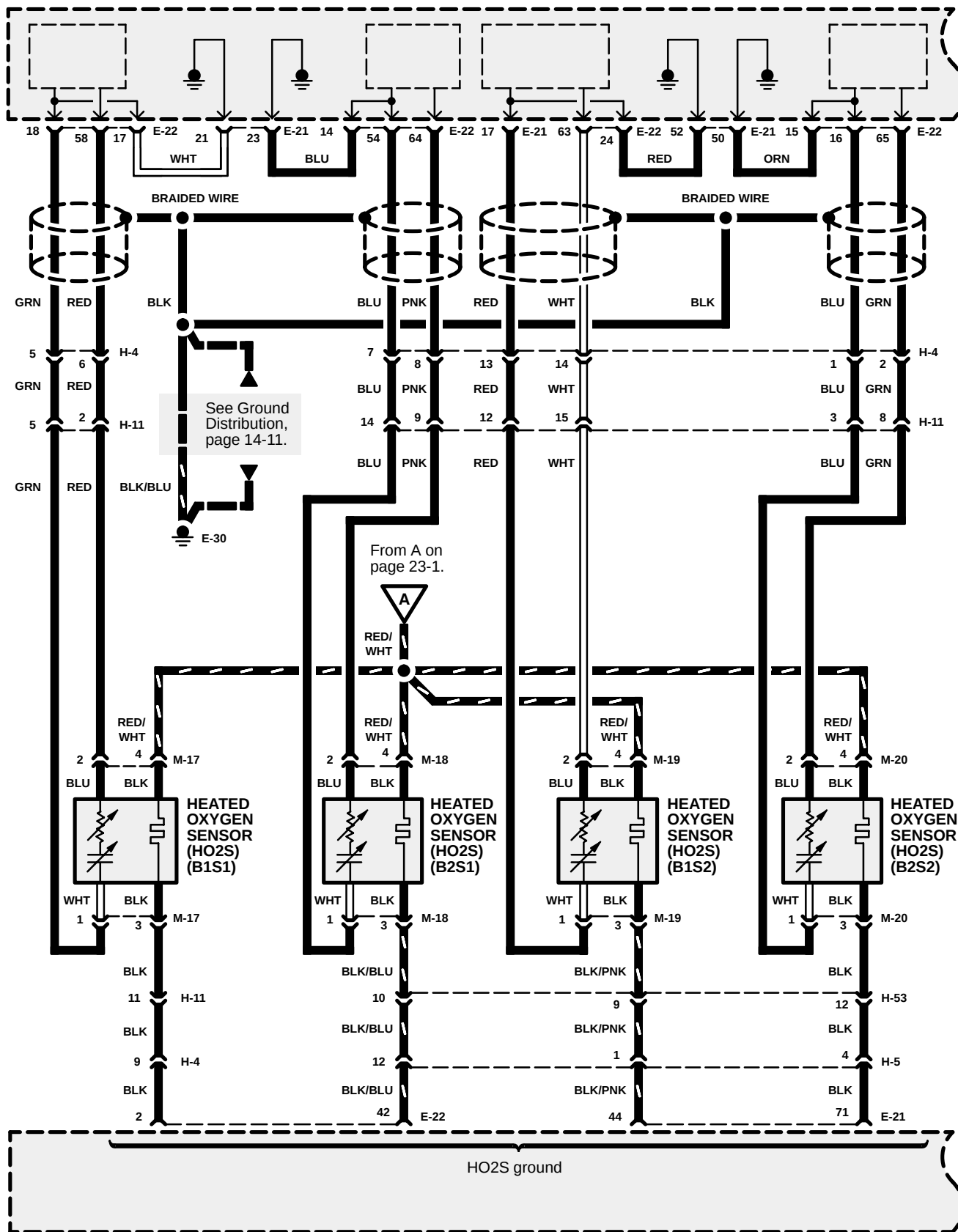
## ENGINE CONTROLS

### Circuit Schematic



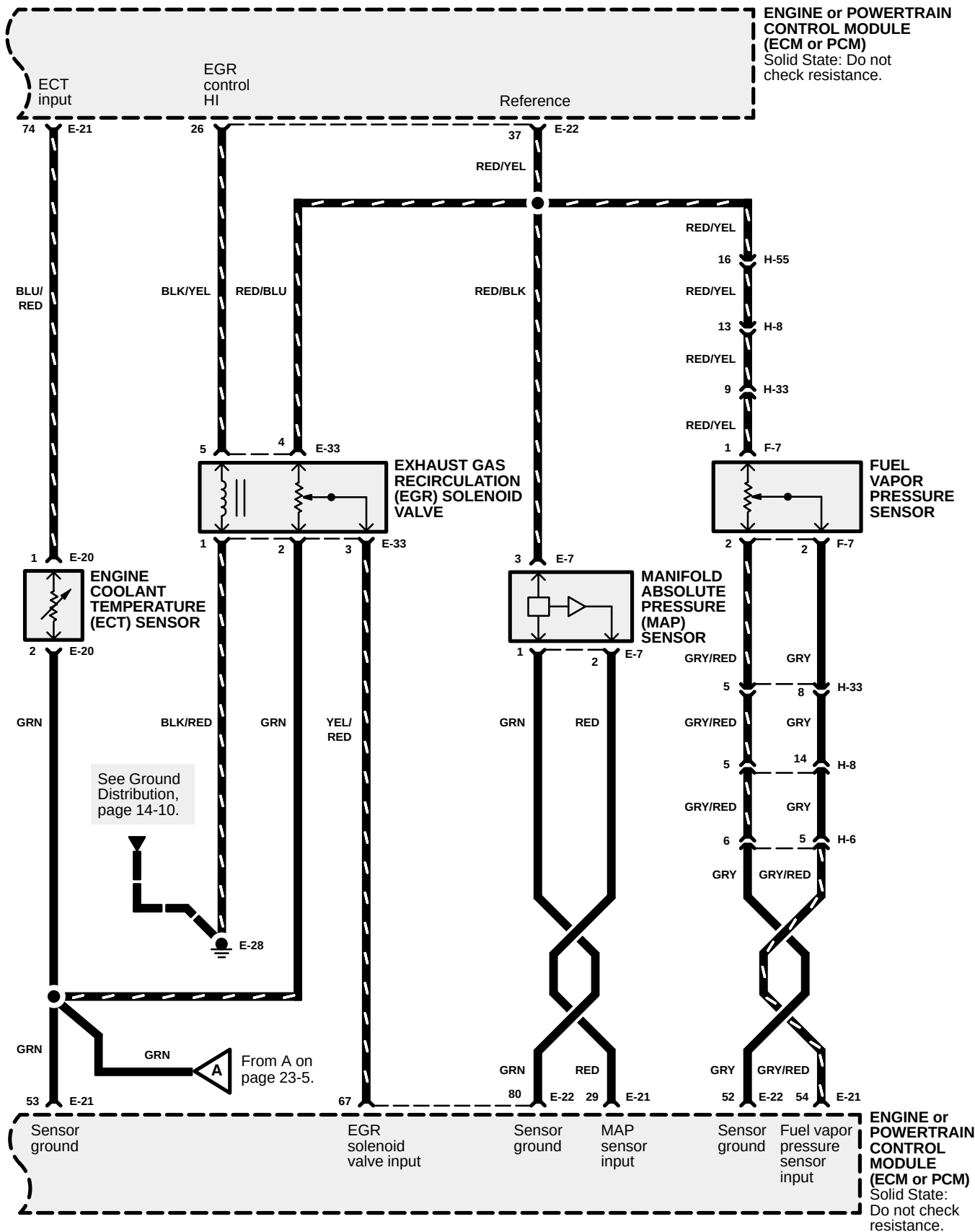
# ENGINE CONTROLS

## Circuit Schematic



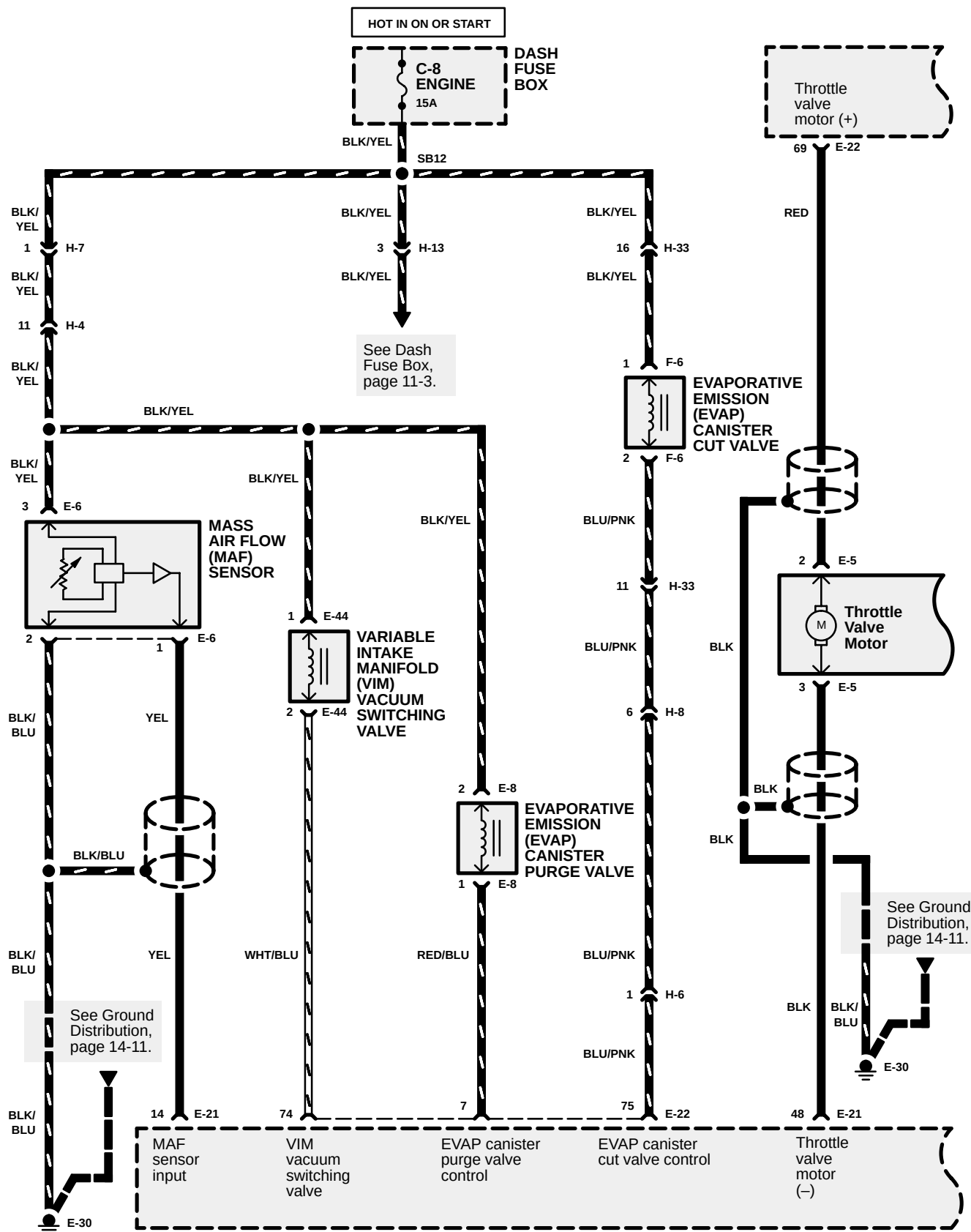
# ENGINE CONTROLS

## Circuit Schematic



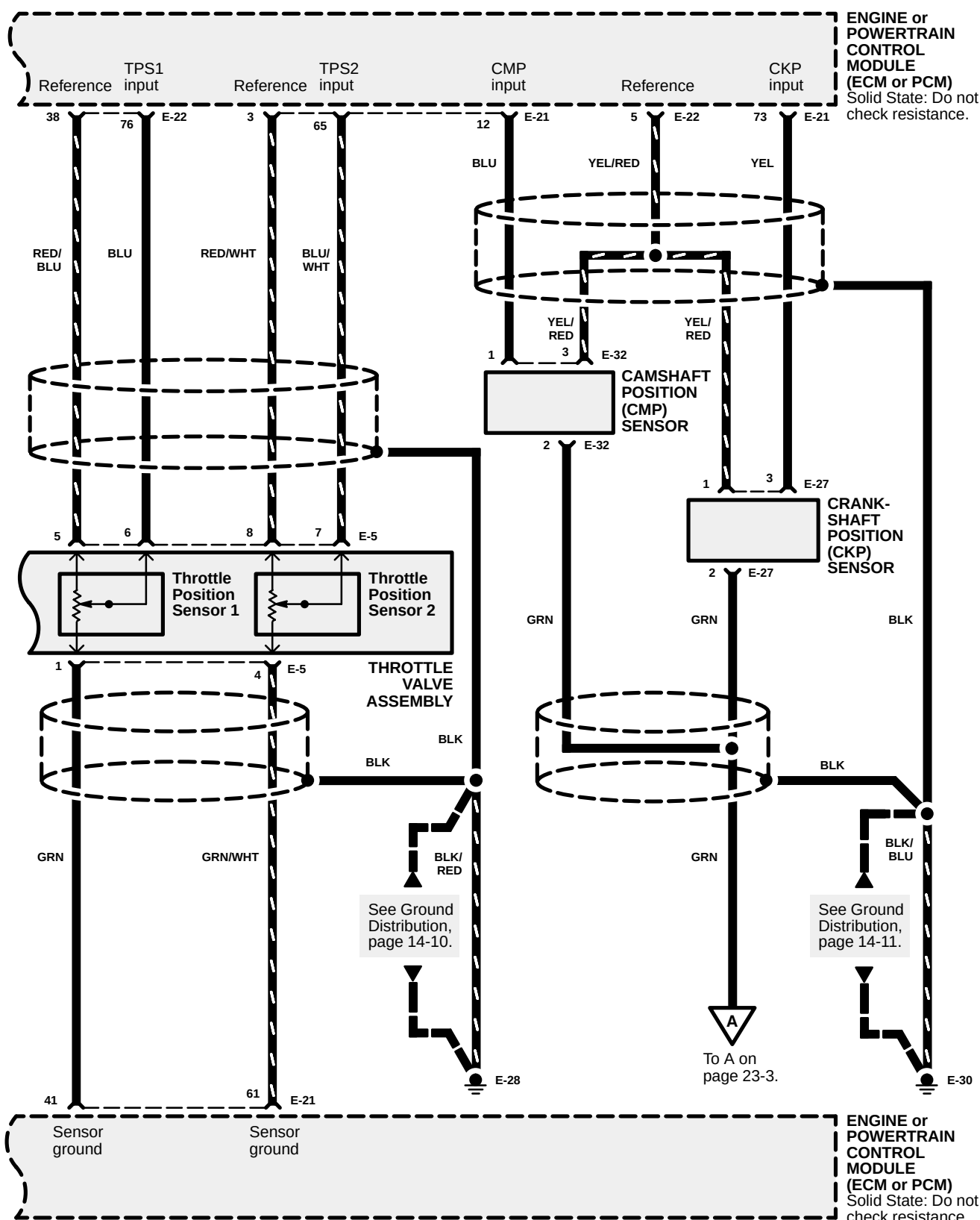
# ENGINE CONTROLS

## Circuit Schematic



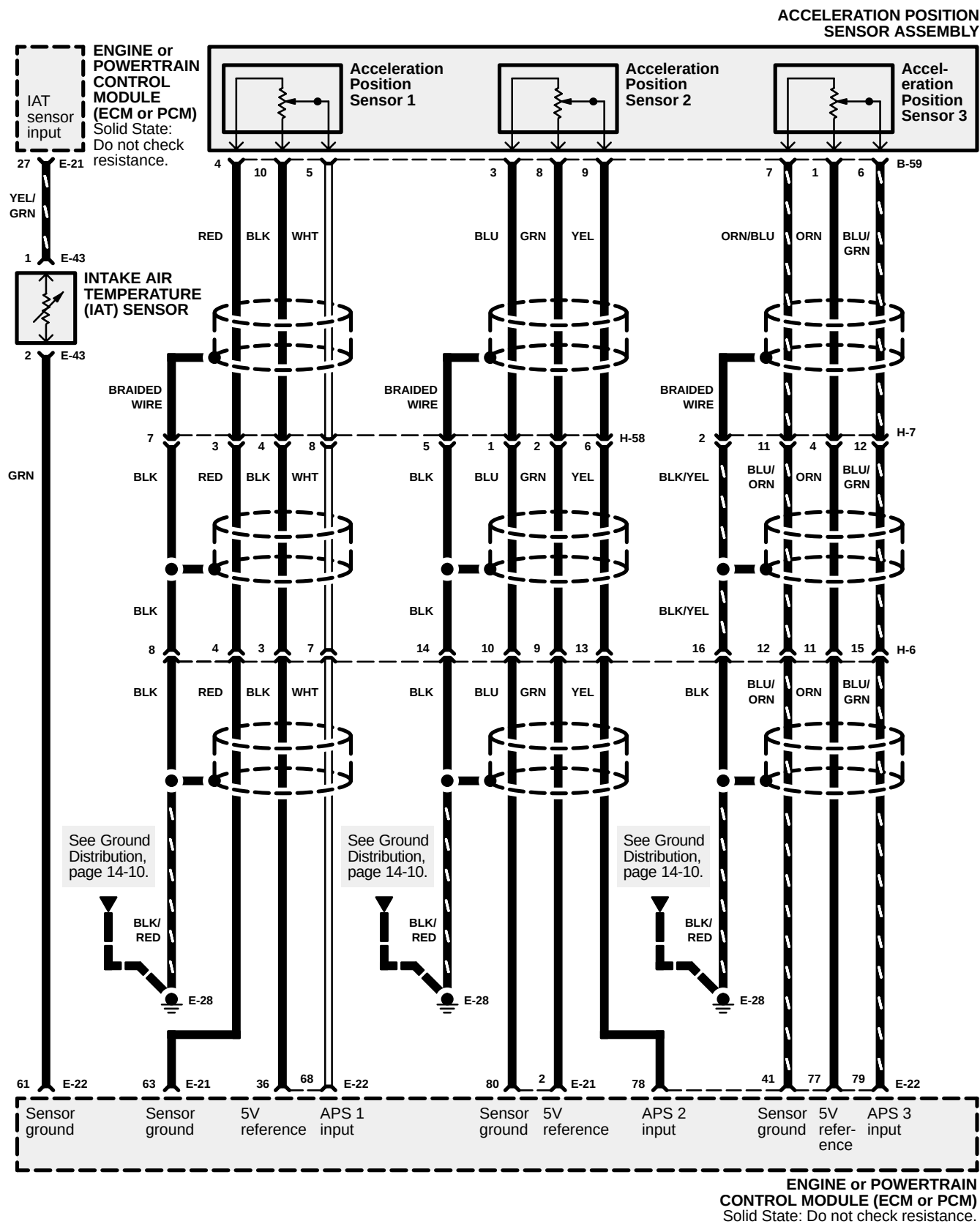
# ENGINE CONTROLS

## Circuit Schematic



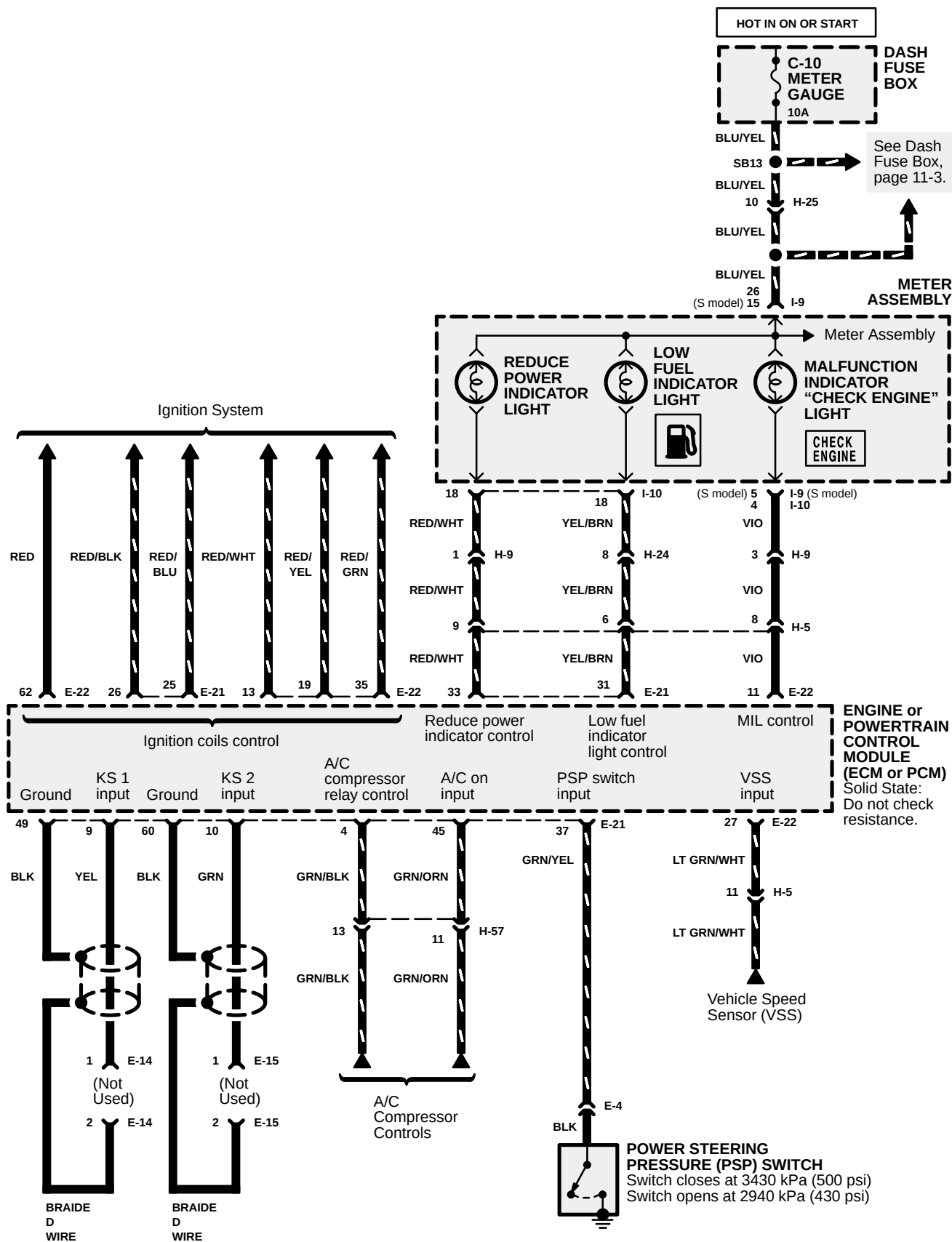
# ENGINE CONTROLS

## Circuit Schematic



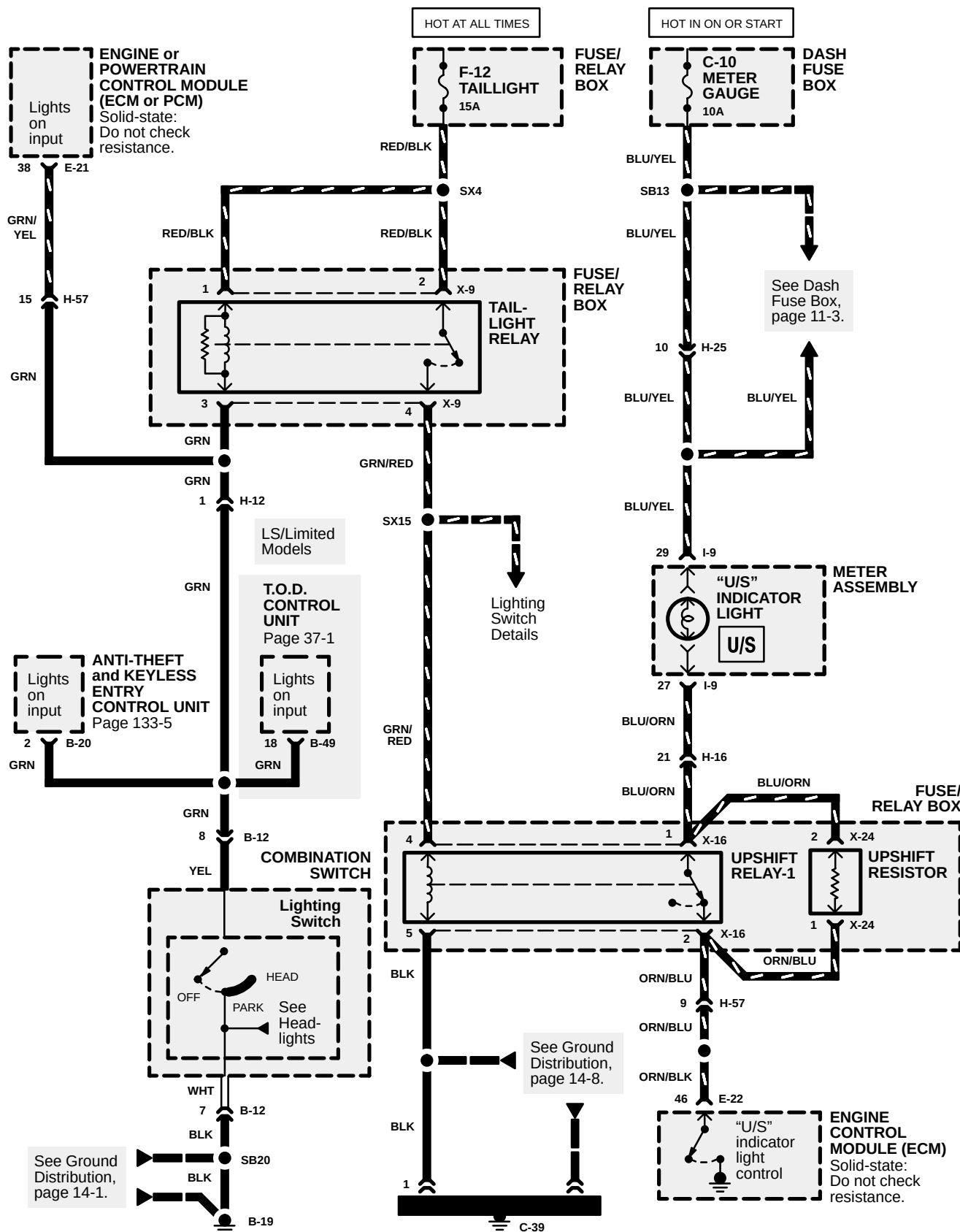
# ENGINE CONTROLS

## Circuit Schematic



## ENGINE CONTROLS

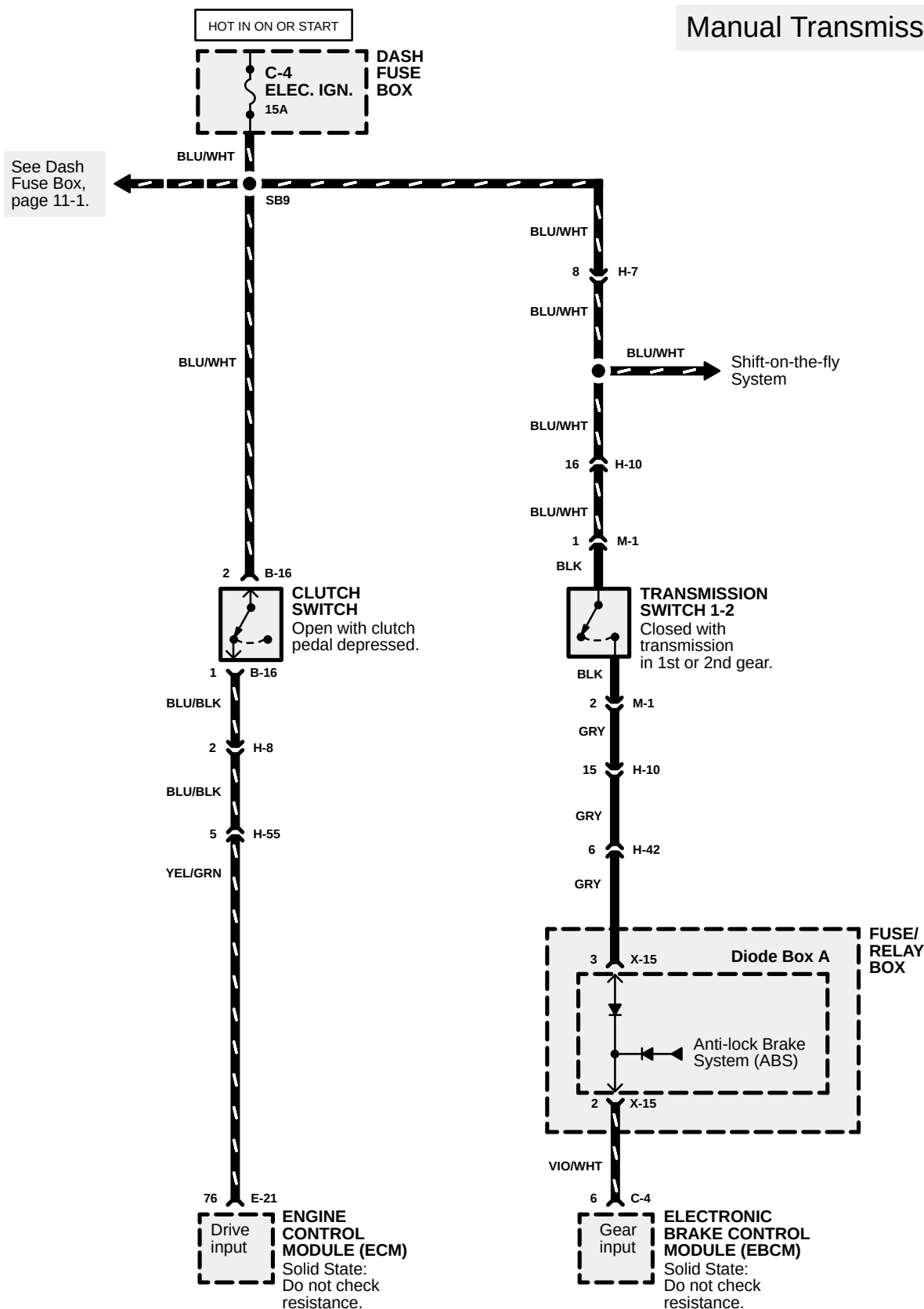
### Circuit Schematic



# ENGINE CONTROLS

## Circuit Schematic

### Manual Transmission



# ENGINE CONTROLS

## Component Location Index

(Refer to Section 201 for photographs.)

| <b>Component</b>                     | <b>Photo No.</b>                                                     |
|--------------------------------------|----------------------------------------------------------------------|
| Acceleration Position                |                                                                      |
| Sensor Assembly . . . . .            | Above accelerator pedal . . . . . 123                                |
| Camshaft Position (CMP)              |                                                                      |
| Sensor . . . . .                     | Left rear of engine . . . . . 14                                     |
| Clutch Switch . . . . .              | Below I/P, top of clutch pedal support . . . . . 57                  |
| Crankshaft Position (CKP)            |                                                                      |
| Sensor . . . . .                     | Lower right side of engine, above oil pan . . . . . 18               |
| Dash Fuse Box . . . . .              | Behind left dash side trim panel . . . . . 55                        |
| Data Link Connector (DLC)            |                                                                      |
| C63 (16-BLK) . . . . .               | Left I/P lower cover, behind access cover . . . . . 47               |
| ECM or PCM Main Relay . . . . .      | In fuse/relay box . . . . . 38                                       |
| Electronic Brake Control             |                                                                      |
| Module (EBCM) . . . . .              | Right front of engine compartment . . . . . 41                       |
| Engine Control Module                |                                                                      |
| (ECM) . . . . .                      | Right side of engine compartment . . . . . 60                        |
| Engine Coolant Temperature           |                                                                      |
| (ECT) Sensor . . . . .               | Top front of engine . . . . . 10                                     |
| Engine or Powertrain Control         |                                                                      |
| Module (ECM or PCM) . . . . .        | Right side of engine compartment . . . . . 60                        |
| Variable Intake Manifold (VIM)       |                                                                      |
| Vacuum Switching Valve . . . . .     | On left rear of engine . . . . . 32                                  |
| Evaporative Emission (EVAP)          |                                                                      |
| Canister Cut Valve . . . . .         | Underneath vehicle, above right side of rear axle . . . . . 130      |
| Evaporative Emission (EVAP)          |                                                                      |
| Canister Purge Valve . . . . .       | Top left front of engine . . . . . 22                                |
| Exhaust Gas Recirculation            |                                                                      |
| (EGR) Solenoid Valve . . . . .       | Top right rear of engine . . . . . 16                                |
| Fuel Pump . . . . .                  | Beneath rear of vehicle, in top of fuel tank                         |
| Fuel Pump Relay . . . . .            | In fuse/relay box . . . . . 38                                       |
| Fuel Vapor Pressure Sensor . . . . . | On top of fuel tank                                                  |
| Fuse/Relay Box . . . . .             | Right side of engine compartment, on inner fender panel . . . . . 41 |
| Heated Oxygen Sensor                 |                                                                      |
| (HO2S) (B1S1) . . . . .              | In right exhaust down pipe . . . . . 21                              |
| Heated Oxygen Sensor                 |                                                                      |
| (HO2S) (B2S1) . . . . .              | In left exhaust down pipe . . . . . 25                               |
| Heated Oxygen Sensor                 |                                                                      |
| (HO2S) (B1S2) . . . . .              | In rear of right catalytic converter . . . . . 29                    |
| Heated Oxygen Sensor                 |                                                                      |
| (HO2S) (B2S2) . . . . .              | In rear of left catalytic converter . . . . . 30                     |
| Intake Air Temperature               |                                                                      |
| (IAT) Sensor . . . . .               | Top front of engine, in air intake hose . . . . . 10                 |
| Manifold Absolute Pressure           |                                                                      |
| (MAP) Sensor . . . . .               | Top rear of engine . . . . . 16                                      |
| Mass Air Flow (MAF) Sensor . . . . . | Left front corner of engine compartment . . . . . 13                 |

# ENGINE CONTROLS

## Component Location Index

(Refer to Section 201 for photographs.)

### Component (cont'd)

### Photo No.

#### Power Steering Pressure

|                         |                                                |     |
|-------------------------|------------------------------------------------|-----|
| (PSP) Switch            | Lower left front of engine compartment         |     |
| Taillight Relay         | In fuse/relay box                              | 35  |
| Throttle Valve Assembly | Top front of engine                            | 22  |
| Throttle Valve Motor    | Top front of engine                            | 10  |
| T.O.D. Control Unit     | Below right front seat                         | 125 |
| Transmission Switch 1-2 | Beneath vehicle, on right side of transmission | 15  |
| Upshift Relay-1         | In fuse/relay box                              | 34  |
| Upshift Resistor        | In fuse/relay box                              | 34  |

### Connector

|                    |                                                           |     |
|--------------------|-----------------------------------------------------------|-----|
| B-12 (16-WHT)      | Below I/P, right of steering column                       | 58  |
| E-4 (1-GRY)        | Left front of engine                                      | 20  |
| E-9 (7-GRY)        | Left side of engine compartment, taped to harness         | 12  |
| F-4 (2-BLK)        | Beneath rear of vehicle, right of fuel tank               | 124 |
| H-4 (16-BLK)       | Left side of engine compartment                           | 33  |
| H-5 (16-GRN)       | Left side of engine compartment                           | 33  |
| H-6 (16-BLU)       | Left side of engine compartment                           | 33  |
| H-7 (20-BRN/WHT)   | Below I/P, above left dash side trim panel, on bracket    | 69  |
| H-8 (16-WHT)       | Below I/P, above left dash side trim panel, on bracket    | 70  |
| H-9 (20-BLK)       | Below I/P, above left dash side trim panel, on bracket    | 70  |
| H-10 (16-BLU)      | Left front of engine compartment                          | 27  |
| H-11 (16-BLK)      | Left front of engine compartment                          | 27  |
| H-12 (20-WHT)      | Below I/P, above right dash side trim panel, on bracket   | 100 |
| H-13 (6-BLK)       | Below I/P, above right dash side trim panel, on bracket   | 100 |
| H-16 (22-WHT)      | Behind right dash side trim panel                         | 120 |
| H-24 (18-YEL)      | Below I/P, above left dash side trim panel, on bracket    | 70  |
| H-25 (22-BLU)      | Below I/P, above left dash side trim panel, on bracket    | 71  |
| H-33 (20-WHT)      | In floor, below right front seat                          | 110 |
| H-41 (16-BLK)      | Right front of engine compartment                         | 31  |
| H-42 (16-BLU)      | Right front of engine compartment                         | 31  |
| H-53 (16-GRN)      | Left front of engine compartment                          | 27  |
| H-55 (16-BLU)      | Right side of engine compartment                          | 59  |
| H-57 (16-BLK)      | Right side of engine compartment                          | 59  |
| H-58 (8-WHT)       | Below I/P, above right dash side trim panel, on bracket   | 134 |
| I-9 (30-GRN)       | On left top of meter assembly                             | 53  |
| I-10 (22-GRN)      | On right top of meter assembly                            | 53  |
| M-1 (2-GRY)        | Beneath center of vehicle, top right side of transmission | 15  |
| M-17 (4-BLK)       | Near heated oxygen sensor (HO2S) (B1S1)                   |     |
| M-18 (4-BLK)       | Near heated oxygen sensor (HO2S) (B2S1)                   | 25  |
| M-19 (4-BLK) (A/T) | Near heated oxygen sensor (HO2S) (B1S2)                   | 29  |
| M-19 (4-BLK) (M/T) | Near Heated Oxygen Sensor (HO2S) (B1S3)                   | 121 |
| M-20 (4-BLK) (A/T) | Near heated oxygen sensor (HO2S) (B2S2)                   | 30  |
| M-20 (4-BLK) (M/T) | Near heated oxygen sensor (HO2S) (B1S2)                   | 30  |

# ENGINE CONTROLS

## Component Location Index

(Refer to Section 201 for photographs.)

### Ground

|      |                                                                |    |
|------|----------------------------------------------------------------|----|
| B-19 | Behind top of left dash side trim panel                        | 71 |
| B-26 | Below rear of center console                                   | 67 |
| C-16 | Left rear corner of engine compartment, on inner fender panel  | 39 |
| C-39 | Right rear corner of engine compartment, on inner fender panel | 45 |
| E-28 | Top left rear of engine                                        | 32 |
| E-29 | Top left front of engine                                       | 32 |
| E-30 | Top right rear of engine                                       | 16 |

### Circuit Operation

The engine or powertrain control module (ECM or PCM) receives inputs from the engine sensors and switches, controlling the functions of the engine. The ECM or PCM also turns on the “CHECK ENGINE” malfunction indicator light whenever a malfunction or abnormal engine performance is detected, and allows for diagnostic testing through the data link connector (DLC).

Refer to Section 6 of the Workshop Manual for further engine diagnosis.