



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



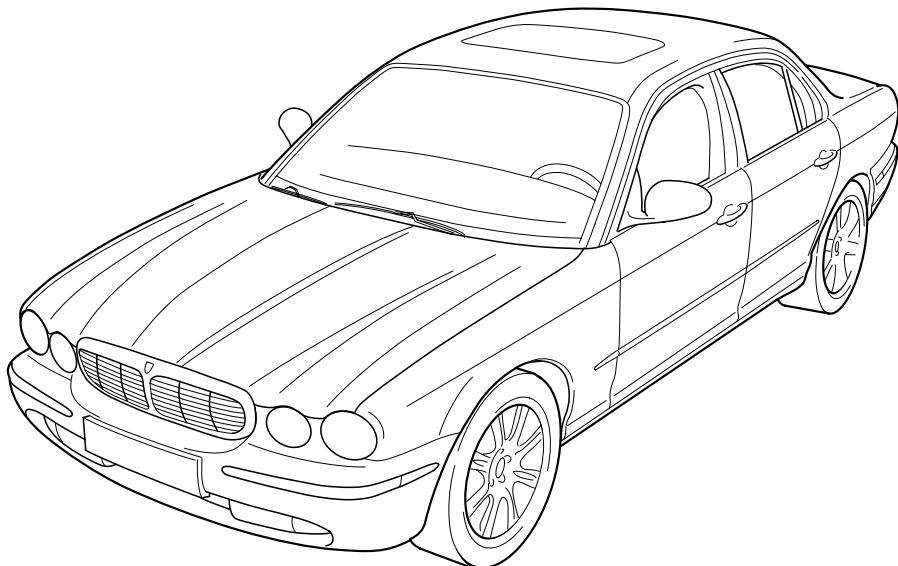
BY APPOINTMENT TO
HER MAJESTY QUEEN ELIZABETH
THE QUEEN MOTHER
MANUFACTURERS OF DAIMLER AND JAGUAR CARS
JAGUAR CARS LIMITED COVENTRY



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

The New Jaguar XJ Range

2003.5 Model Year Electrical Guide



PROVISIONAL

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The following abbreviations and acronyms are used throughout this Electrical Guide:

General and EMS Acronyms

A/C	Air Conditioning
APP SENSOR	Accelerator Pedal Position Sensor
APP1	Accelerator Pedal Position Sensor Element 1
APP2	Accelerator Pedal Position Sensor Element 2
B+	Battery Voltage
BANK 1	RH Cylinder Bank (Cylinders 1, 3, 5, 7)
BANK 2	LH Cylinder Bank (Cylinders 2, 4, 6, 8)
CAN	Controller Area Network
CKP SENSOR	Crankshaft Position Sensor
CMP SENSOR / 1	Camshaft Position Sensor / RH Bank
CMP SENSOR / 2	Camshaft Position Sensor / LH Bank
D2B	D2B Network
DSC	Dynamic Stability Control
ECT SENSOR	Engine Coolant Temperature Sensor
EFT SENSOR	Engine Fuel Temperature Sensor
EGR VALVE	Exhaust Gas Recirculation Valve
EGT SENSOR	Exhaust Gas Temperature Sensor
EOT SENSOR	Engine Oil Temperature Sensor
EVAP CANISTER CLOSE VALVE	Evaporative Emission Canister Close Valve
EVAP CANISTER PURGE VALVE	Evaporative Emission Canister Purge Valve
FTP SENSOR	Fuel Tank Pressure Sensor
GPS	Global Positioning System
HID	High Intensity Discharge
HO2 SENSOR 1 / 1	Heated Oxygen Sensor – RH Bank / Upstream
HO2 SENSOR 1 / 2	Heated Oxygen Sensor – RH Bank / Downstream
HO2 SENSOR 2 / 1	Heated Oxygen Sensor – LH Bank / Upstream
HO2 SENSOR 2 / 2	Heated Oxygen Sensor – LH Bank / Downstream
IAT SENSOR	Intake Air Temperature Sensor
ICE	In-Car Entertainment System
IMT VALVE / 1	Intake Manifold Tuning Valve / Top
IMT VALVE / 2	Intake Manifold Tuning Valve / Bottom
IP SENSOR	Injection Pressure Sensor
KS / 1	Knock Sensor / RH Bank
KS / 2	Knock Sensor / LH Bank
LH	Left Hand
LHD	Left Hand Drive
MAF SENSOR	Mass Air Flow Sensor
MAP SENSOR	Manifold Absolute Pressure Sensor
N/A	Normally Aspirated
NAS	North American Specification
PATS	Passive Anti-Theft System
PWM	Pulse Width Modulated
RH	Right Hand
RHD	Right Hand Drive
ROW	Rest of World
SC	Supercharged
SCP	Standard Corporate Protocol Network
TP SENSOR	Throttle Position Sensor
TP1	Throttle Position Sensor Element 1
TP2	Throttle Position Sensor Element 2
TURN	Turn Signal
TV	Television
V6	V6 Engine
V8	V8 Engine
VVT VALVE / 1	Variable Valve Timing Valve / Bank 1
VVT VALVE / 2	Variable Valve Timing Valve / Bank 2
+ve	Positive
-ve	Negative

Control Module Acronyms

ASCM	Adaptive Speed Control Module
ASM	Air Suspension Module
AUDIO	Audio Unit
CCM	Climate Control Module
CPM	Cellular Phone Module
DDM	Driver Door Module
DSCM	Dynamic Stability Control Module
DSM	Driver Seat Module
ECM	Engine Control Module
FEM	Front Electronic Module
HLM	Headlamp Leveling Module
IC	Instrument Cluster
JGM	J-Gate Module
MCP	Multimedia Control Panel
NCM	Navigation Control Module
PAM	Parking Aid Module
PBM	Parking Brake Module
RCM	Restraints Control Module
RCCM	Rear Climate Control Module
REM	Rear Electronic Module
RMM	Rear Memory Module
SCLM	Steering Column Lock Module
VAM	Voice Activation Module



Provisional Electrical Guide Format

This Provisional Electrical Guide is an abridged version made up of two sections. The first section provides general information for and about the use of the book and information and illustrations to aid in the location of components.

The Figure section illustrates detailed electrical circuit information for each system on the vehicle. Each Figure is identified by a Figure Number (i.e. Fig. 01.1) and Title. The data that normally accompanies each Figure is not included in this Provisional version.

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 should help to guide the user.

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".

Jaguar 2003.5 Model Year XJ Range Electrical System Architecture

Power Supplies

The Jaguar 2003.5 Model year XJ Range electrical system is a supply-side switched system. The ignition switch directly carries much of the ignition switched power supply load. Power supply is provided via three methods: direct battery power supply, ignition switched power supply, and "Switched System Power Supply". The "Switched System Power Supply" circuit is controlled via the FEM (Front Electronic Module) and the REM (Rear Electronic Module). Refer to Figures 01.6 and 01.7 for circuit activation details.

Fuse Boxes

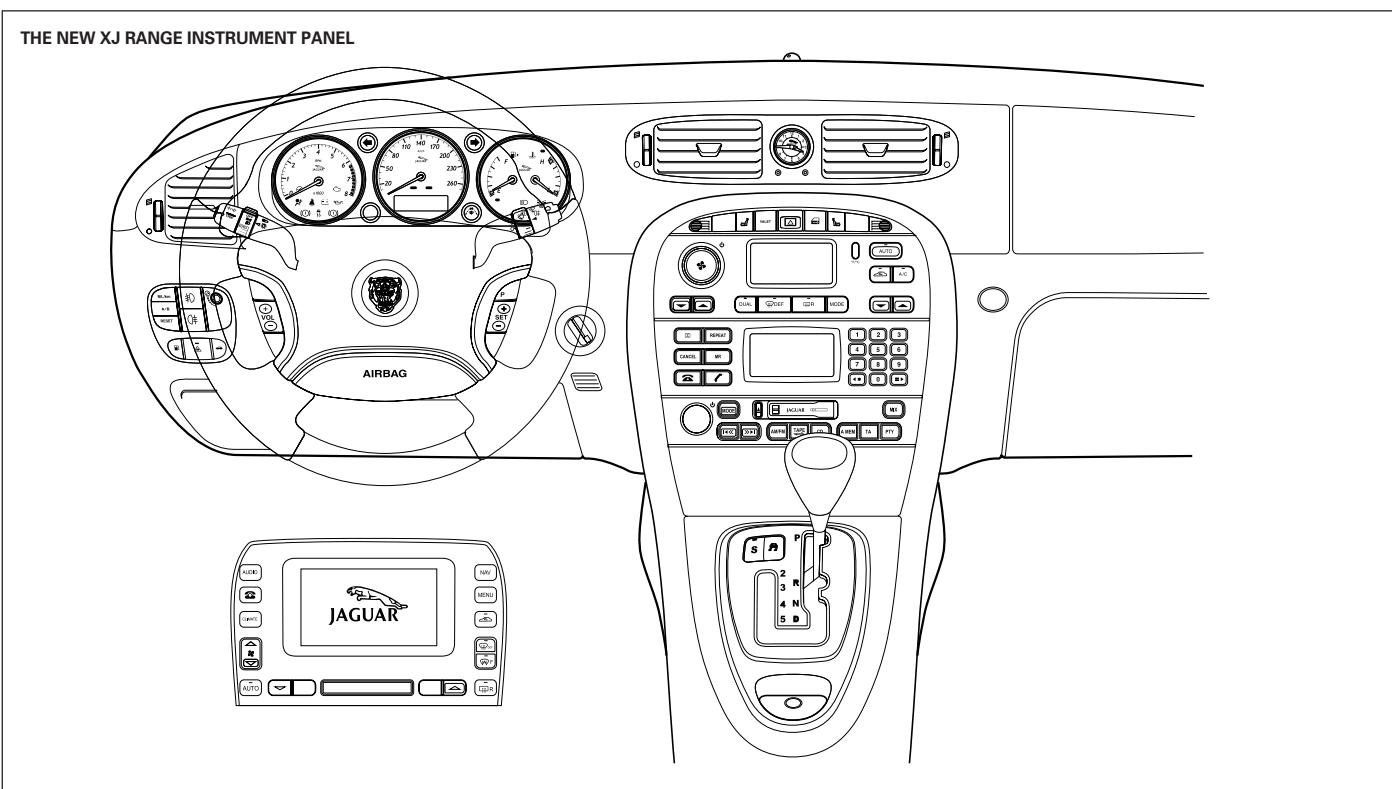
The electrical harness incorporates three serviceable power distribution fuse boxes: the Front Power Distribution Fuse Box located in the engine compartment, the Rear Power Distribution Fuse Box located in the trunk and the Passenger Junction Fuse Box located in the front right-hand foot well. All fuses and relays (except the trailer towing accessory kit) are located in the three fuse boxes.

Vehicle Networks

The New XJ Range employs three different networks: a CAN (Controller Area Network) for high-speed power train communications, an SCP (Standard Corporate Protocol) network for slower speed body systems communications, and a D2B (Optical) Network for very high-speed "real-time" audio data transfer. The D2B Network is a fiber optic network with a gateway to the remaining vehicle networks via the Audio Unit. Technician access to the three networks and the Serial Data Link is via the Data Link Connector.

Ground Studs

Circuit ground connections are made at body studs located throughout the vehicle. There are no separate power and logic grounding systems; however, there are a certain number of components that use unique ground points.





NOTE: In the examples on this page, an 'X' is used where a number would appear on an actual Figure.

Reference Symbols

	Battery power supply
	Ignition switched auxiliary power supply (key I, II)
	Ignition switched power supply (key II, III)
	Switched System Power Supply power supply
	Engine Management System power supply
	Figure number reference
	Controller Area Network
	Standard Corporate Protocol network
	D2B network

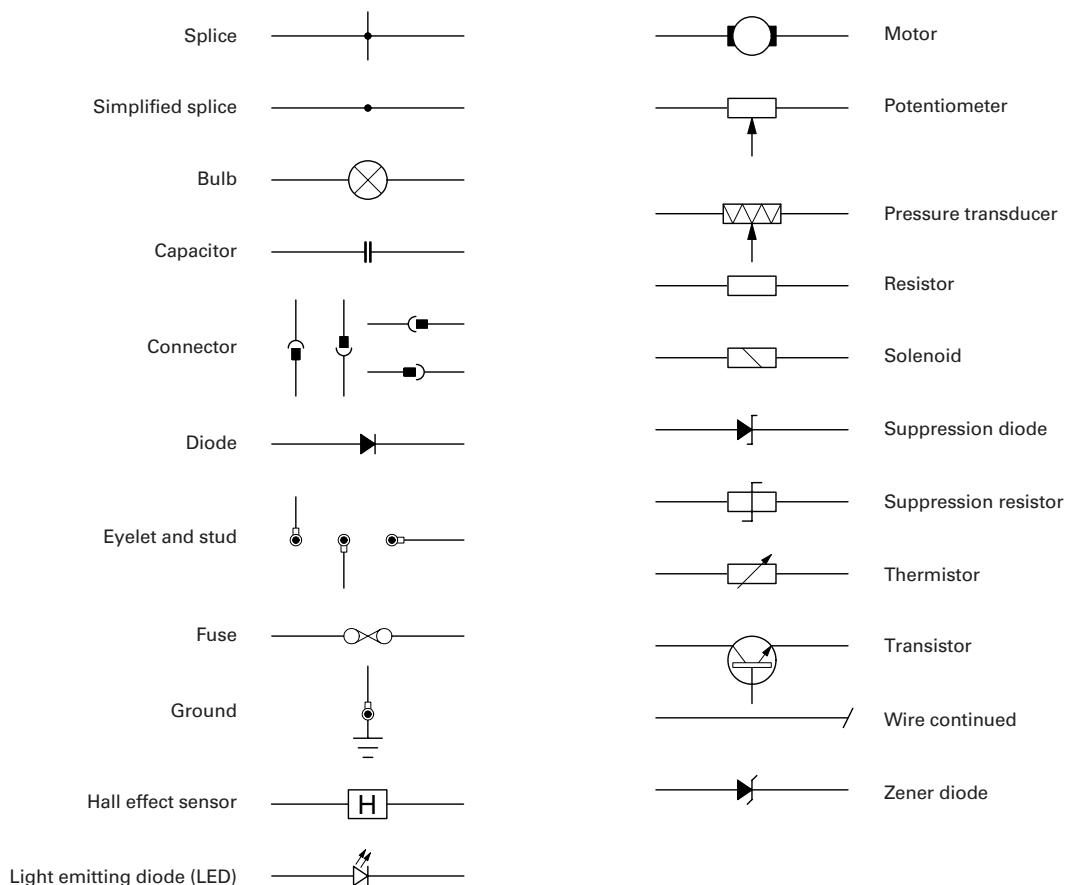
Control Module Pin Symbols

	Input		CAN network
	Output		SCP network
	Battery voltage		D2B network
	Power ground		Serial and encoded data
	Sensor/signal supply V *		
	Sensor/signal ground **		

* May also indicate Reference Voltage.

** May also indicate Reference Ground or Logic Ground.
Refer to Control Module Pin-Out Information.

Wiring Symbols





Harness Codes

- AC Air Conditioning Harness
- BC Battery Ground Harness
- BF Front Bumper Harness
- BL Cabin to Trunk Lid Harness
- BO Battery Harness
- BR Rear Bumper Harness
- BS Battery Backed Sounder Harness
- BT Trunk Lid Harness
- CC Center Console Harness
- CL Center Console Link Harness
- CP Cooling Pump Harness
- CR Cabin Harness
- CV EVAP Canister Close Valve Link Harness
- DB D2B Network Harness
- DD Driver Door Harness
- DL Driver Seat Lumbar Harness
- DT Driver Door Trim Harness
- EC Engine Compartment Harness
- EL Starter Motor Solenoid Link Harness
- FP Fuel Tank Link Harness
- GB Transmission Harness
- GC Radiator Cooling Fan Harness
- IJ Fuel Injector Harness
- IL Fuel Injector Harness
- IP Instrument Panel (Fascia) Harness
- IS Fuel Injector Link Harness
- LL LH Rear Seat Lumbar Harness
- LS LH Rear Seat Harness
- LT LH Rear Door Trim Harness
- PD Passenger Door Harness
- PH Telephone Harness
- PI Engine Management Harness
- PL Passenger Seat Lumbar Harness
- PS Passive Security Sounder Harness
- PT Passenger Door Trim Harness
- RA Rear Air Conditioning Harness
- RC Rear In-Car Entertainment Controls Harness
- RF Roof Harness
- RL LH Rear Door Harness
- RR RH Rear Door Harness
- RS RH Rear Seat Harness
- RT RH Rear Door Trim Harness
- SD Driver Seat Harness
- SL LH Rear Seat Motor Harness
- SP Passenger Seat Harness
- SR RH Rear Seat Motor Harness
- SW Steering Wheel Harness
- TL Telematics Harness
- TT Trailer Tow Harness
- VL LH Rear Television Harness
- VP Voice Activation Pre-Wire Harness
- VR RH Rear Television Harness
- VX RH Rear Television Link Harness
- VY LH Rear Television Link Harness
- YL RH Rear Seat Lumbar Harness

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	BOF	BOF Black fiber optic (D2B Network)

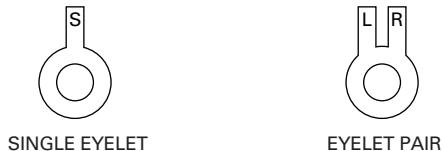
Code Numbering

When numbering connectors, grounds and splices, Jaguar Engineering uses a three-position format: CR001, CR002, etc. Because space is limited in this Electrical Guide the codes have, in most cases, been shortened. Thus CR001-001 becomes CR1-1, CR002-001 becomes CR2-1, etc.

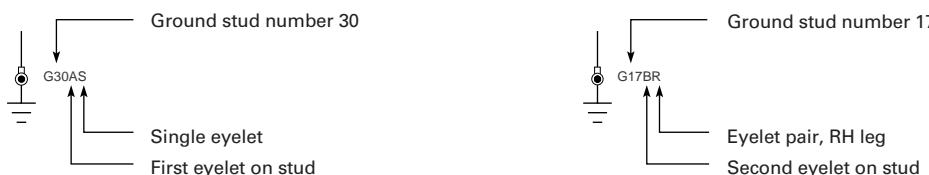


Grounds

There may be up to three eyelets on one ground stud. A, B and C are used to indicate the position of the eyelet on the stud: A – first (bottom), B – second (middle), C – third (top). Two eyelet variations are used: a single eyelet and an eyelet pair. The single eyelet has a single leg, which is identified by an S; the eyelet pair has two legs, identified as L (left) or R (right).



EXAMPLE:



On figures where LHD and RHD circuits are combined and 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.

EXAMPLE:

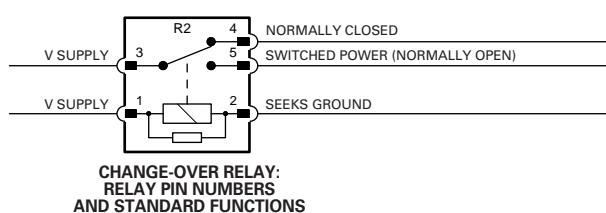


Relays

Serviceable Relays

Serviceable relays are located in all three fuse boxes. They do not have a separate relay connector (base). All relays use the ISO pin numbering system – 1, 2, 3, 4, 5. Each relay is identified by an “R” number unique only to the fuse box in which it is located.

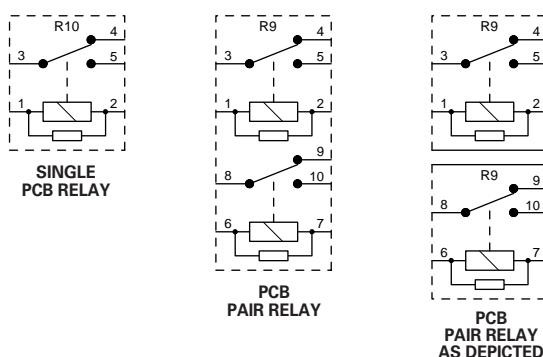
EXAMPLE:



Non-Serviceable Relays

Non-serviceable relays are located in all three fuse boxes. They are a component part of the fuse box printed circuit board (PCB) and are arranged in singles or pairs. The relays use the ISO pin numbering system – 1, 2, 3, 4, 5 (single relay or top pair relay) and 6, 7, 8, 9, 10 (bottom pair relay). Each relay is identified by an “R” number unique only to the fuse box in which it is located. Pair relays are normally depicted separately.

EXAMPLE:





Fuses

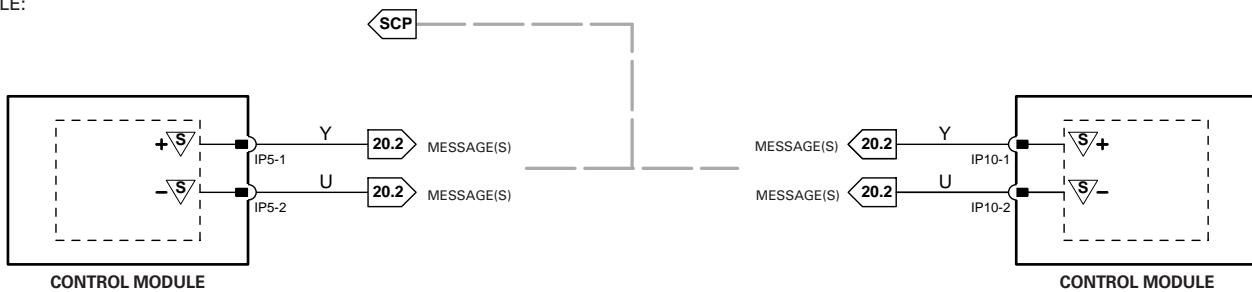
All fuses are located in the fuse boxes. Each fuse is identified by an "F" number unique only to the fuse box in which it is located.

EXAMPLE:

Networks

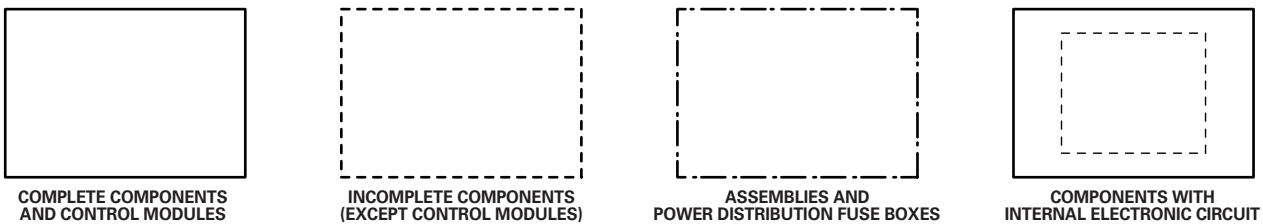
In most instances, networks are shown as a broken grey line to indicate that there is network communication between the depicted control modules. Refer to Figures 20.1, 20.2, 20.3 and 20.4 for circuit details.

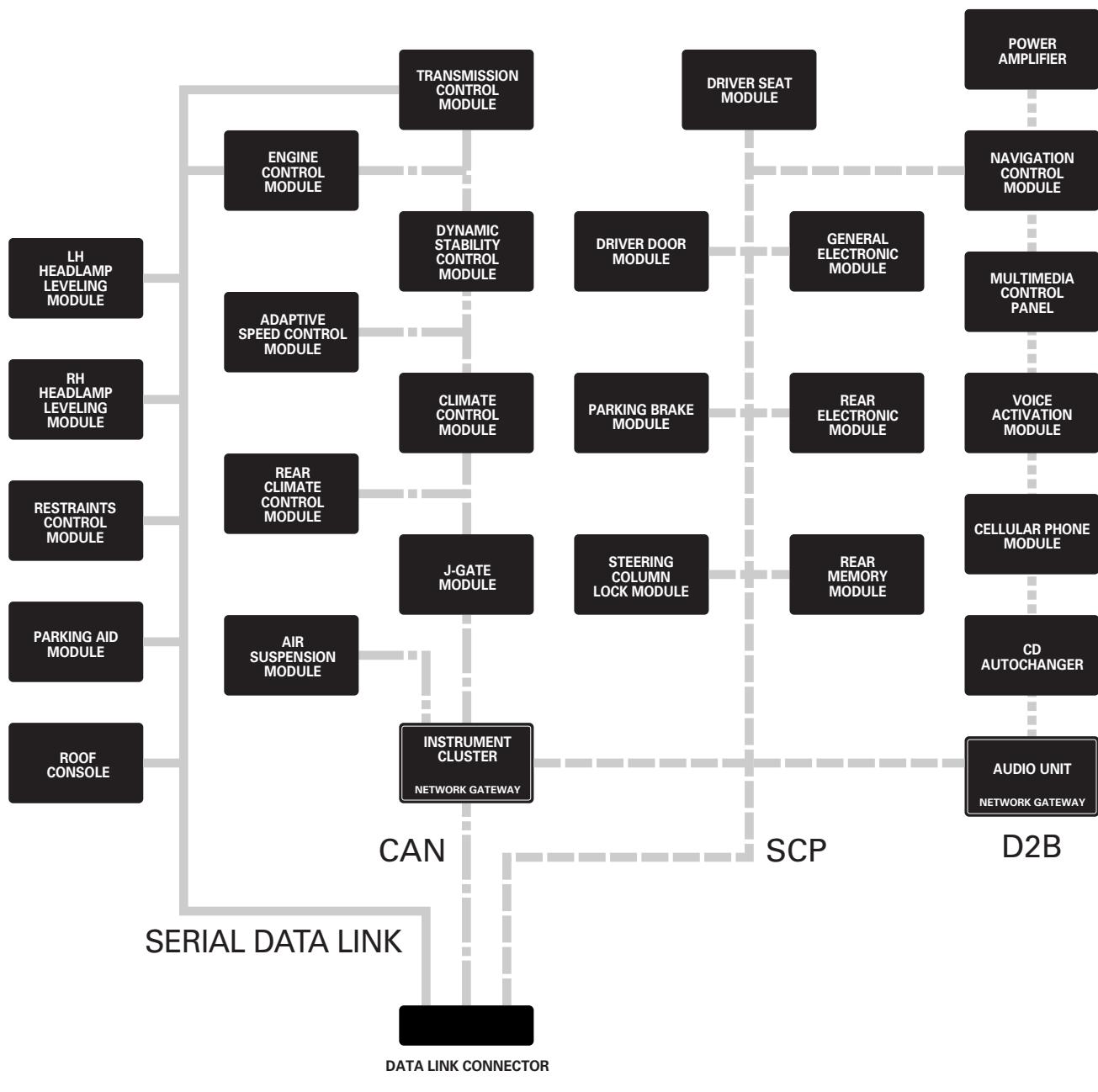
EXAMPLE:



Component Depictions

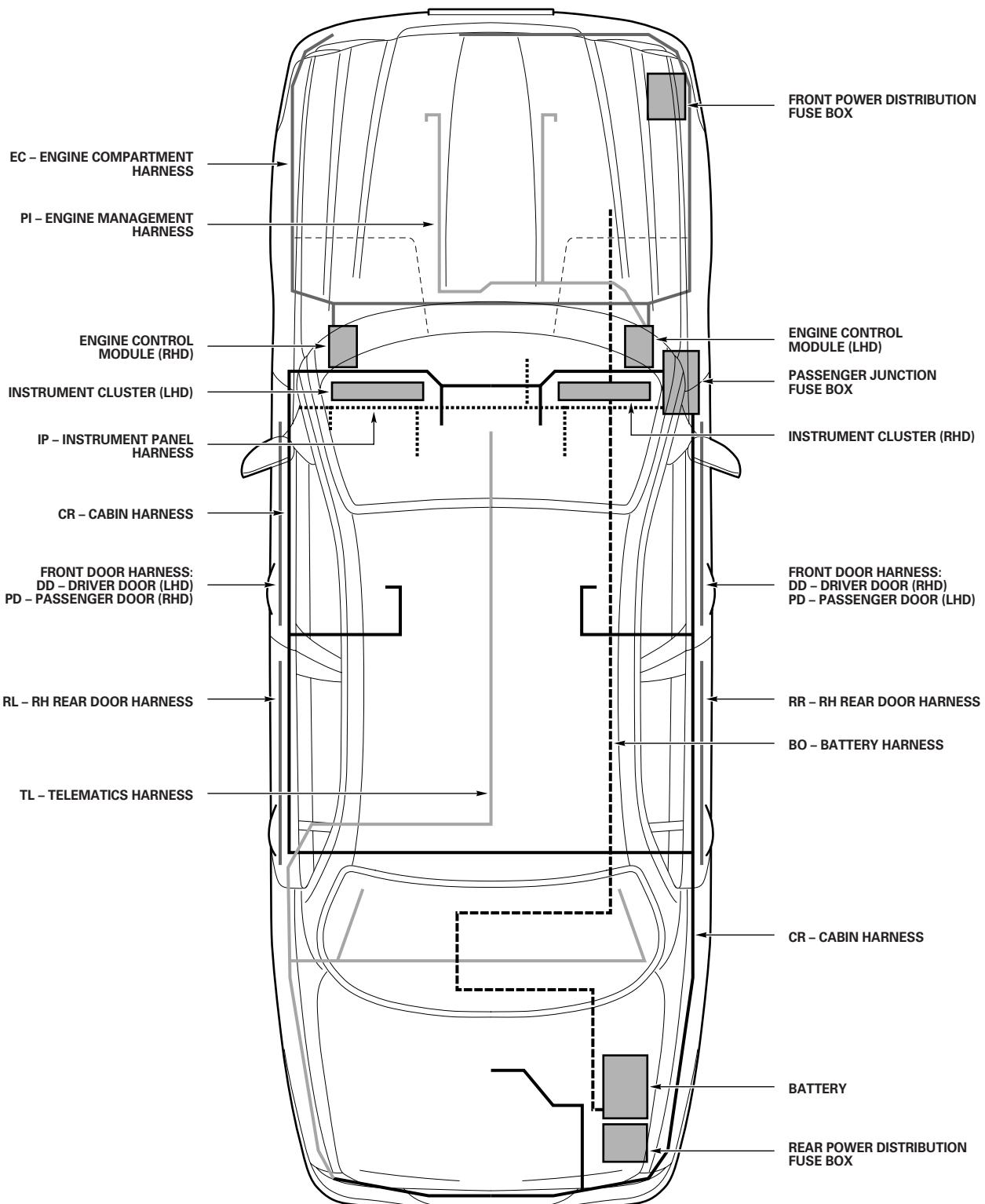
EXAMPLE:

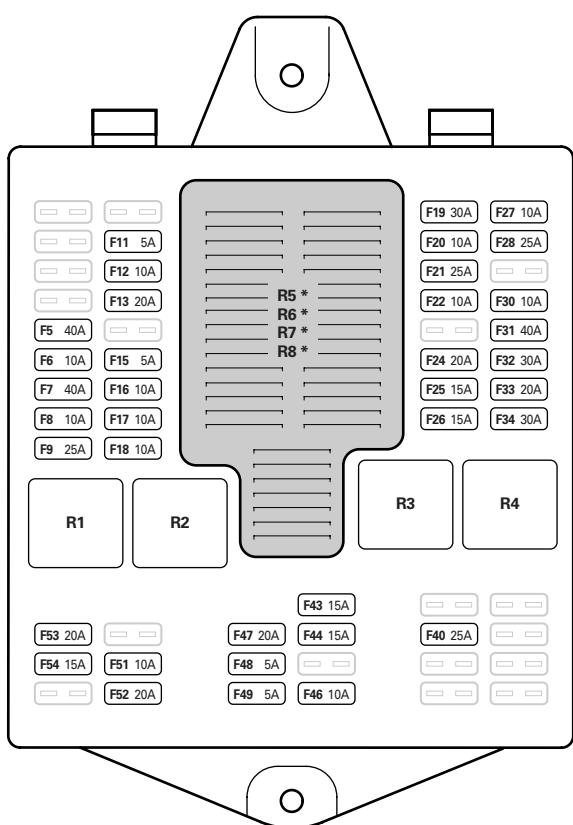
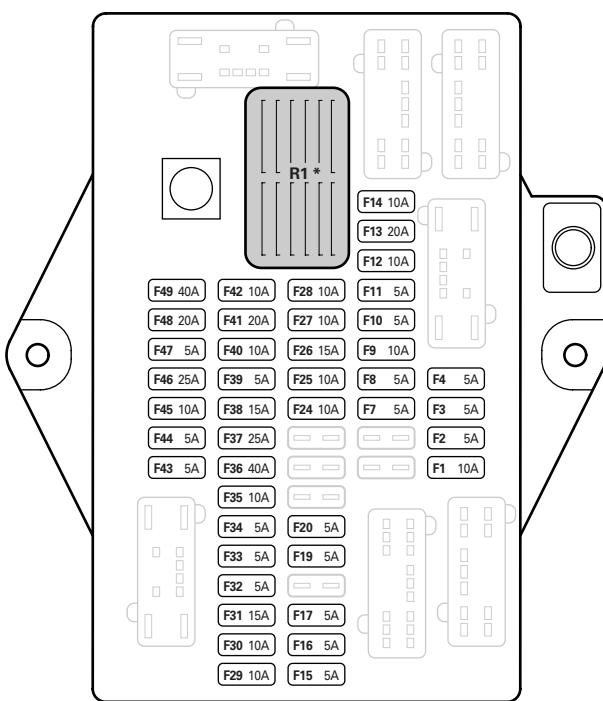
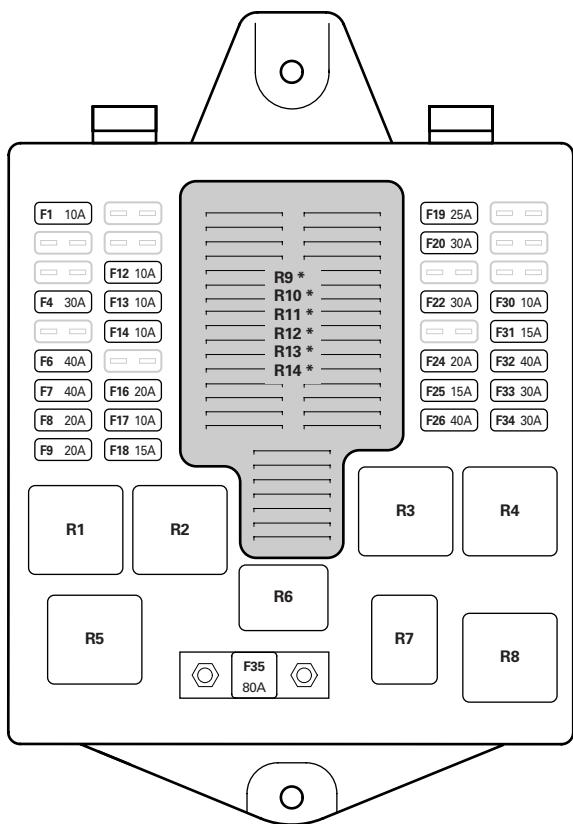


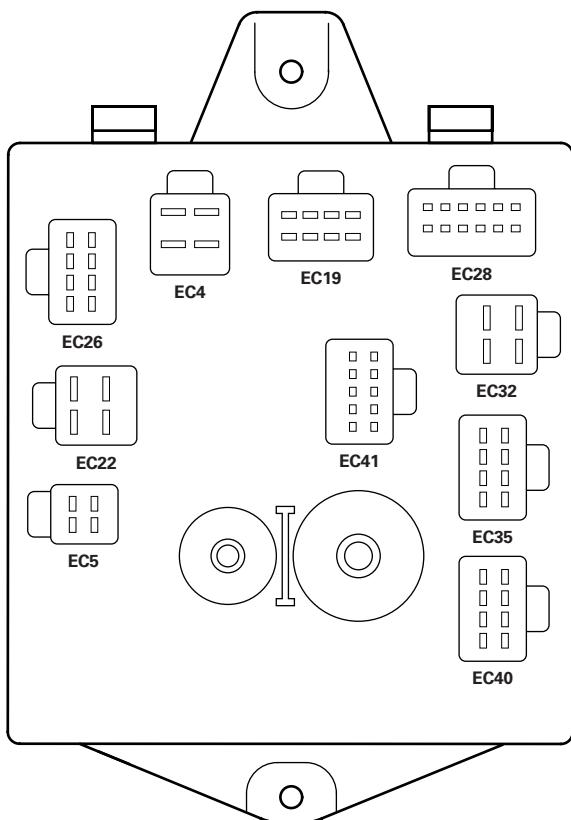


- SERIAL DATA LINK
- - - CAN NETWORK
- - - - SCP NETWORK
- - - - - D2B NETWORK

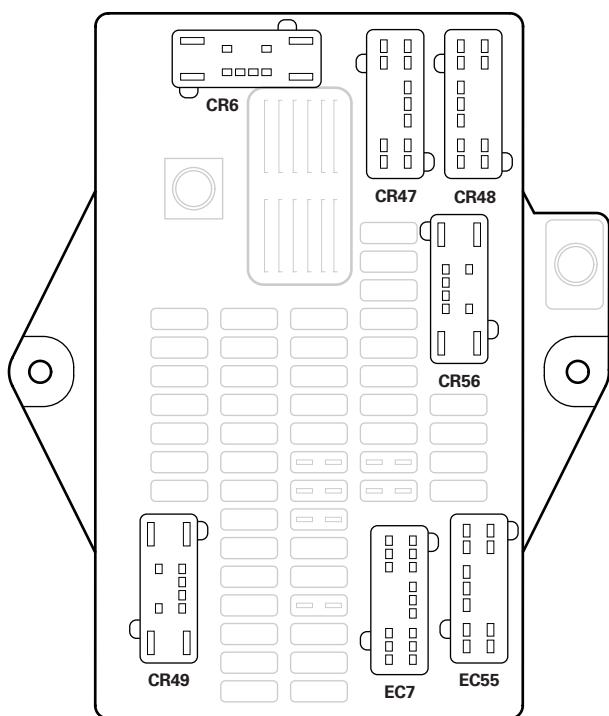
NOTE: TYPICAL XJ RANGE NETWORK CONFIGURATION (FULL OPTION SET).
REFER TO FIGURES 20.1, 20.2, 20.3, AND 20.4 FOR CIRCUIT DETAILS.



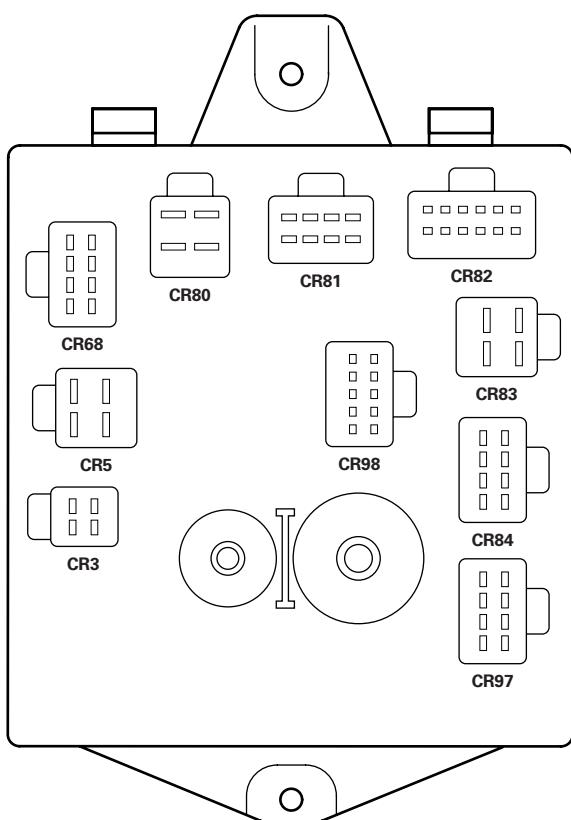




FRONT POWER DISTRIBUTION FUSE BOX



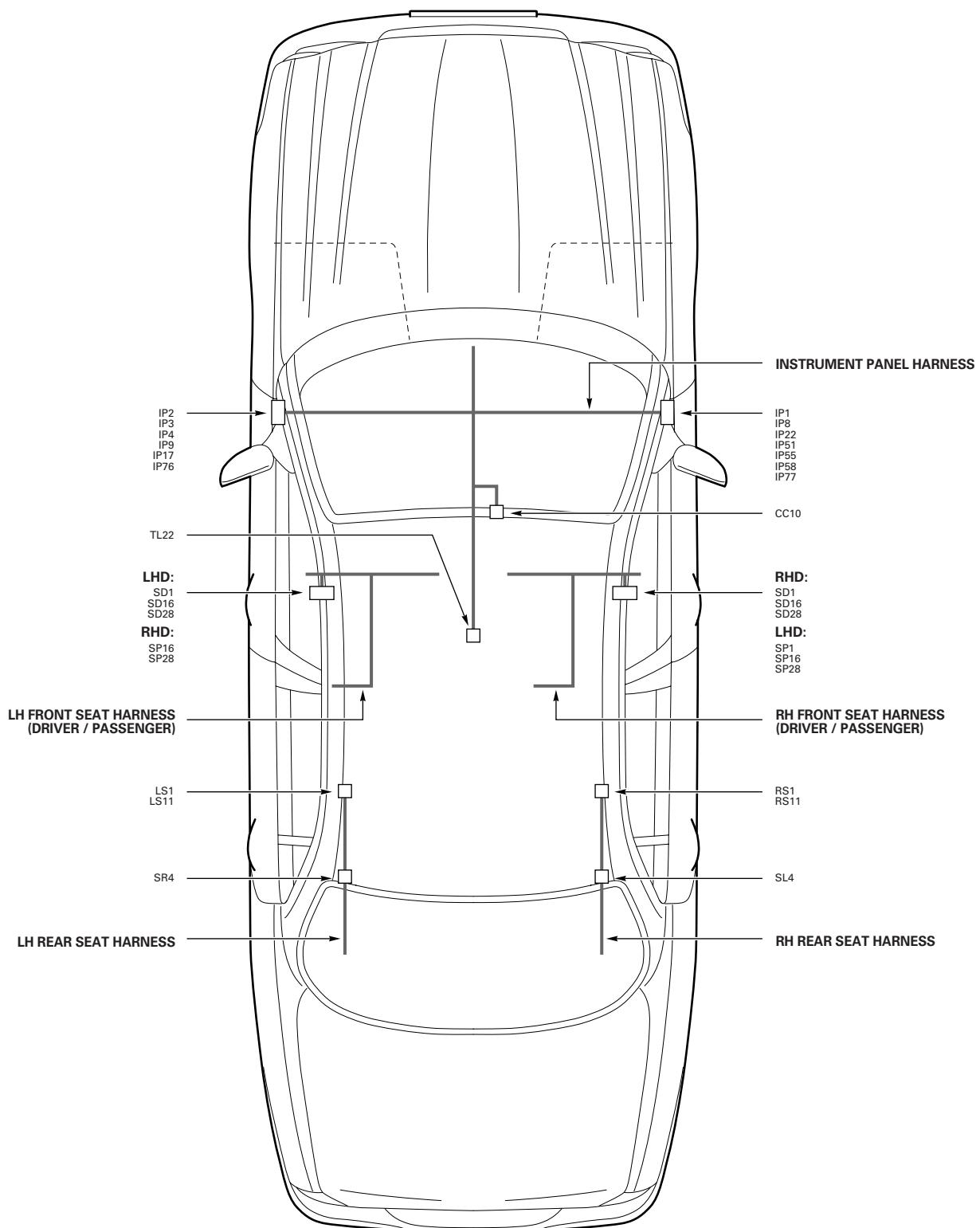
PASSENGER JUNCTION FUSE BOX



REAR POWER DISTRIBUTION FUSE BOX

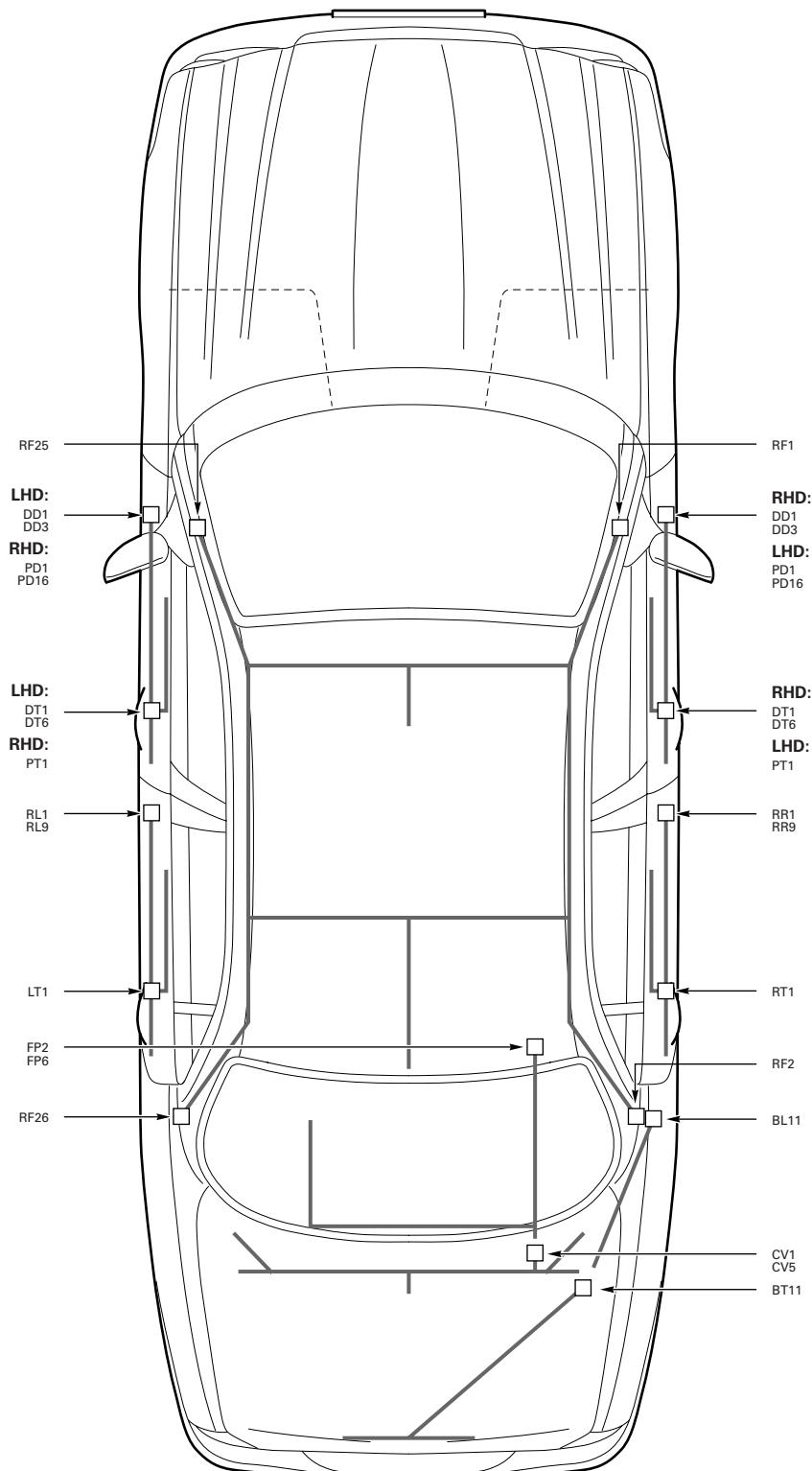


Instrument Panel and Seat Harnesses



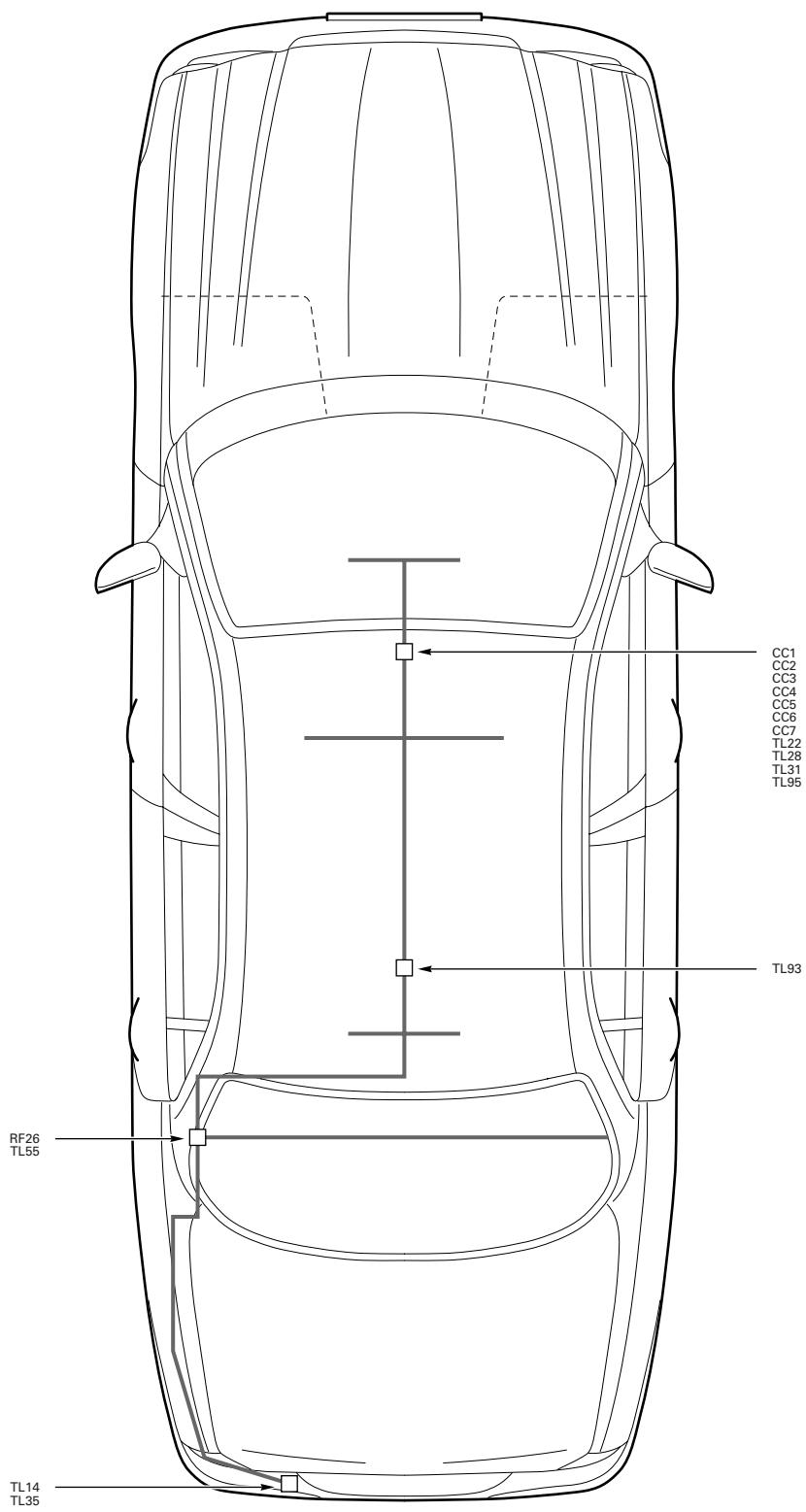


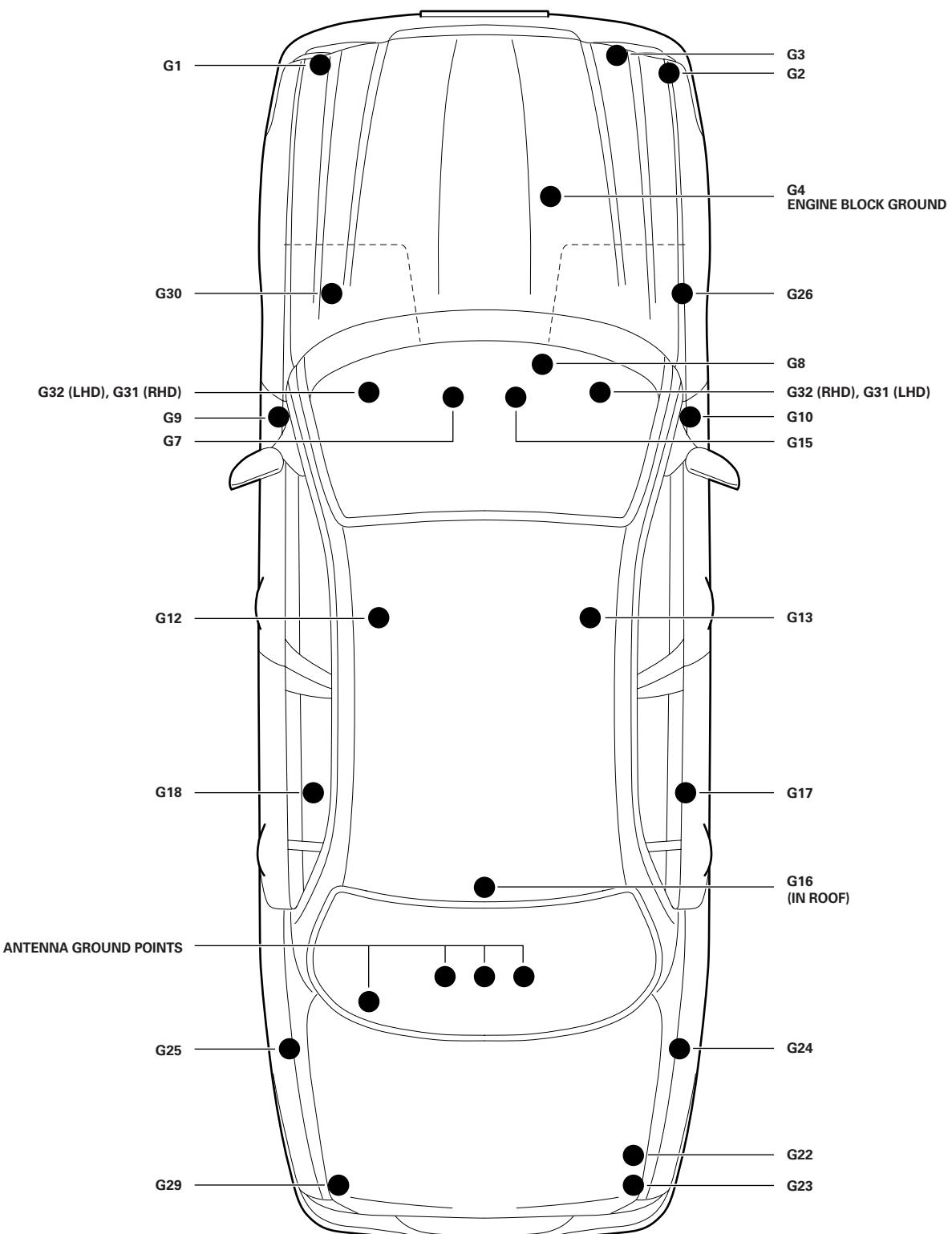
Small Harnesses





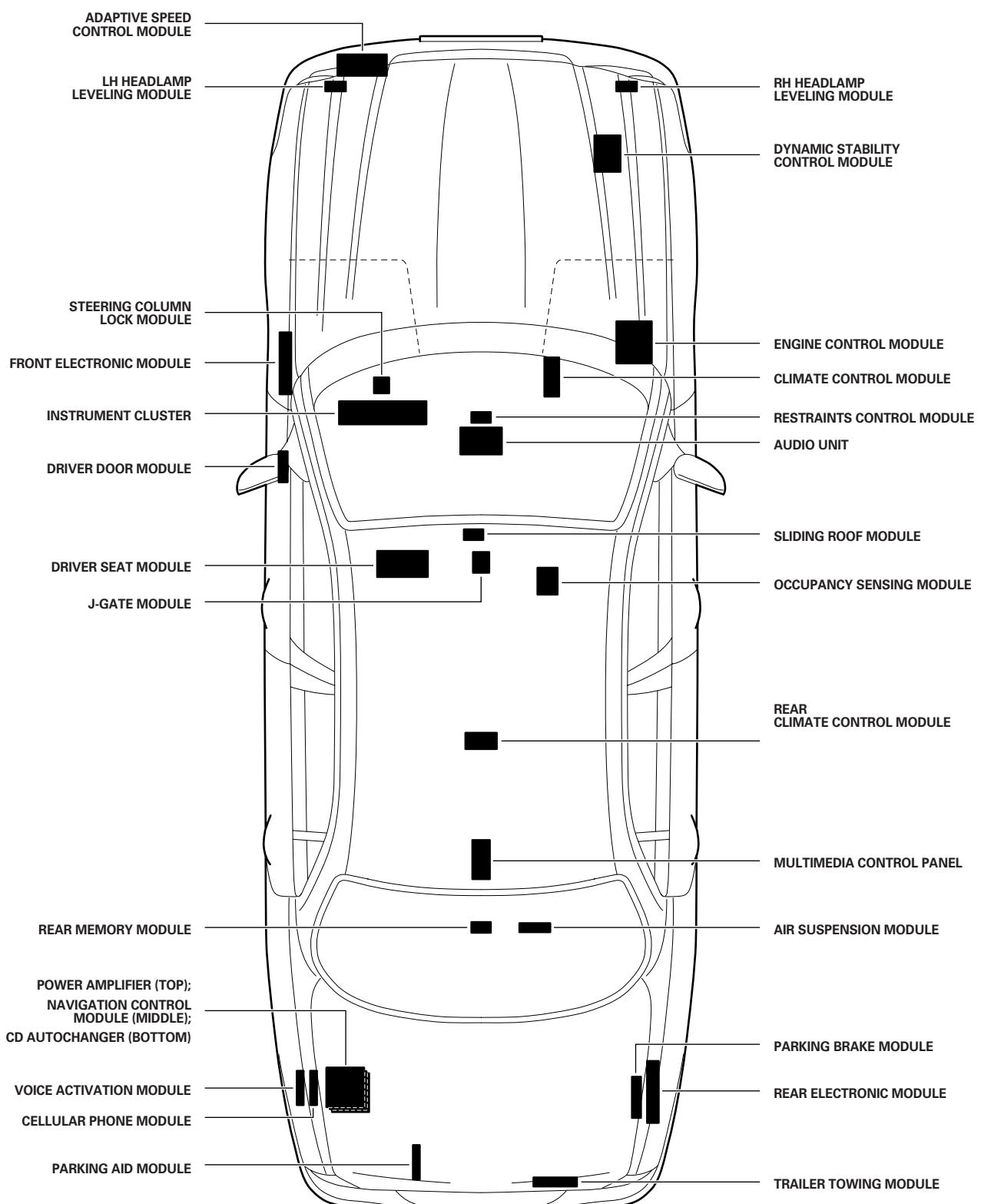
Telematics Harness





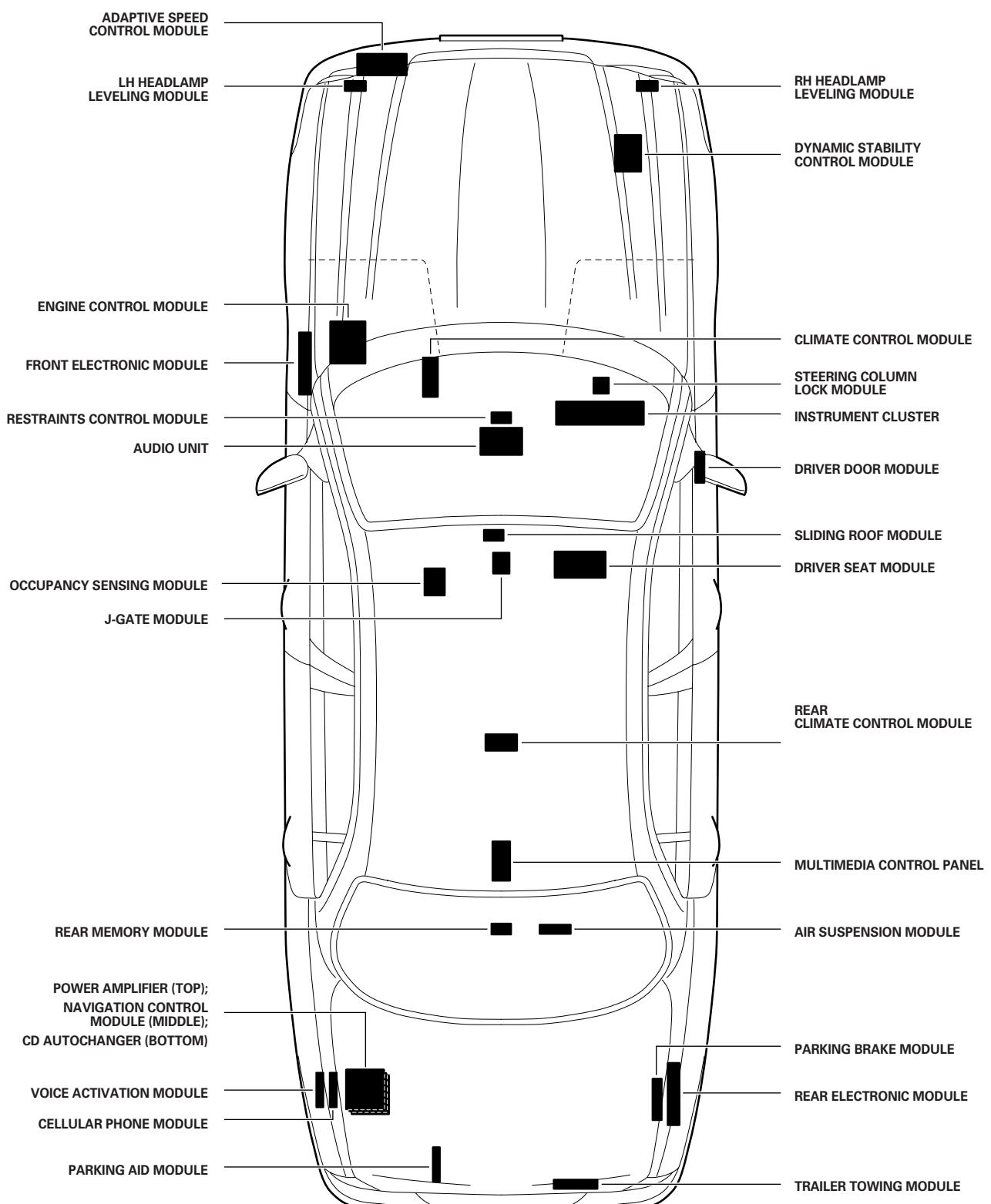


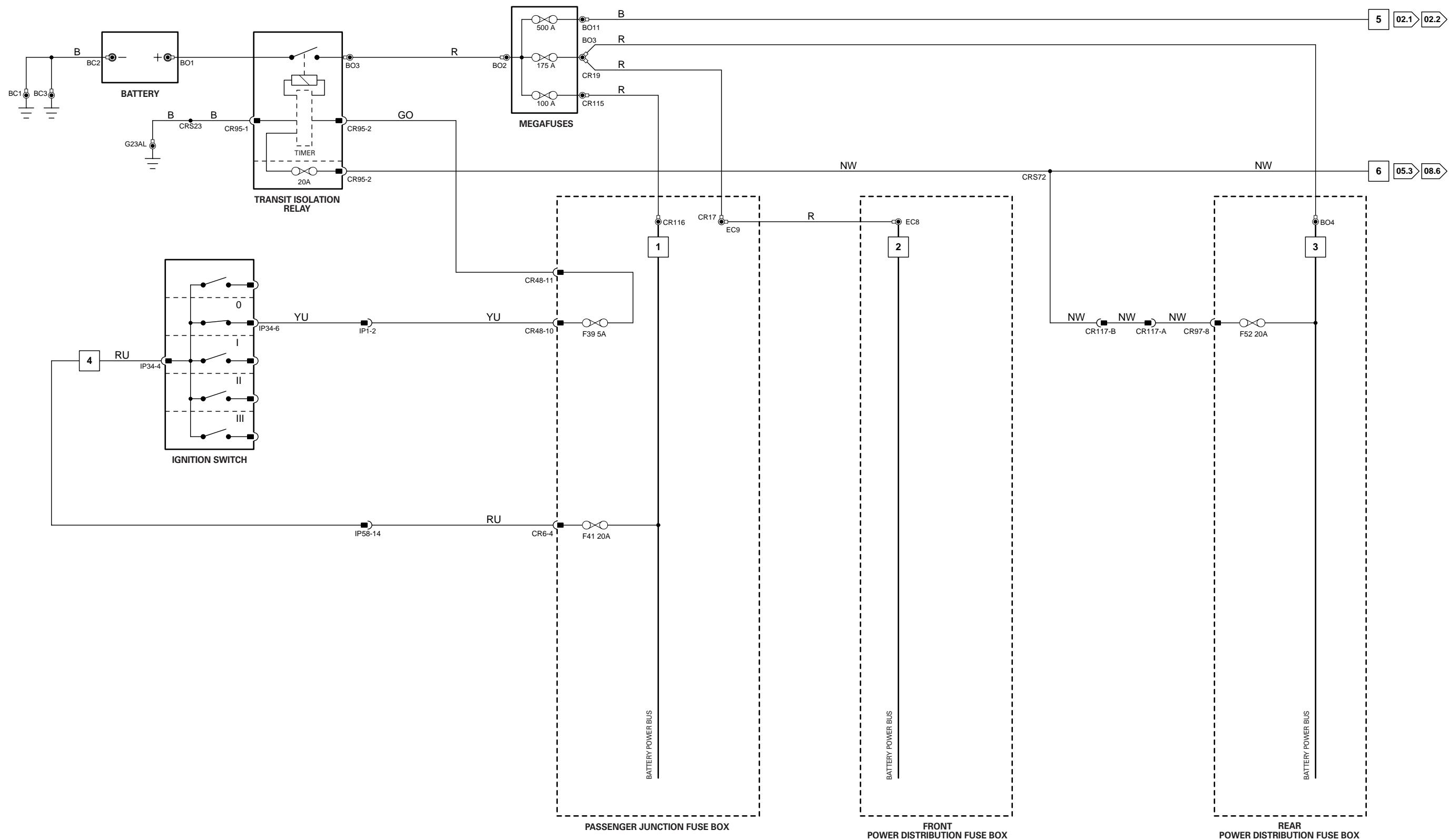
LHD

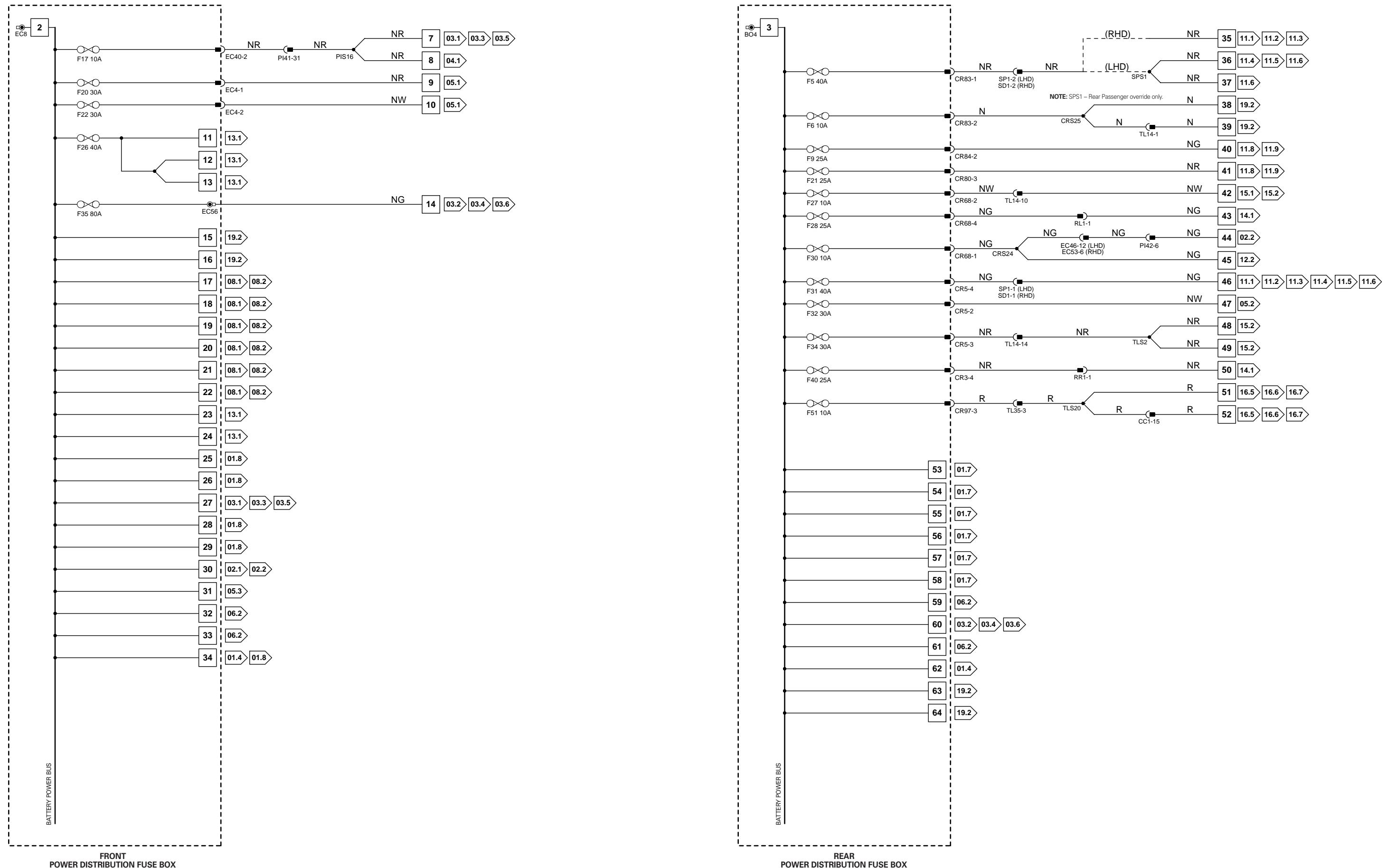


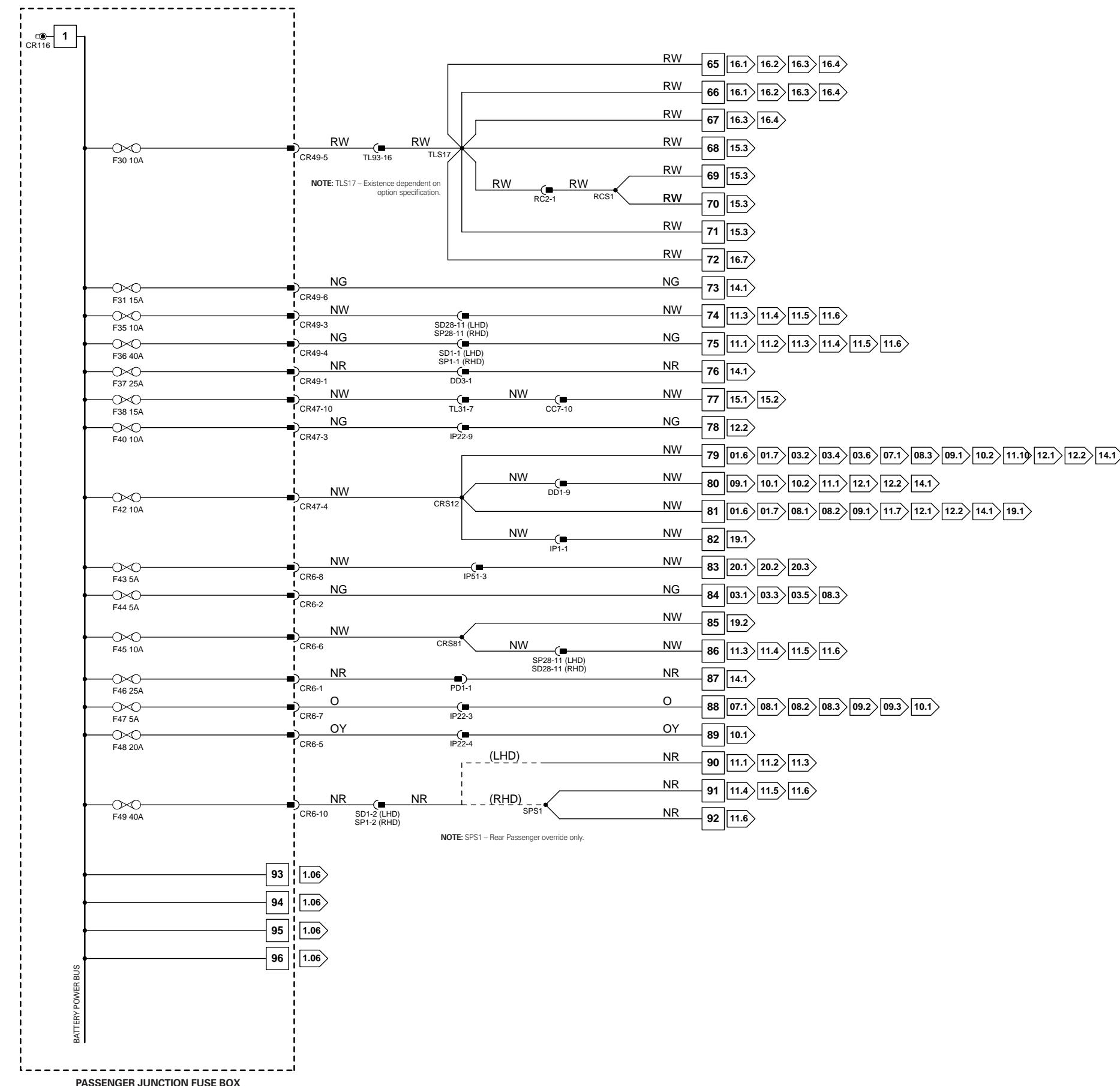


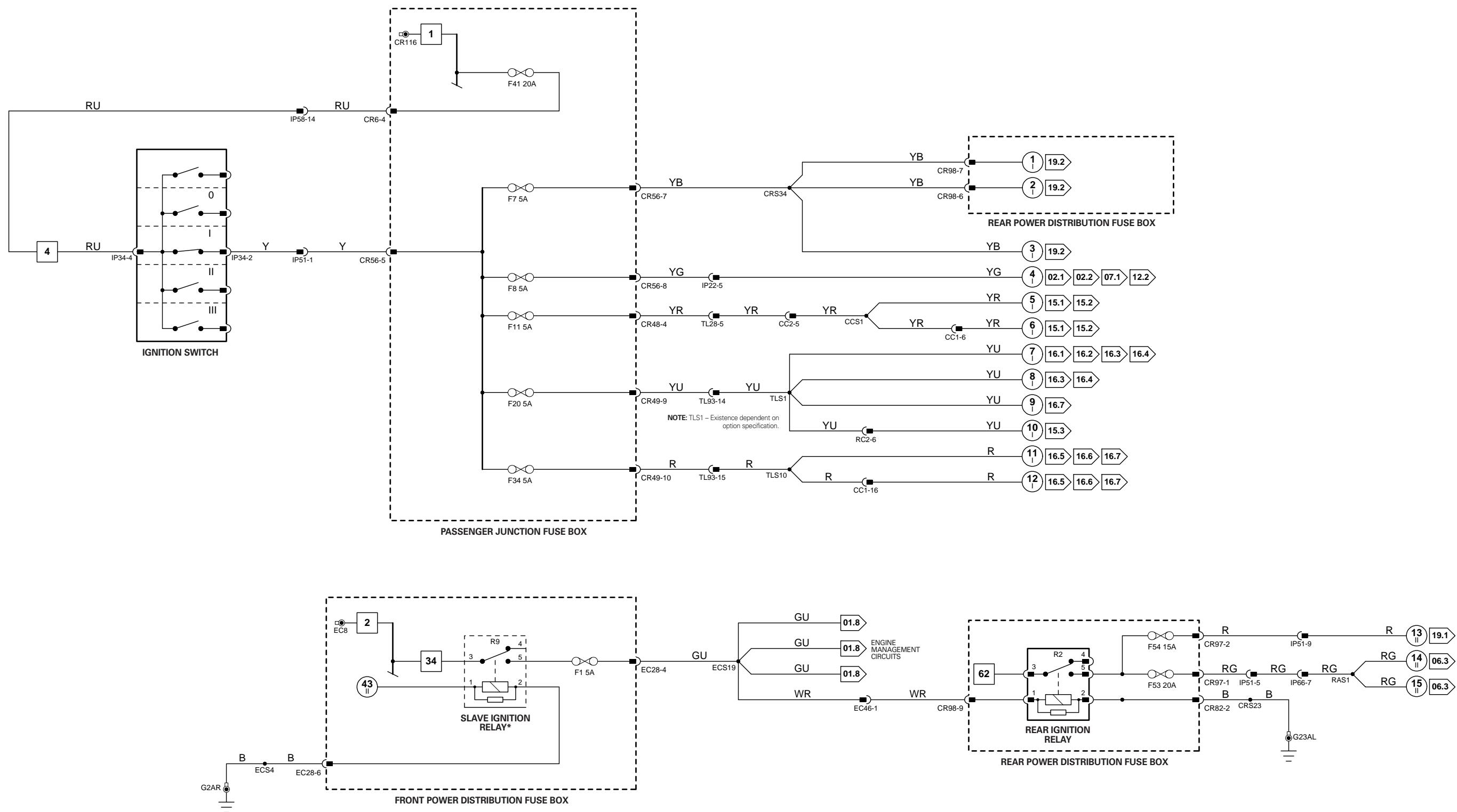
RHD



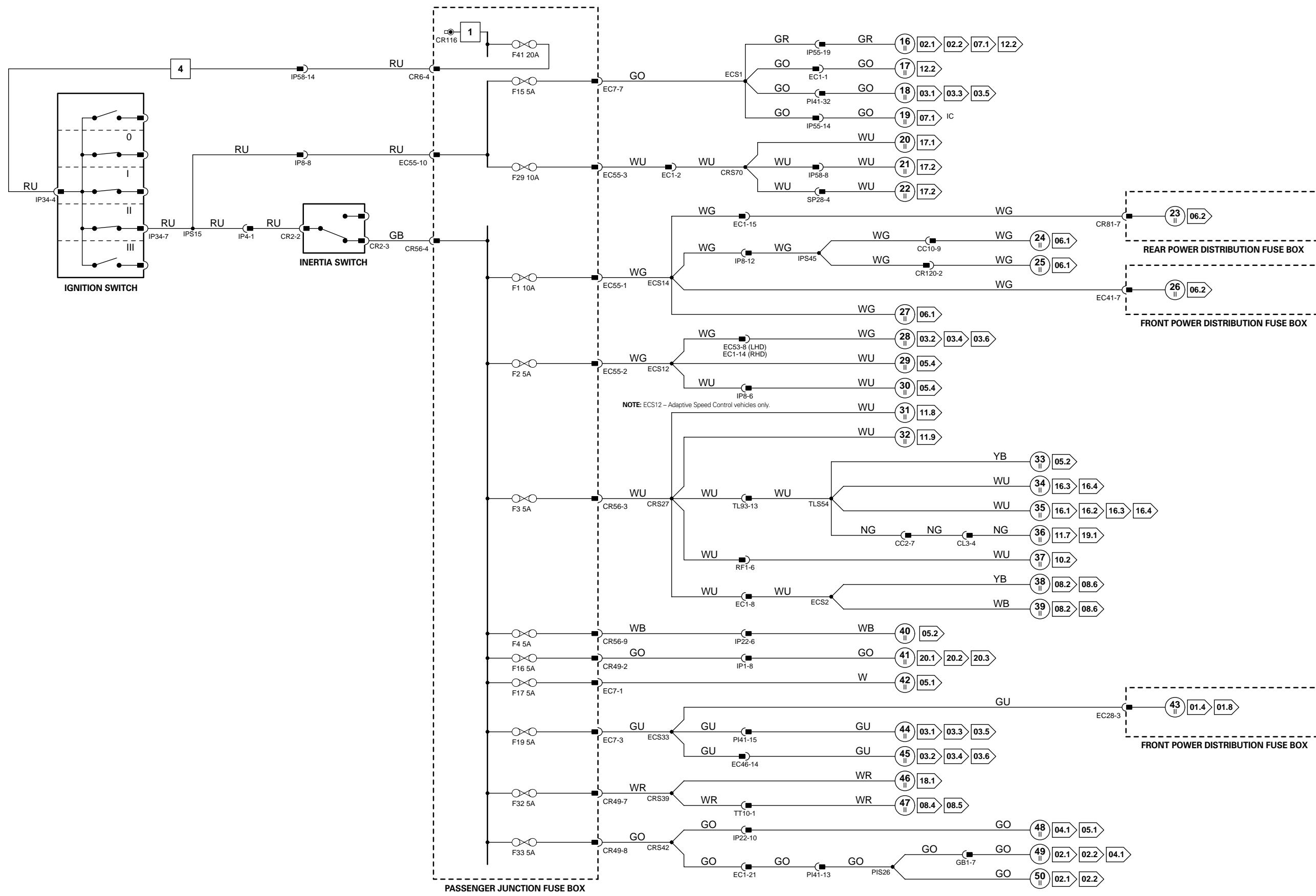






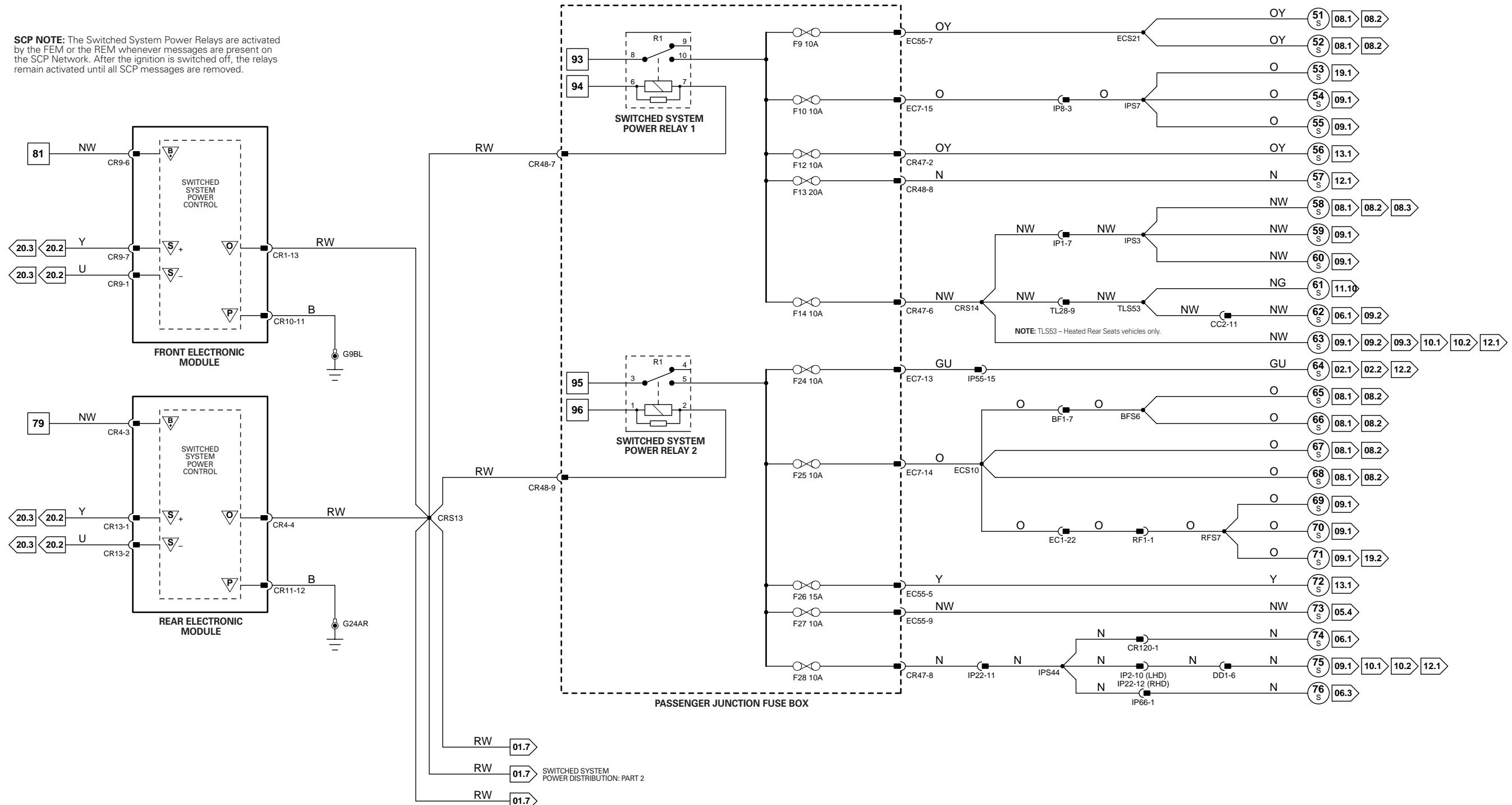


***NOTE:** Refer to Fig. 01.8 for complete Slave Ignition Relay circuit details.



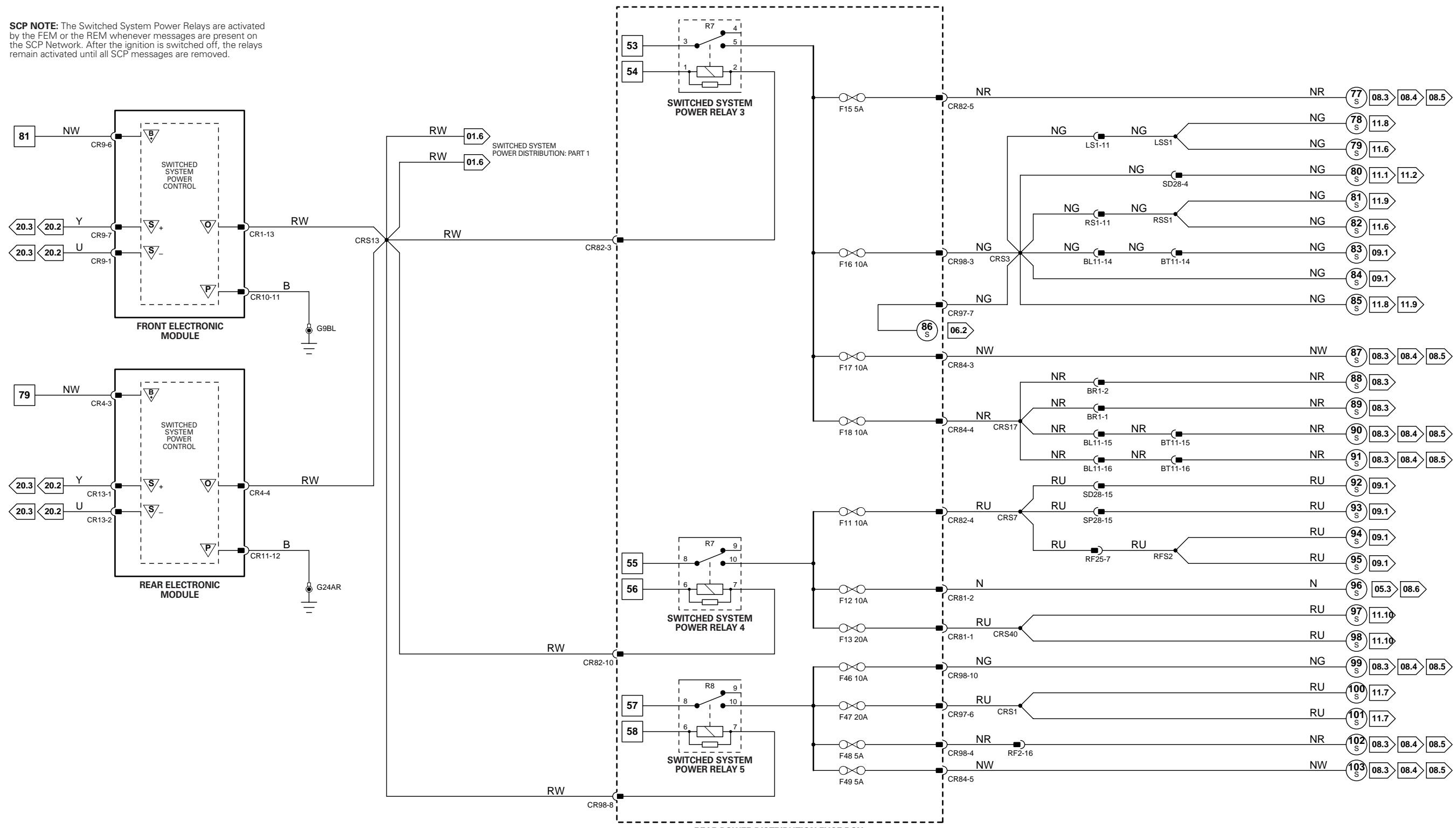


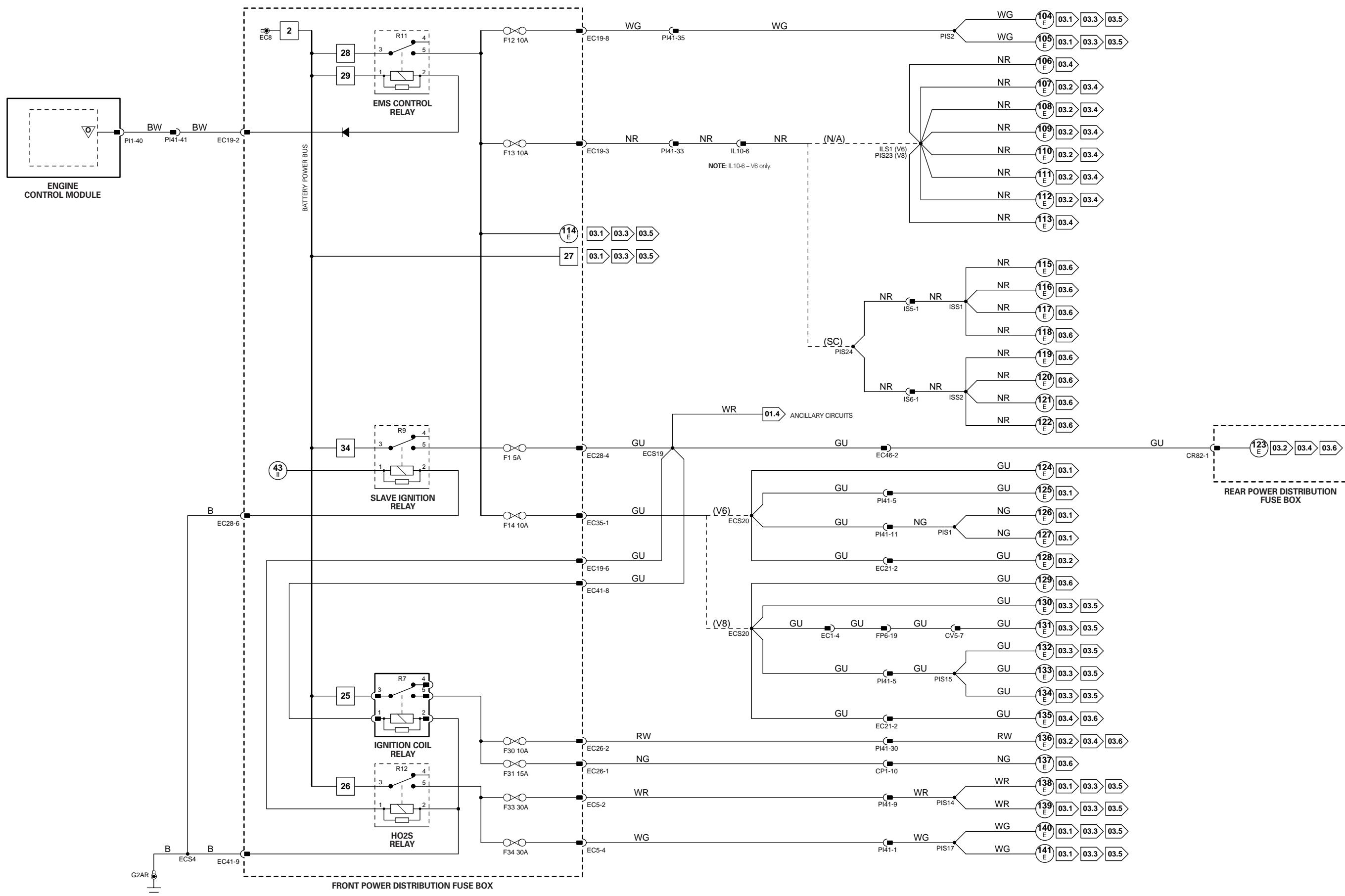
SCP NOTE: The Switched System Power Relays are activated by the FEM or the REM whenever messages are present on the SCP Network. After the ignition is switched off, the relays remain activated until all SCP messages are removed.

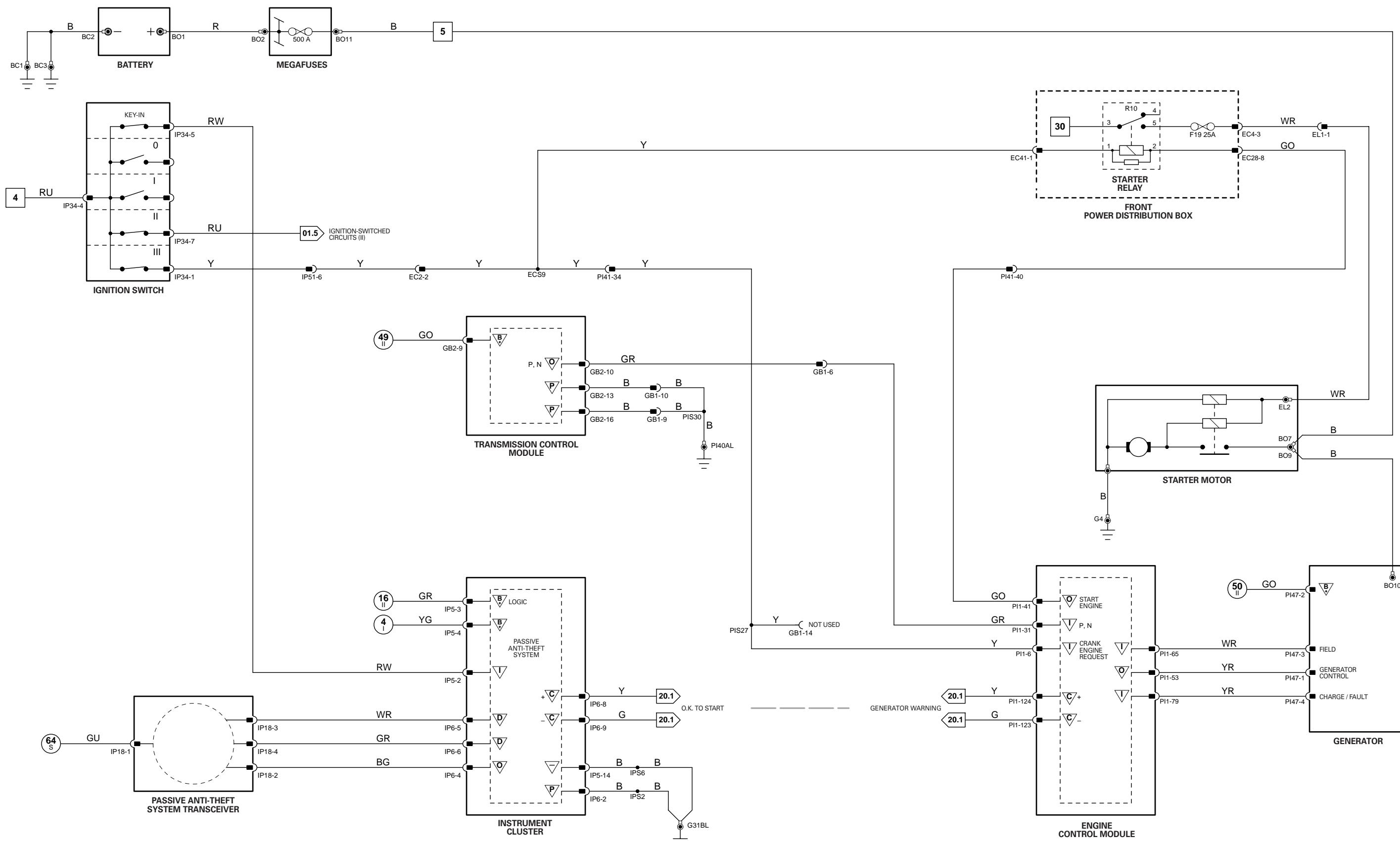


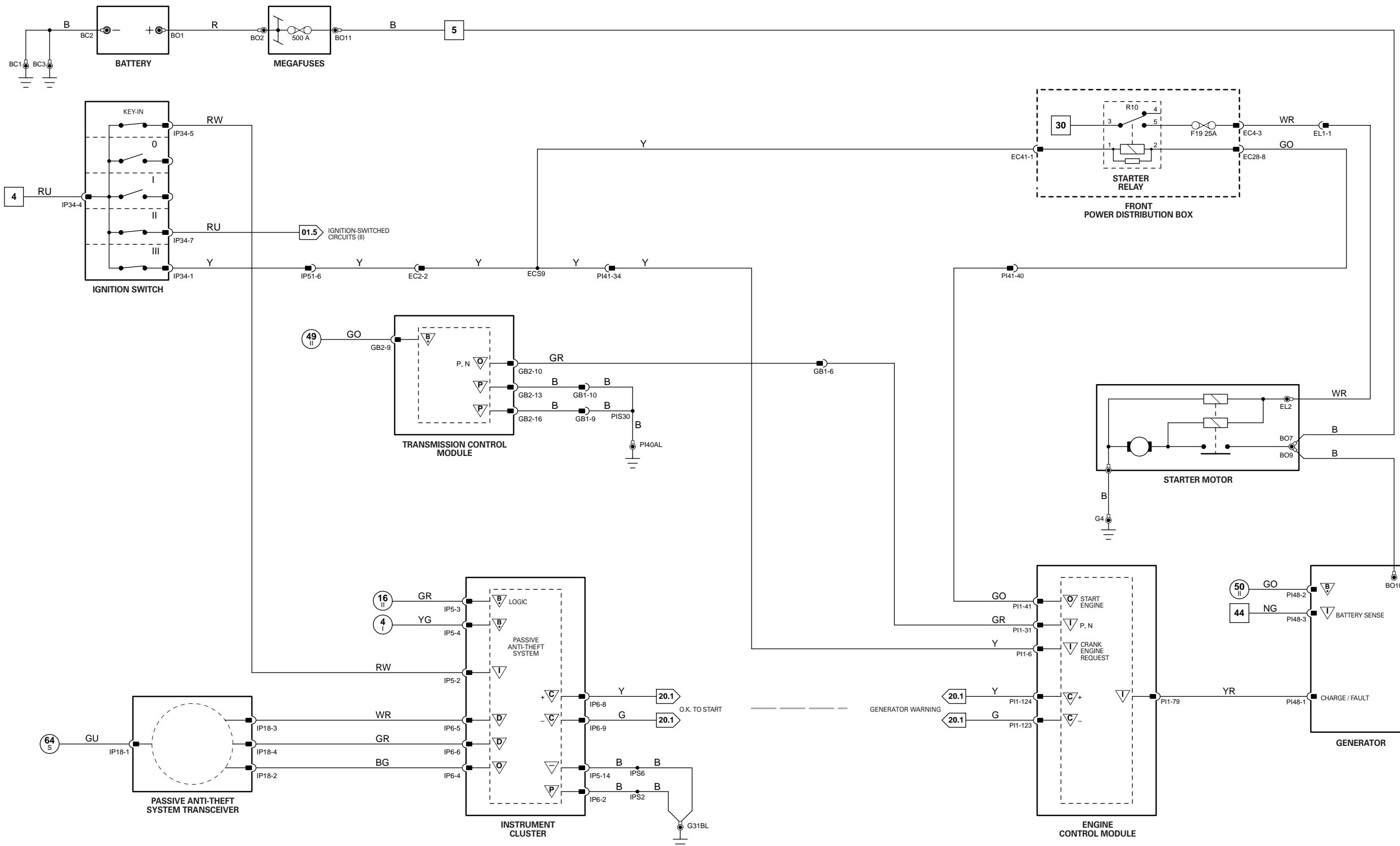


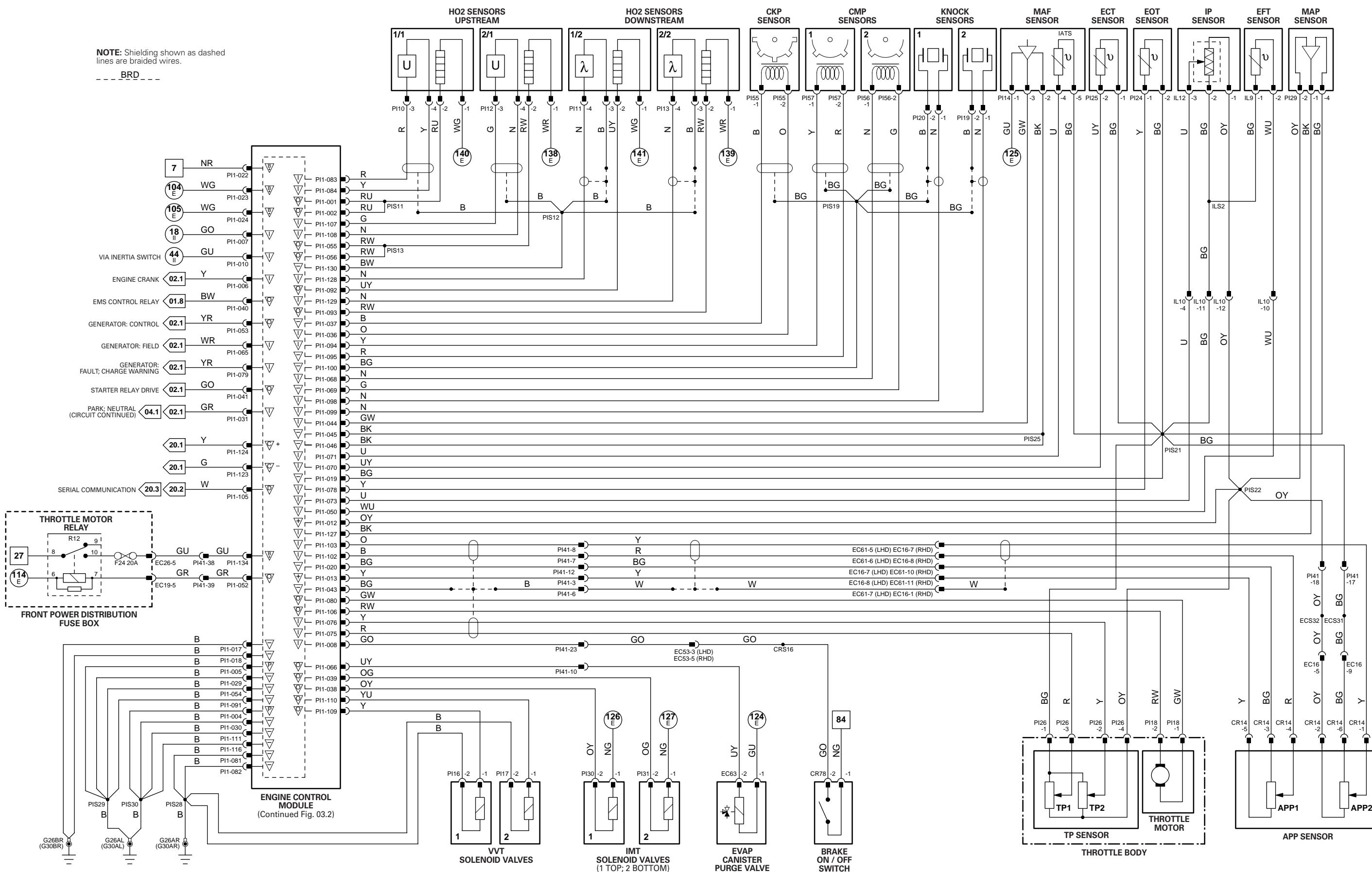
SCP NOTE: The Switched System Power Relays are activated by the FEM or the REM whenever messages are present on the SCP Network. After the ignition is switched off, the relays remain activated until all SCP messages are removed.

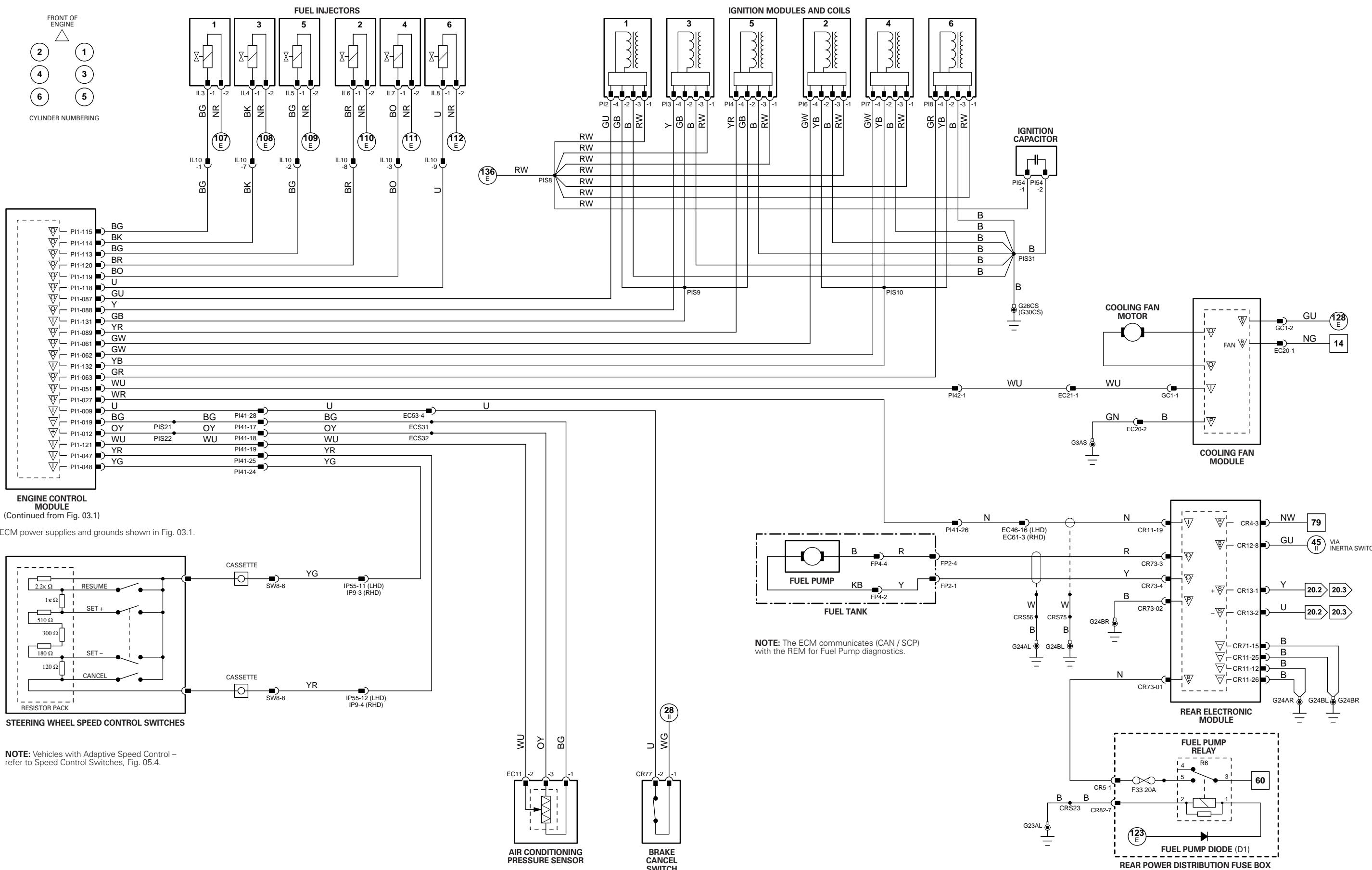


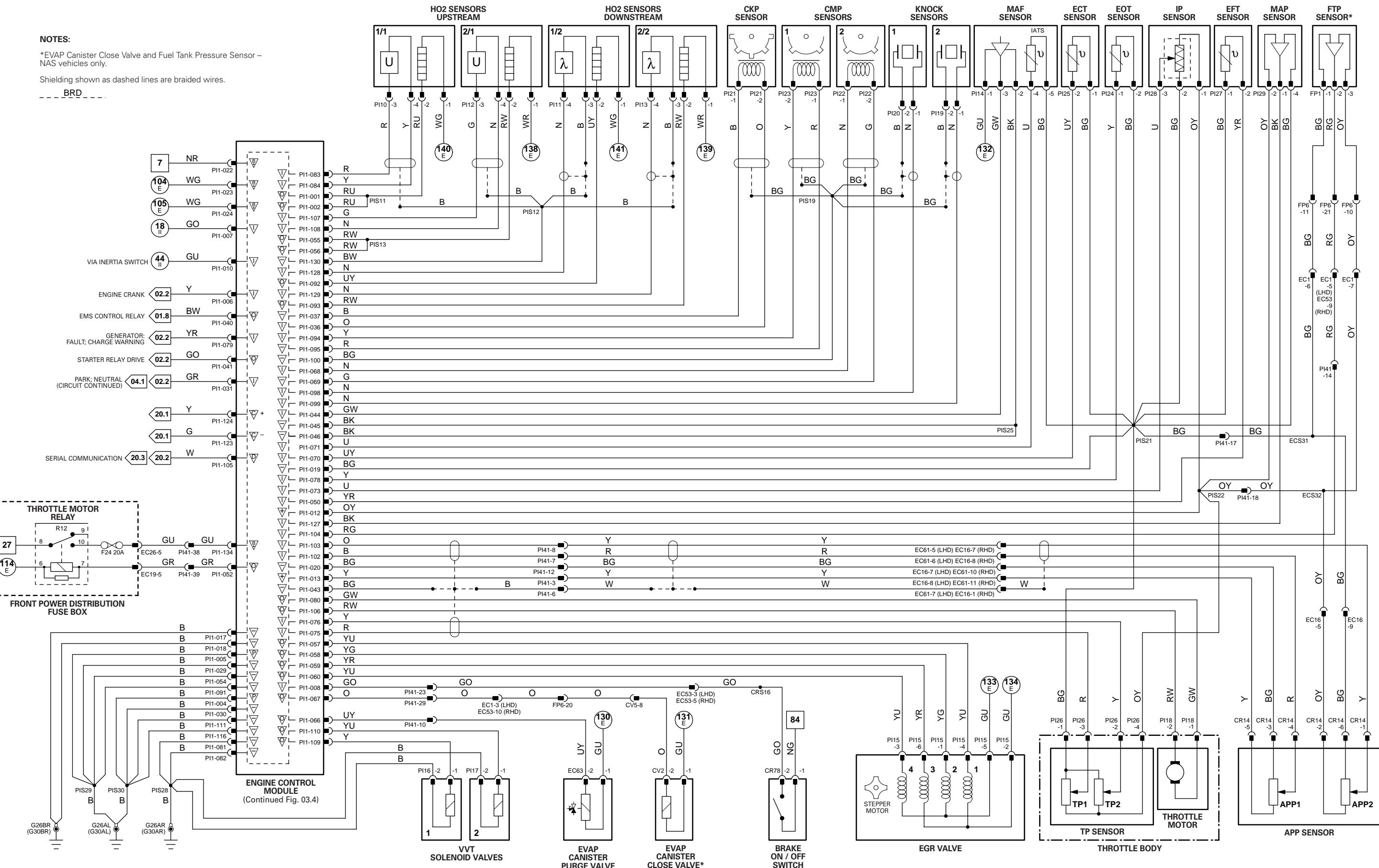


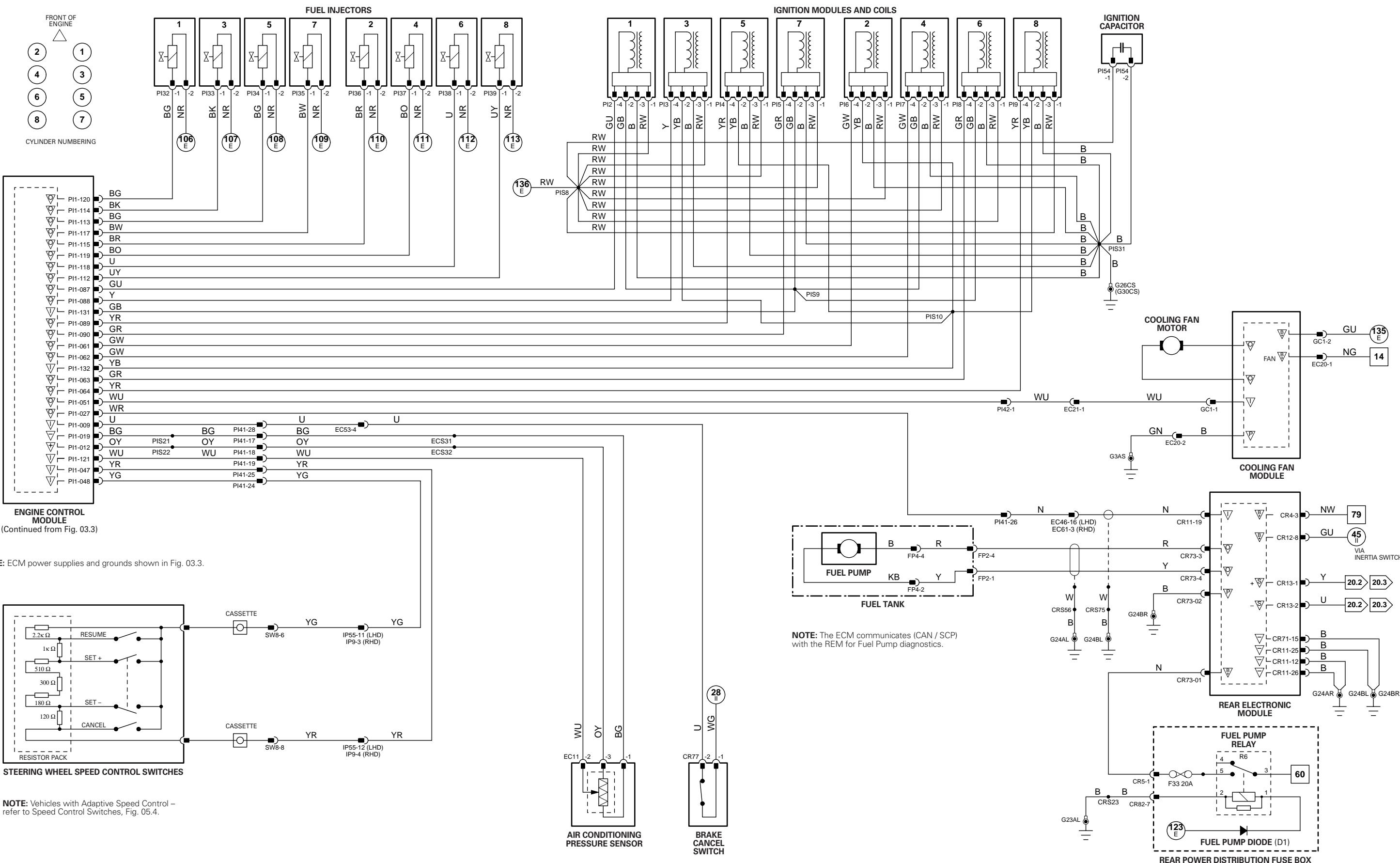


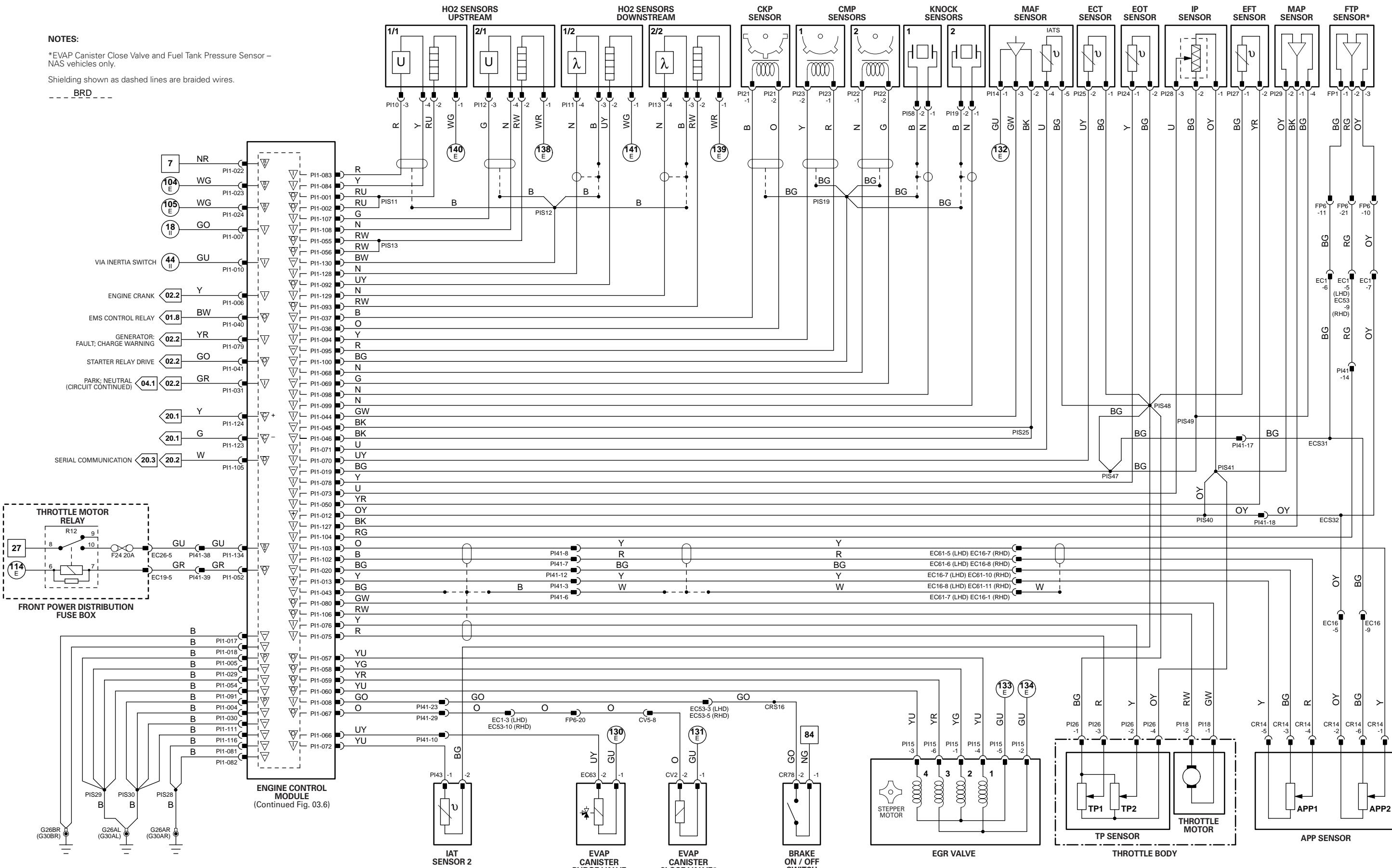


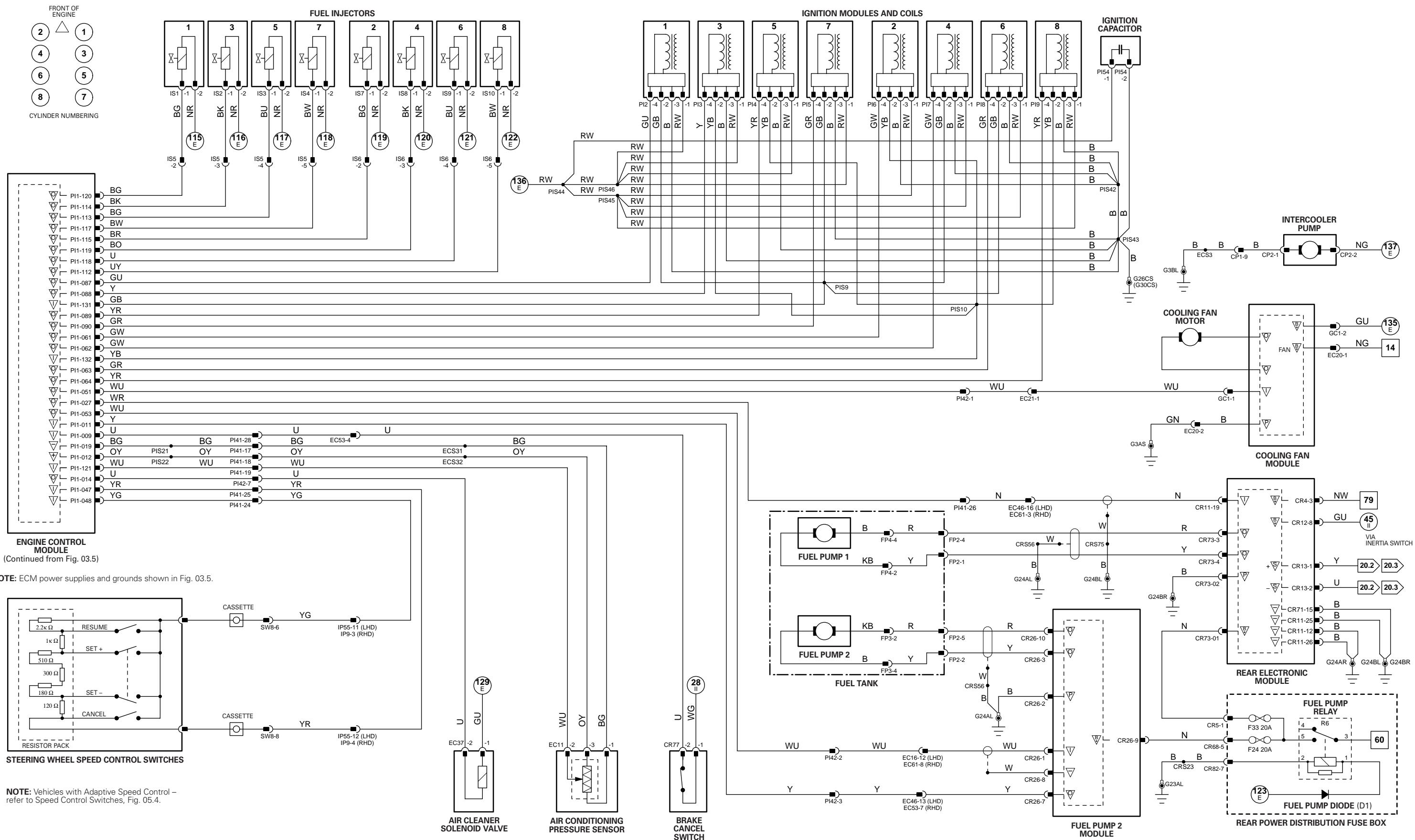


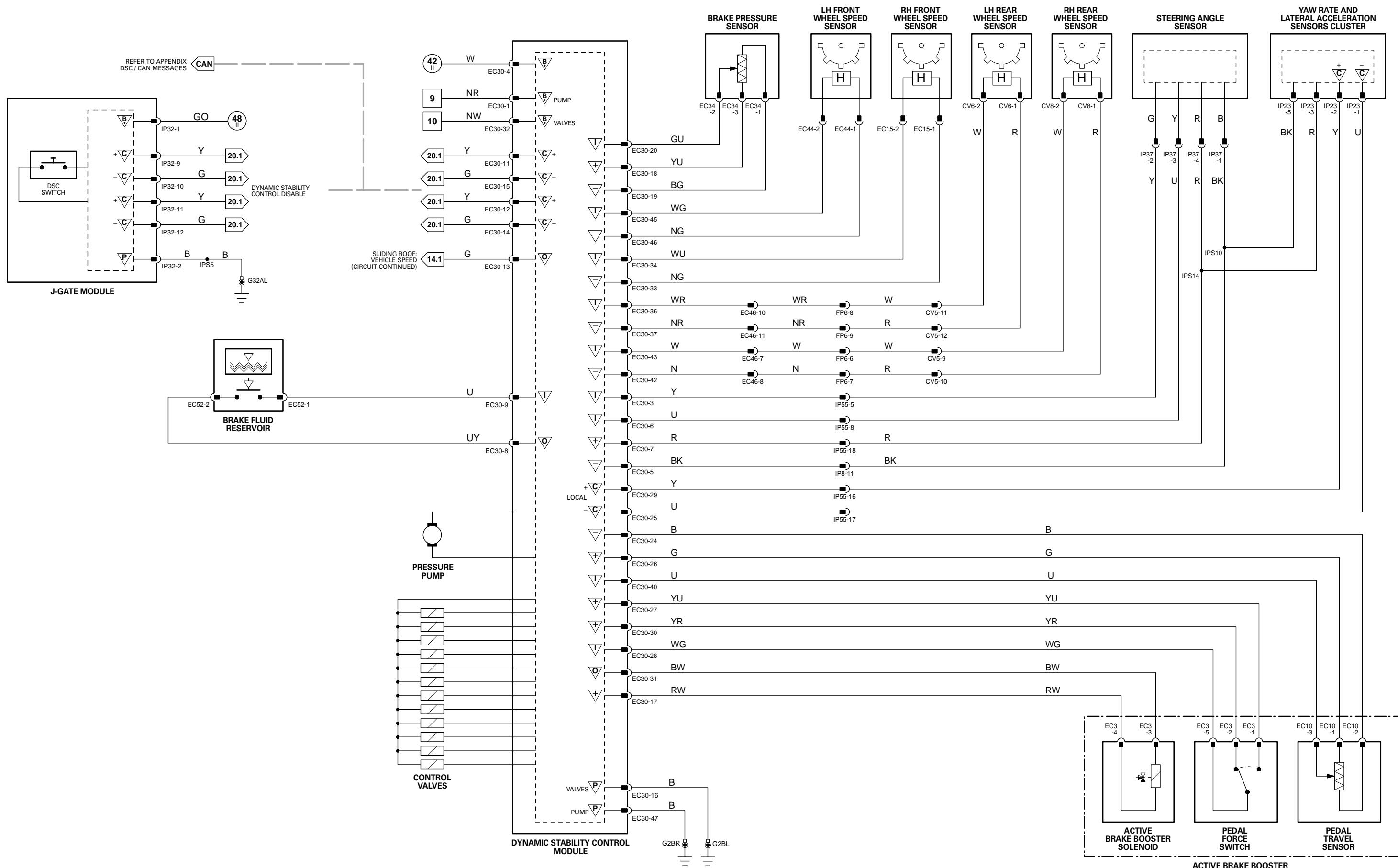


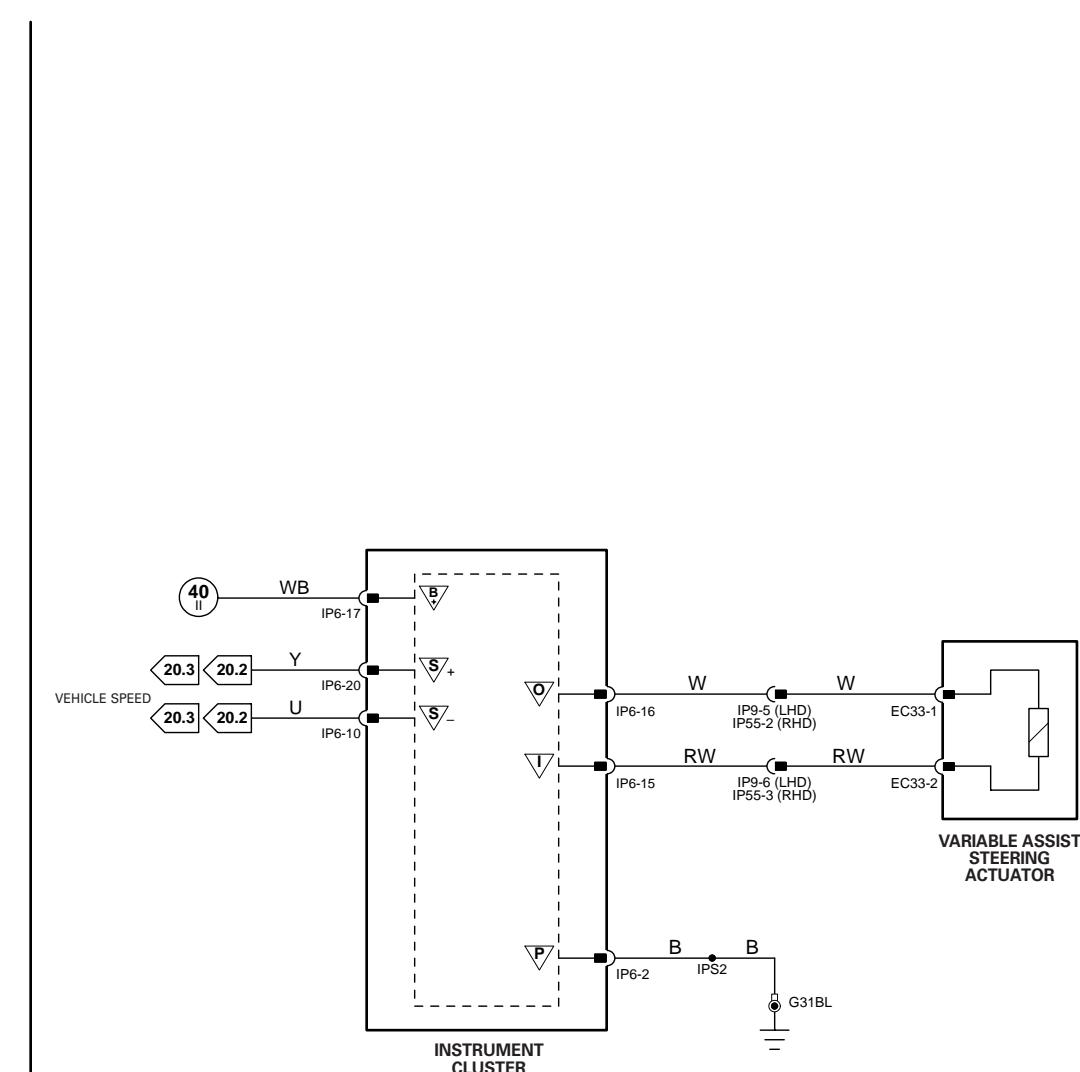
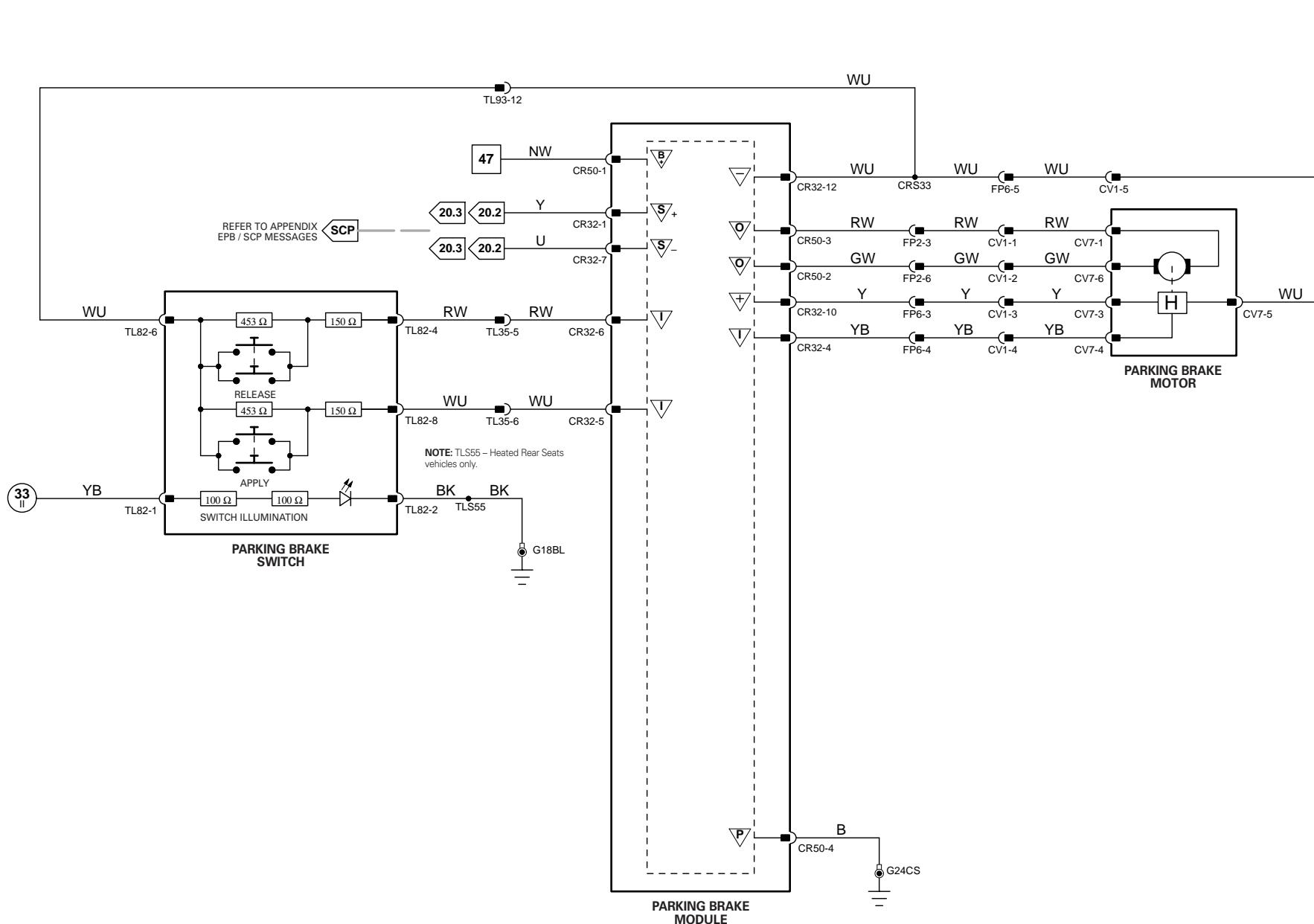






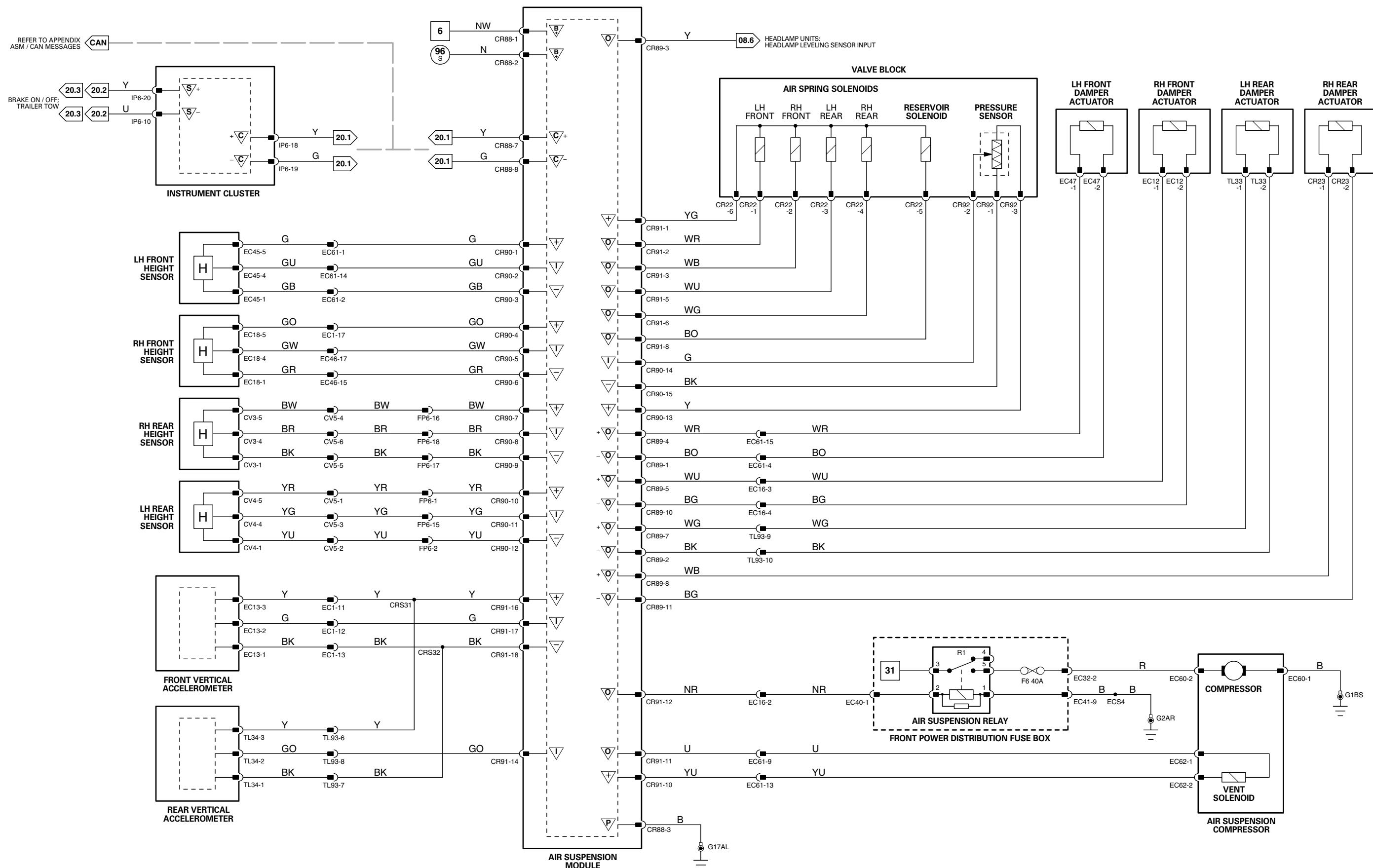


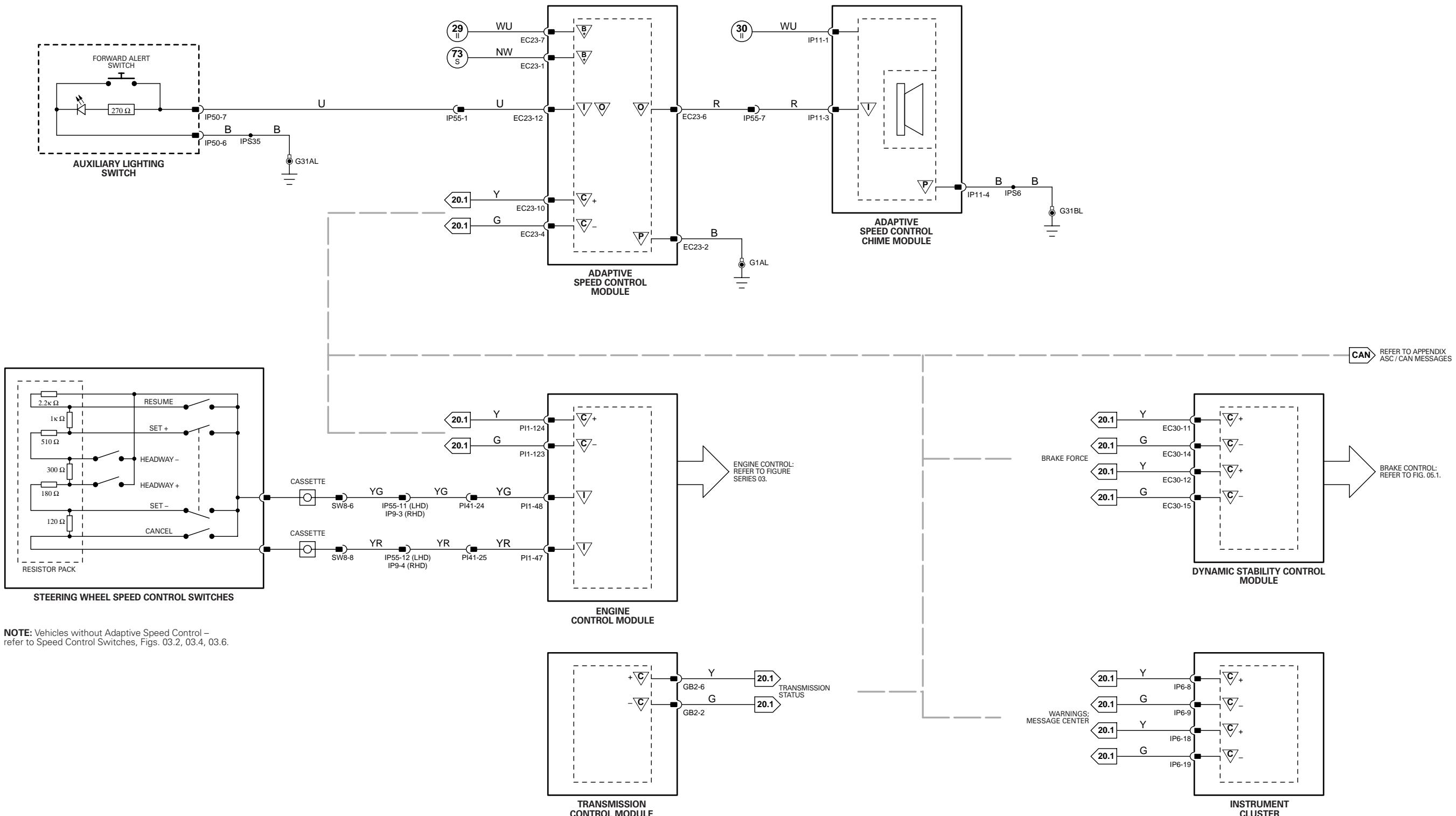




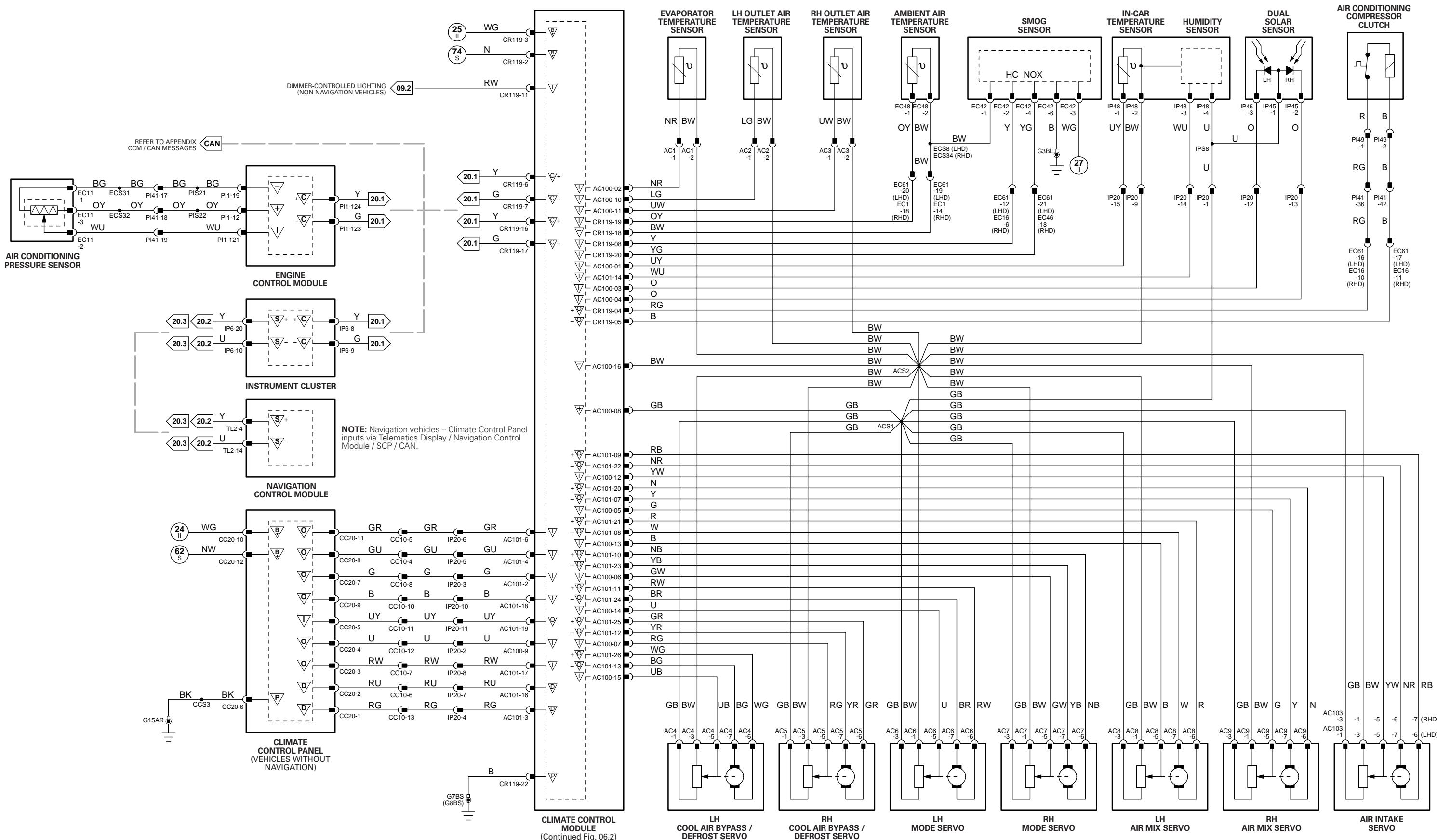
ELECTRONIC PARKING BRAKE

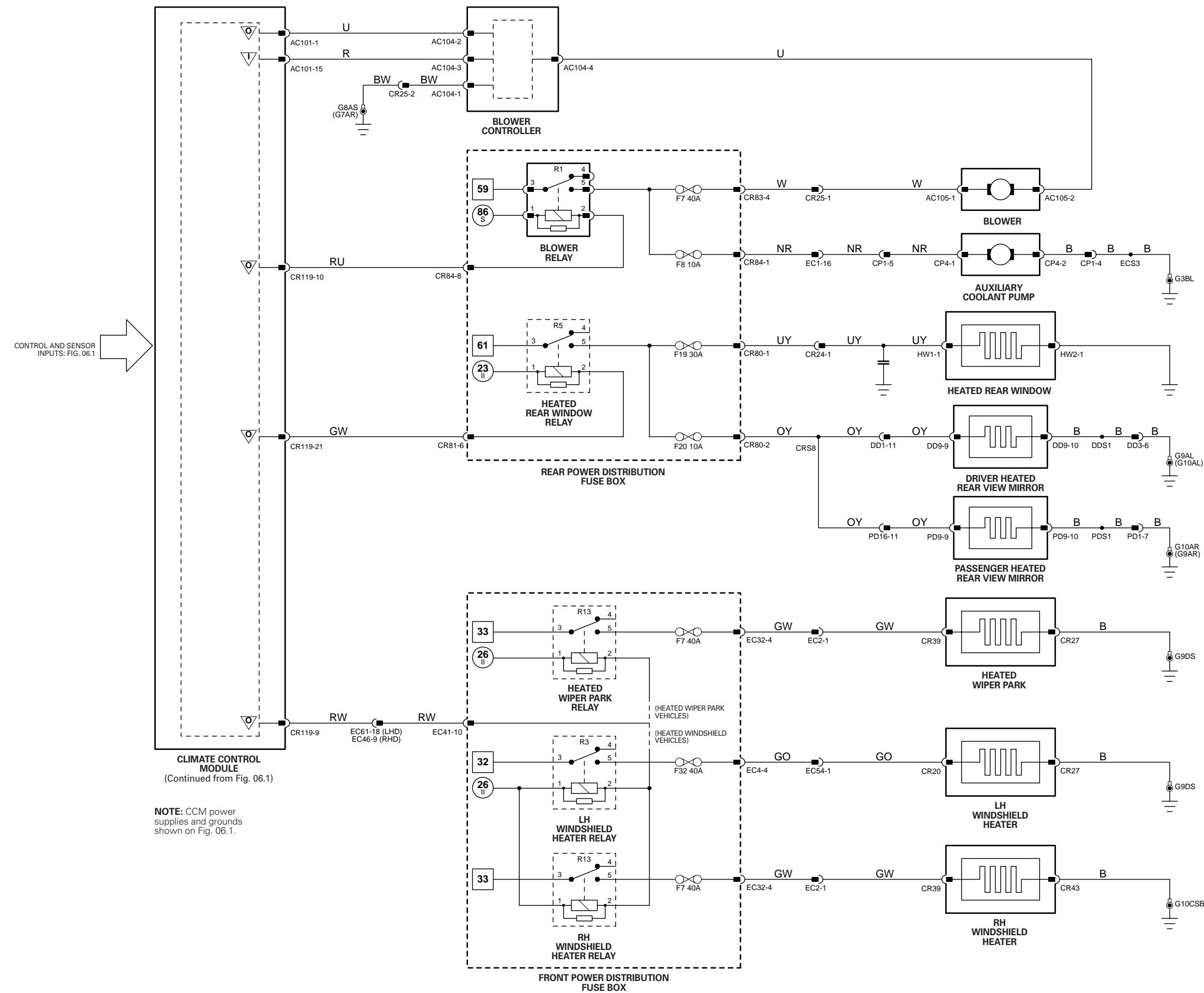
VARIABLE ASSIST POWER STEERING

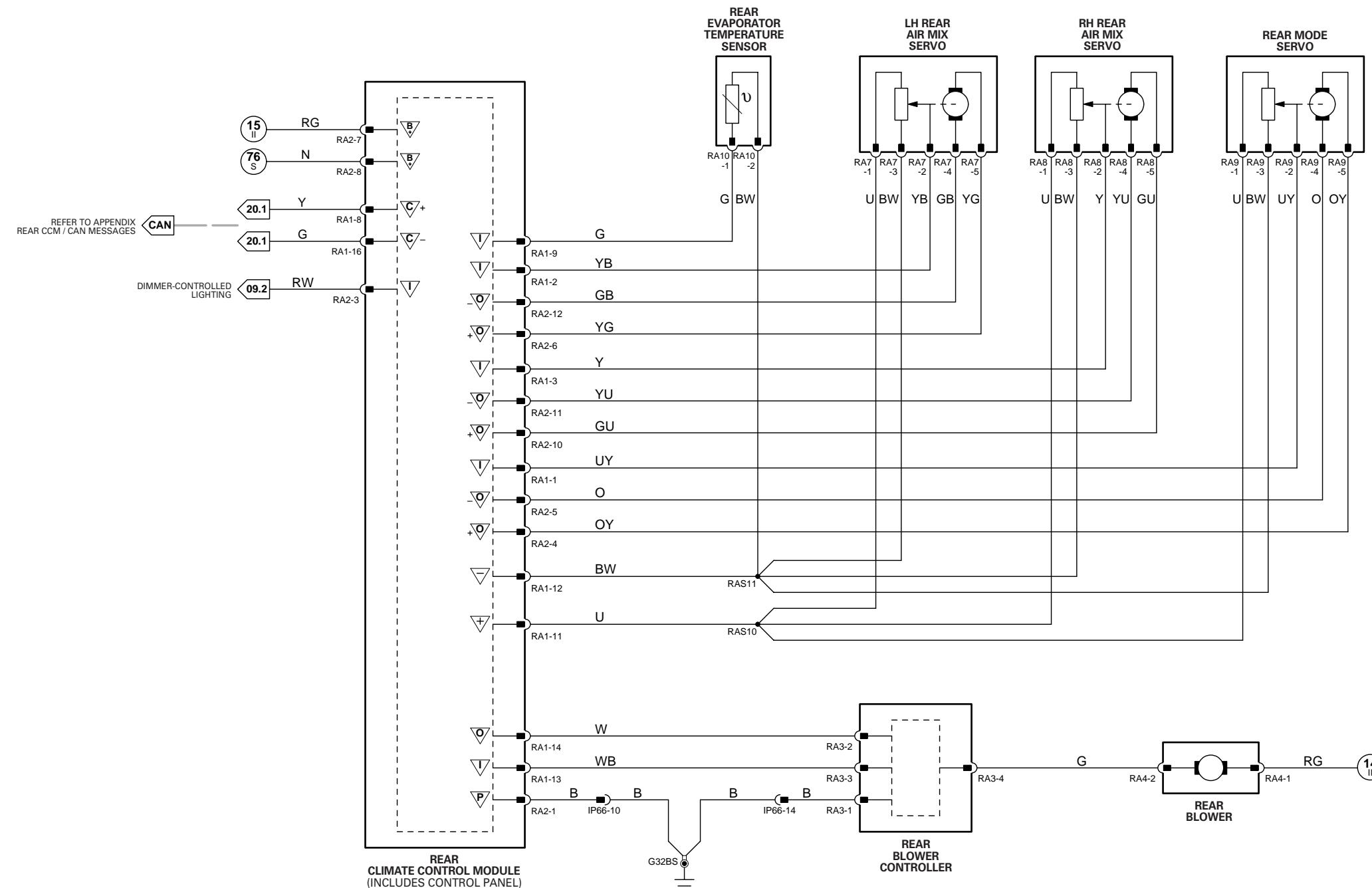


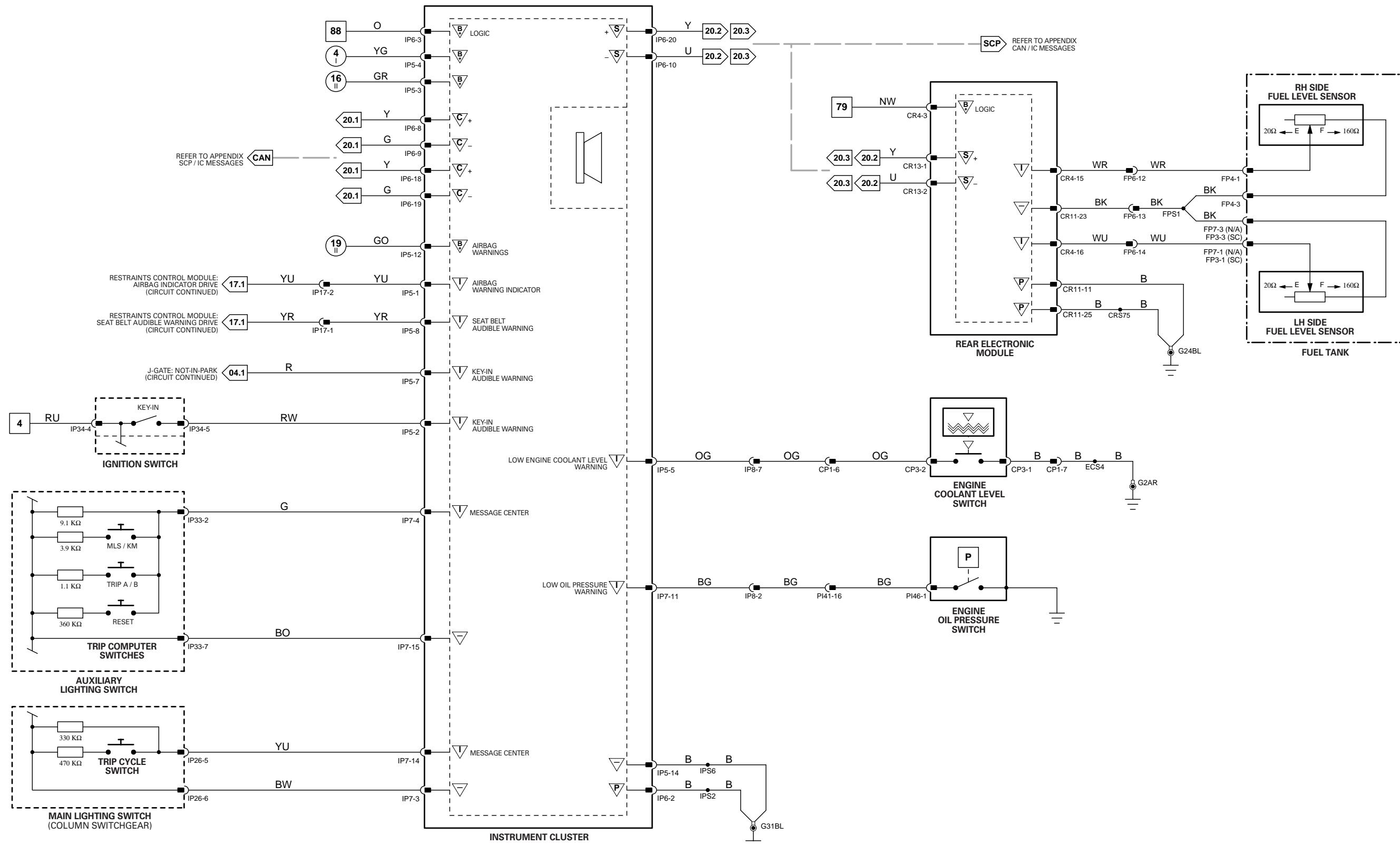


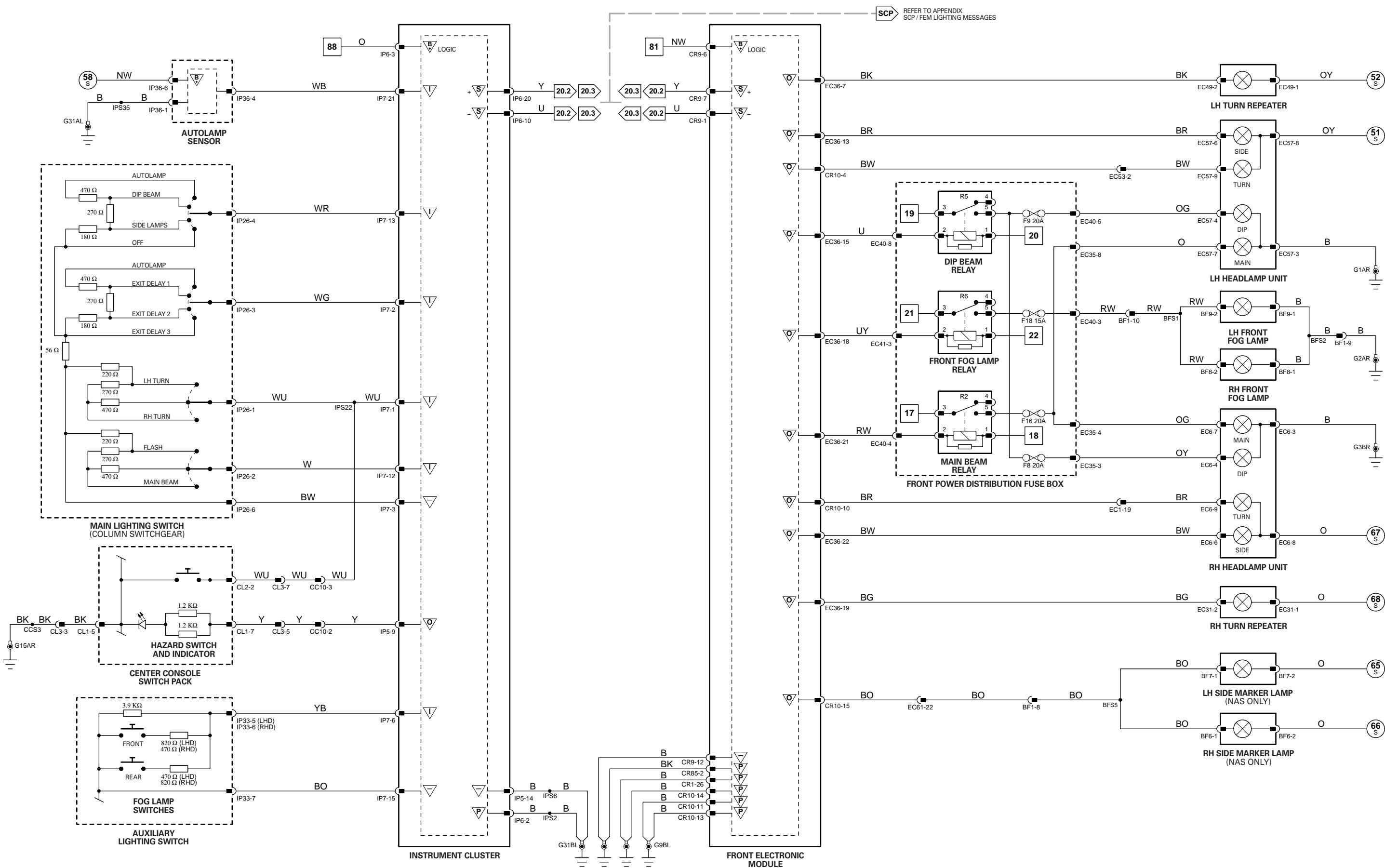
NOTE: Vehicles without Adaptive Speed Control – refer to Speed Control Switches, Figs. 03.2, 03.4, 03.6.

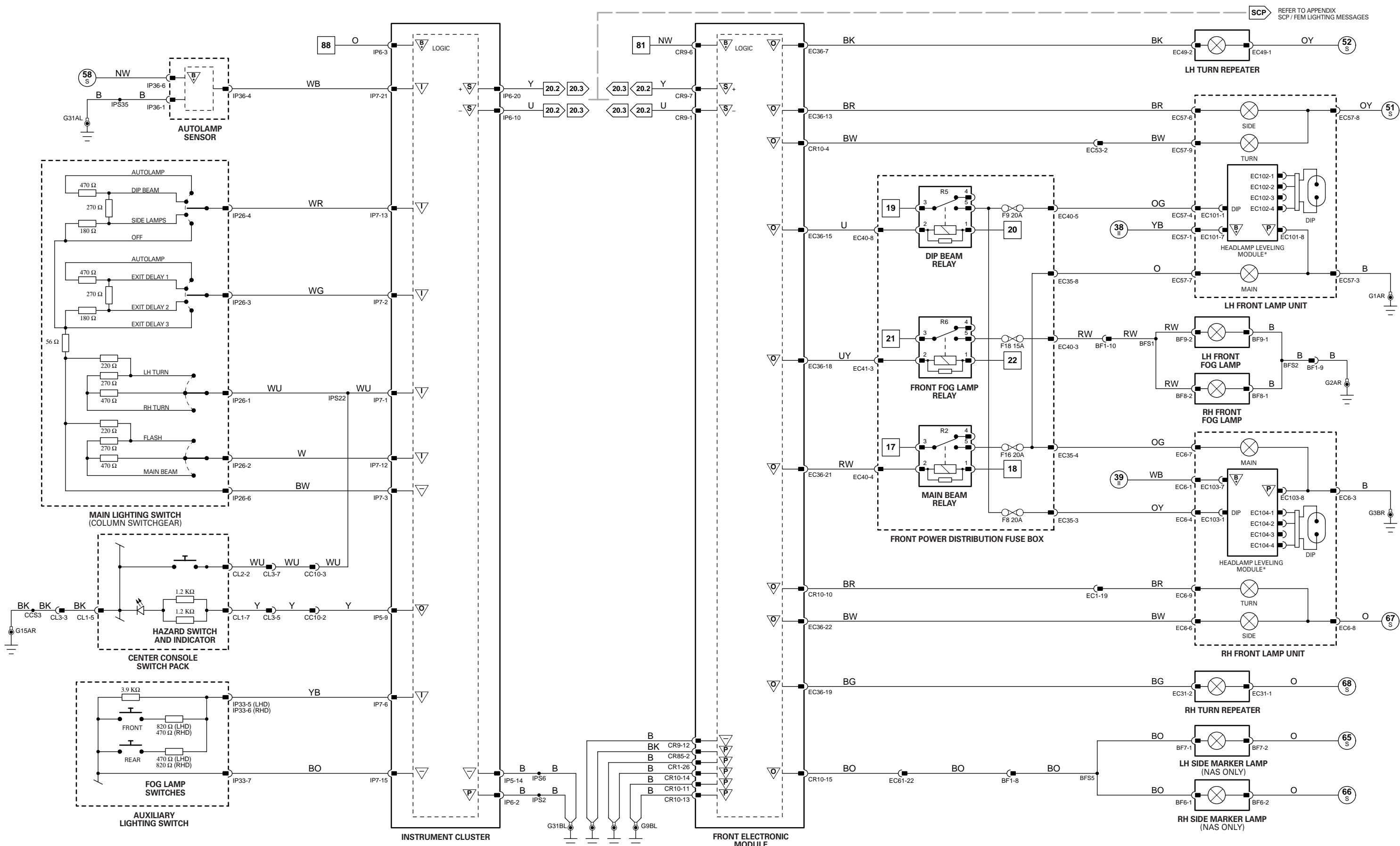




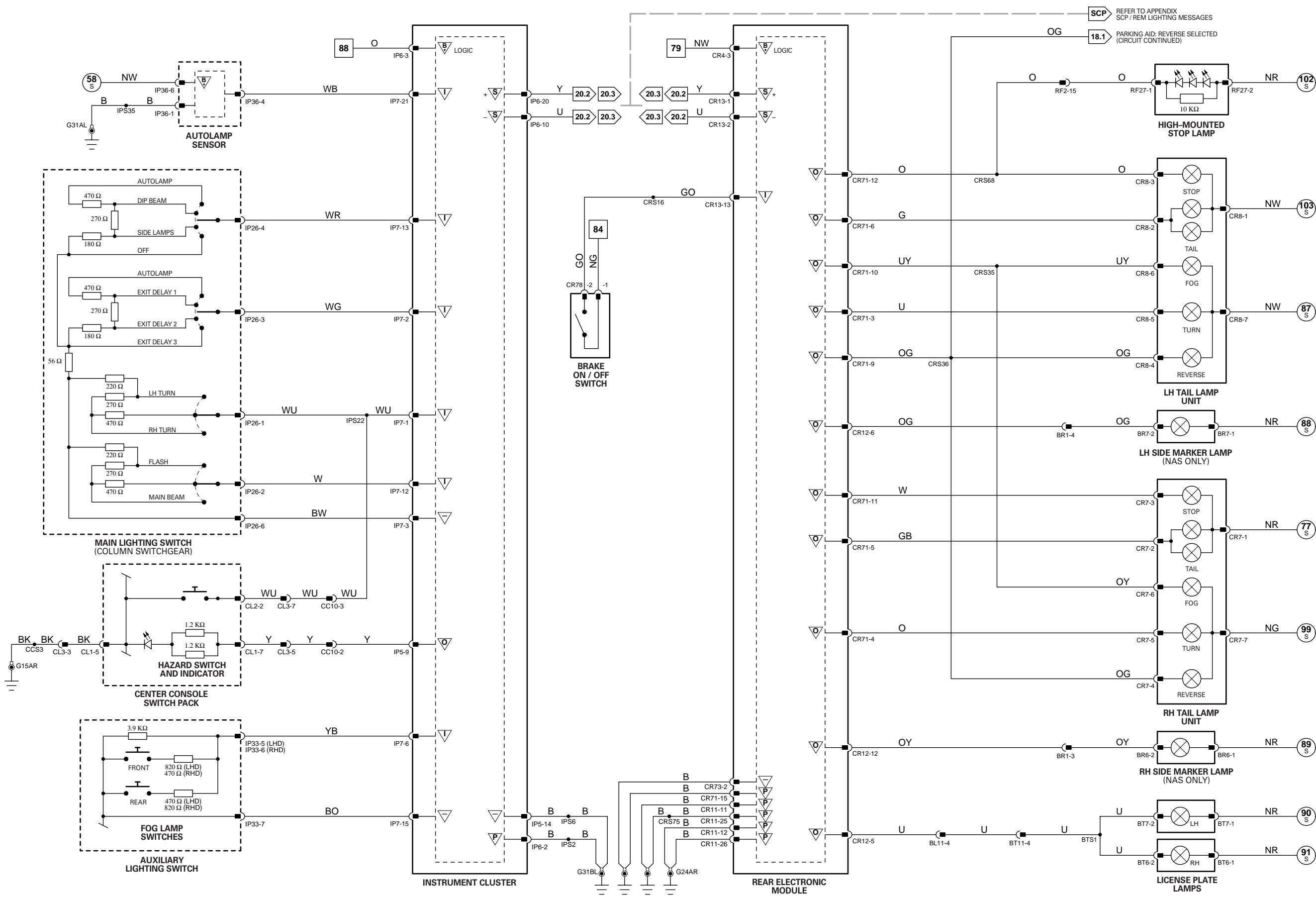


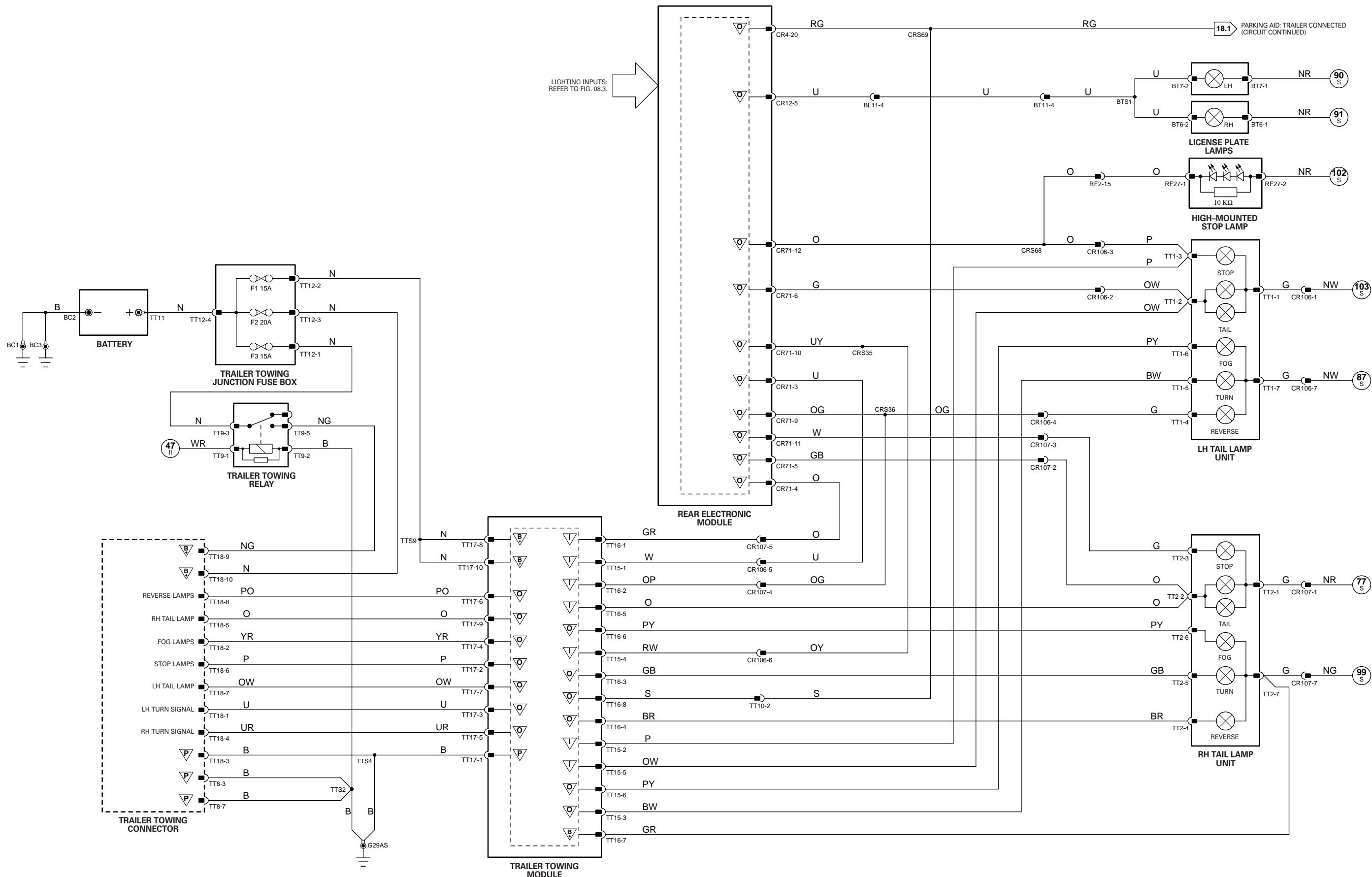


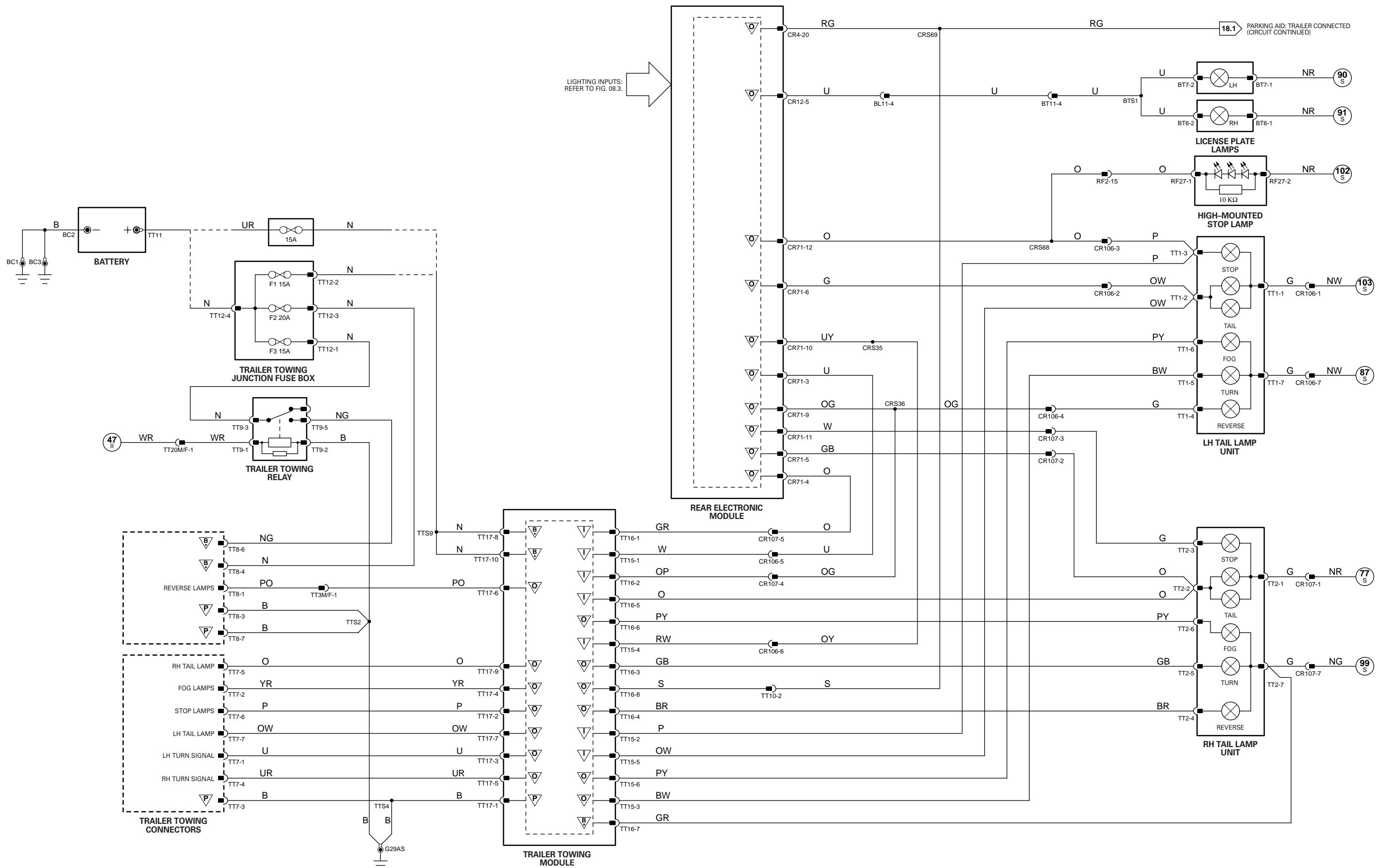


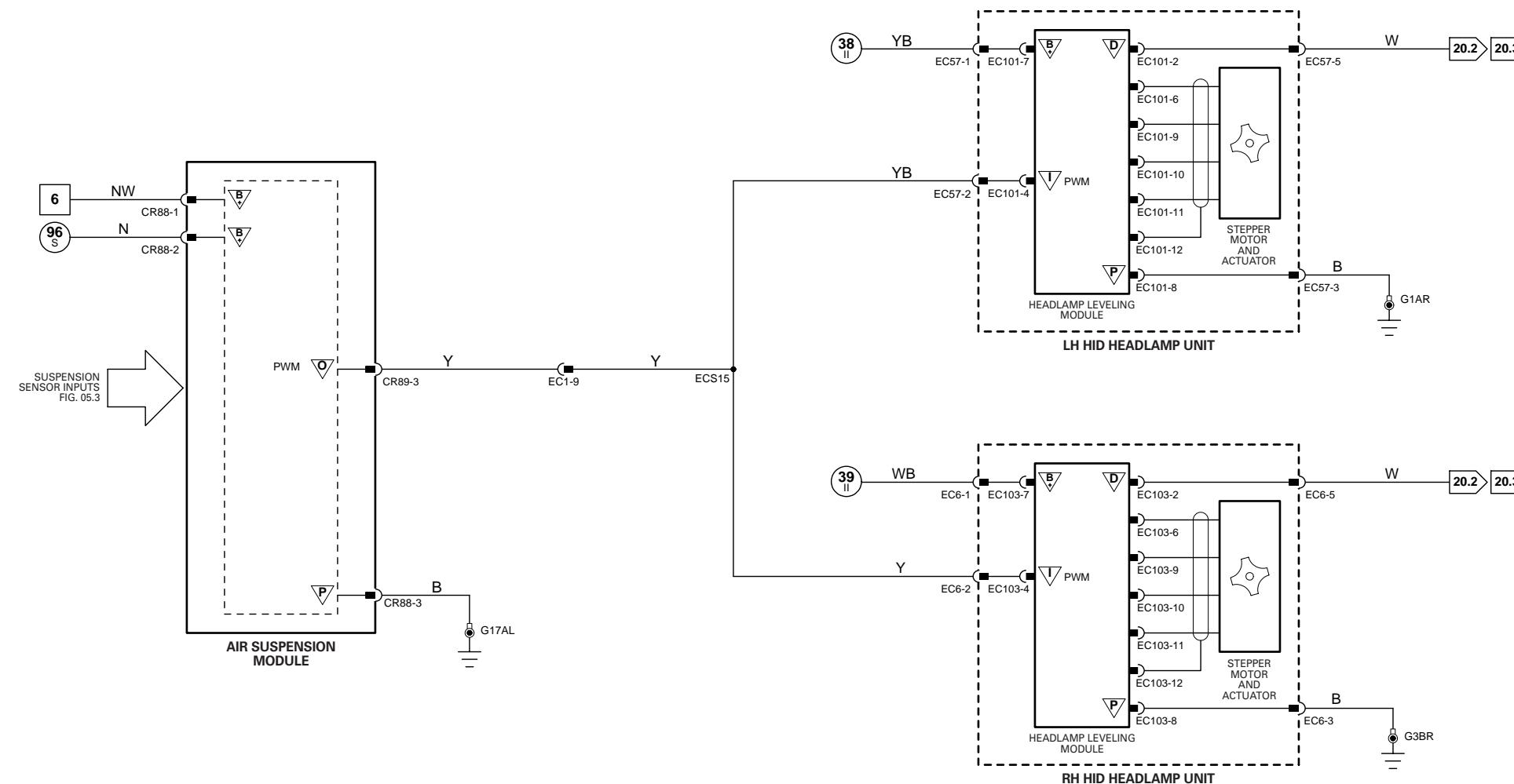


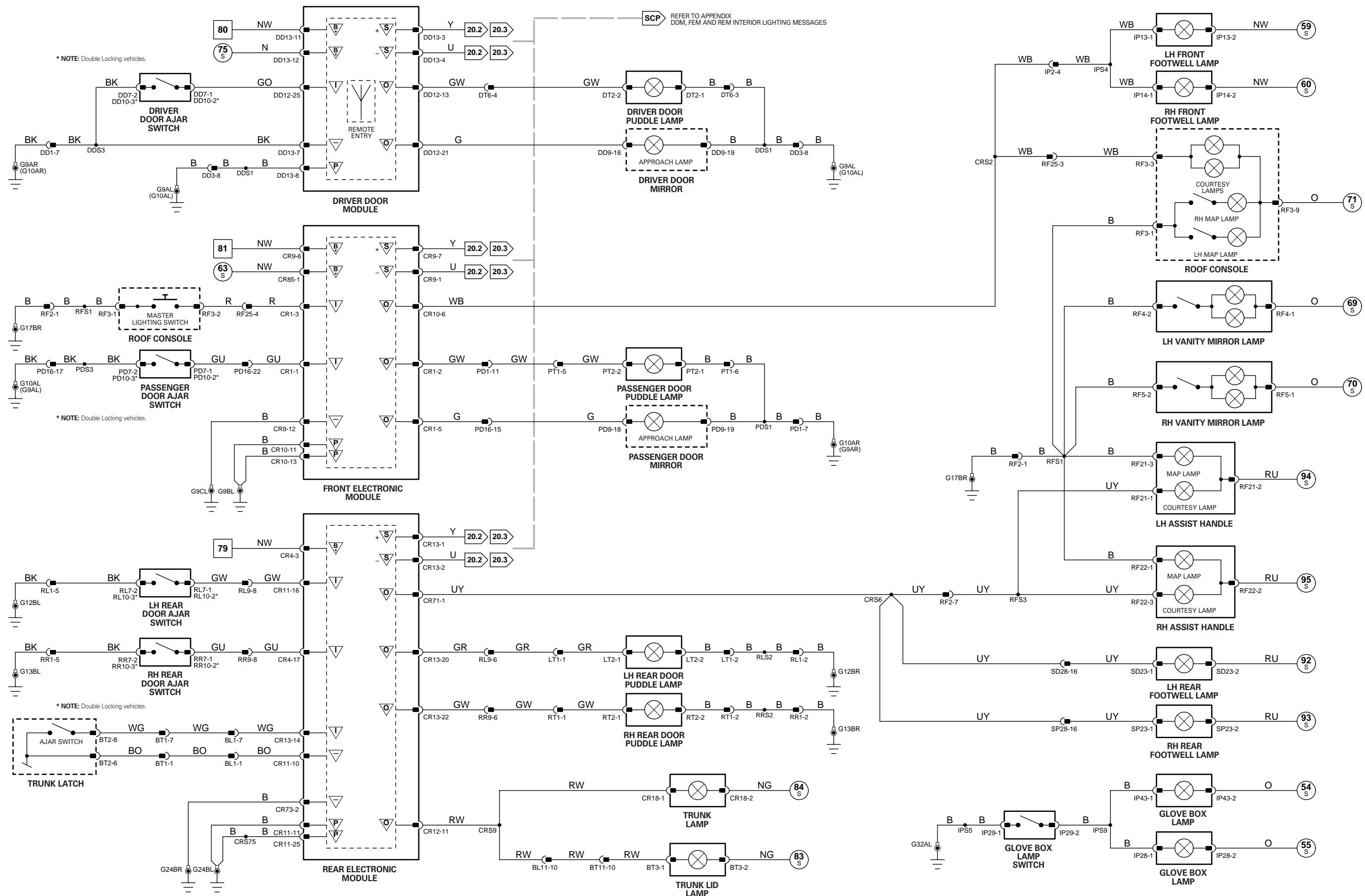
*** NOTE:** Ballast integral within module. Refer to Fig. 08.6 for additional Headlamp Leveling Module details.

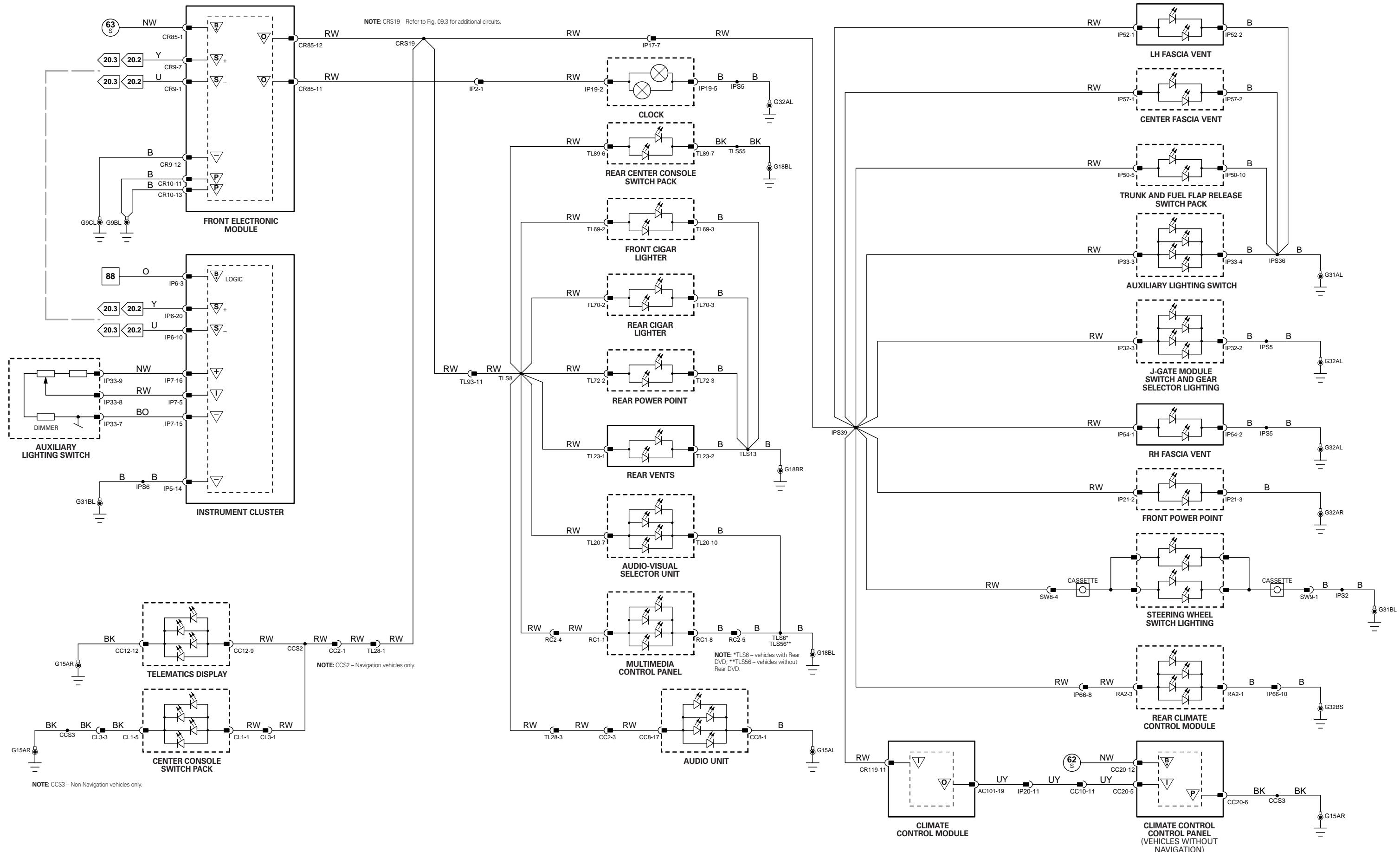


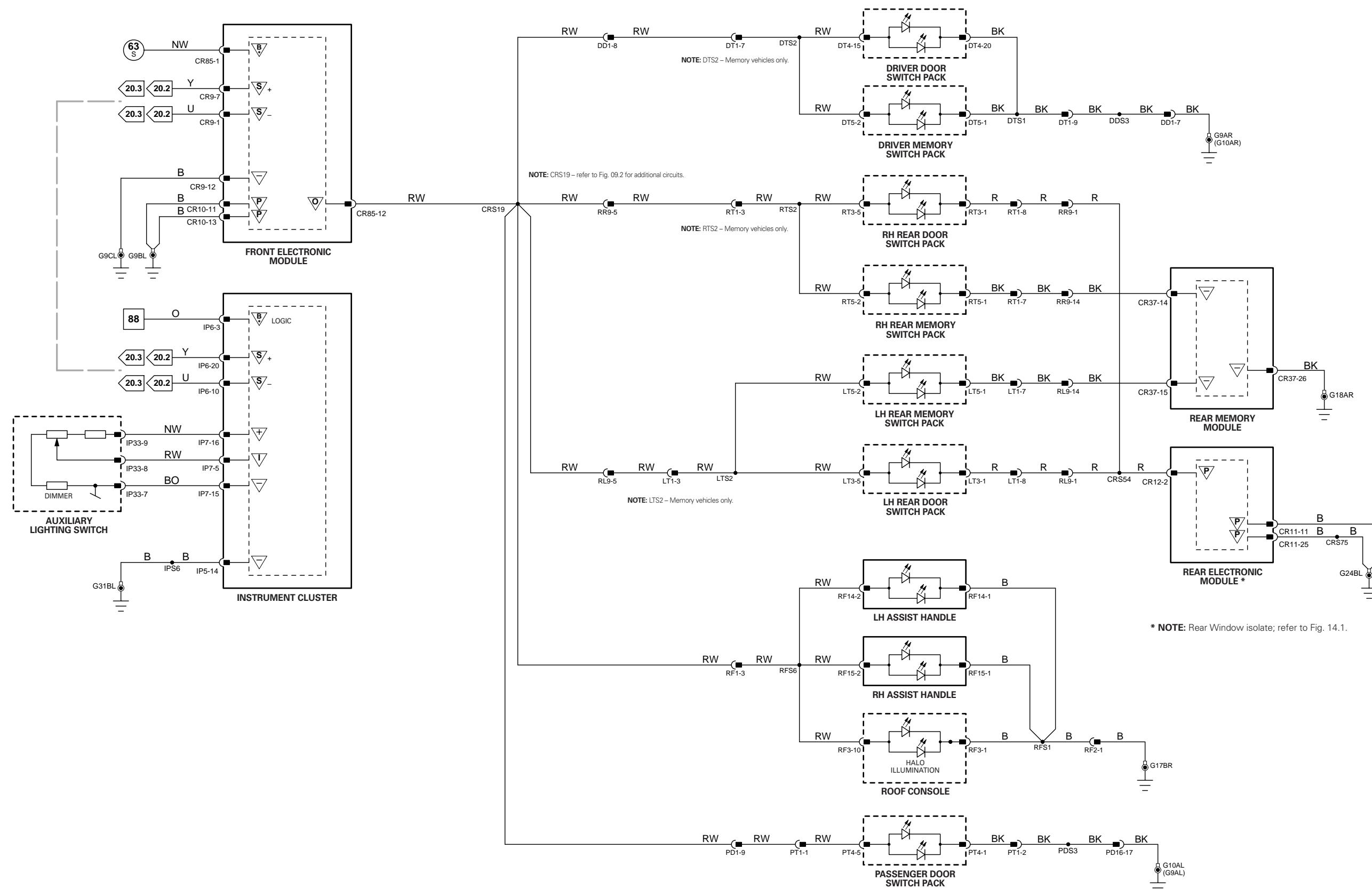


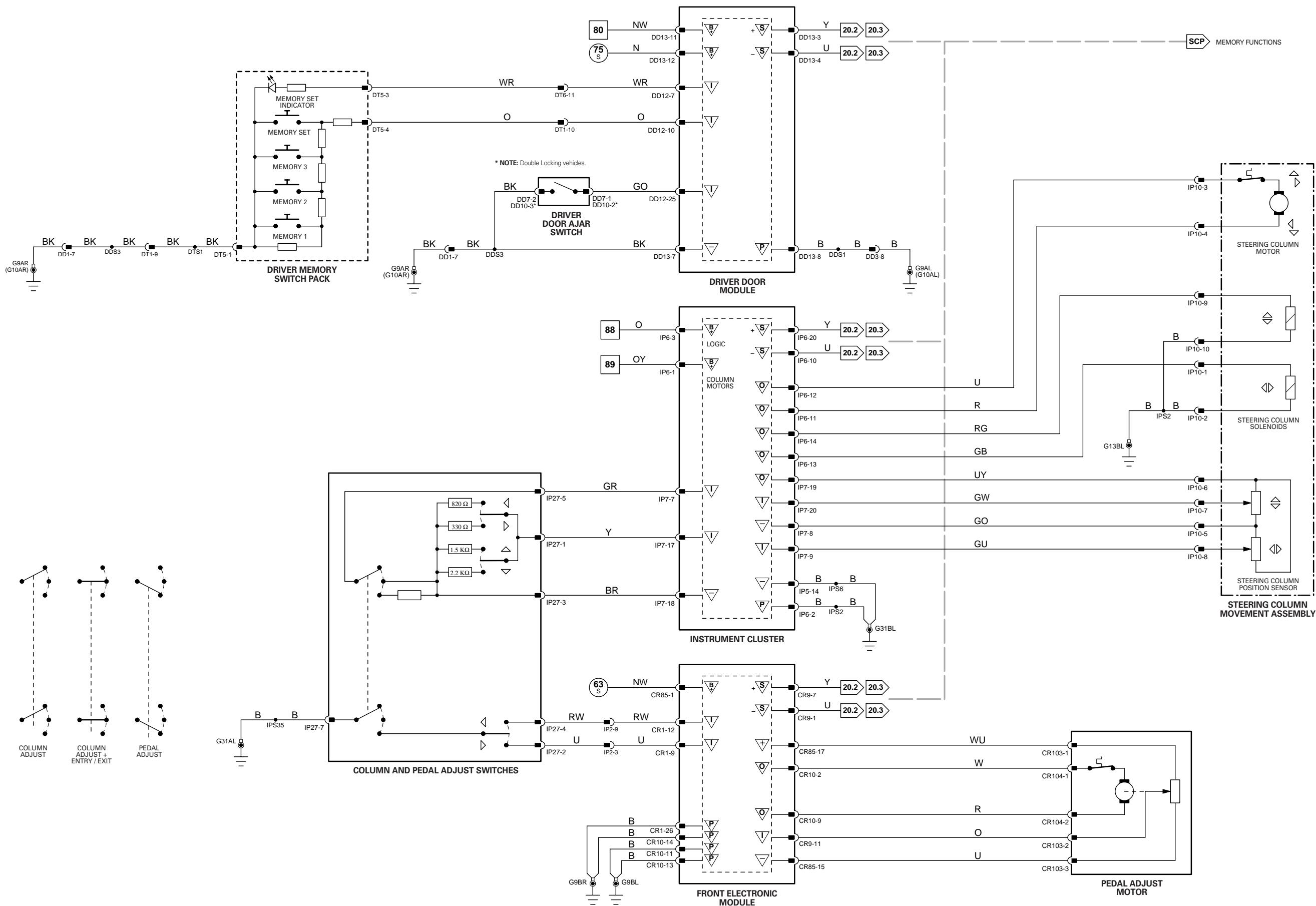


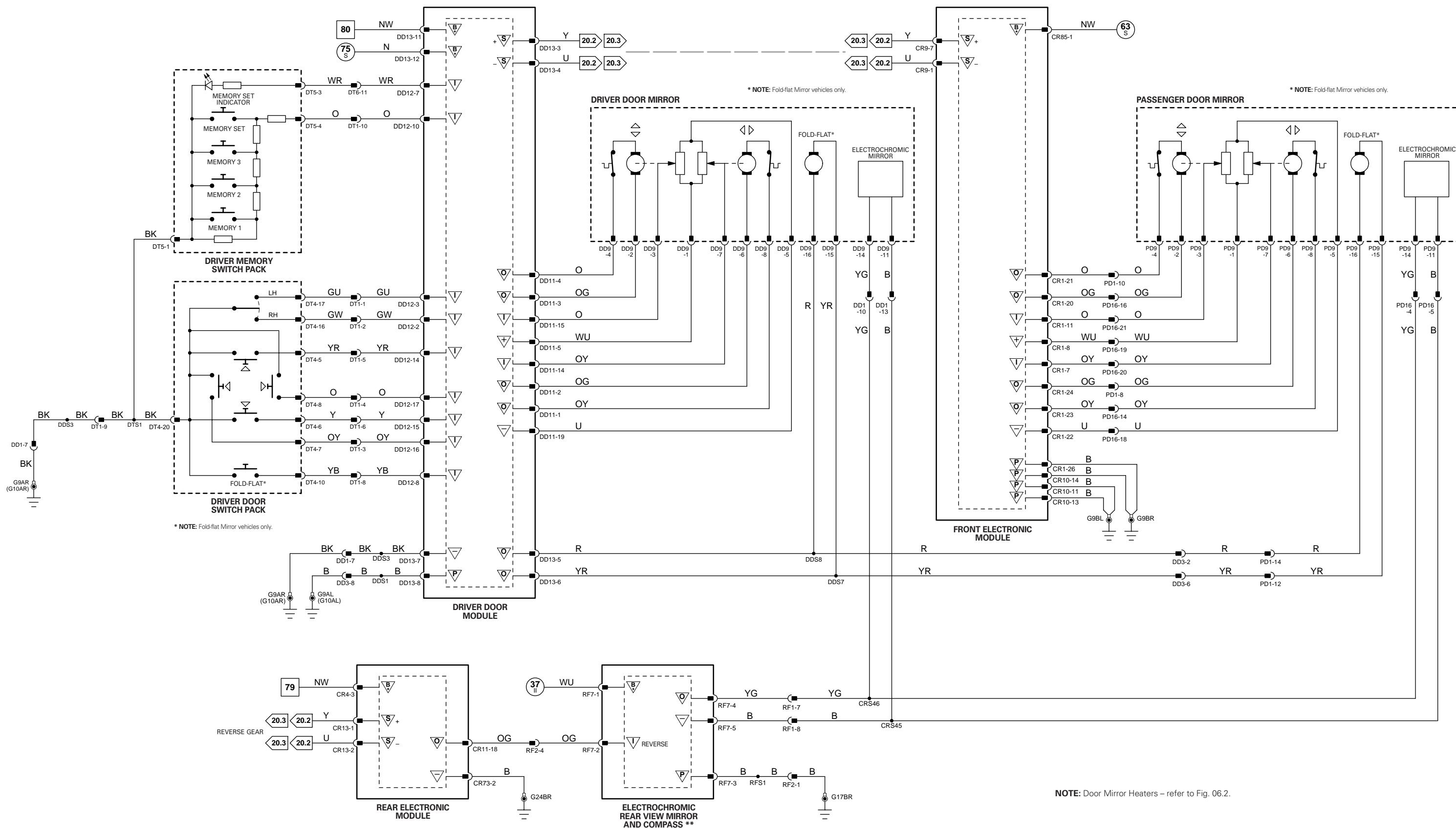






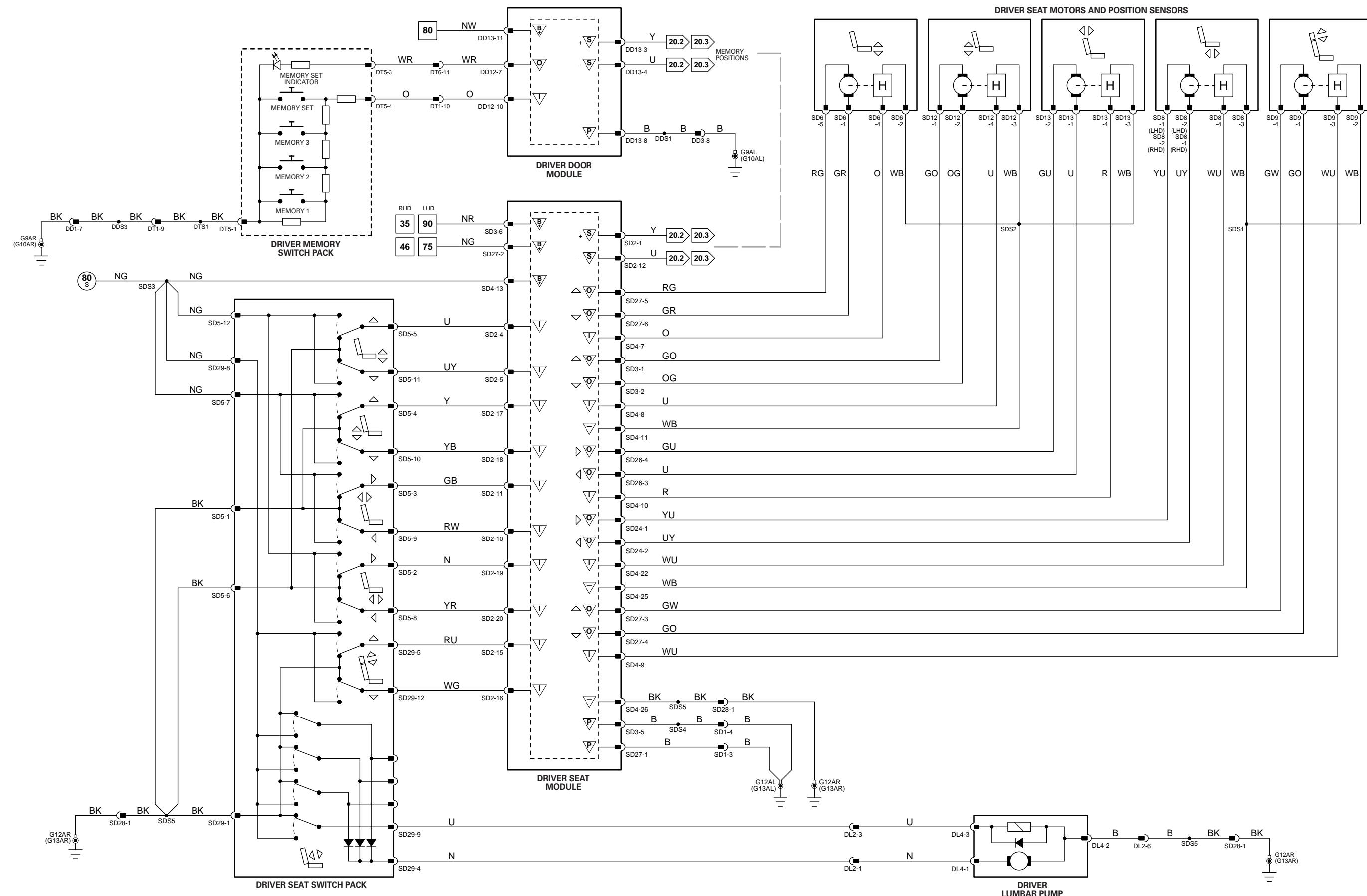


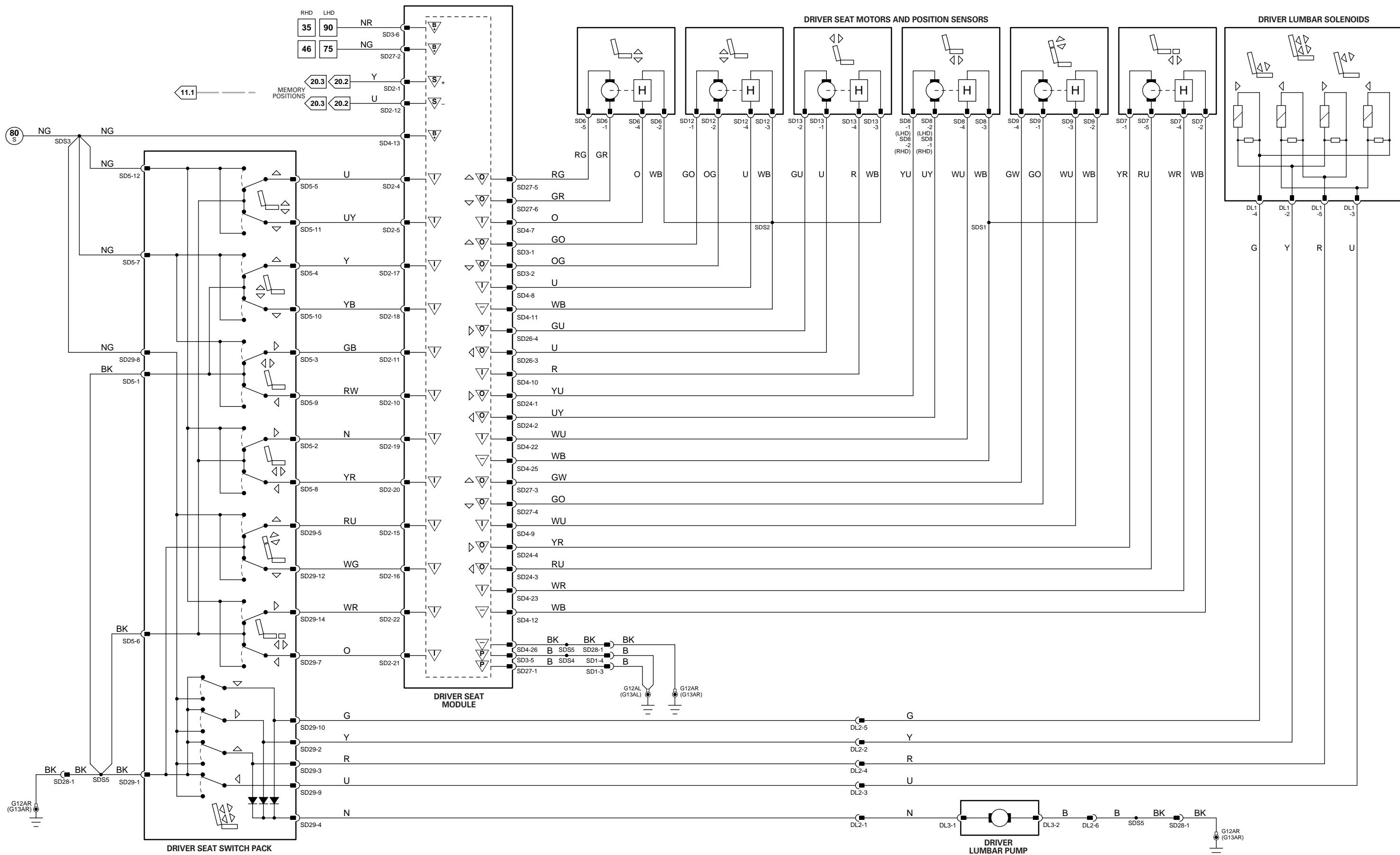


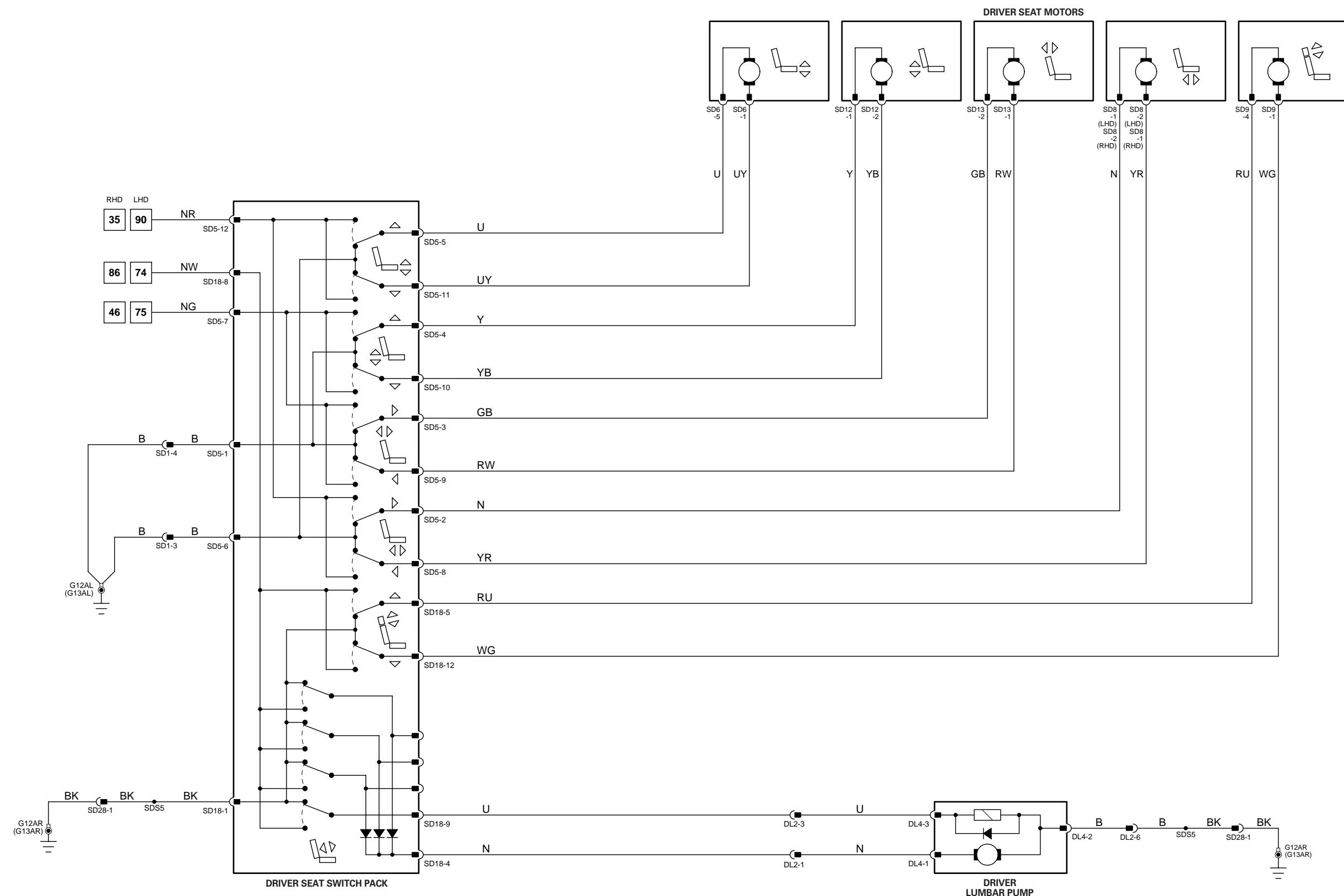


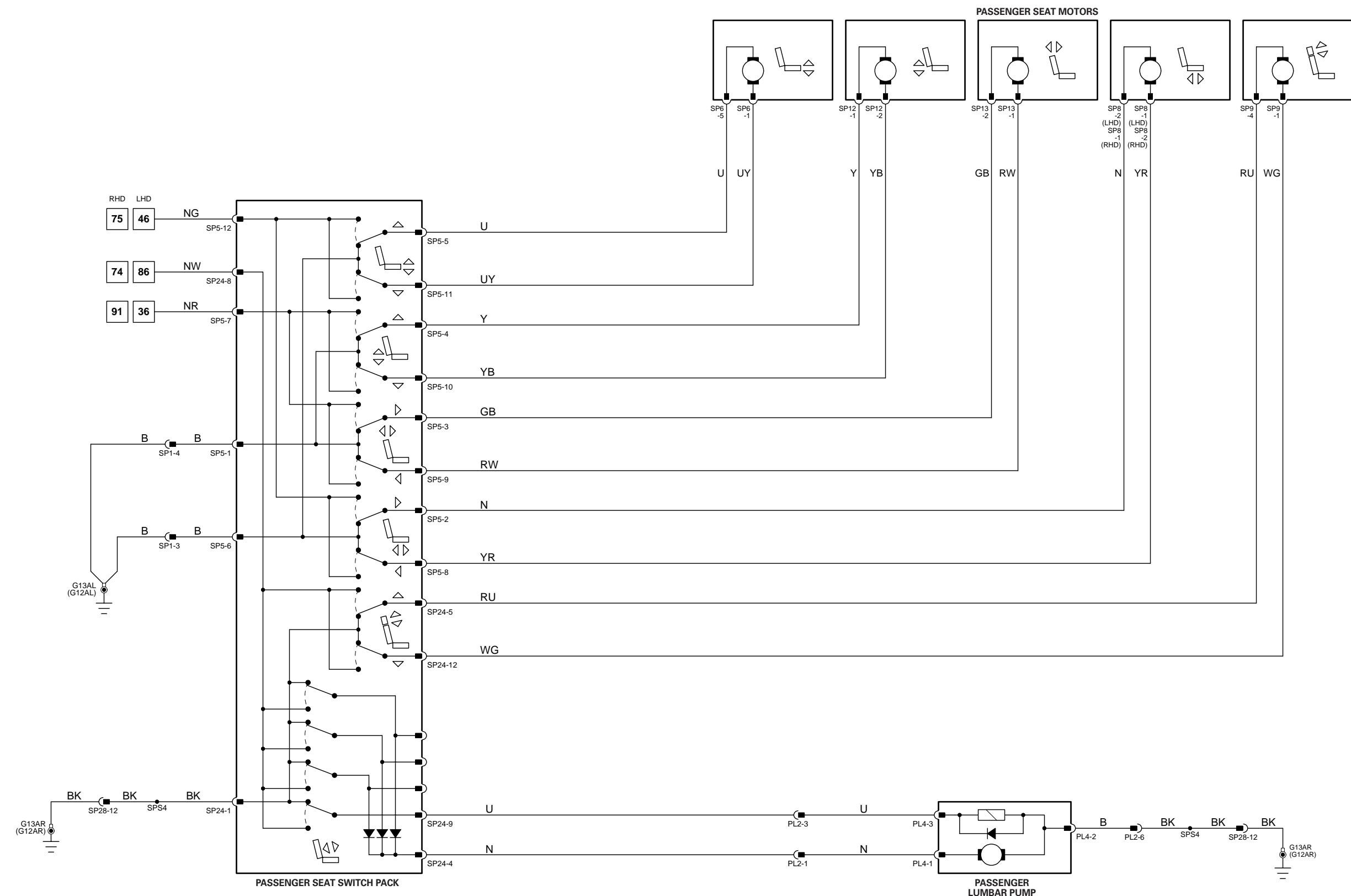
NOTE: Door Mirror Heaters – refer to Fig. 06.2.

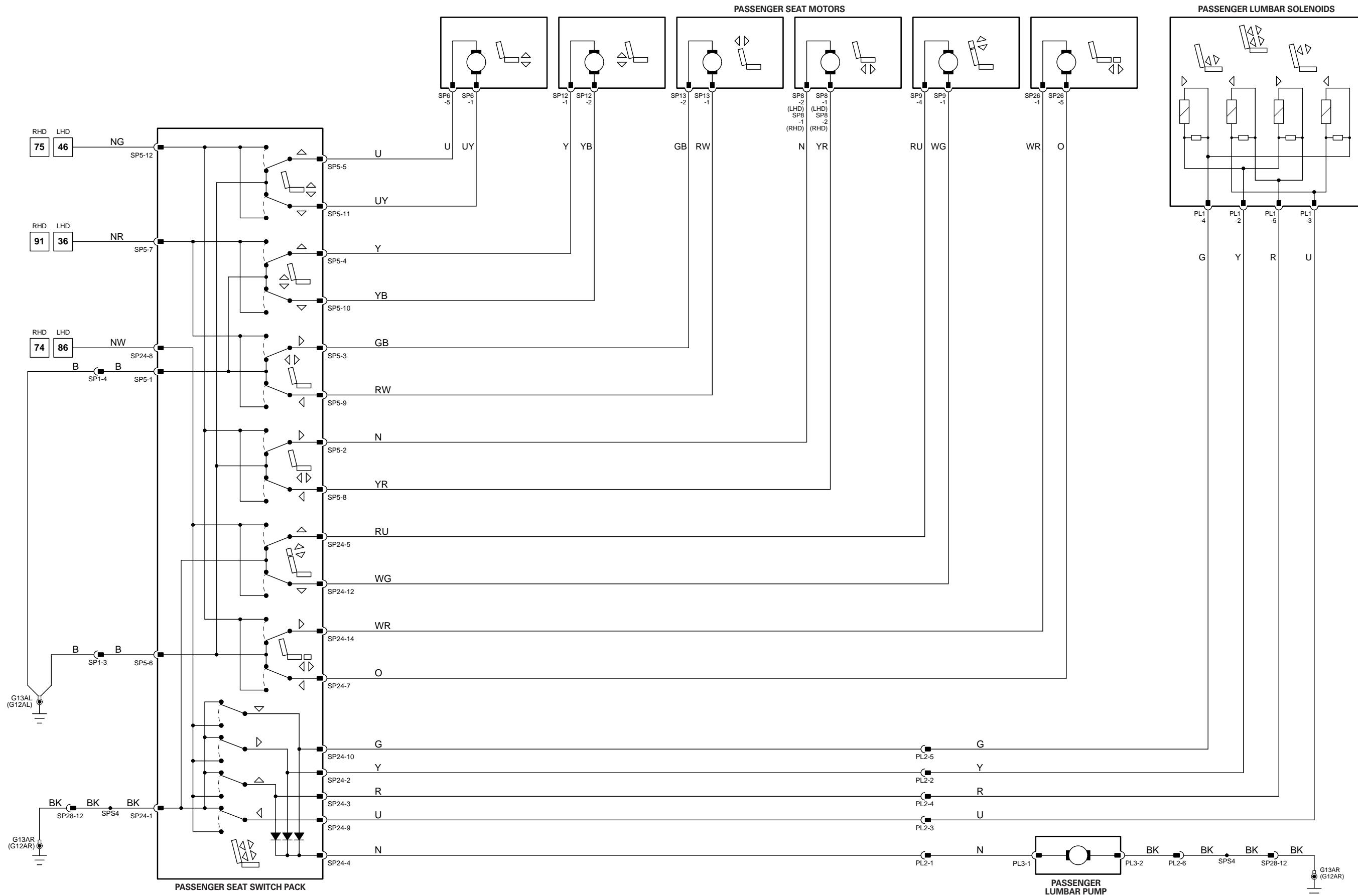
**** NOTE:** Includes Compass when fitted

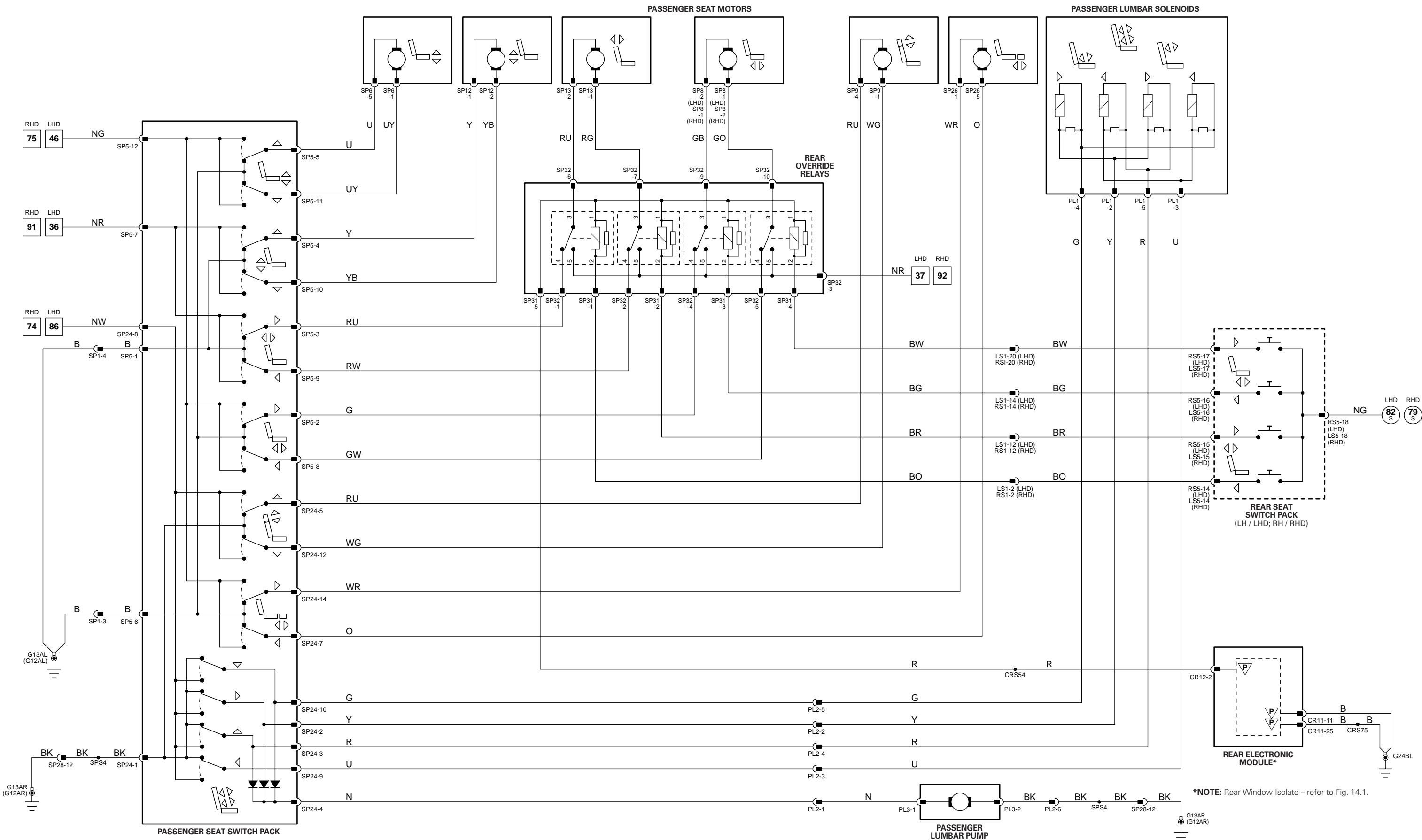


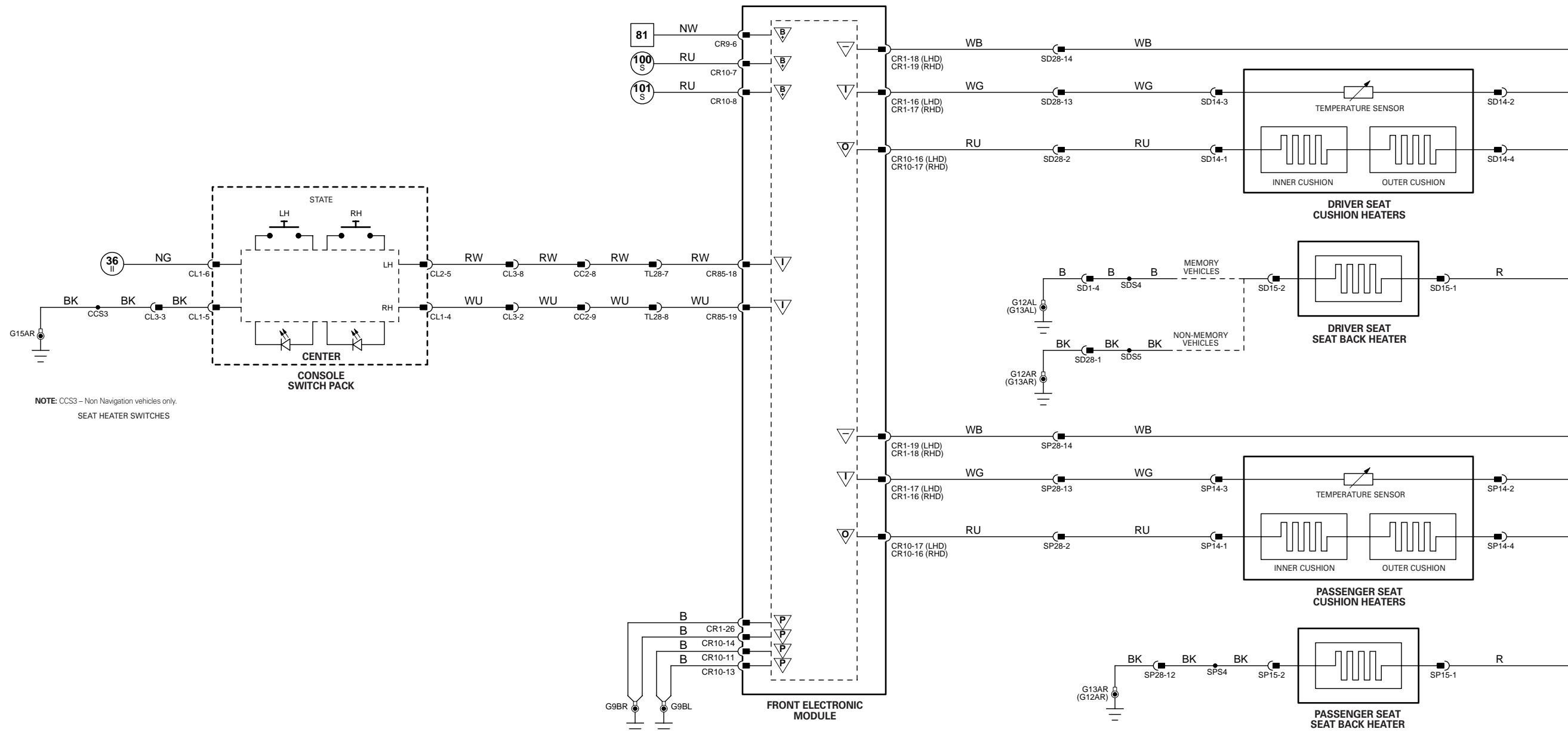


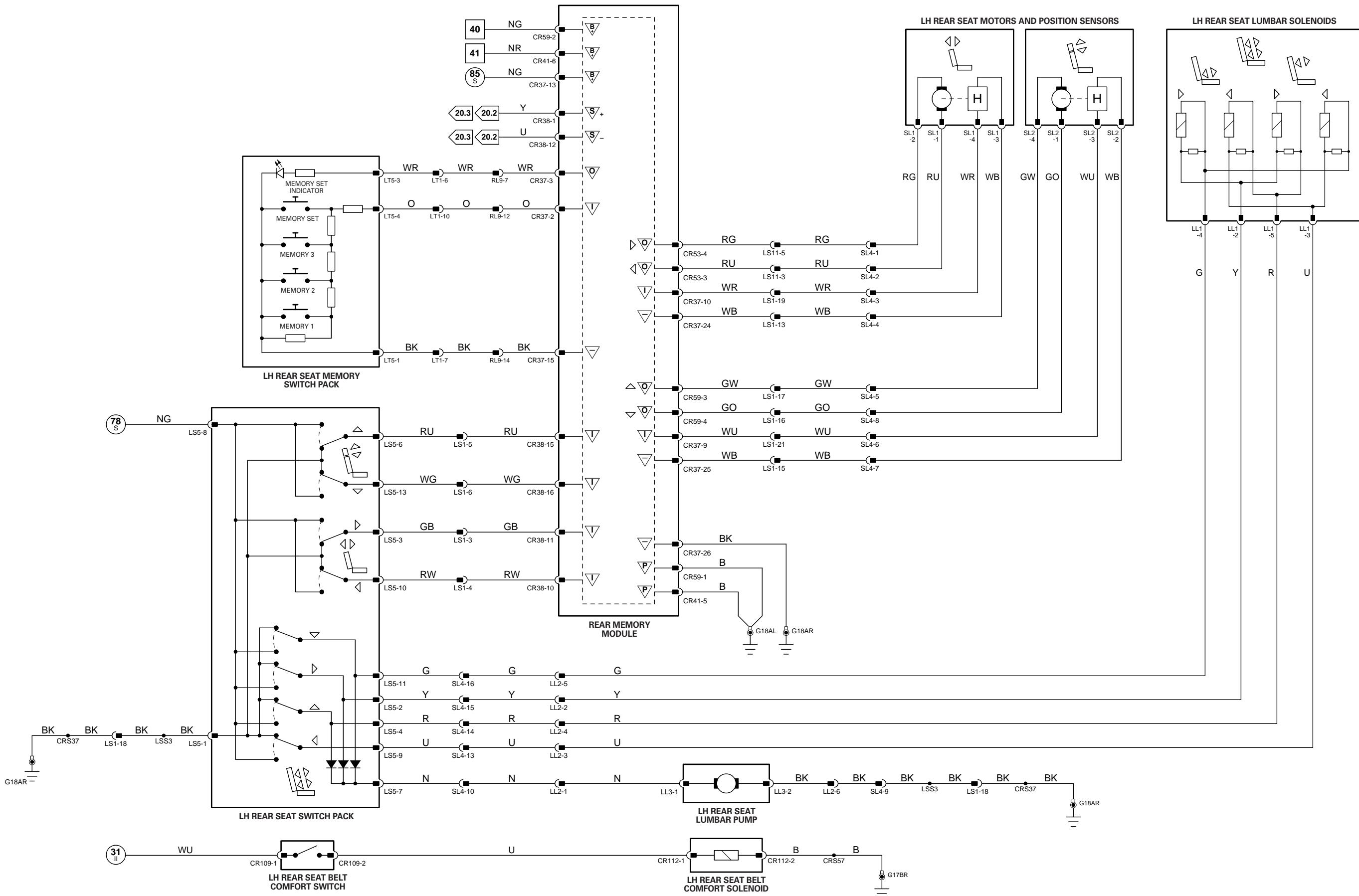


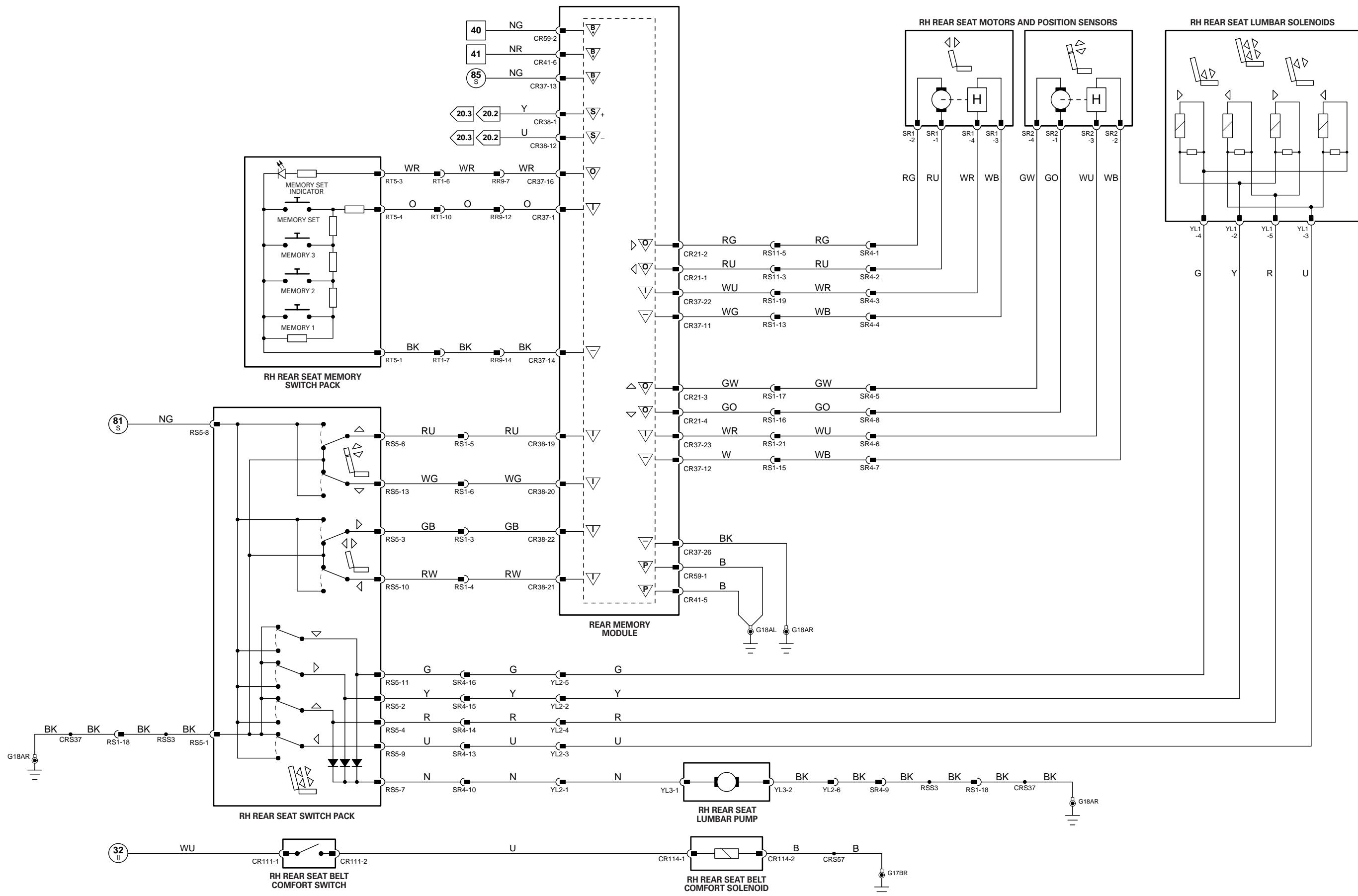


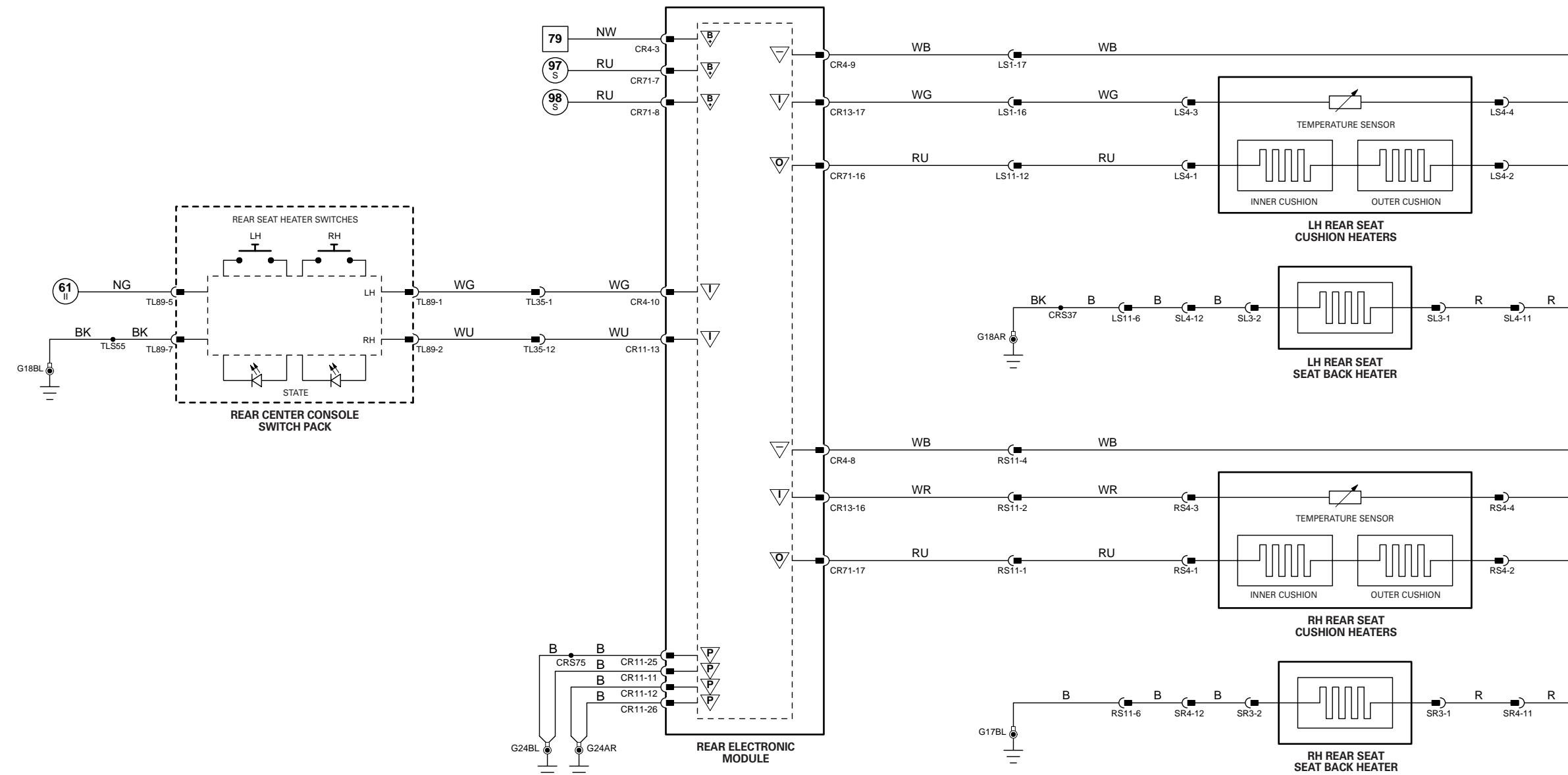


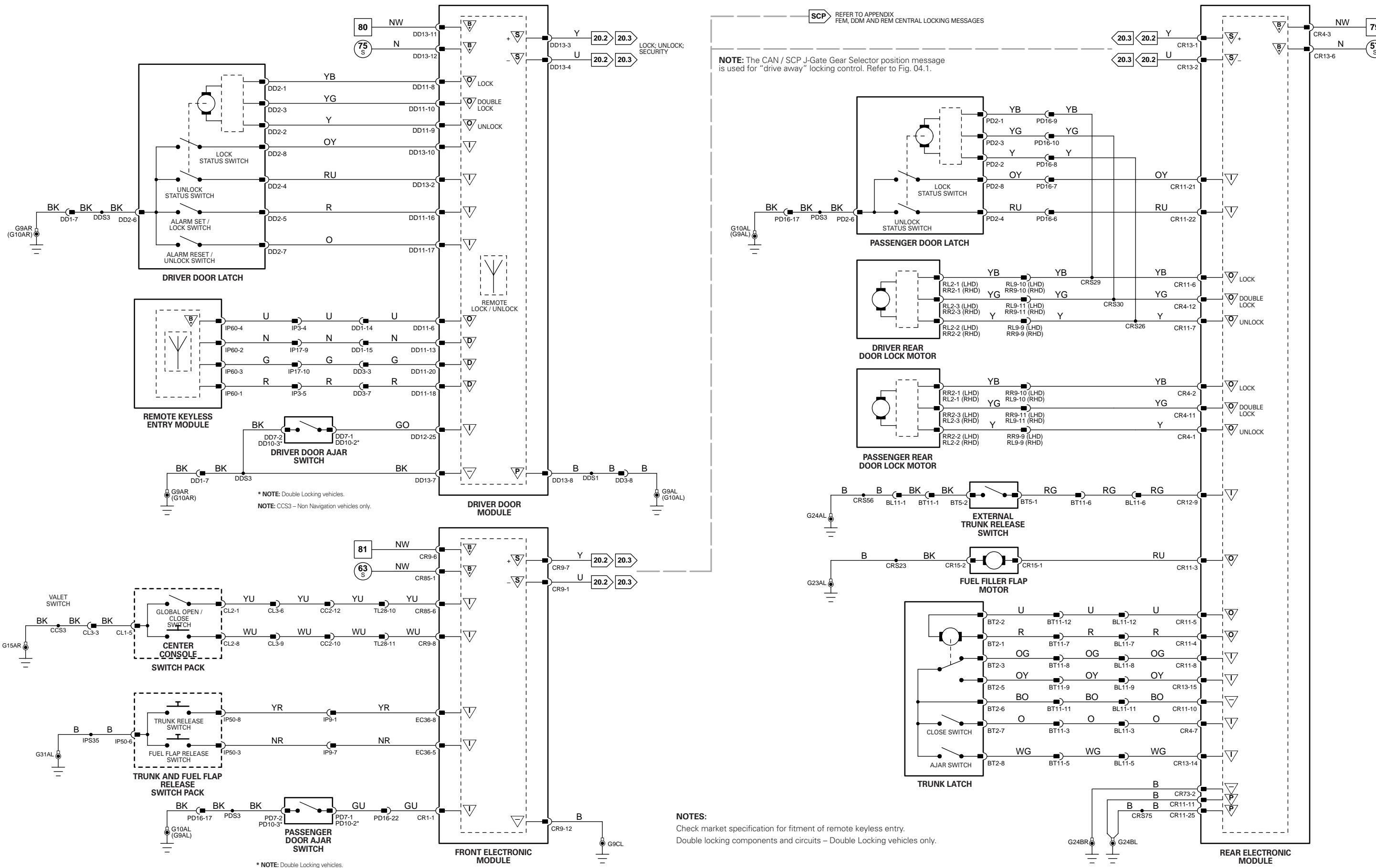


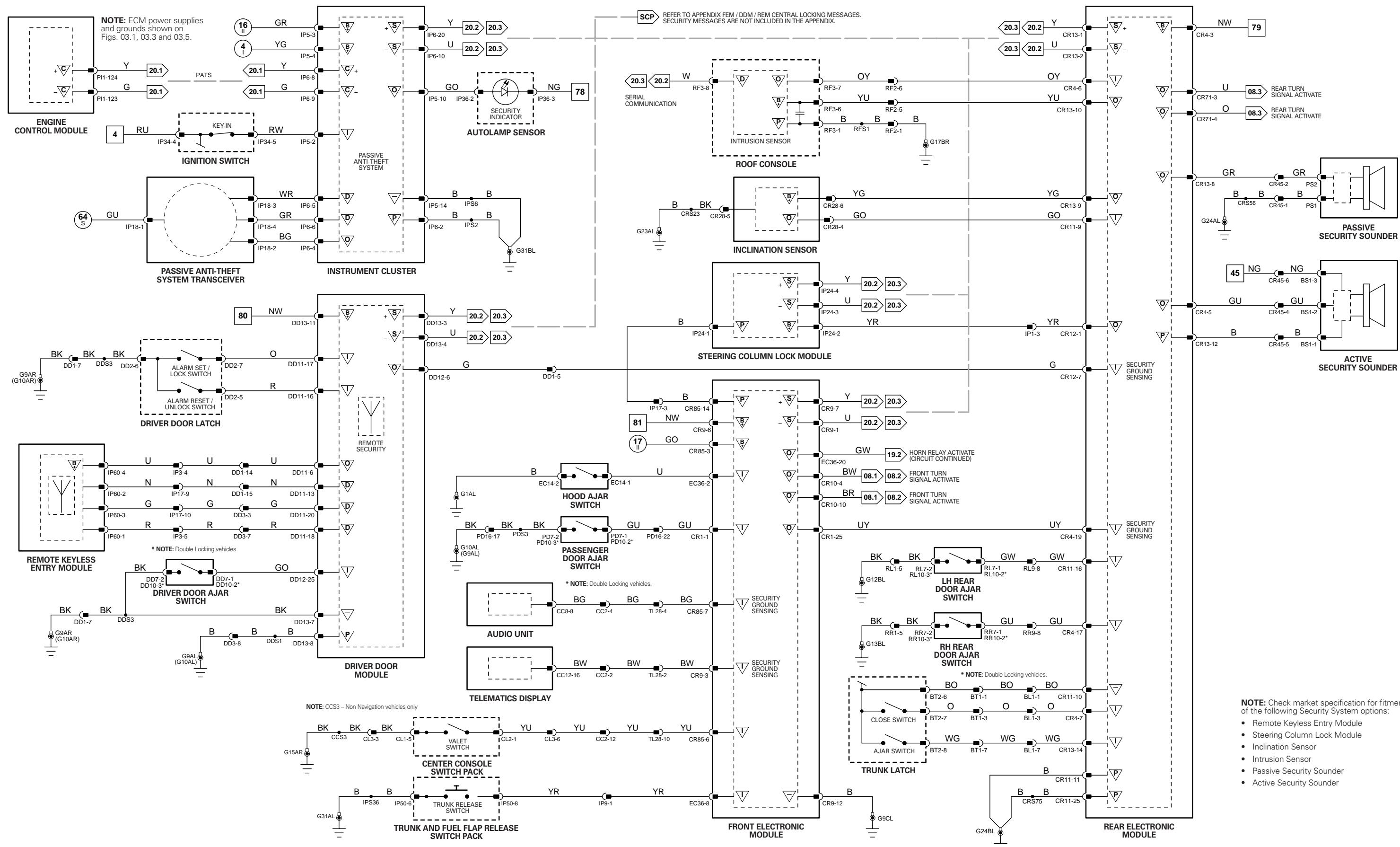


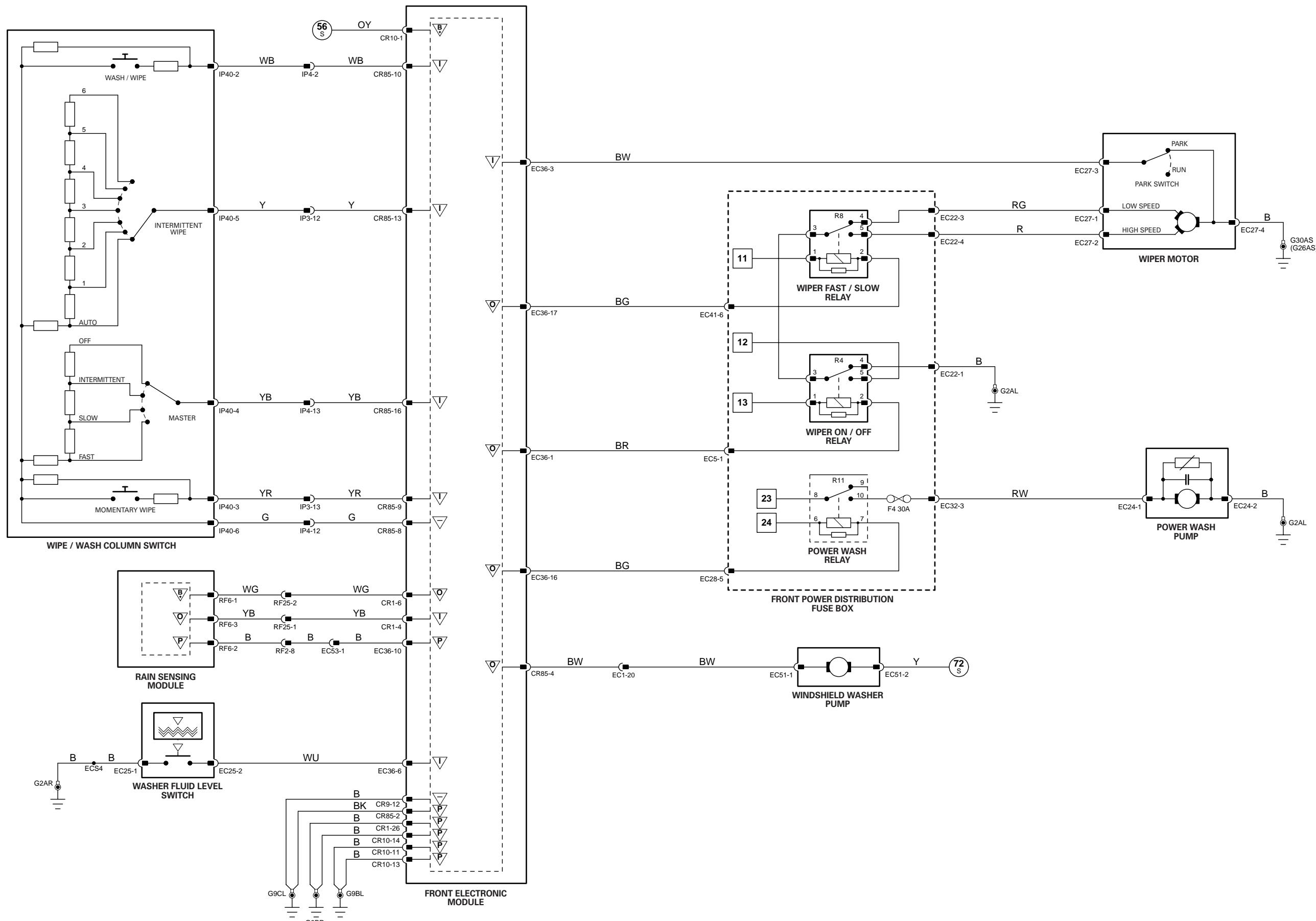


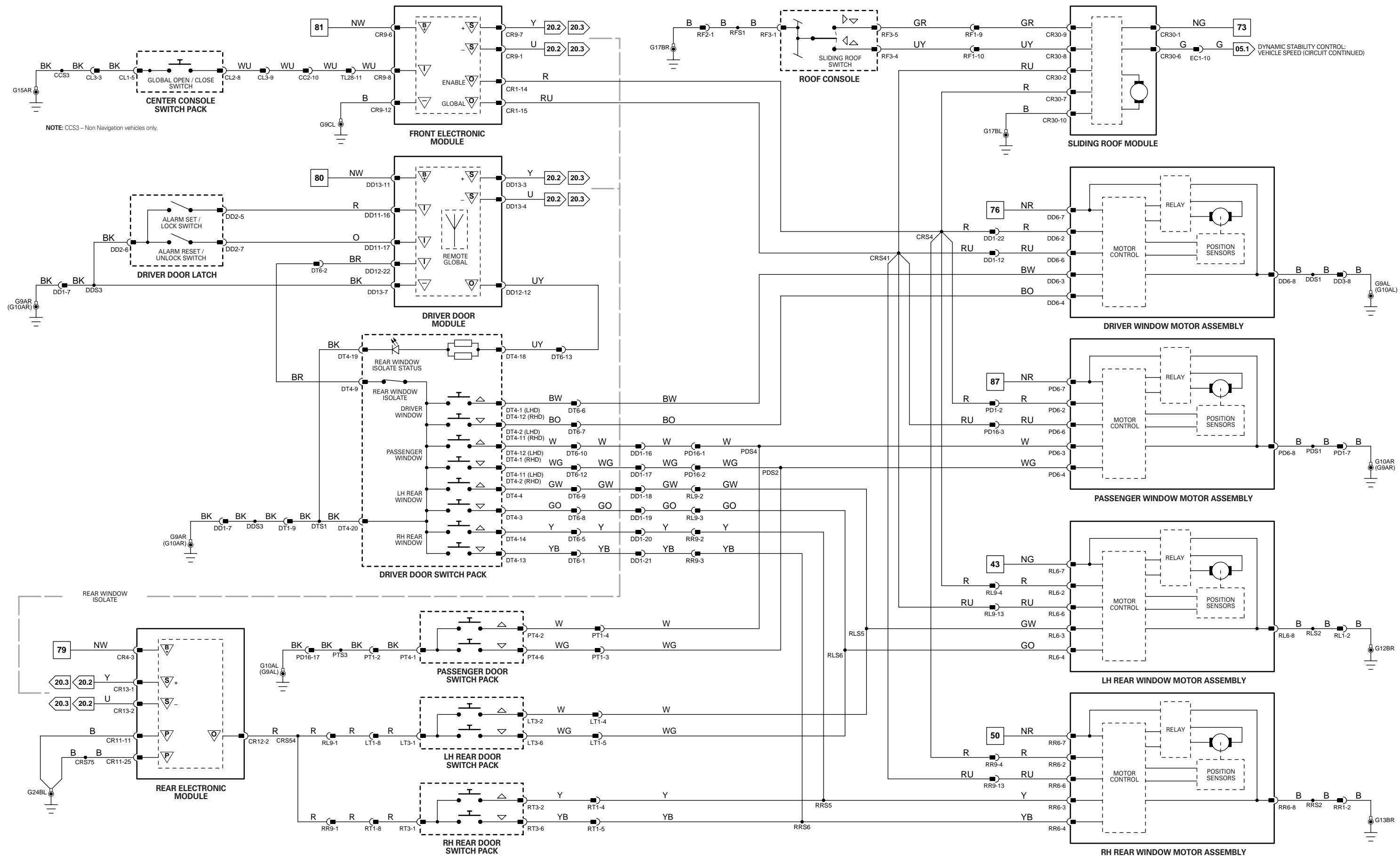


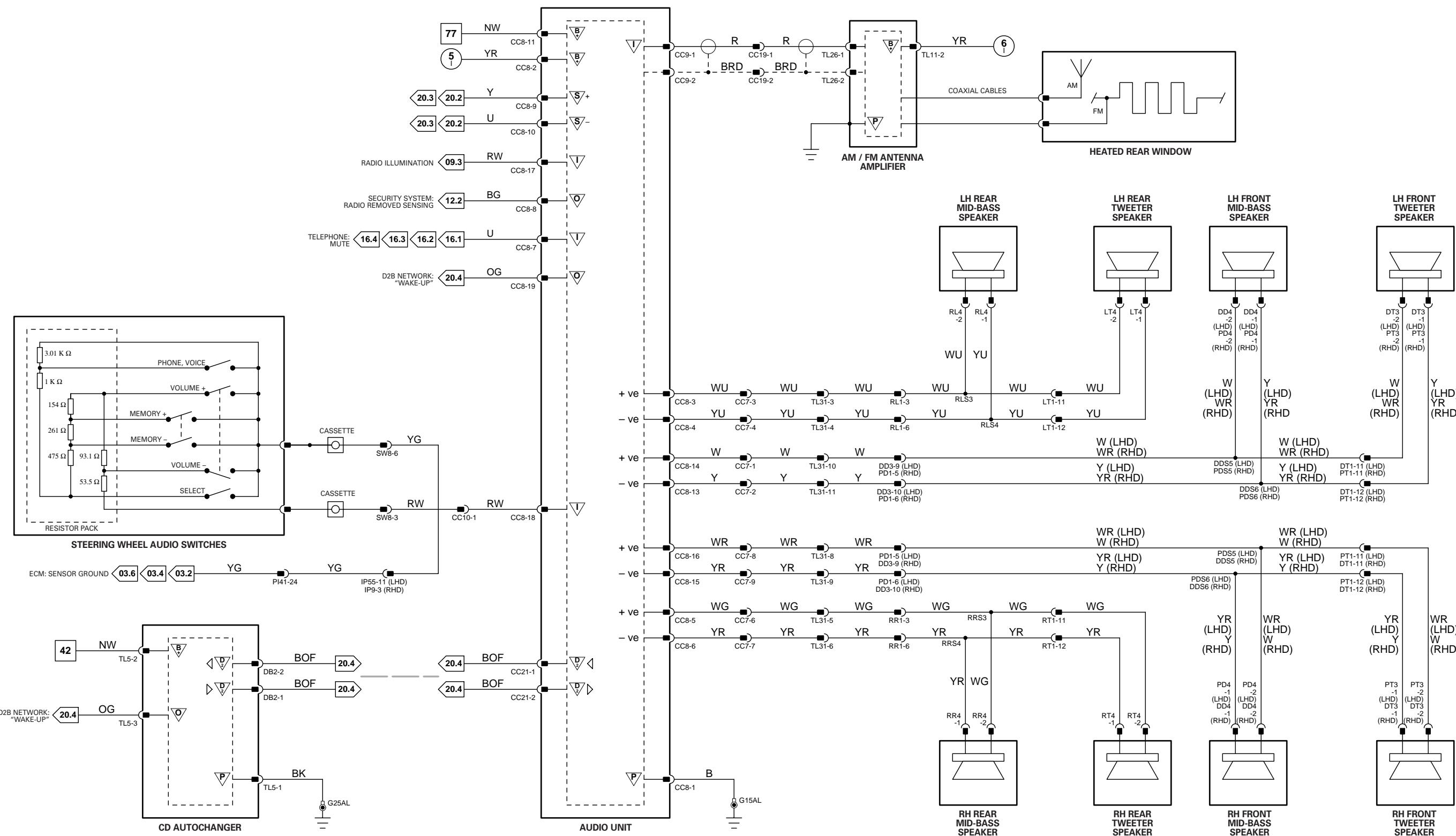


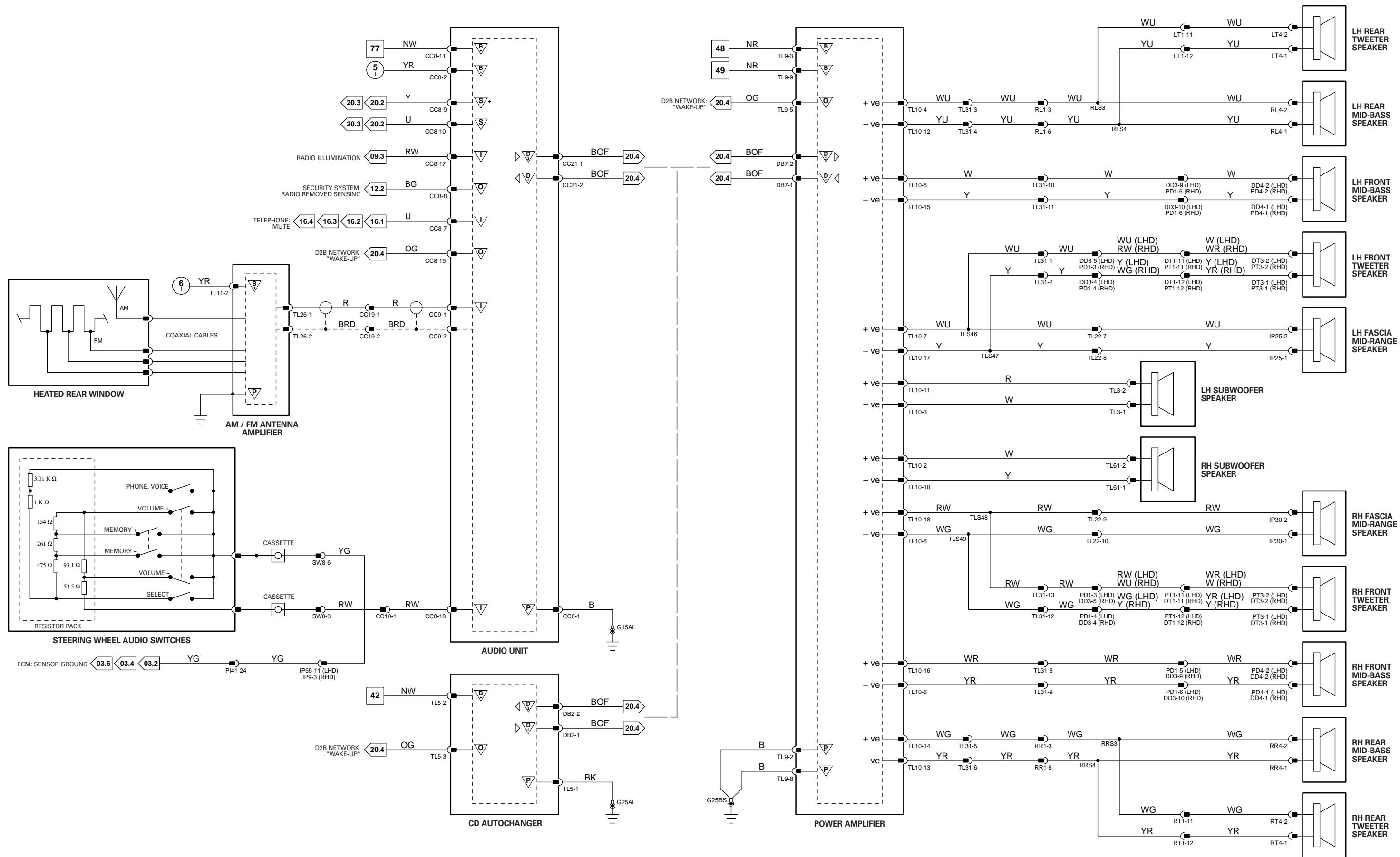


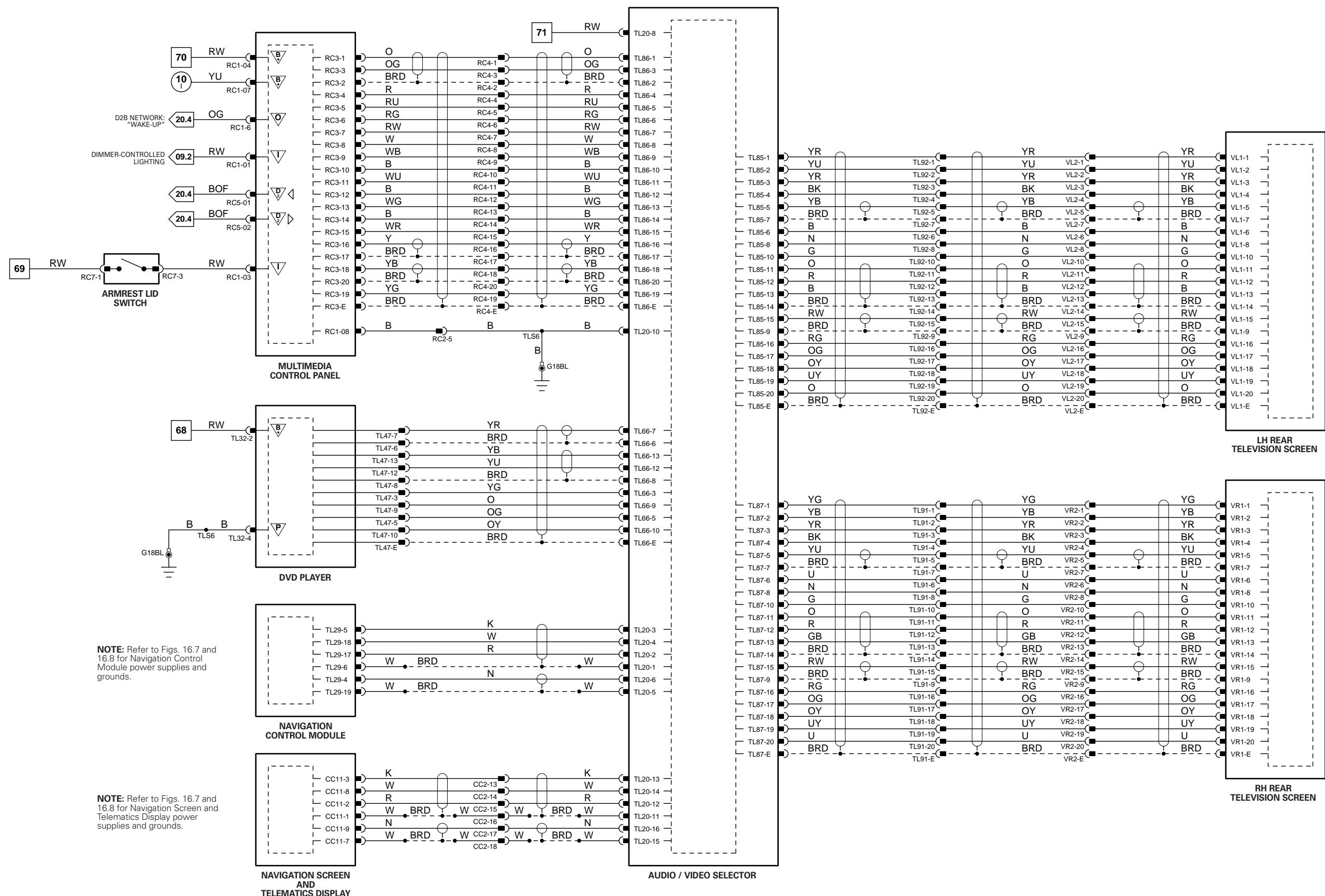


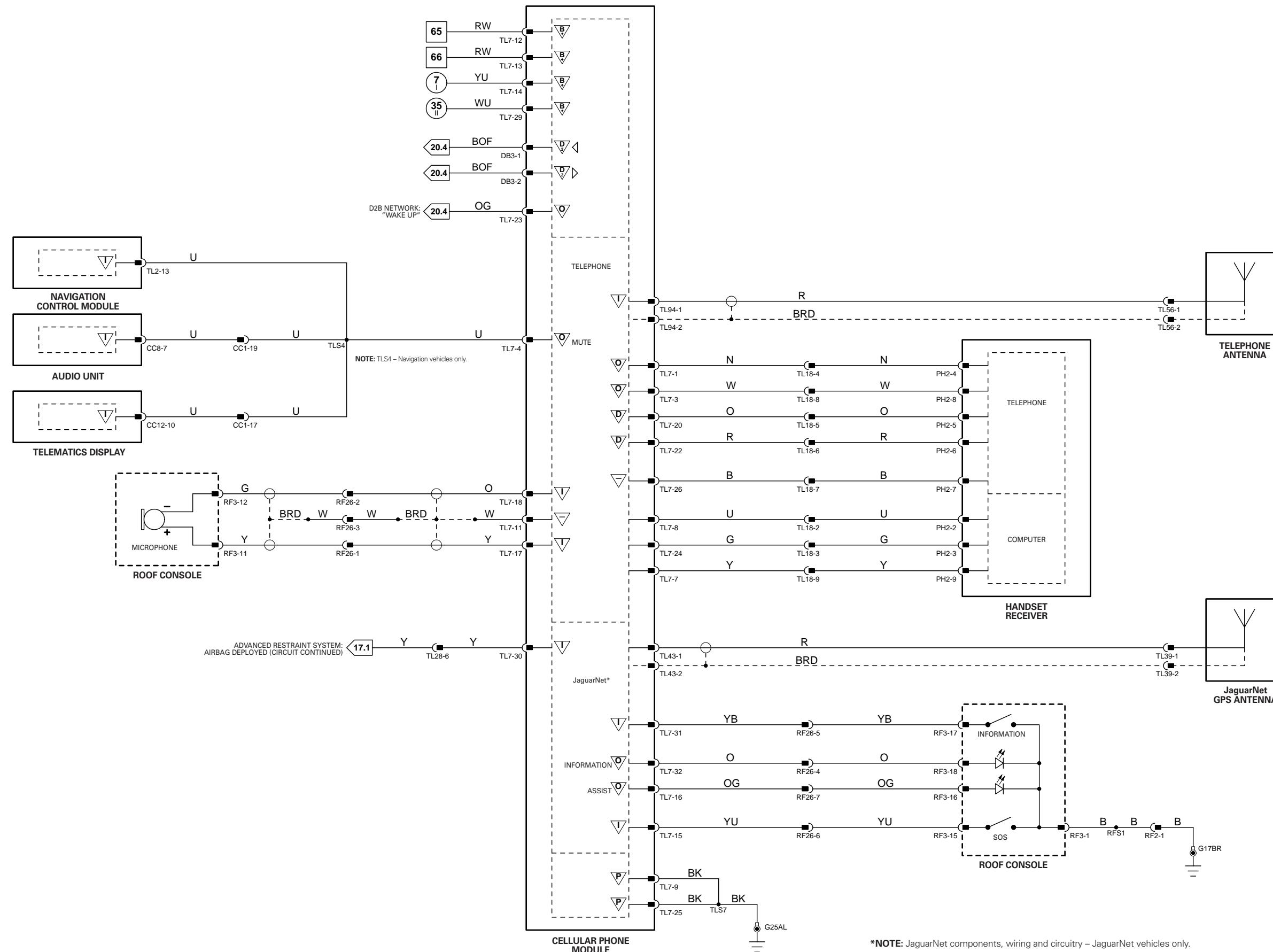


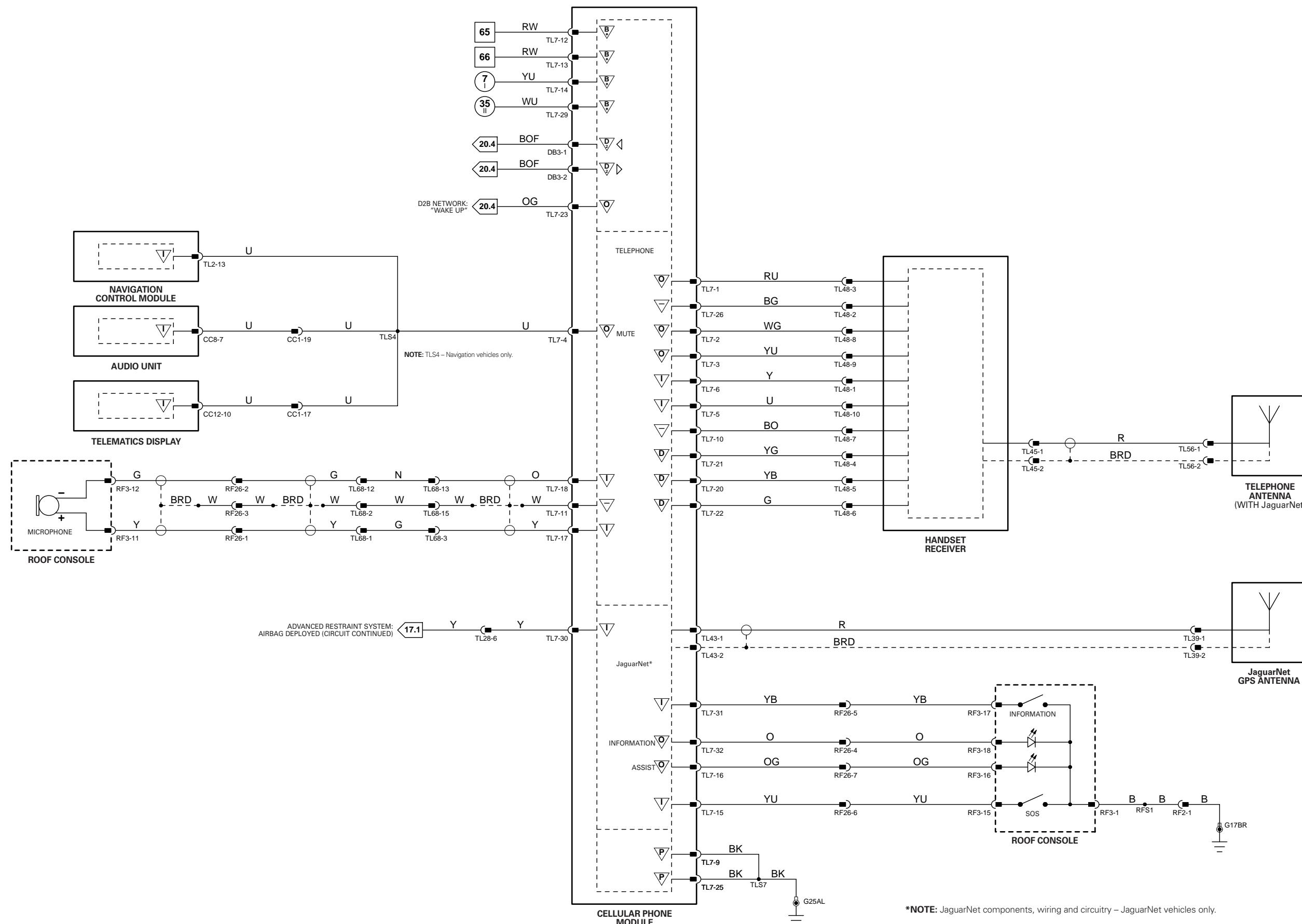


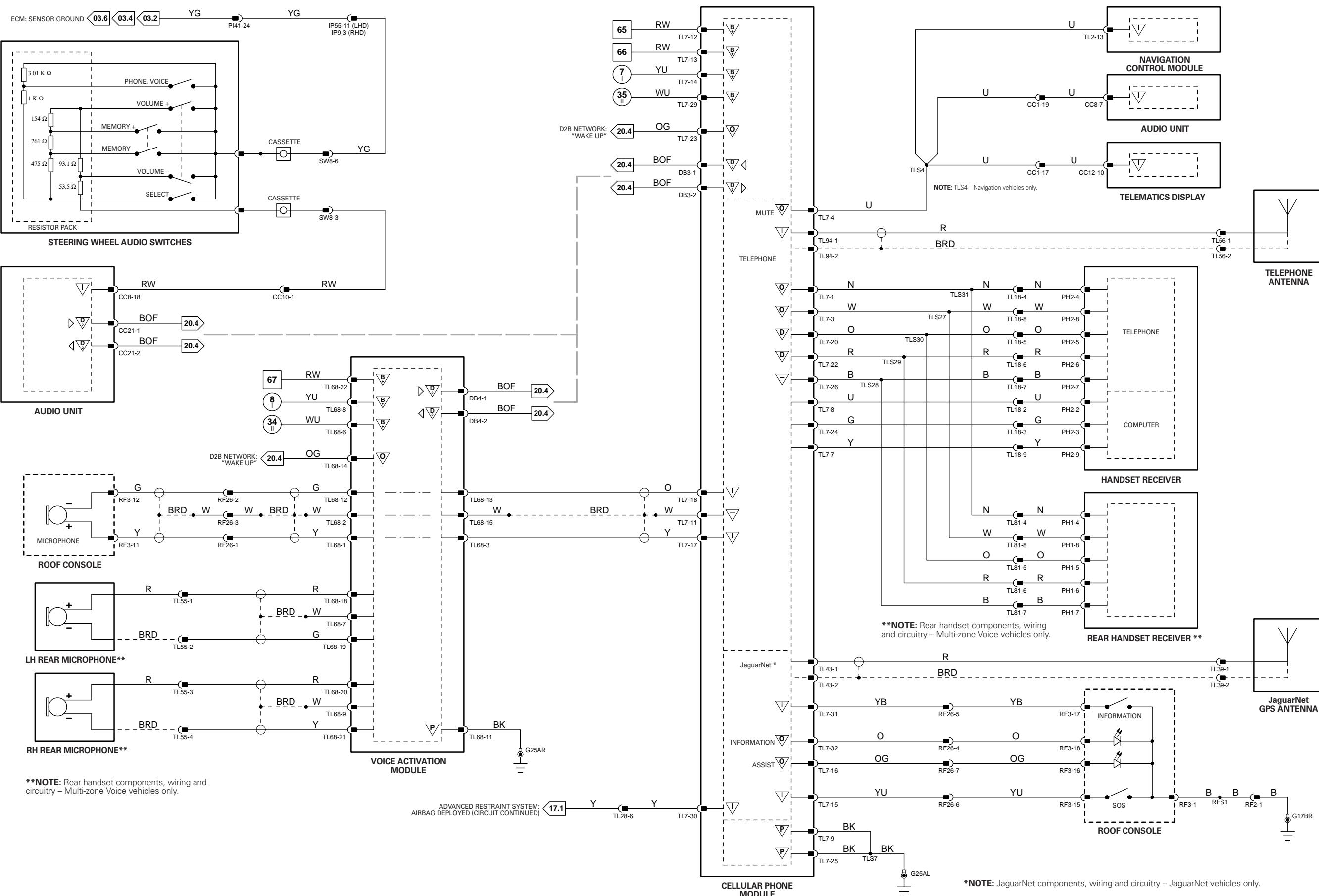


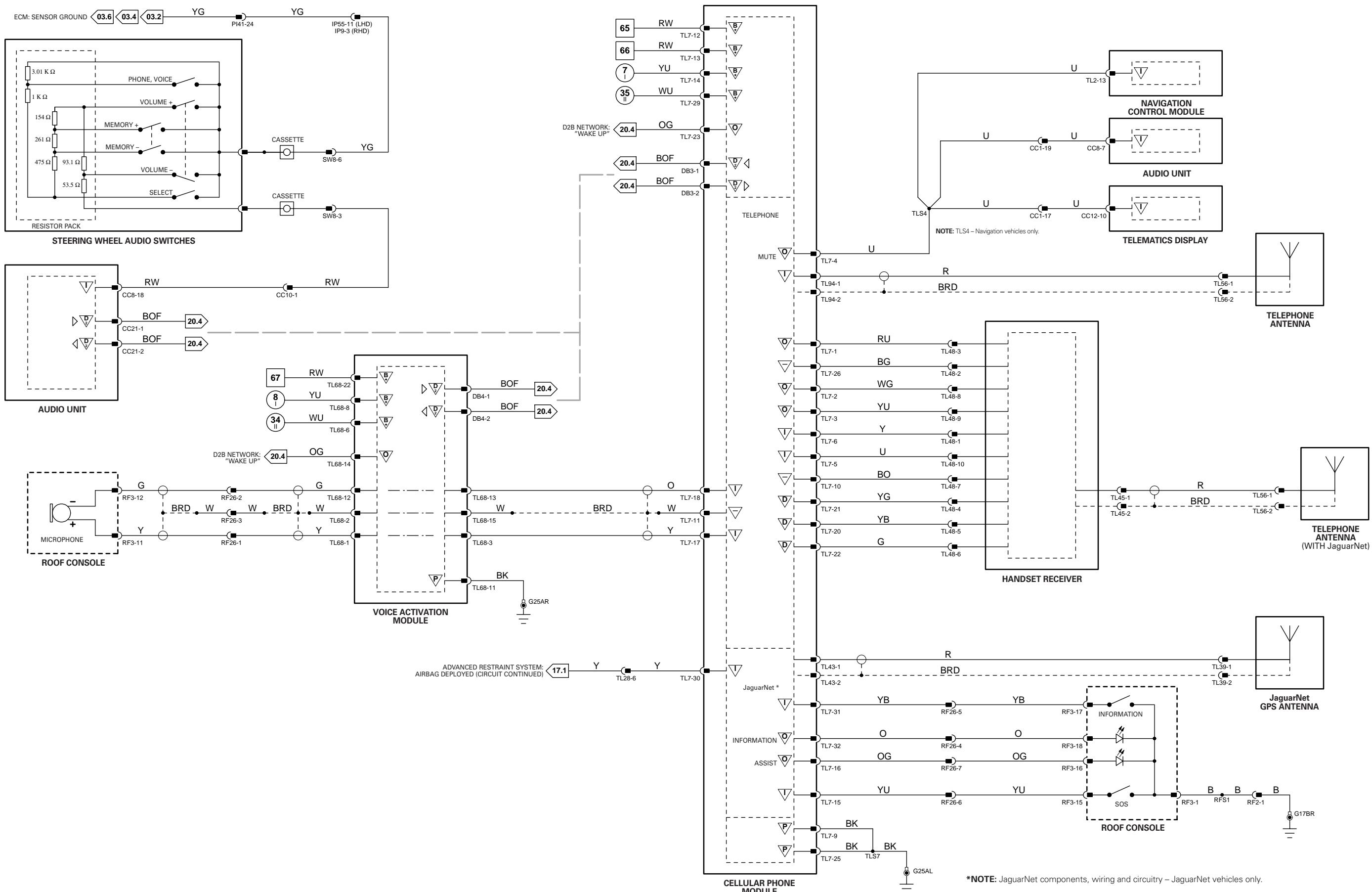


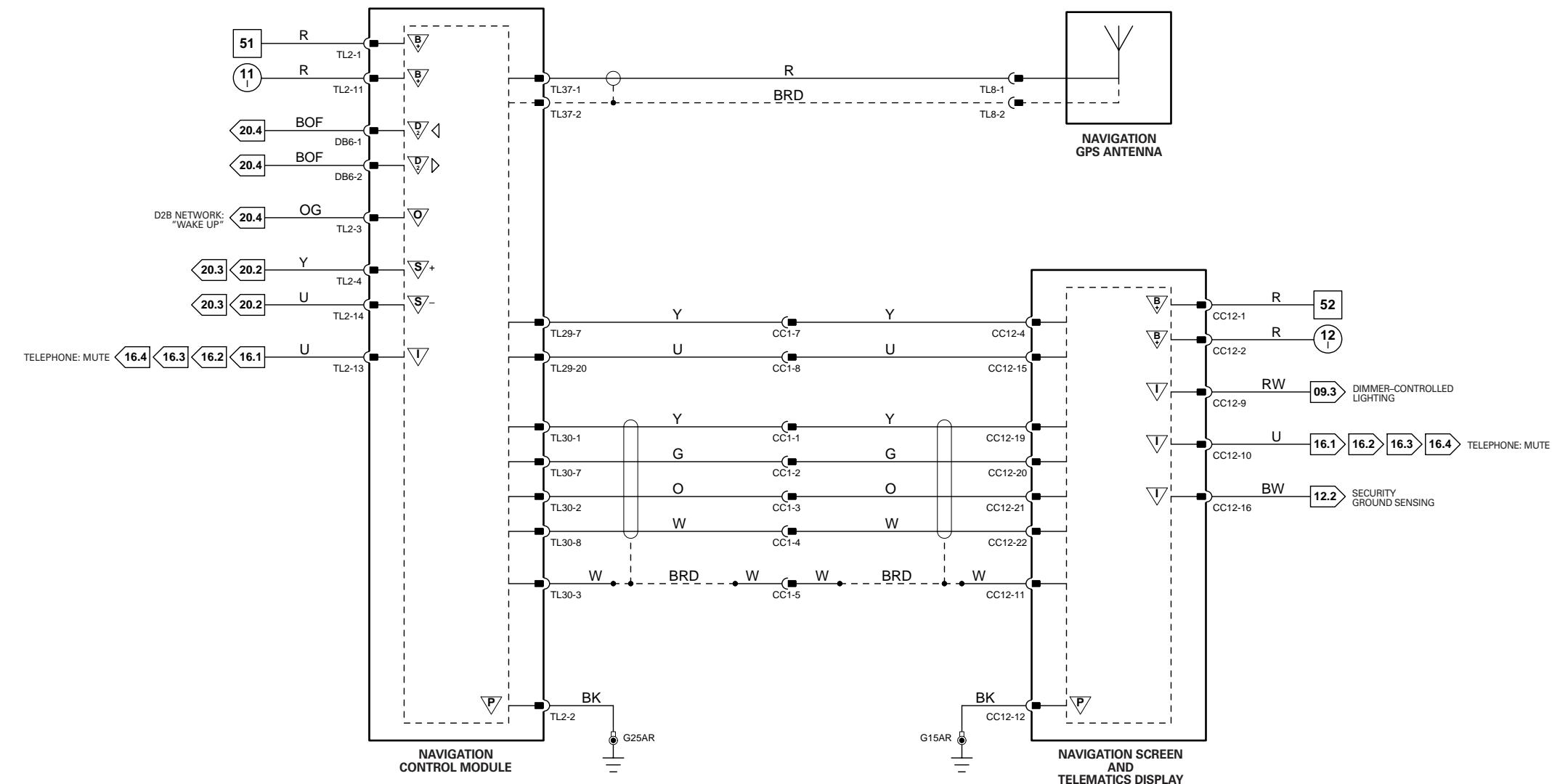


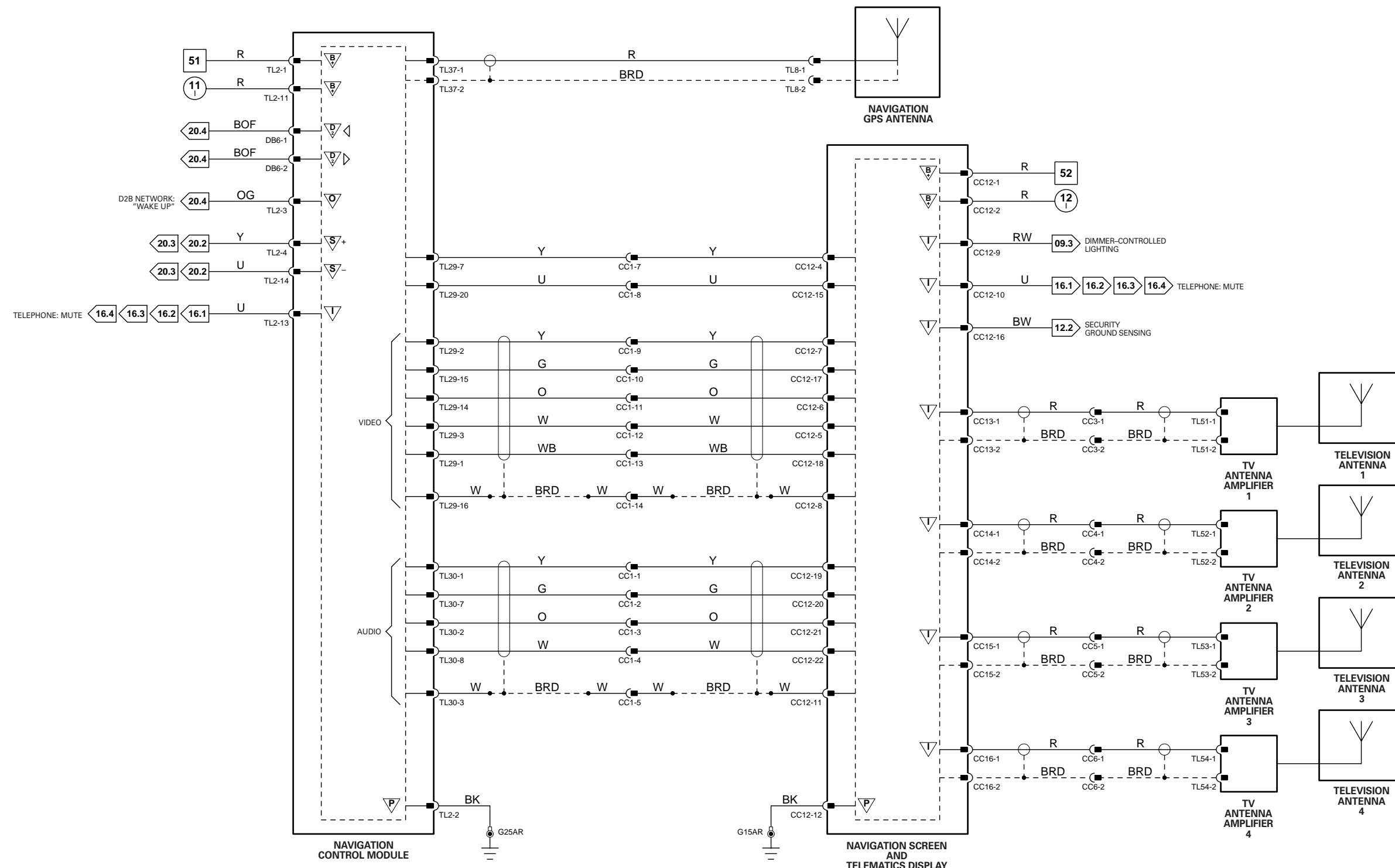


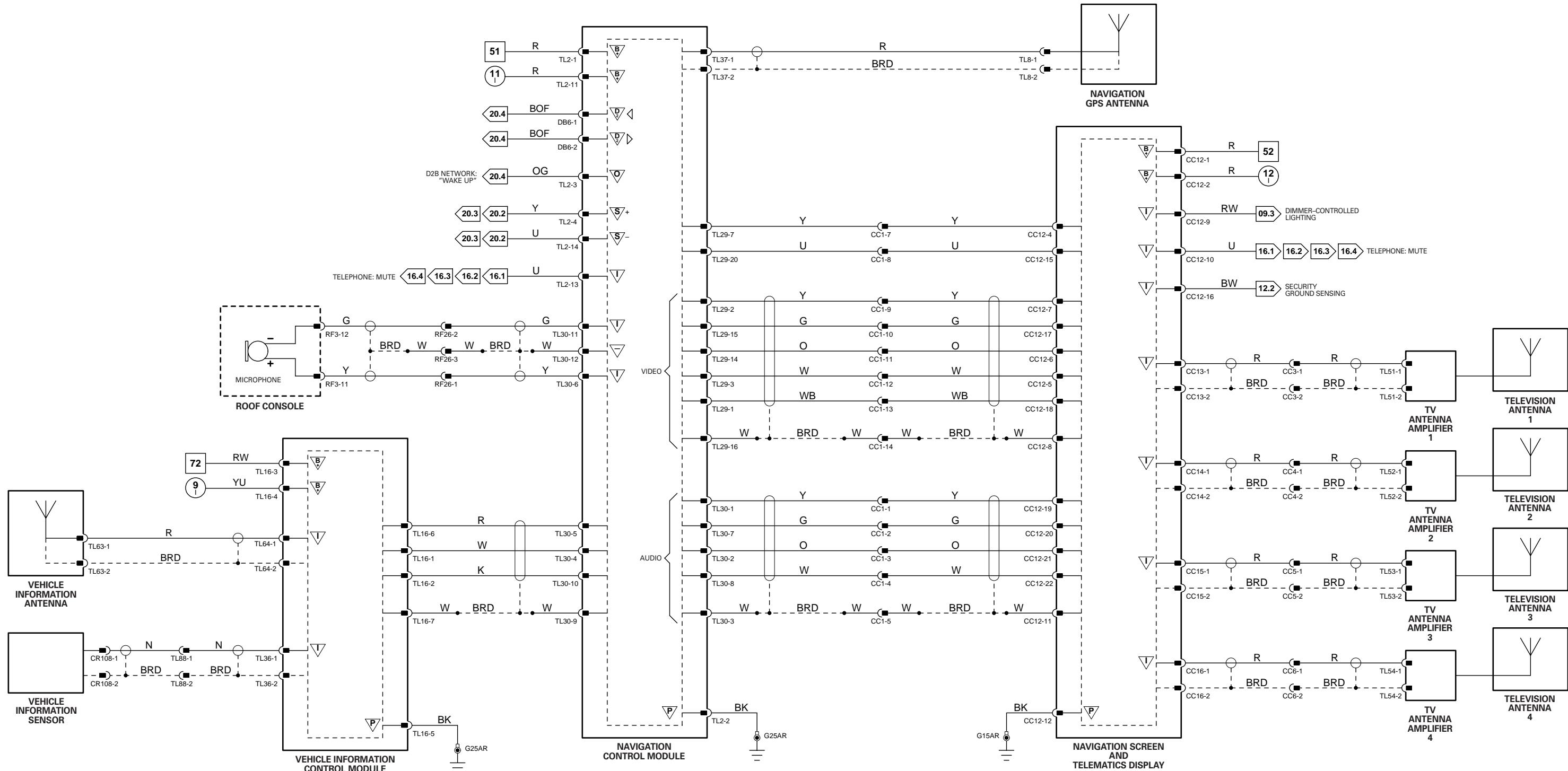


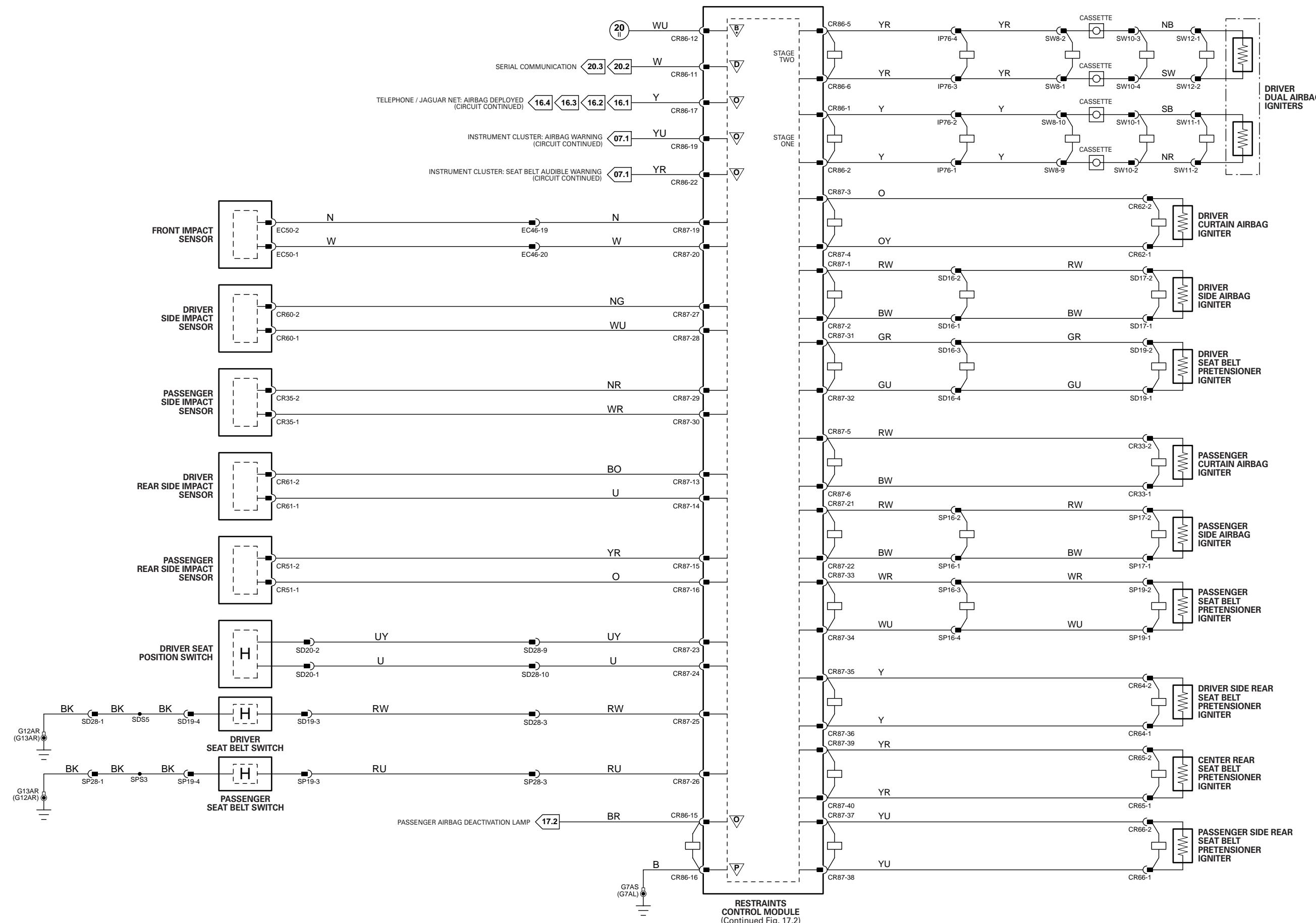


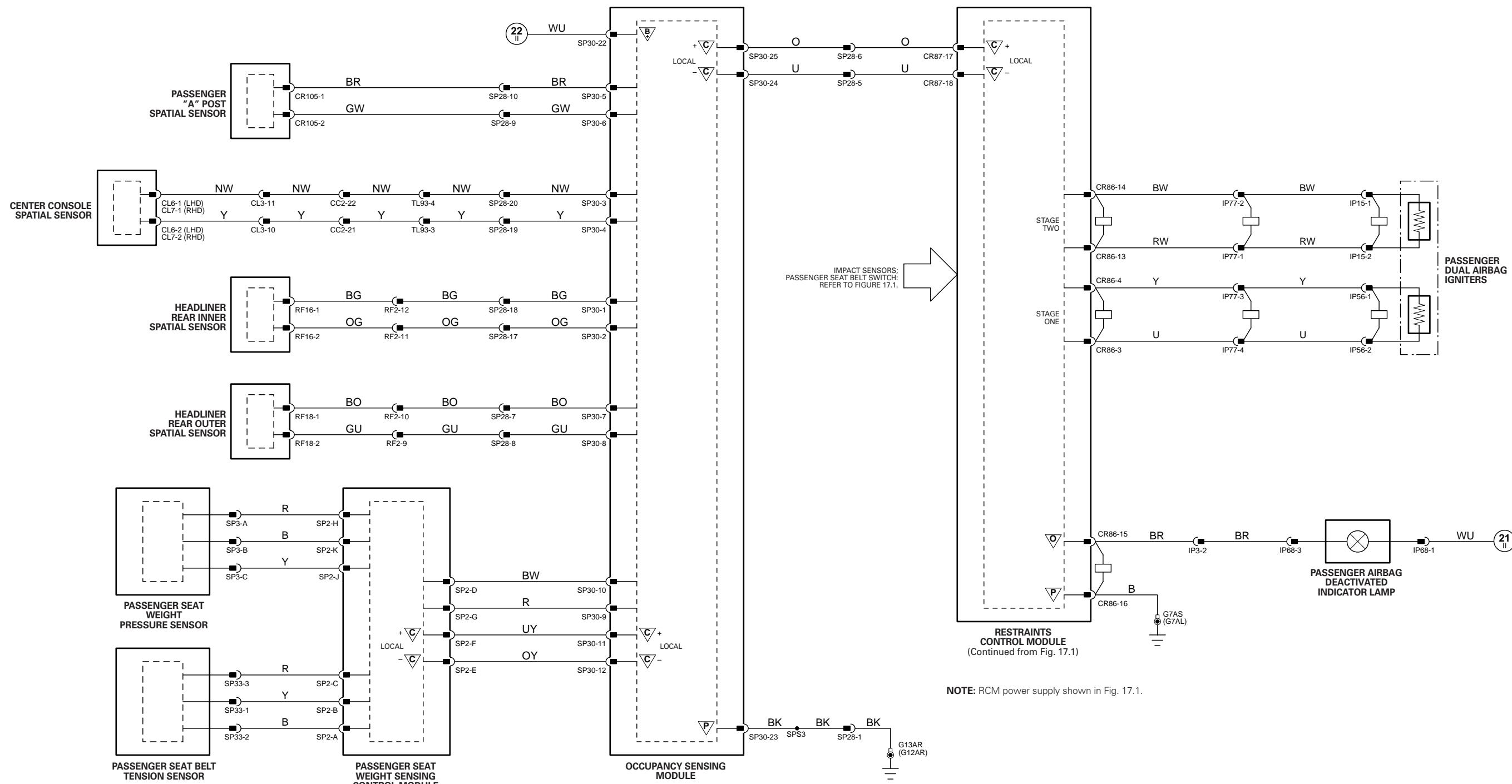


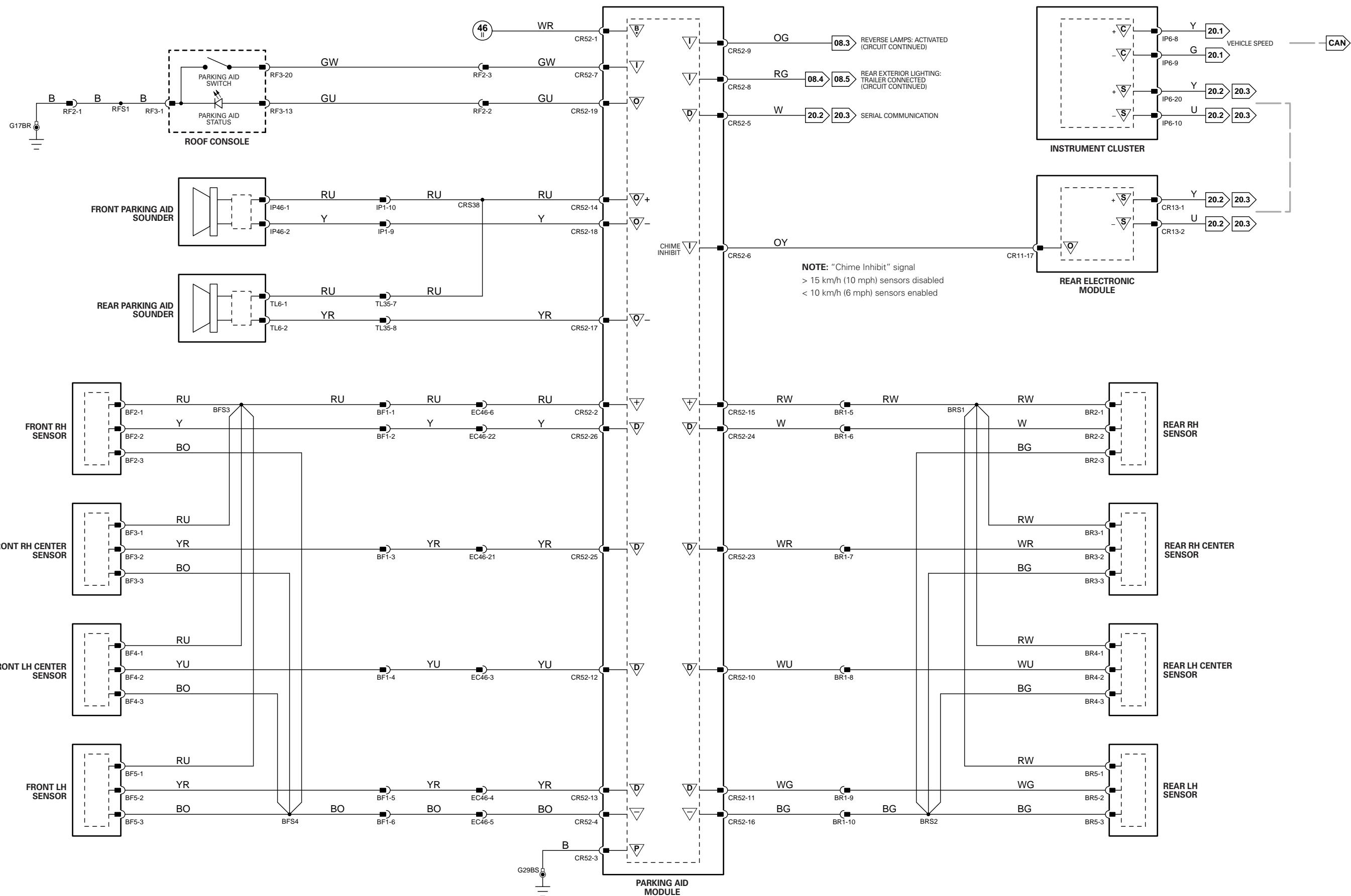


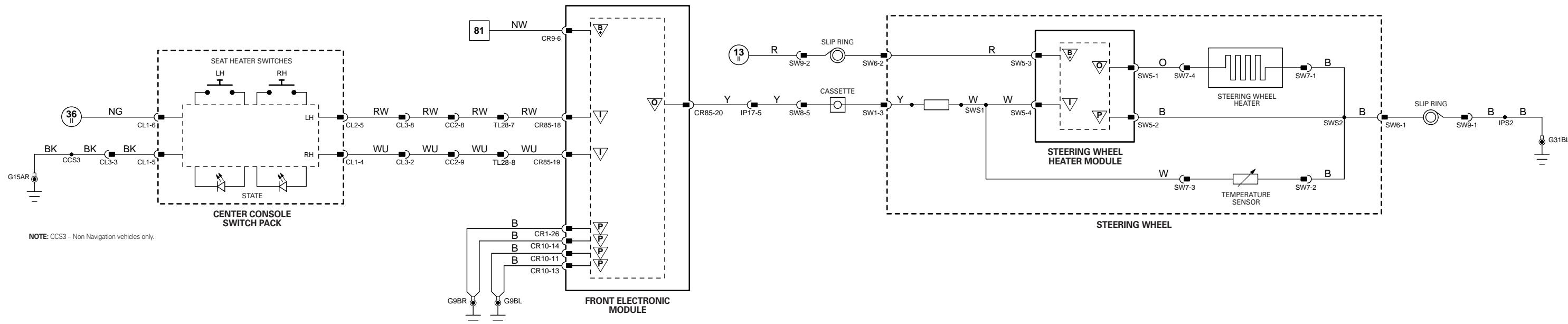




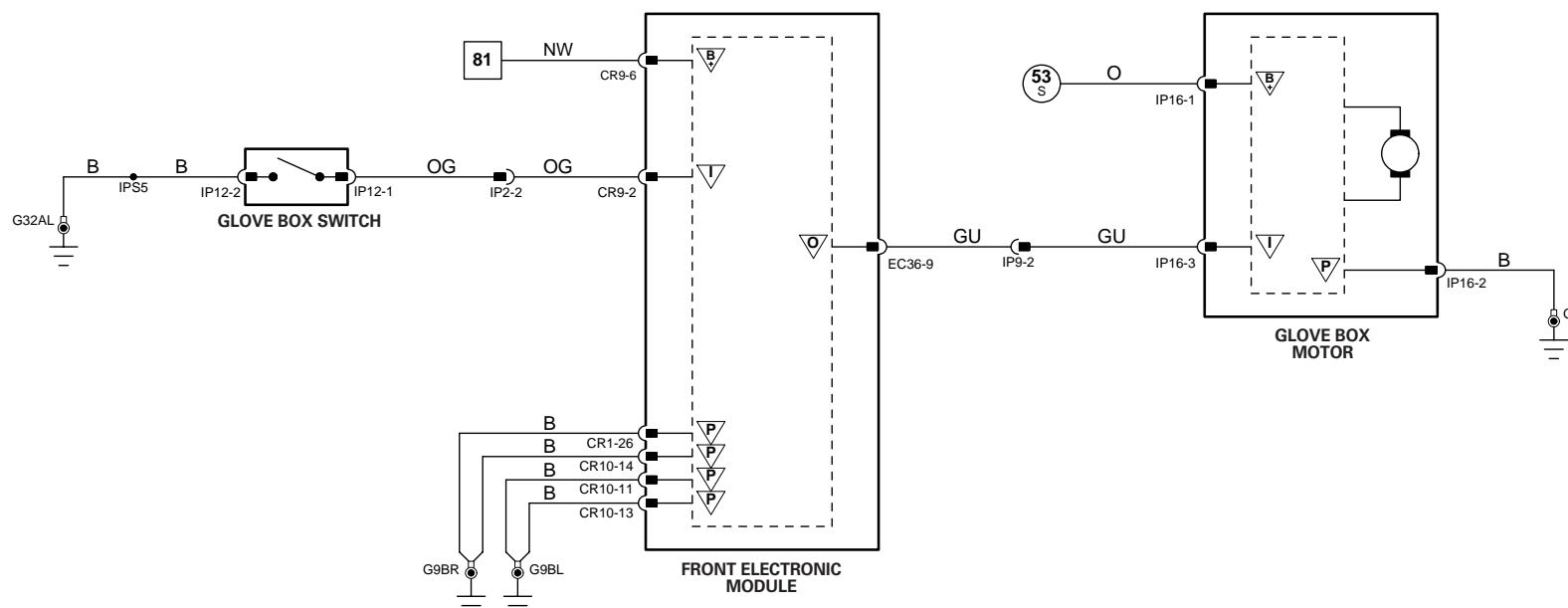




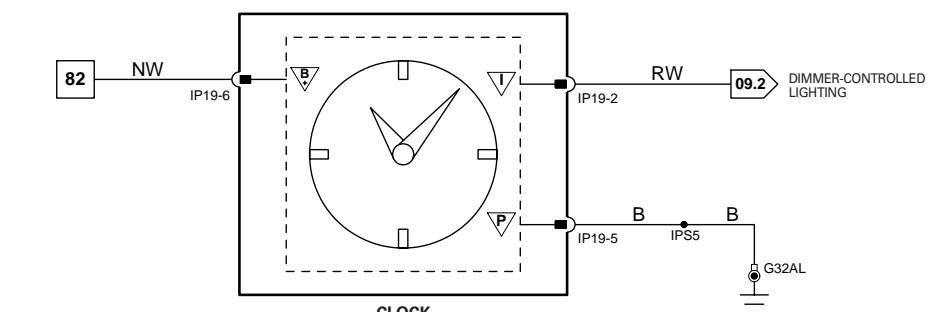




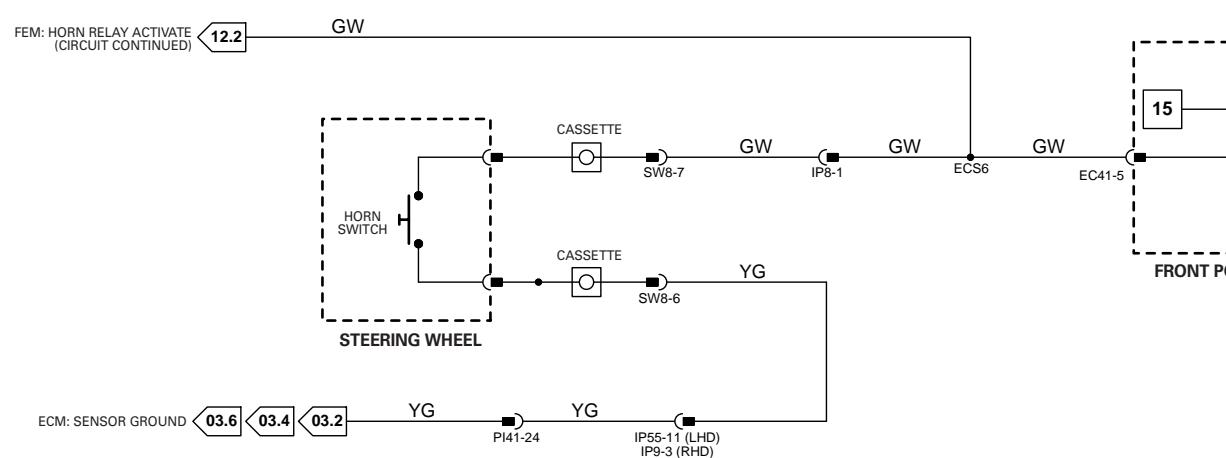
STEERING WHEEL HEATER



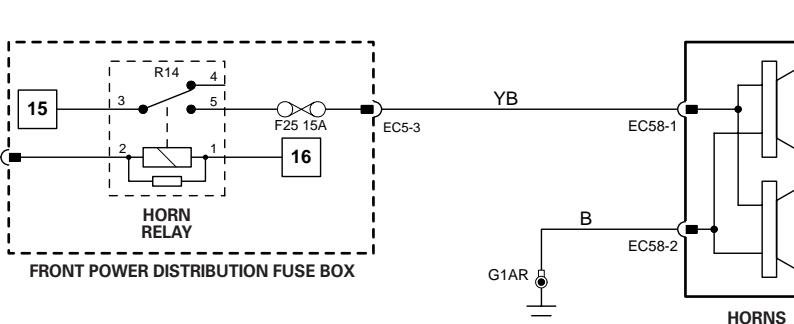
GLOVE BOX DOOR



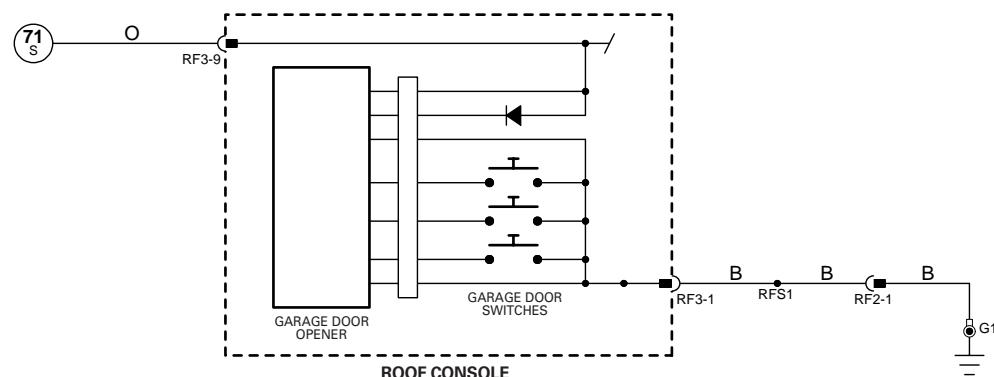
CLOCK



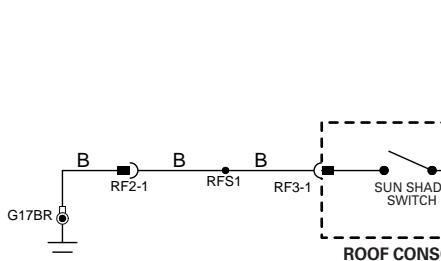
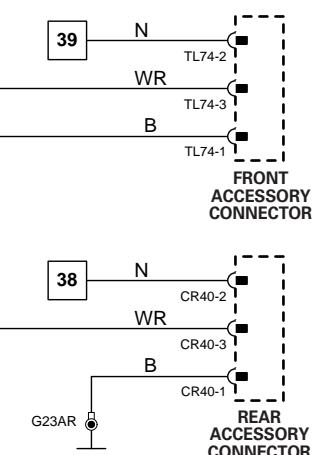
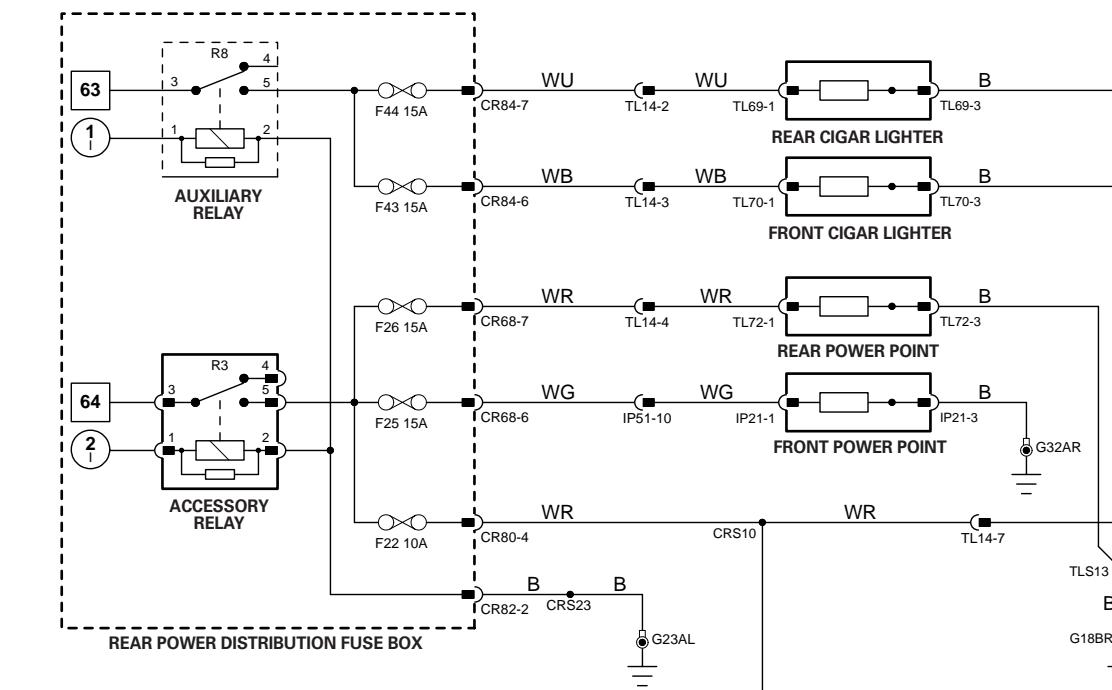
HORNS



ELECTRONIC ROAD PRICING

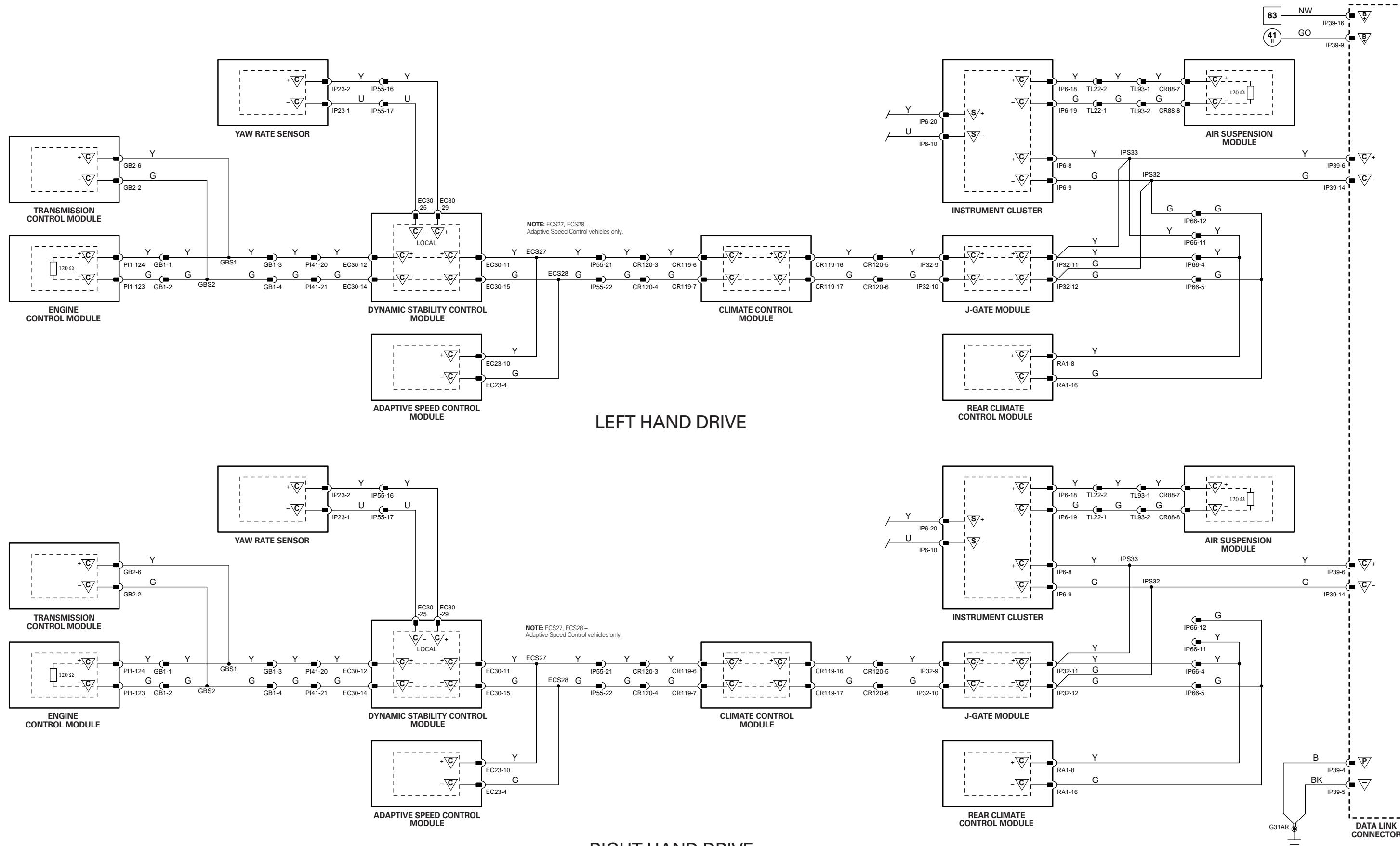


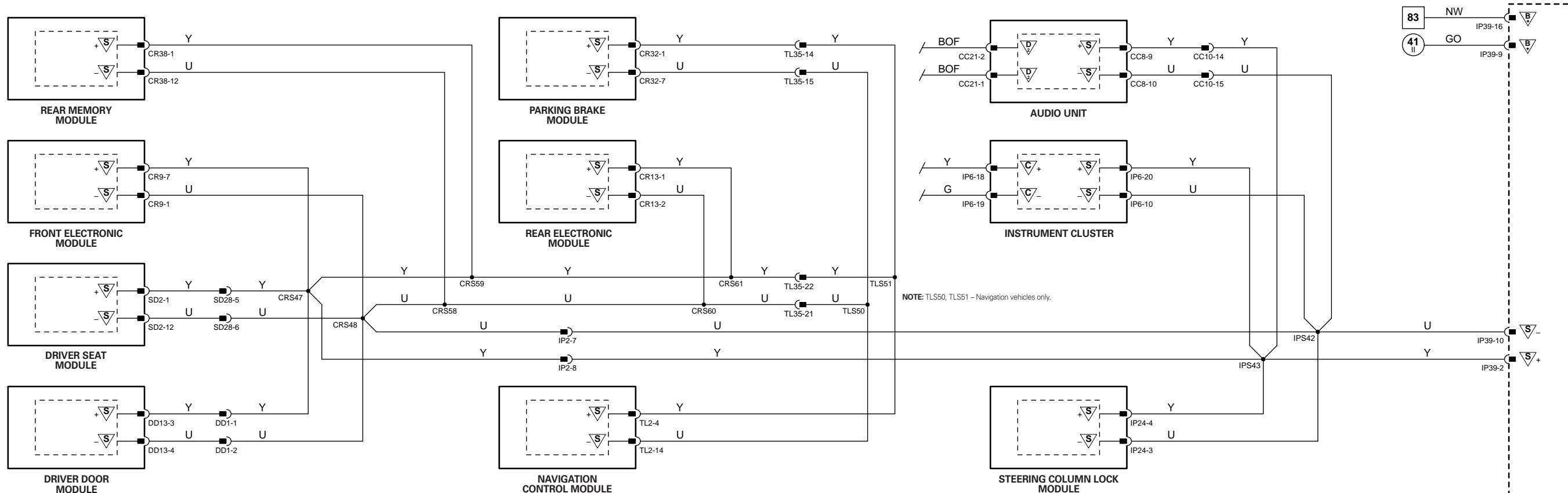
GARAGE DOOR OPENER



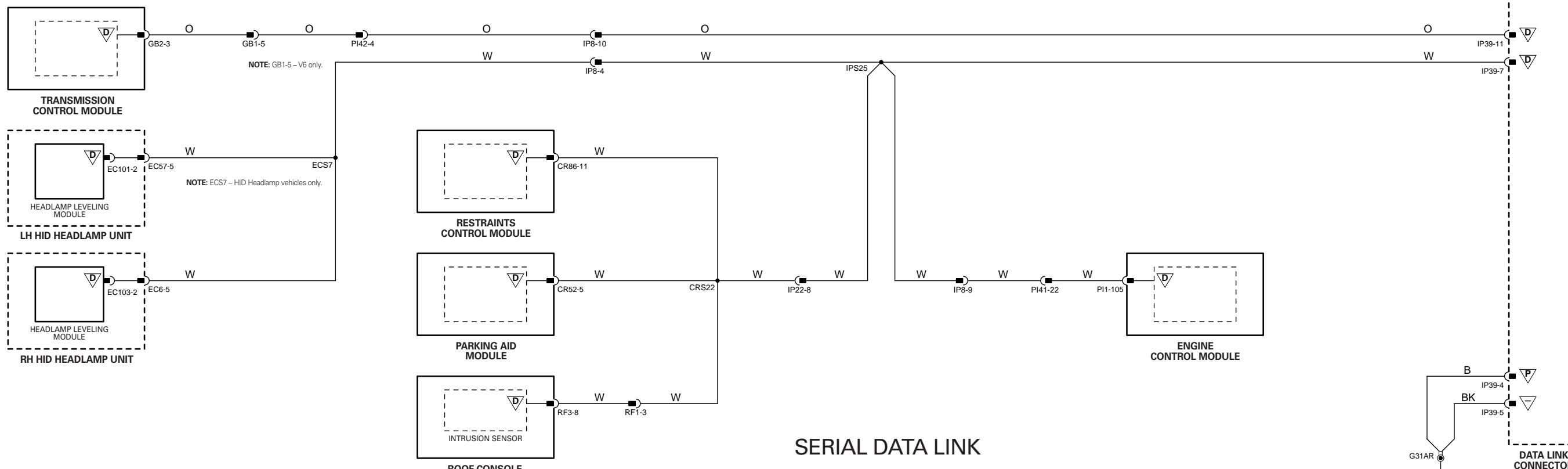
SUN SHADE

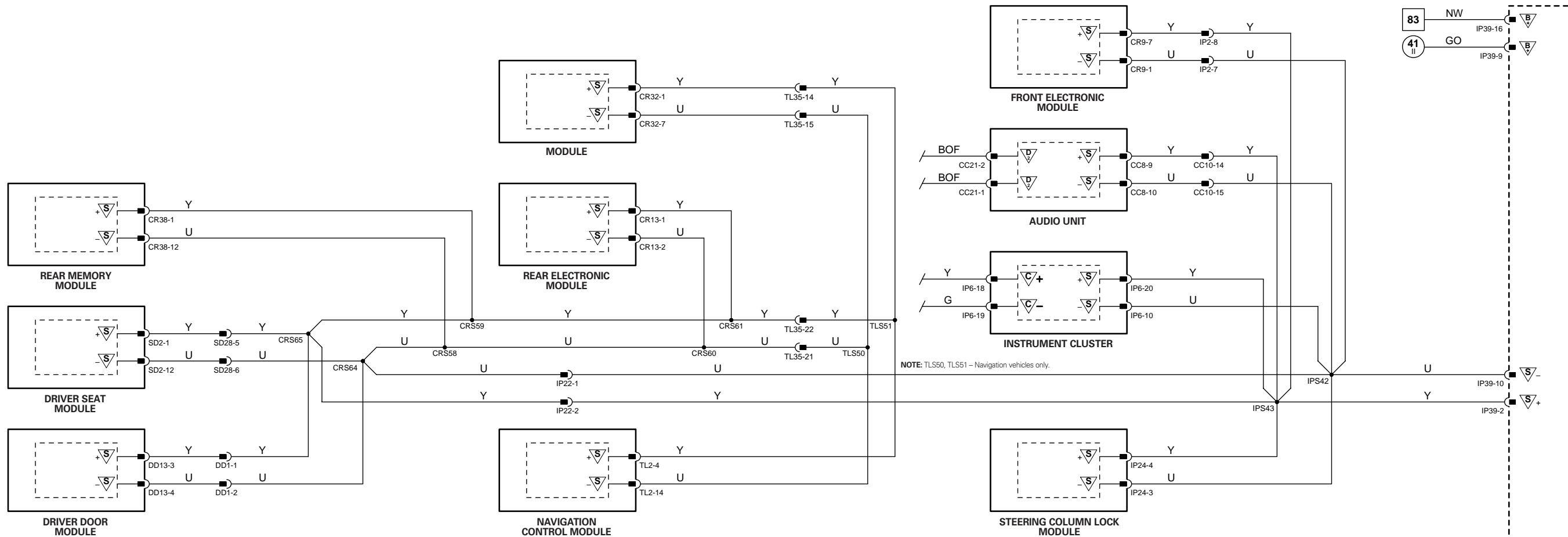
CIGAR LIGHTERS, POWER POINTS, ACCESSORY CONNECTORS



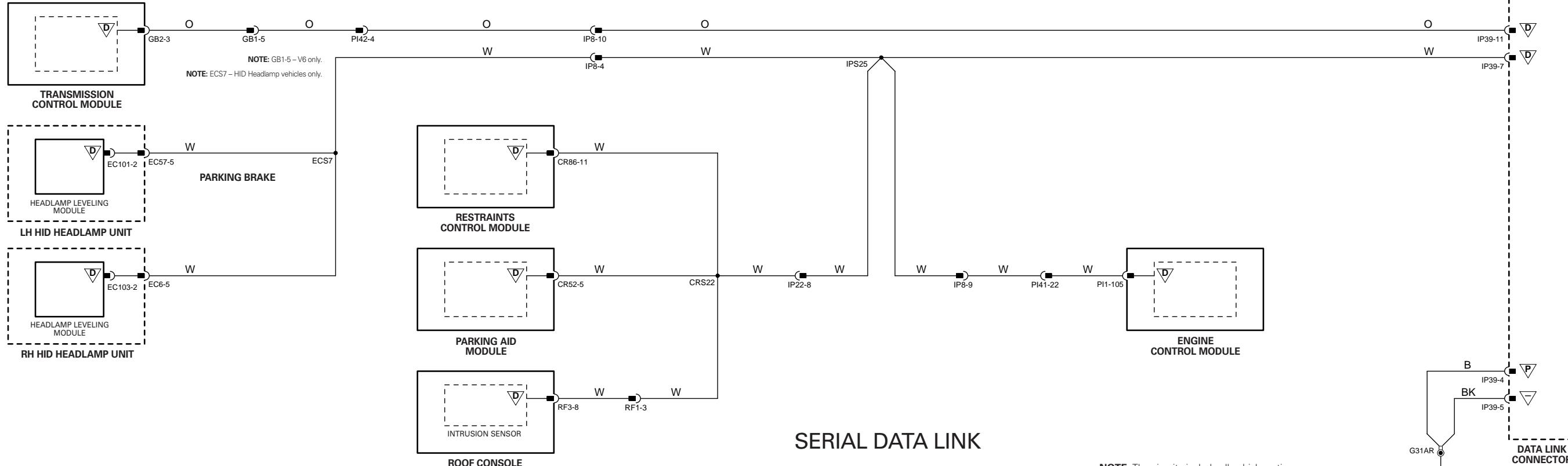


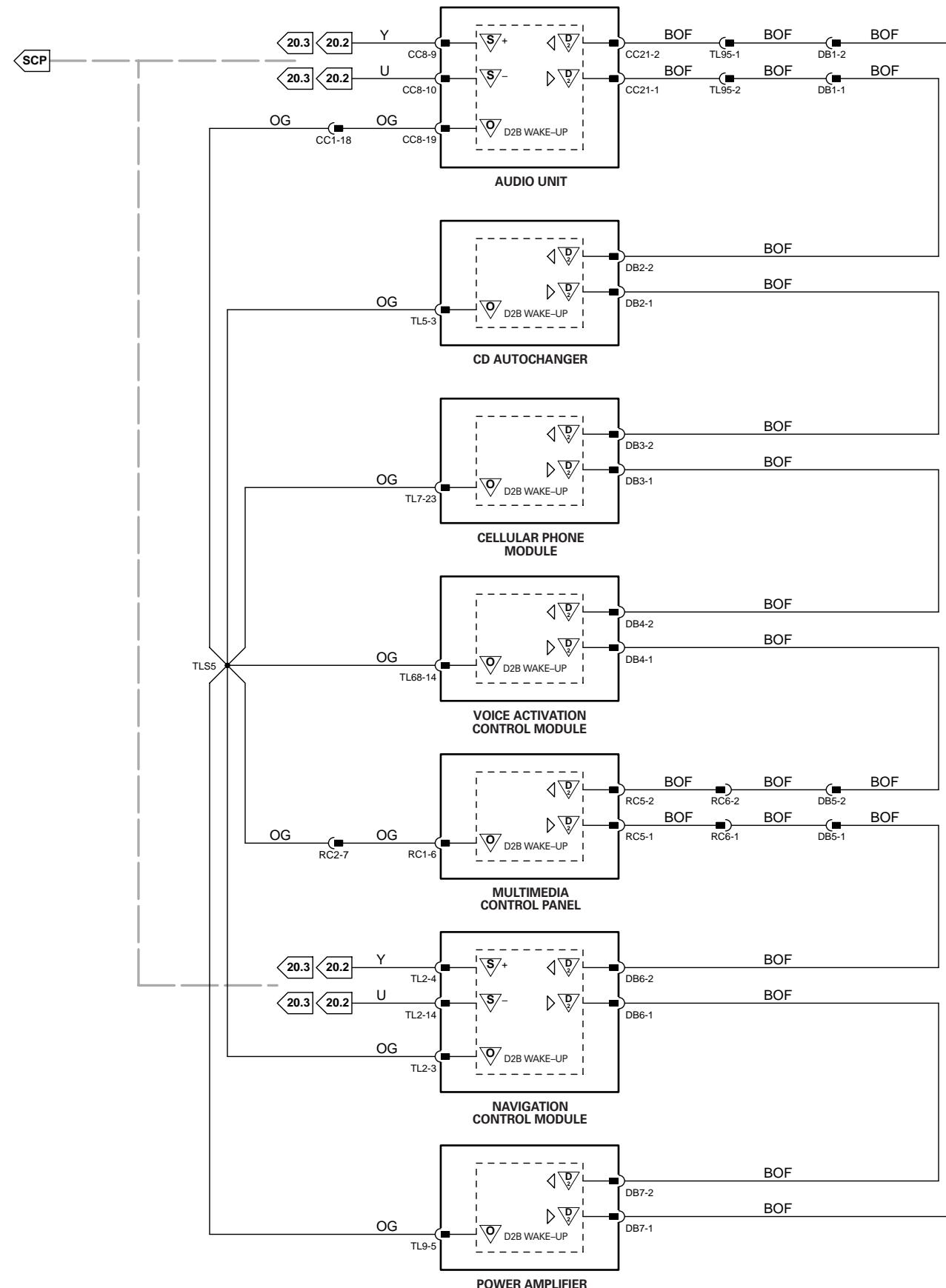
STANDARD CORPORATE PROTOCOL NETWORK





STANDARD CORPORATE PROTOCOL NETWORK



**NOTES:**

The 7-module D2B network shown depicts the greatest number of modules available. D2B networks containing less than 7 modules are always connected in the sequence shown from top to bottom.

Audio Unit – Master Module

1 – CD Autochanger

2 – Cellular Phone Module

3 – Voice Activation Module

4 – Multimedia Control Panel

5 – Navigation Control Module

6 – Power Amplifier

When modules are not fitted to the vehicle, the fiber optic cables and the connectors are deleted. Therefore, each network containing less than 7 modules has a unique fiber optic and "wake up" circuit.

For D2B network diagnostics via SCP – refer to Figs. 20.2 and 20.3.