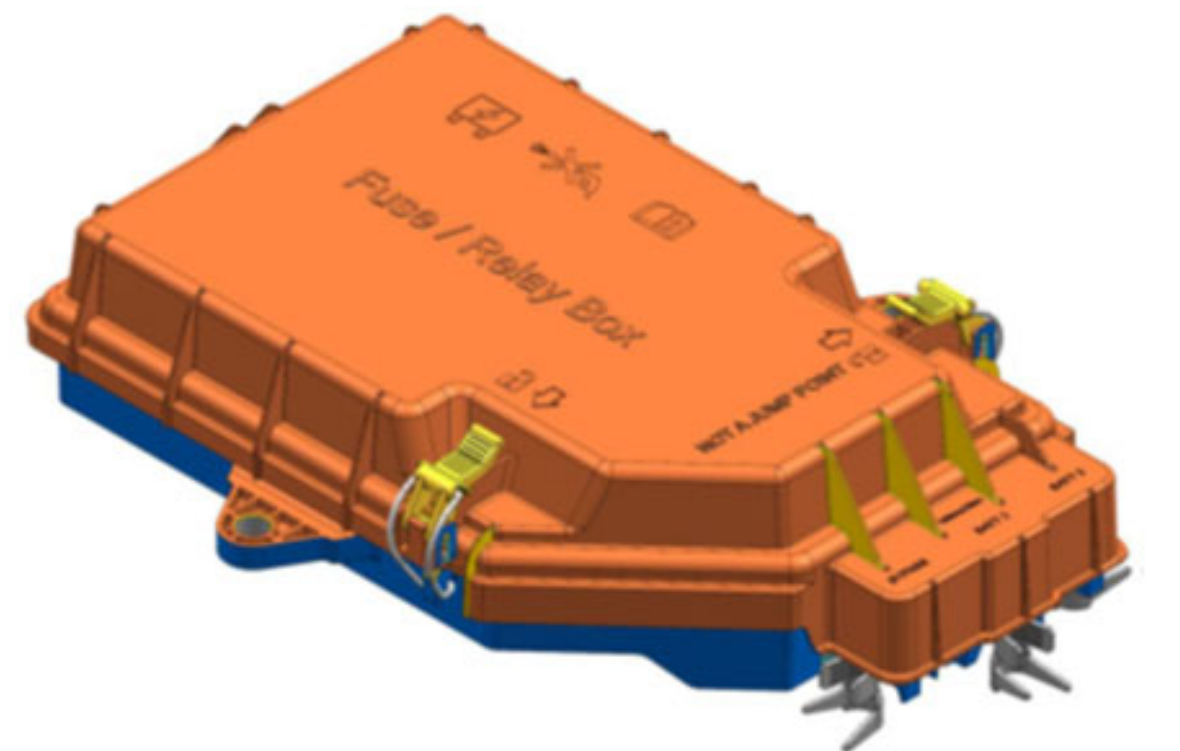




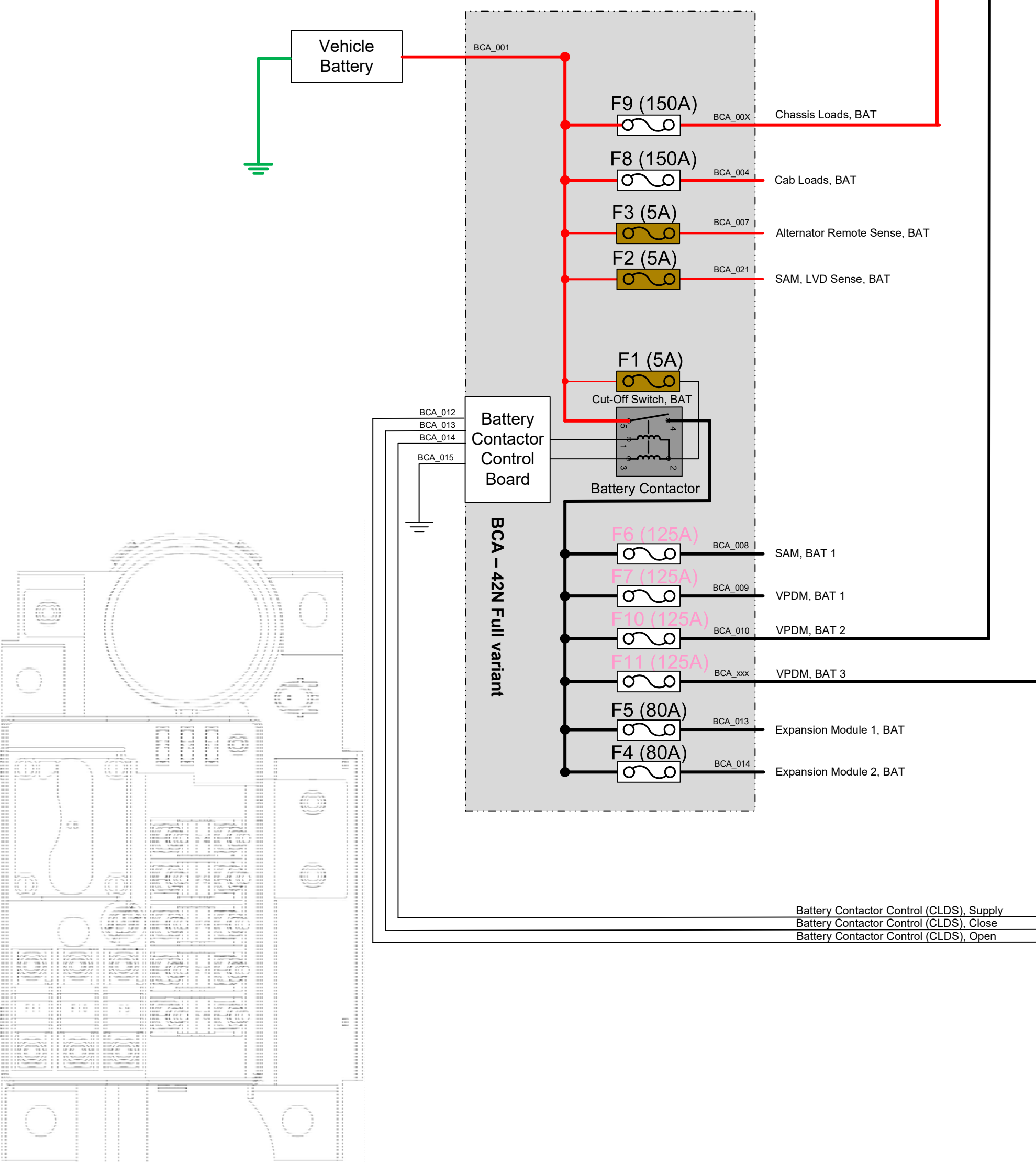
EXTERIOR VPDM

STI-543



BCA

* For all Keep alive circuits, ECU must adhere to Iq < 300microA.



BCA (Battery Cable Access) Fuse Positions

ASAM



Cummins Engine Controller

DEF Line Heater, LS Control [J5-4]
Spare Relay R15, HC Control [J5-11]
Spare Relay R19, LS Control [J5-3]

FU/CB POS	FU/CB TYPE	MAX RATING (Amp)	Standard (S) Optional (O)	Label Description
F01	FU,T2,T3	30A	O	DEF LINE HEATER #1/#2/#3 CTRL
F02	FU	5A	S	PDME,RELAY COIL, BAT 3
F03A/B	FU	3A	O	AUX CAB/AUX COLNT HTR, ENABLE/BAT
F04	FU,T2,T3	20A	O	EXPANSION FUSE 8, IGN
F05	FU,T2,T3	30A	O	EXPANSION FUSE 39, IGN
F06	FU	10A	O	EXPANSION FUSE 31, IGN
F07	JCASE	50A	O	EXPANSION FUSE 30, BAT
F08	FU, T2, T3	15A	O	EXPANSION FUSE 4, PWR
F09	FU,T2,T3	20A	O	EXPANSION FUSE 37, CTRL
F10	FU	15A	O	EXPANSION FUSE 9, IGN
F11	FU,T2,T3	15A	O	EXPANSION FUSE 11, BAT
F12	FU,T2,T3	15A	O	EXPANSION FUSE 7, BAT
F13	FU,T2,T3	20A	O	EXPANSION FUSE 19, BAT
F14	FU,T2,T3	10A	O	EXPANSION FUSE 10, IGN
F15	JCASE	30A	O	EXPANSION FUSE 28, BAT
F16	FU,T2,T3	15A	O	EXPANSION FUSE 32, CTRL
F17	JCASE	50A	S	HOUSE LOAD 2, BAT
F18	FU,T2,T3	20A	O	EXPANSION FUSE 5, BAT
F19	FU,T2,T3	20A	O	EXPANSION FUSE 20, BAT
F20	FU,T2,T3	10A	O	EXPANSION FUSE 33, CTRL
F21	FU,T2,T3	15A	O	EXPANSION FUSE 38, CTRL
F22	FU,T2,T3	20A	O	EXPANSION FUSE 18, BAT
F23	FU,T2,T3	20A	O	EXPANSION FUSE 21, BAT
F24	FU,T2,T3	5A	O	D+ EXPANSION, SIGNAL 1 & 2
F25	FU	15A	O	EXPANSION FUSE 34, CTRL
F26	JCASE	30A	O	EXPANSION FUSE 27, BAT
F27	FU,T2,T3	20A	O	EXPANSION FUSE 1, BAT
F28	FU,T2,T3	30A	O	EXPANSION FUSE 15, BAT
F29	FU,T2,T3	15A	O	EXPANSION FUSE 13, BAT
F30	FU, T2, T3	20A	O	EXPANSION FUSE 24, PWR
F31	JCASE	30A	O	EXPANSION FUSE 29, BAT
F32	FU,T2,T3	30A	O	EXPANSION FUSE 6, BAT
F33	FU,T2,T3	10A	S	AIR SOLENOID ECU 1, BAT
F34	FU,T2,T3	15A	O	EXPANSION FUSE 12, BAT
F35	FU,T2	10A	O	EXPANSION FUSE 35, IGN
F36	FU,T2,T3	30A	O	EXPANSION FUSE 3, BAT
F37	FU,T2,T3	30A	O	EXPANSION FUSE 16, BAT
F38	FU,T2,T3	15A	O	EXPANSION FUSE 14, BAT
F39	FU,T2,T3	30A	O	EXPANSION FUSE 2, BAT
F40	FU,T2,T3	20A	O	EXPANSIONS FUSE 23, BAT
F41	FU,T2,T3	15A	O	EXPANSION FUSE 25, BAT
F42	FU,T2,T3	20A	O	EXPANSION FUSE 17, BAT
F43	FU,T2,T3	30A	O	EXPANSION FUSE 22, BAT
F44	FU,T2,T3	15A	O	EXPANSION FUSE 26, BAT
F45A/B	FU,T2,T3	20A	O	EXPANSION FUSE 36, CTRL/BAT
F46	JCASE	50A	S	BASIC LOAD 2, BAT

RELAY POS	RELAY TYPE	Standard (S) Optional (O)	Label Description
R01	Mini	O	DEF LINE HEATER
R02	Mini	S	D+/ALT CHARGE/CTRL
R03	HCR	S	IGNITION
R04	Bi-Stable	S	HOUSE LOAD 2
R05	Micro	O	COLNT HTR IGN
R06	Micro	O	SPARE RELAY 10
R07	Micro	O	SPARE RELAY 15
R08	Micro	O	SPARE RELAY 9
R09	Micro	O	SPARE RELAY 13
R10	Micro	O	SPARE RELAY 8
R11	Micro	O	SPARE RELAY 14
R12	U-Micro	O	EXPANSION RELAY 1
R13	Micro	O	SPARE RELAY 5
R14	Micro	O	SPARE RELAY 11
R15	U-Micro	O	EXPANSION RELAY 2
R16	Bi-Stable	S	BASIC LOAD 2
R17	Micro	O	SPARE RELAY 7
R18	Micro	O	SPARE RELAY 12
R19	U-Micro	O	SPARE RELAY 16
R20	U-Micro	S	IGN/PT EARLY WAKE UP
R21	Micro	O	EXPANSION RELAY 3
R22	Micro	O	SPARE RELAY 6

Fuse Legend

	3A
	5A
	10A
	15A
	20A
	25A
	30A
	30A J-CASE
	40A J-CASE
	50A J-CASE
	60A J-CASE

Circuit Legend

	Ground
	Feedback
	Battery
	Bypass

- Fuse and Circuit Breaker ratings are listed as their maximum vauue and not to be exceeded
- All Outputs listed as O (Optional) are flexible outputs driven by Smartparts and dependant on vehicle configurations. Reference 49-00306 and SMARTPART Functional Assignment Document 49-00333 for more information.
- Indicated Control circuits are spliced with Exterior VPDM for relay actuation
- Type 1 (self-resetting) circuit breakers are not recommended as a suitable replacement. Type 2 or Type 3 Only
- For all locations with multiple positions, this document shows their primary (A) position, with the secondary (B) position shown as open

Key Position Legend

PWR => Keep Alive Powered
BAT => Powered During Key-Off
IGN => Powered During Key-On/Crank
ACC => Powered During Key-On
GND => See 28G GND Architecture

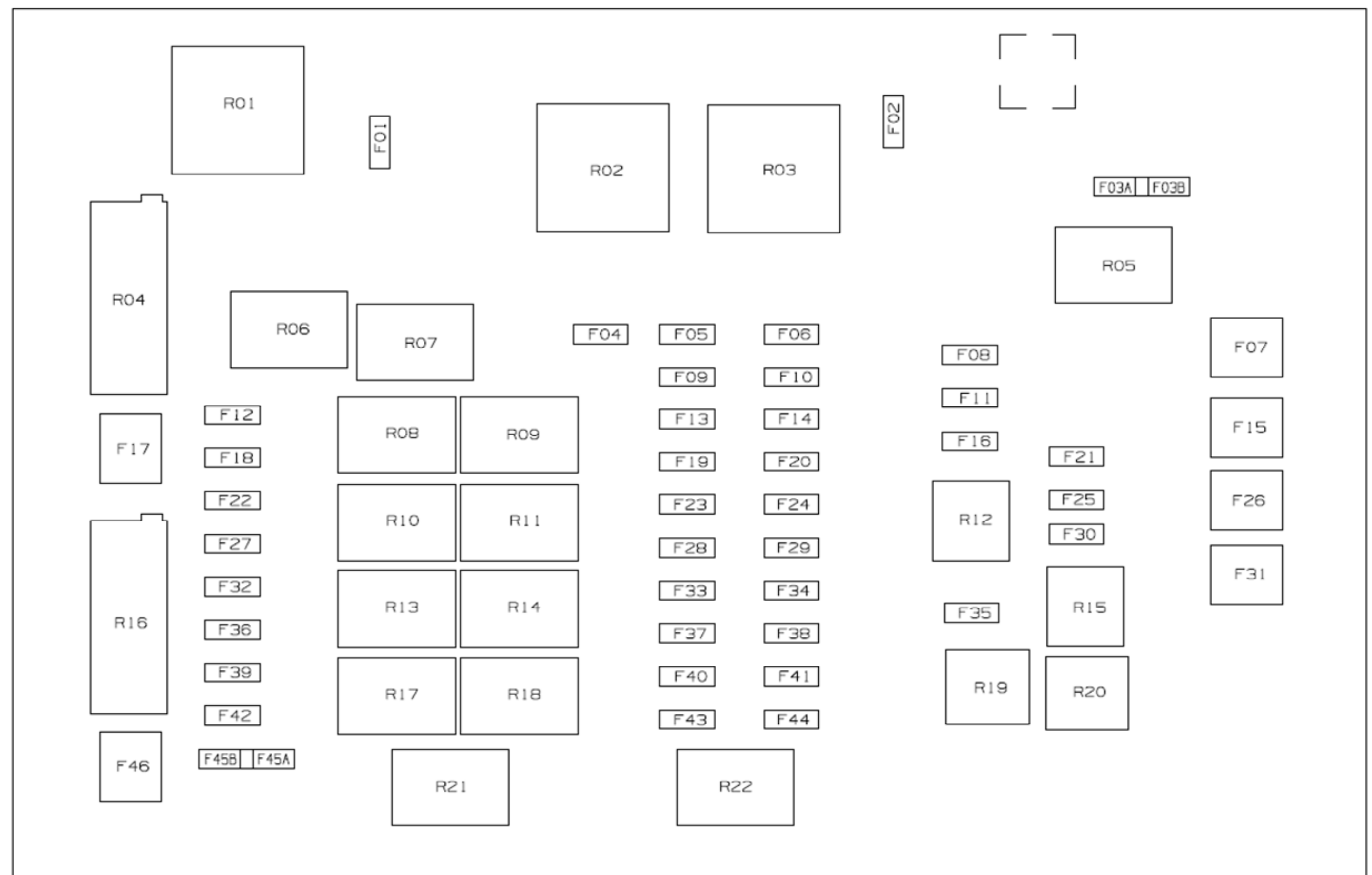
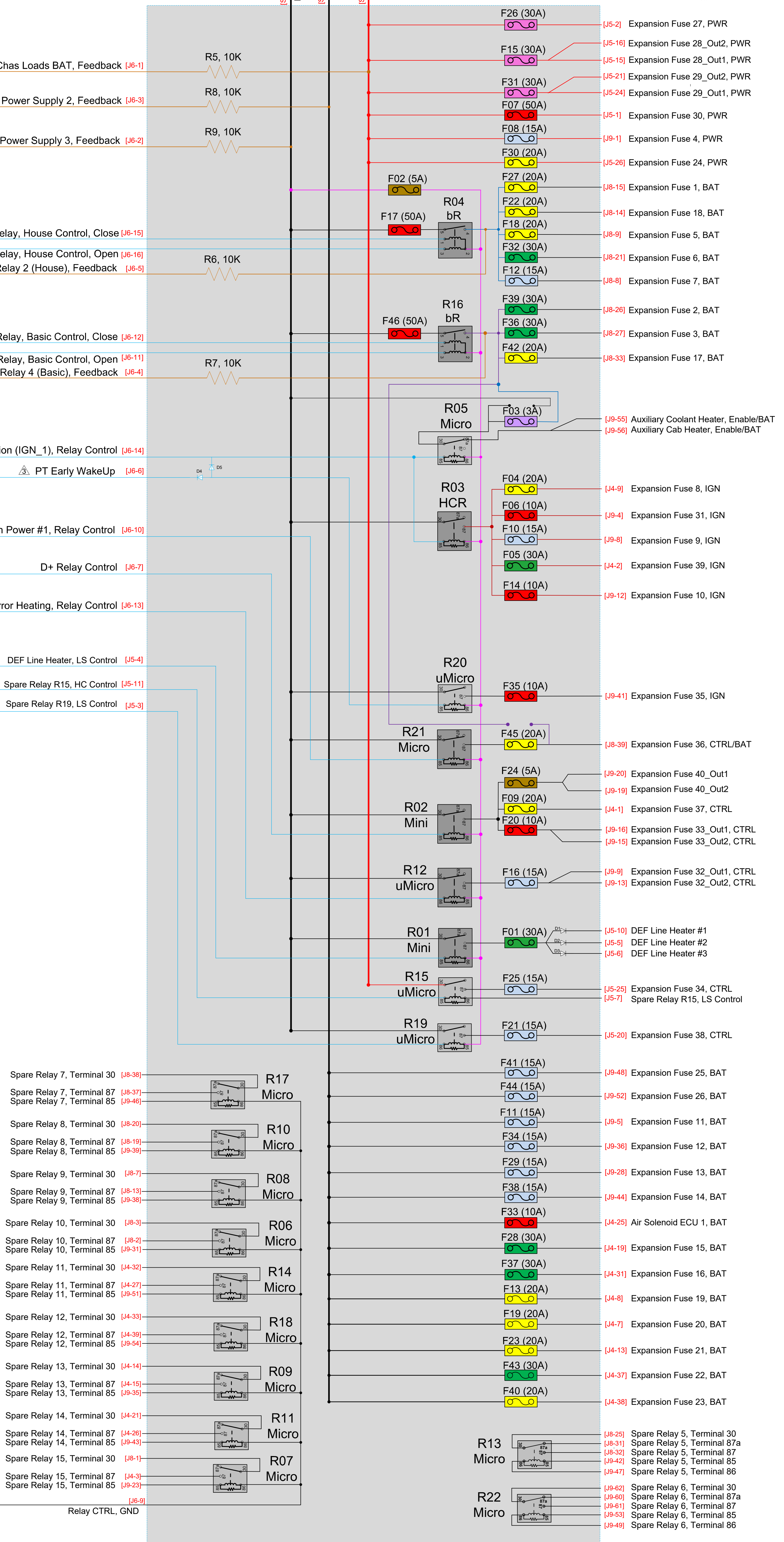
Relay Legend

bR => Bi-stable Relay
HCR => High Current Relay
Mini => ISO Mini Relay
Micro => ISO Micro Relay
uMicro => ISO Ultra Micro Relay

Spare Relay Trace Sizing

uMicro => 20A
Micro => 30A
Mini => 50A
HCR => 80A
Control => 5A for all relays

NOTE: Bistable relays magnetically latch in either the open or closed state with a pulse from the SAM as battery charge levels are reached. SAM will check the state of the relay on ignition transition. The ignition switch should be cycled after replacing a bistable relay.



VPDM Layout