

# Power Distribution Module

3A0239G

EN

For use with HFR, VRM, and VPM plural-component proportioners. For professional use only.

Not approved for use in European explosive atmosphere locations.

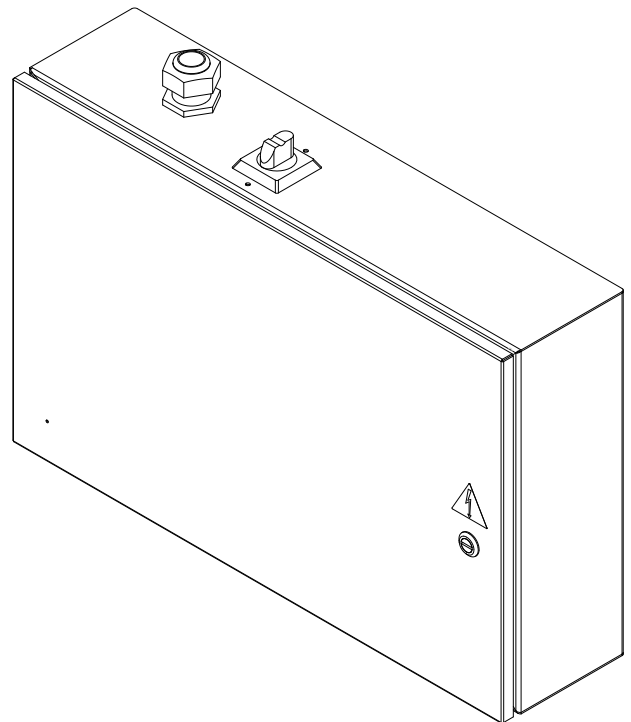


### Important Safety Instructions

Read all warnings and instructions in this manual. Save these instructions.

See page 3 for model information.

US Patent Pending



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# Models

Description	Maximum Amperes	Description	CE
<b>HFR Power Distribution Modules</b>			
230V, 1 Phase, Basic	55 A	200-240VAC, 1 phase, 50/60 Hz 2 wire and PE ⊕	
230V, 1 Phase, Fully Loaded	116 A		
230V, 3 Phase, Basic	29 A	200-240VAC, 3 phase Δ, 50/60 Hz 3 wire and PE ⊕	
230V, 3 Phase, Fully Loaded	73 A		
400V, 3 Phase, Basic ✘	55 A	380-415VAC, 3 phase Y, 50/60 Hz 3 wire, neutral, and PE ⊕	✓
400V, 3 Phase, Fully Loaded ✘	63 A		✓
<b>VRM Power Distribution Modules</b>			
230V, 3 Phase, Basic	60 A	200-240VAC, 3 phase Δ, 50/60 Hz 3 wire and PE ⊕	
230V, 3 Phase, Fully Loaded	105 A		
400V, 3 Phase, Basic ✘	55 A	380-415VAC, 3 phase Y, 50/60 Hz 3 wire, neutral, and PE ⊕	✓
400V, 3 Phase, Fully Loaded ✘	75 A		✓
<b>VPM Power Distribution Modules</b>			
230V, 3 Phase	75 A	200-240VAC, 3 phase Δ, 50/60 Hz 3 wire and PE ⊕	
400V, 3 Phase ✘	55 A		
400V, 3 Phase ✘	55 A	3 wire, neutral, and PE ⊕	✓

\* The Residual Current Device (RCD) must be rated at 300 mA if it is installed.

Basic modules provide power to the control dispense system only.

Fully loaded modules provide power to the control dispense system, four heat zones, and two feed tanks.




✘ See 400 V Power Requirements.

## 400 V Power Requirements

- 400 V systems are intended for International voltage requirements. Not for voltage requirements in North America.
- If a 400 volt configuration is operated in North America, a special transformer rated for 400 V ("Y" configuration (4 wire)) may be required.
- North America mostly employs a 3 wire or Delta configuration. The two configurations are not interchangeable.

# Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

 <b>WARNING</b>	
	<p><b>ELECTRIC SHOCK HAZARD</b></p> <p>This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock.</p> <ul style="list-style-type: none"> <li>• Turn off and disconnect power at main switch before disconnecting any cables and before servicing equipment.</li> <li>• Connect only to grounded power source.</li> <li>• All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.</li> </ul>
	<p><b>EQUIPMENT MISUSE HAZARD</b></p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> <li>• Do not operate the unit when fatigued or under the influence of drugs or alcohol.</li> <li>• Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See <b>Technical Data</b> in all equipment manuals.</li> <li>• Do not leave the work area while equipment is energized or under pressure. Turn off all equipment and follow the <b>Pressure Relief Procedure</b> in this manual when equipment is not in use.</li> <li>• Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.</li> <li>• Do not alter or modify equipment.</li> <li>• Use equipment only for its intended purpose. Call your distributor for information.</li> <li>• Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.</li> <li>• Do not kink or over bend hoses or use hoses to pull equipment.</li> <li>• Keep children and animals away from work area.</li> <li>• Comply with all applicable safety regulations.</li> </ul>

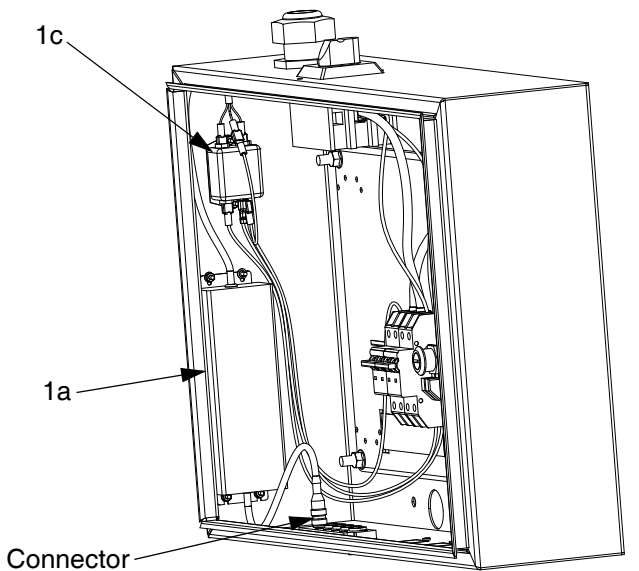
# Troubleshooting

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
No power received from DC power supply.	Defective power supply.	Check circuit breaker. Check power supply. Replace power supply.
No power to MCM, heat zones, or tanks.	Circuit breaker is tripping.	Check circuit breaker for tripping and defects. Diagnose cause of circuit breaker tripping before resetting it. Replace defective parts if required.

# Repair

## Replace Power Supply

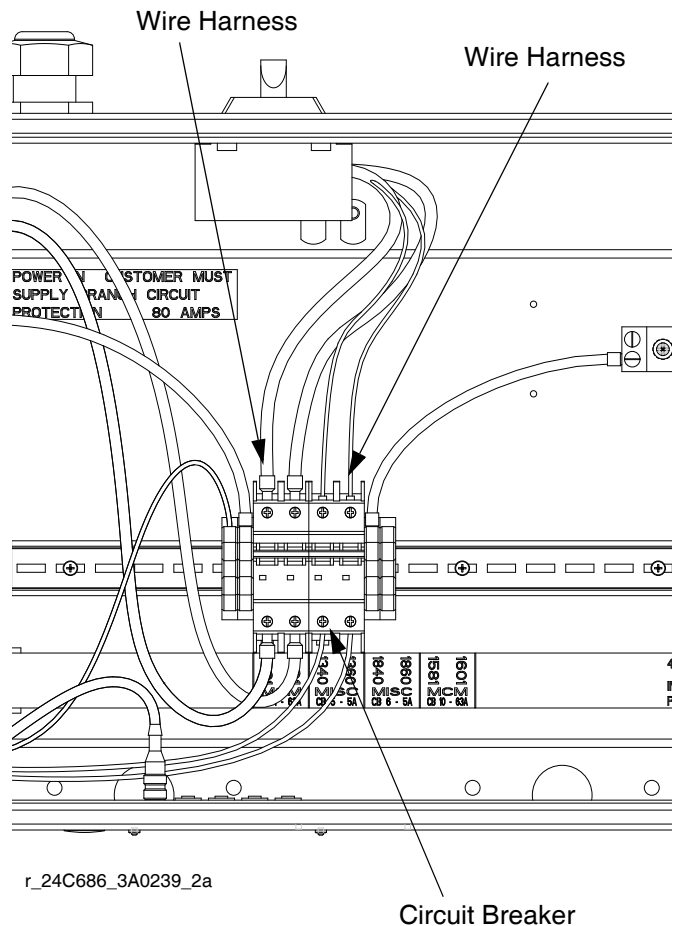
1. Turn off system power.
2. Open electrical enclosure door.
3. Disconnect power supply (1a) wires from the filter (1c) and the electrical enclosure connector.
4. Remove nuts and washers that secure power supply to electrical enclosure.
5. Install new power supply to electrical enclosure. Secure with nuts and washers.
6. Connect power supply wires to the filter and the electrical enclosure connector.
7. Close electrical enclosure door and turn on system power.



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## Replace Circuit Breaker

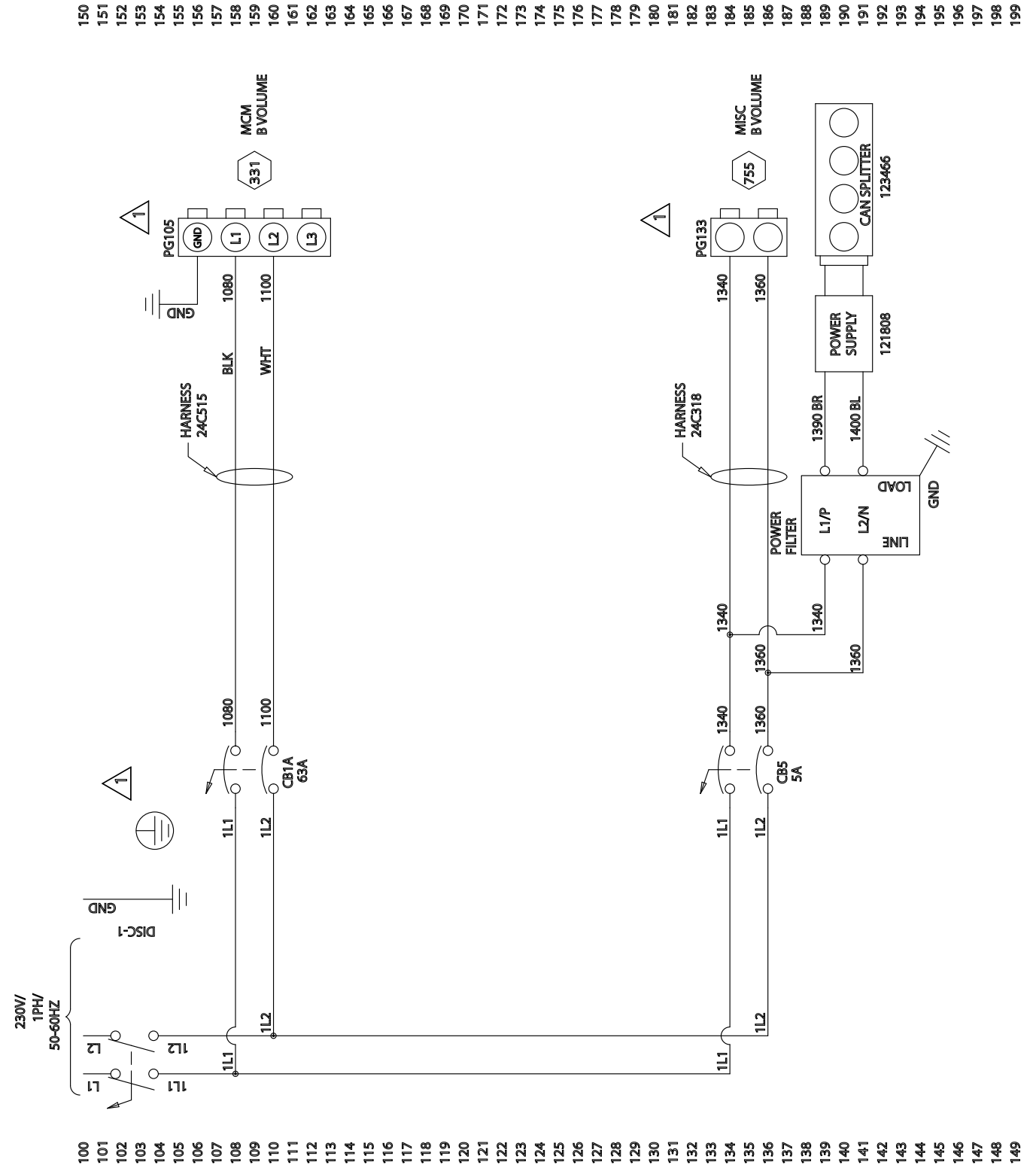
1. Turn off system power.
2. Open electrical enclosure door.
3. Disconnect wire harness from circuit breaker.
4. Remove circuit breaker.
5. Install new circuit breaker, and connect wire harness.
6. Close electrical enclosure door and turn on system power.



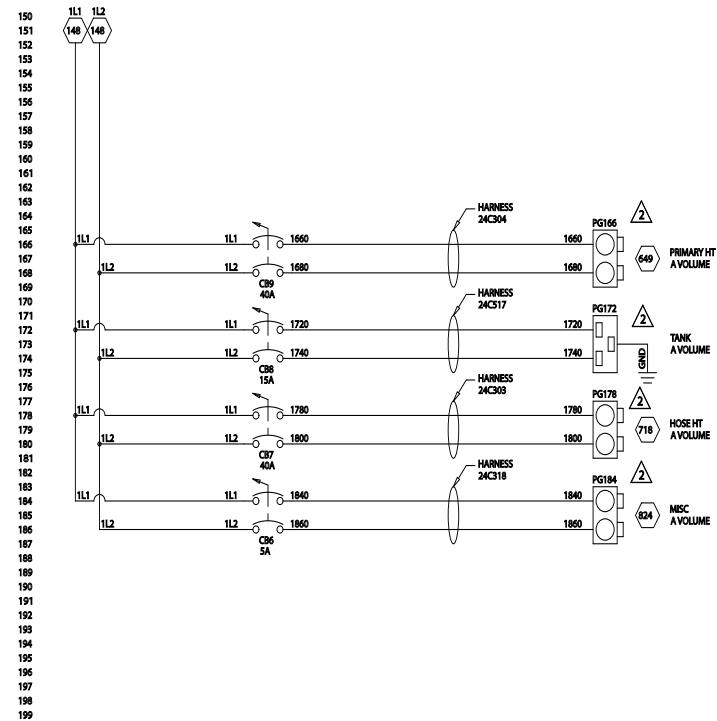
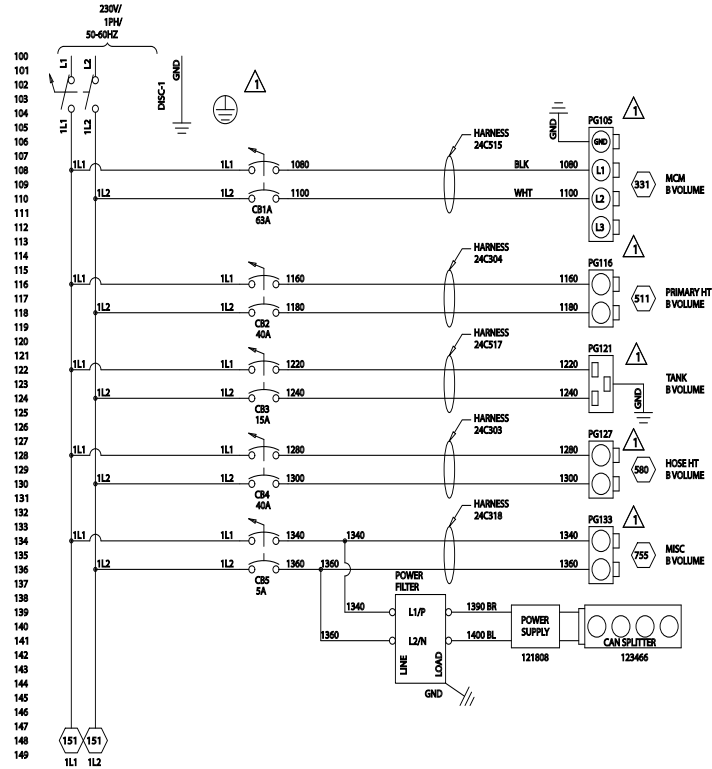
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# Electrical Schematics

## 230V, 1 Phase, Basic HFR Module Schematic

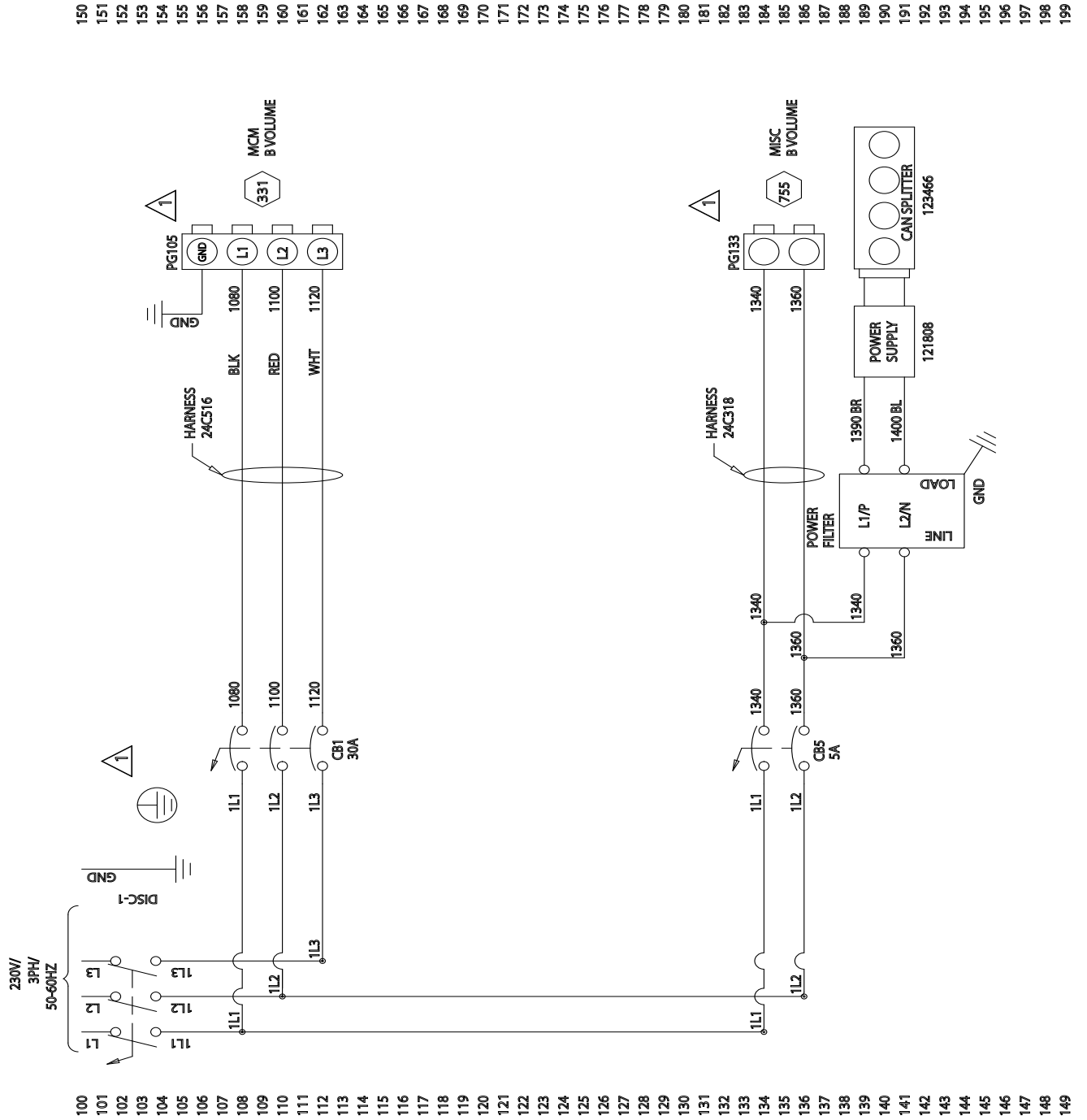


## 230V, 1 Phase, Loaded HFR Module Schematic

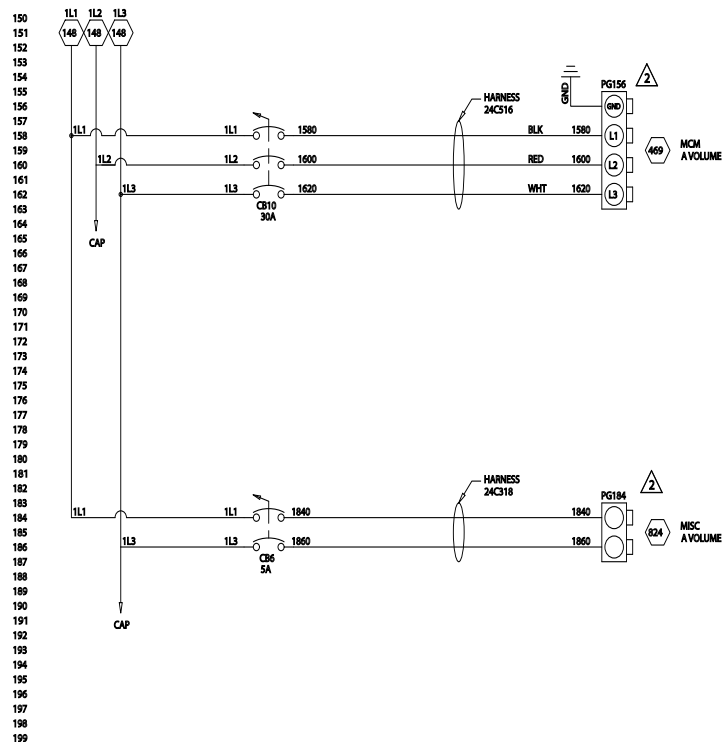
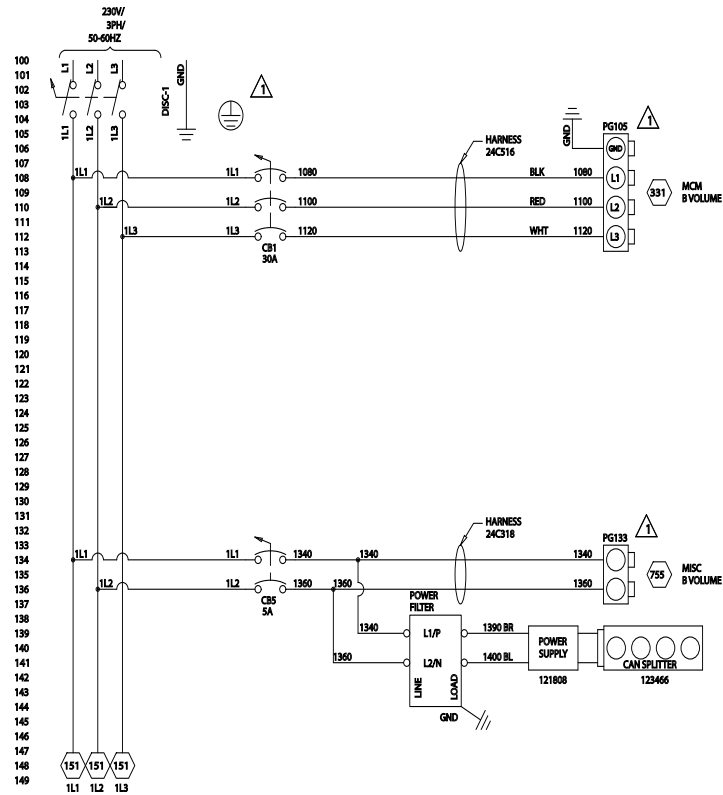




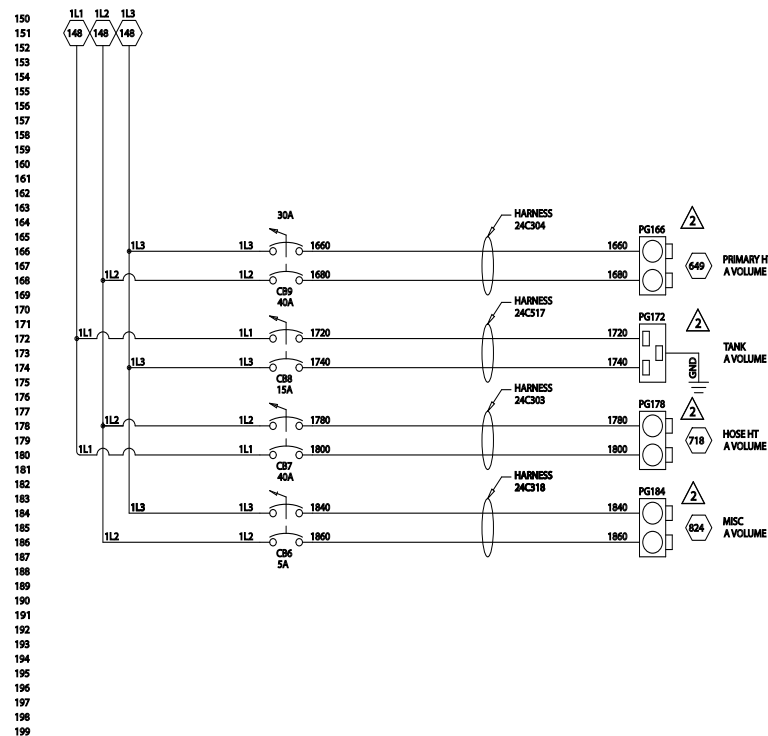
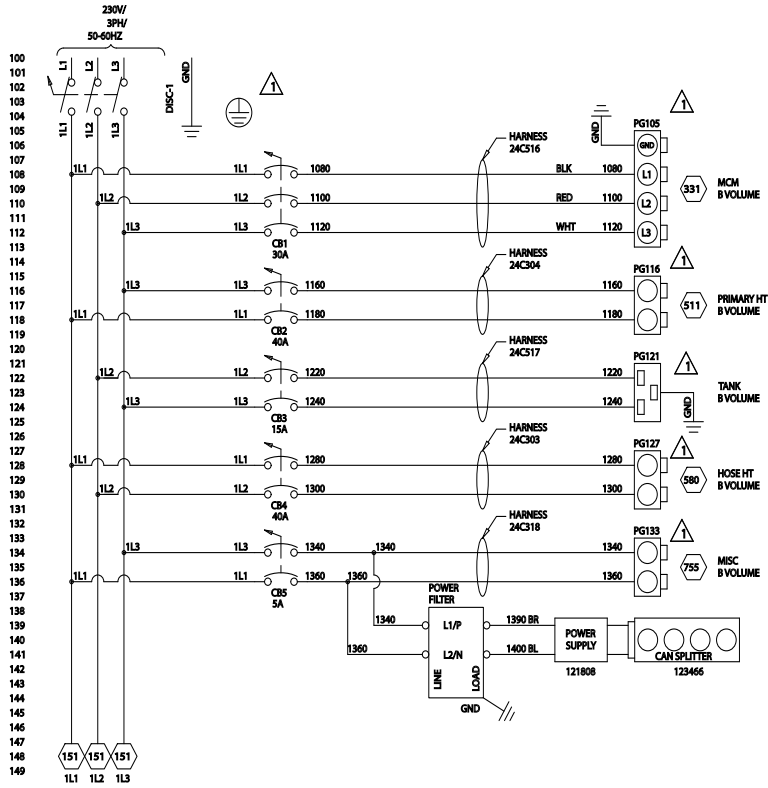
### 230V, 3 Phase, Basic HFR Module Schematic



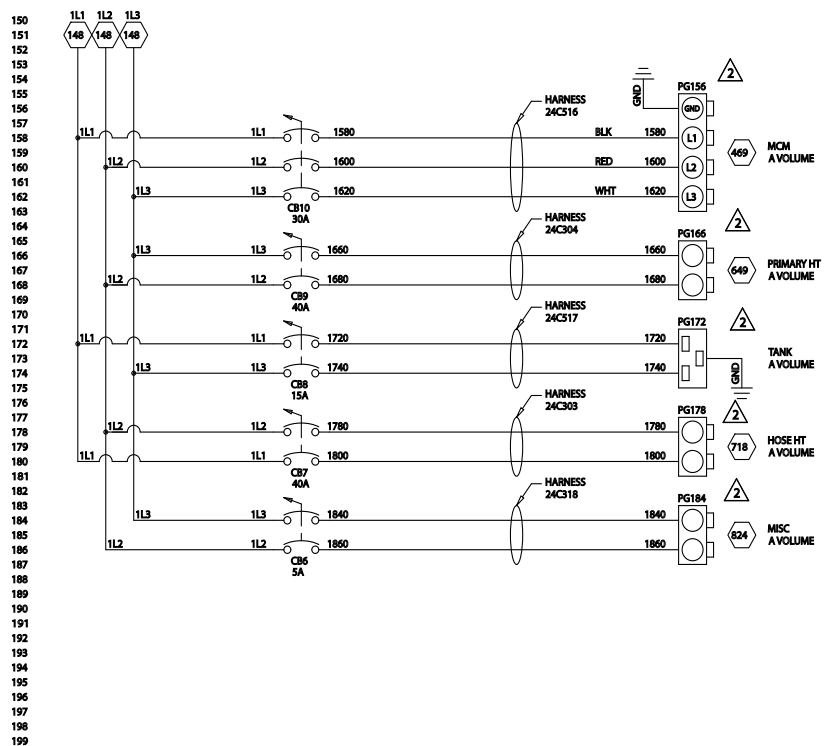
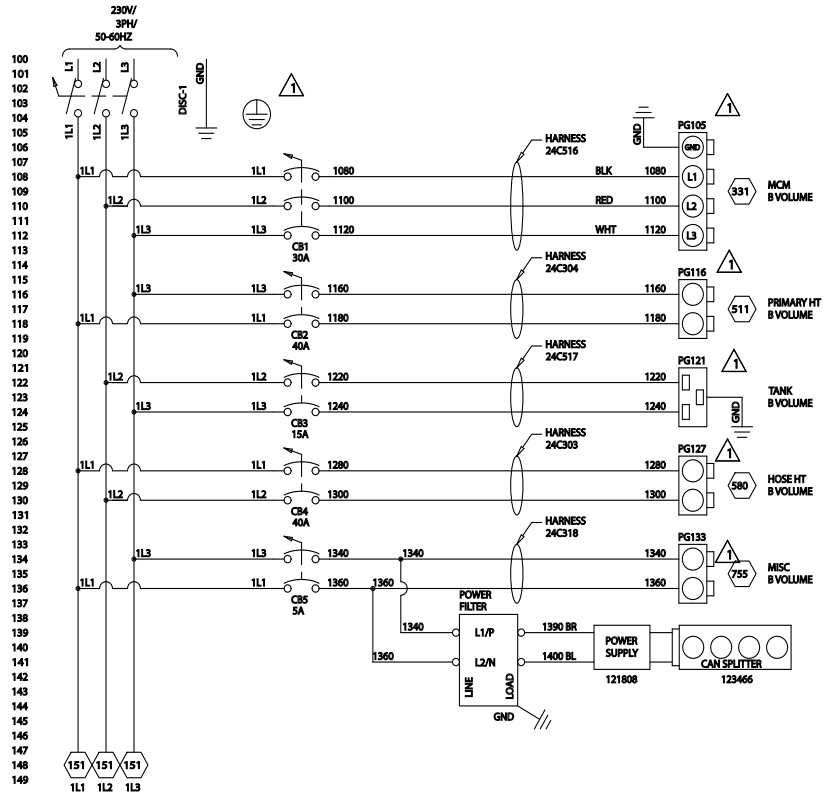
## 230V, 3 Phase, Basic VRM Module Schematic



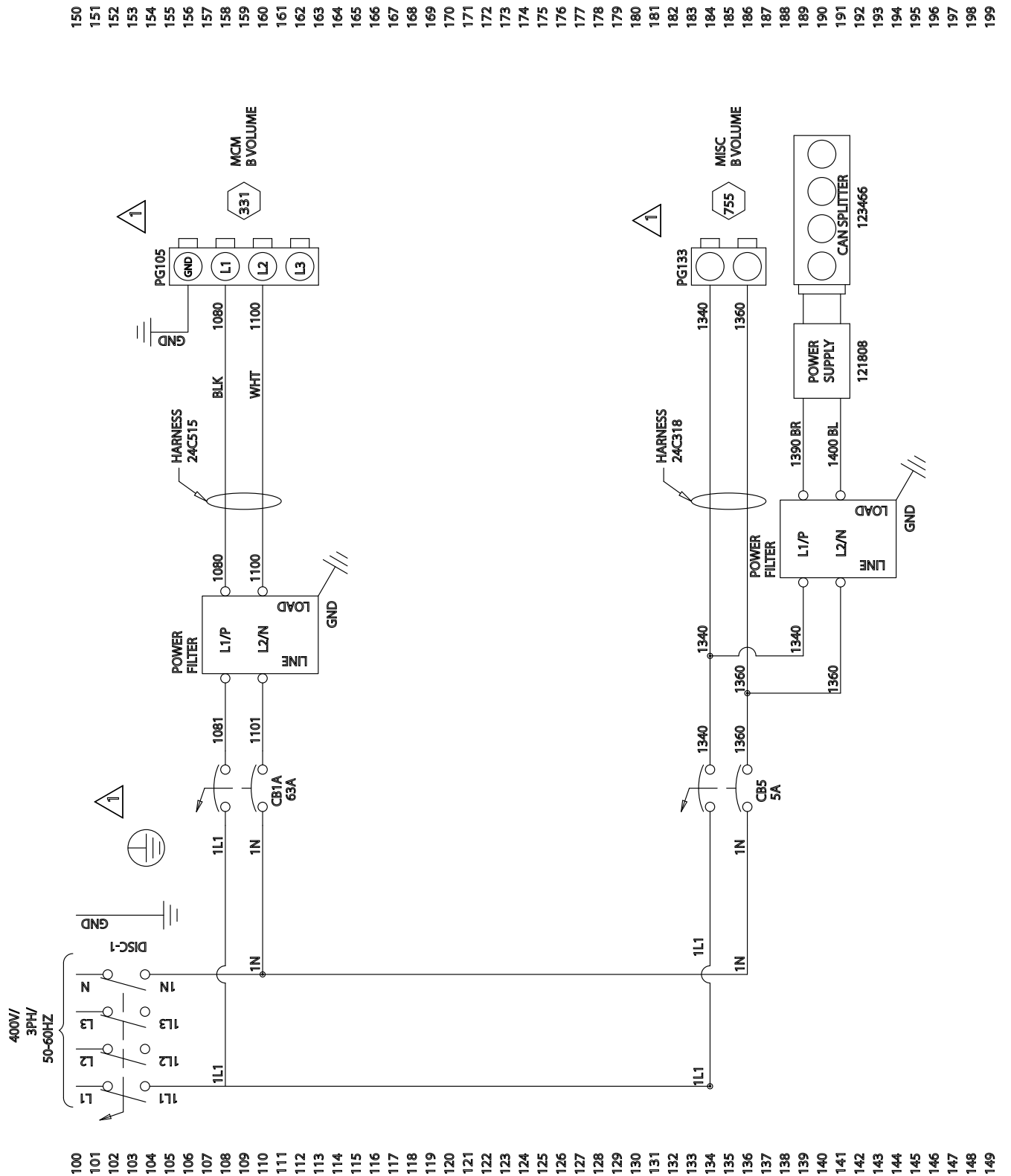
### 230V, 3 Phase, Loaded HFR Module Schematic



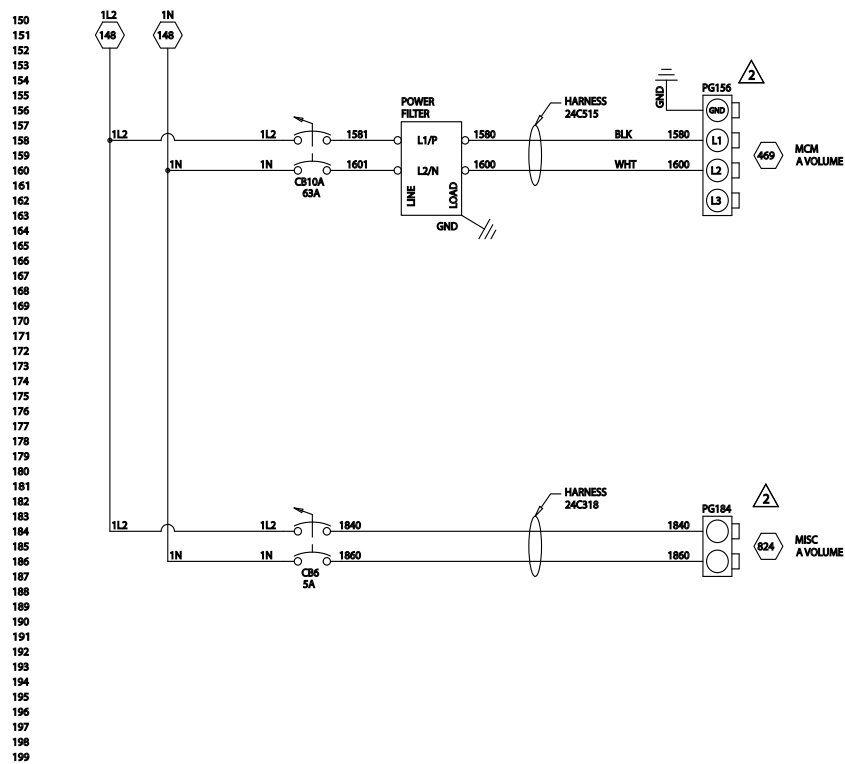
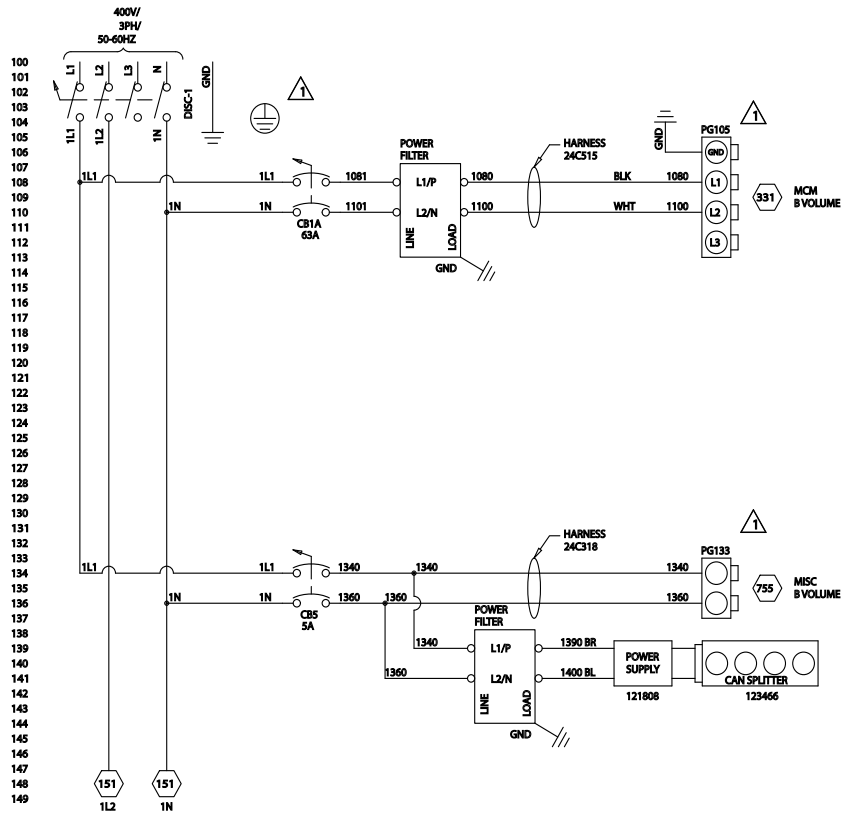
### 230V, 3 Phase, Loaded VRM Module Schematic



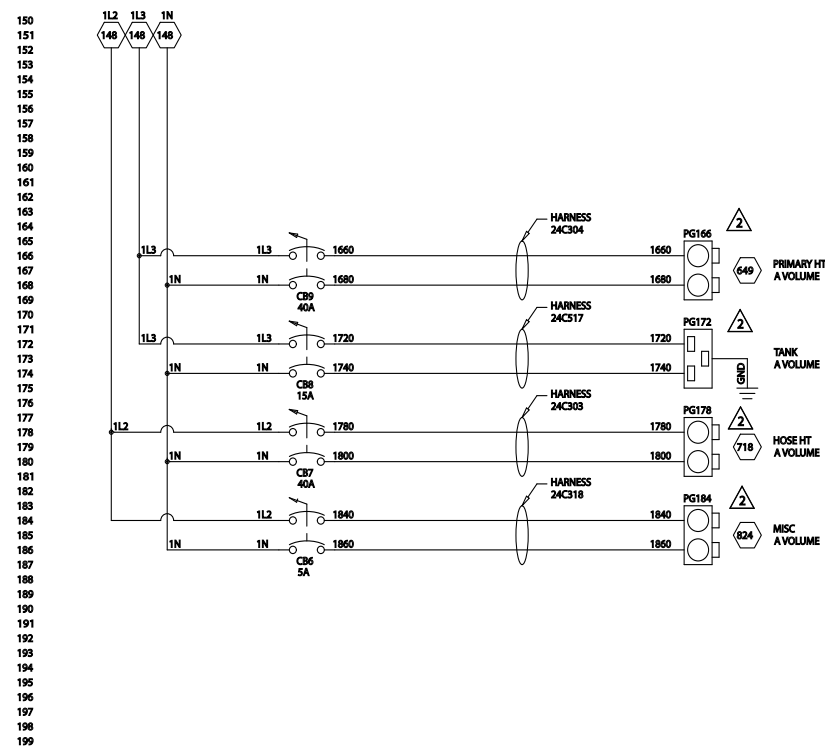
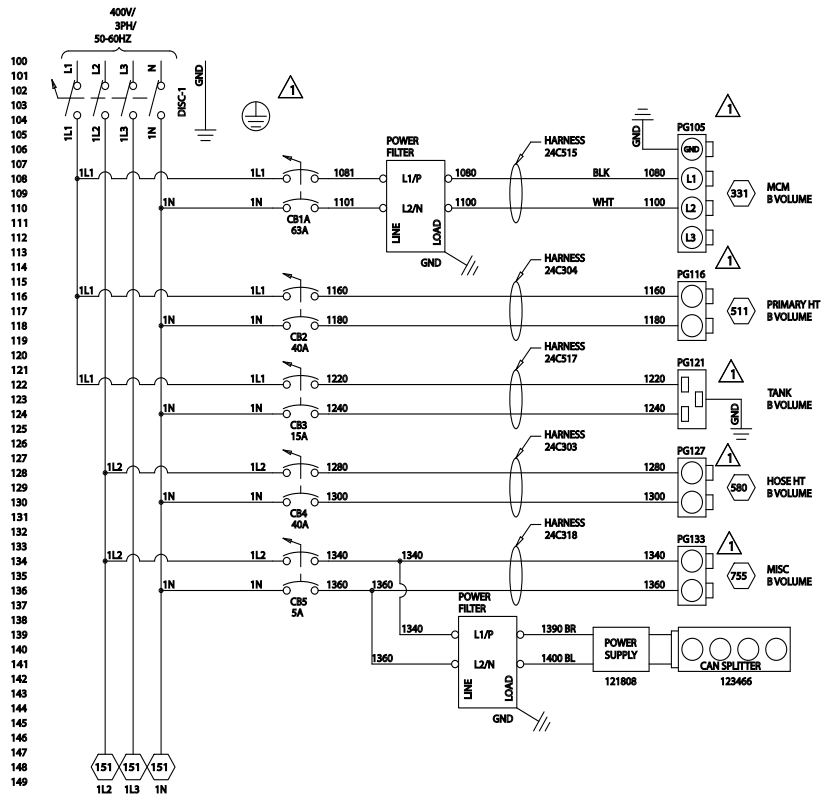
### 400V, 3 Phase, Basic HFR Module Schematic



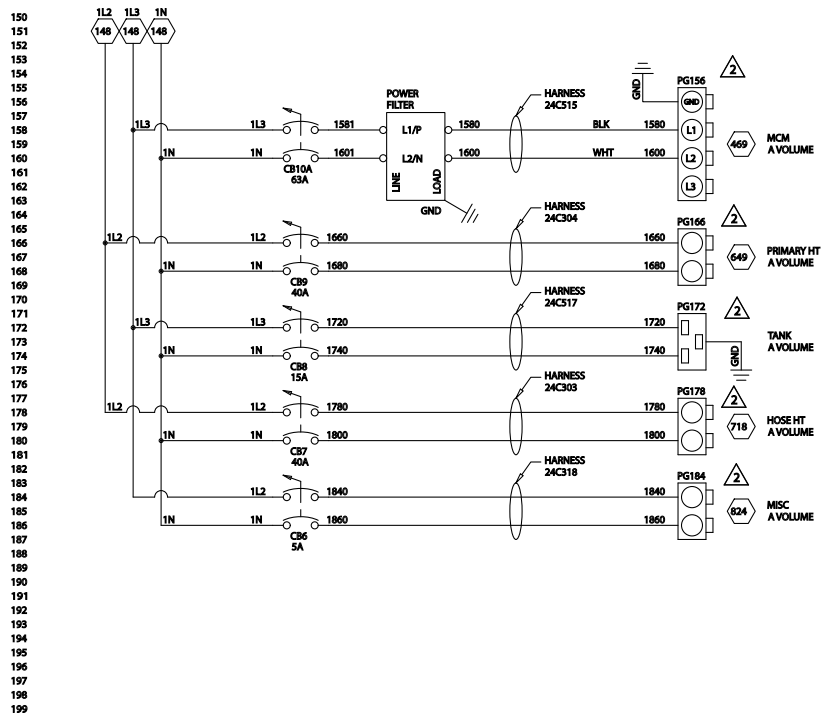
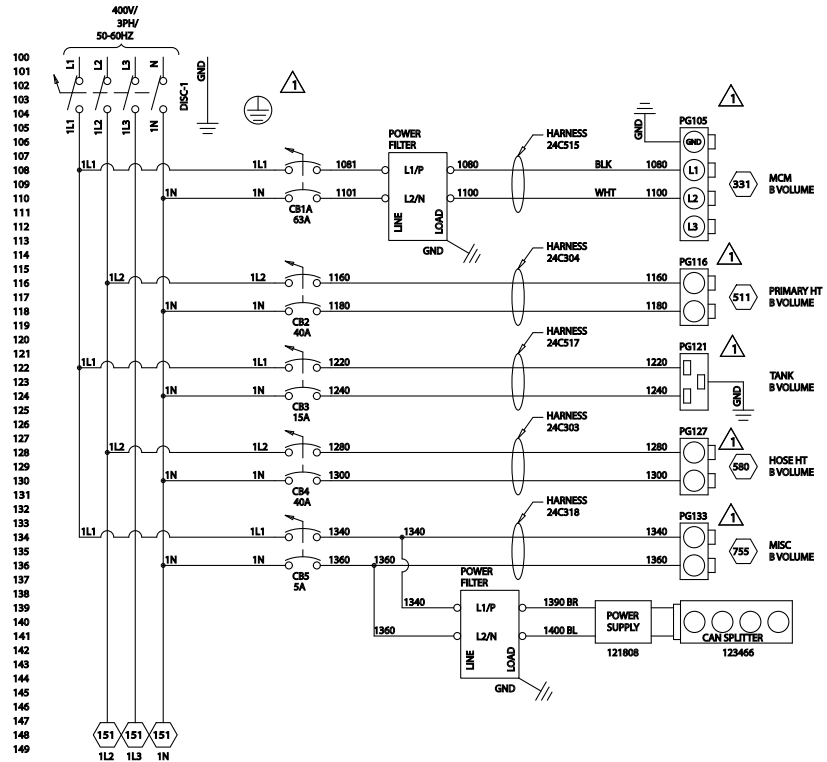
### 400V, 3 Phase, Basic VRM Module Schematic



### 400V, 3 Phase, Loaded HFR Module Schematic

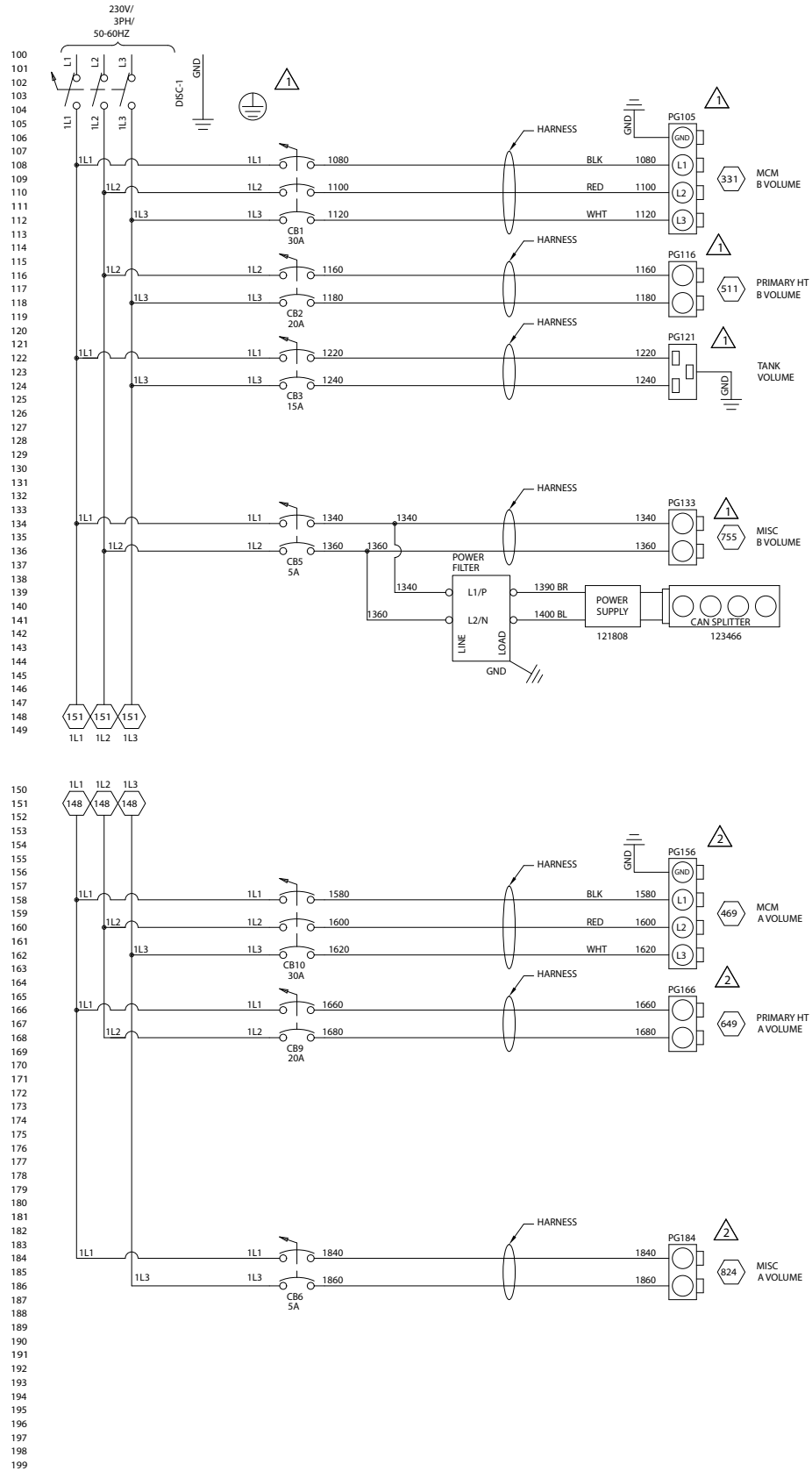


### 400V, 3 Phase, Loaded VRM Module Schematic

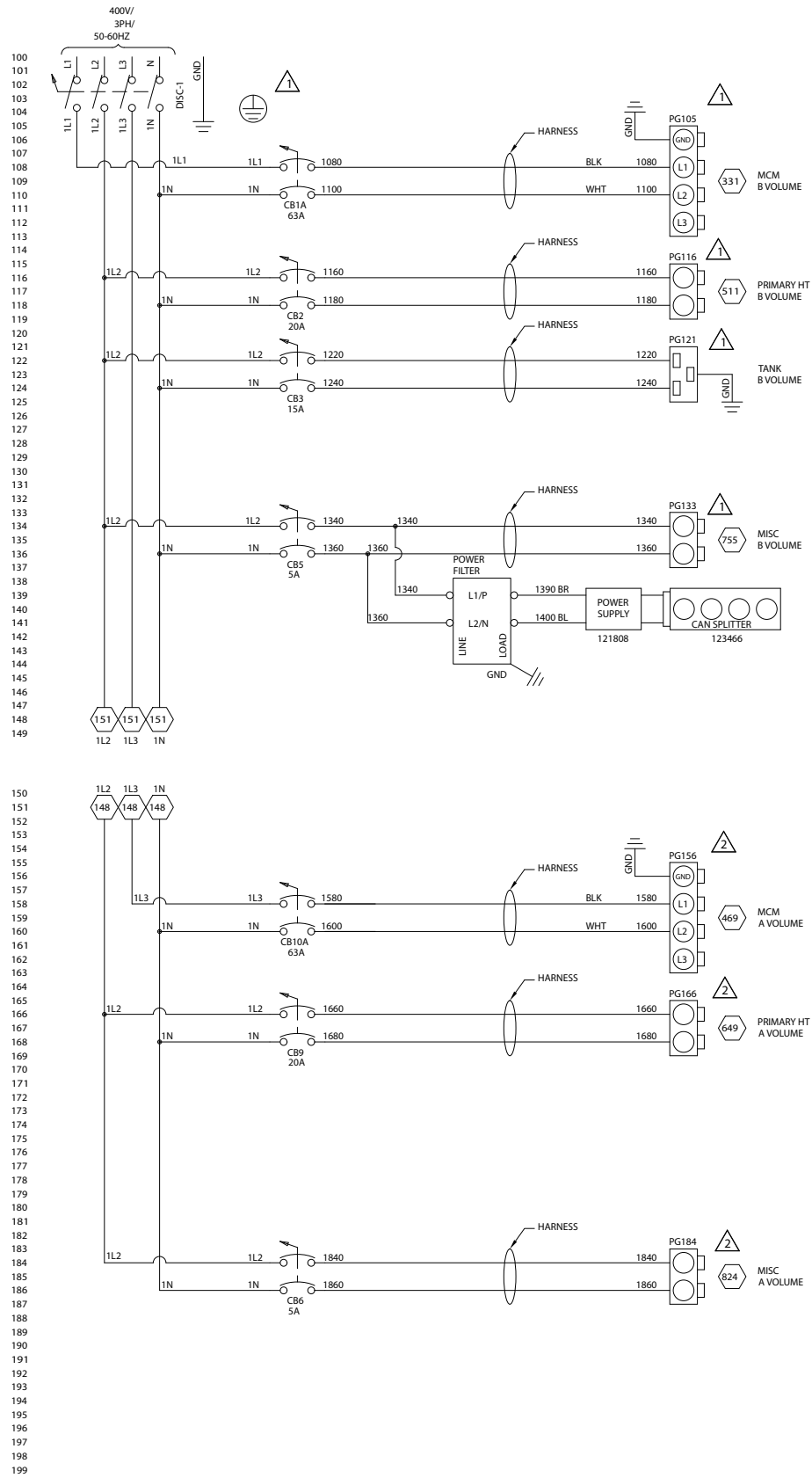




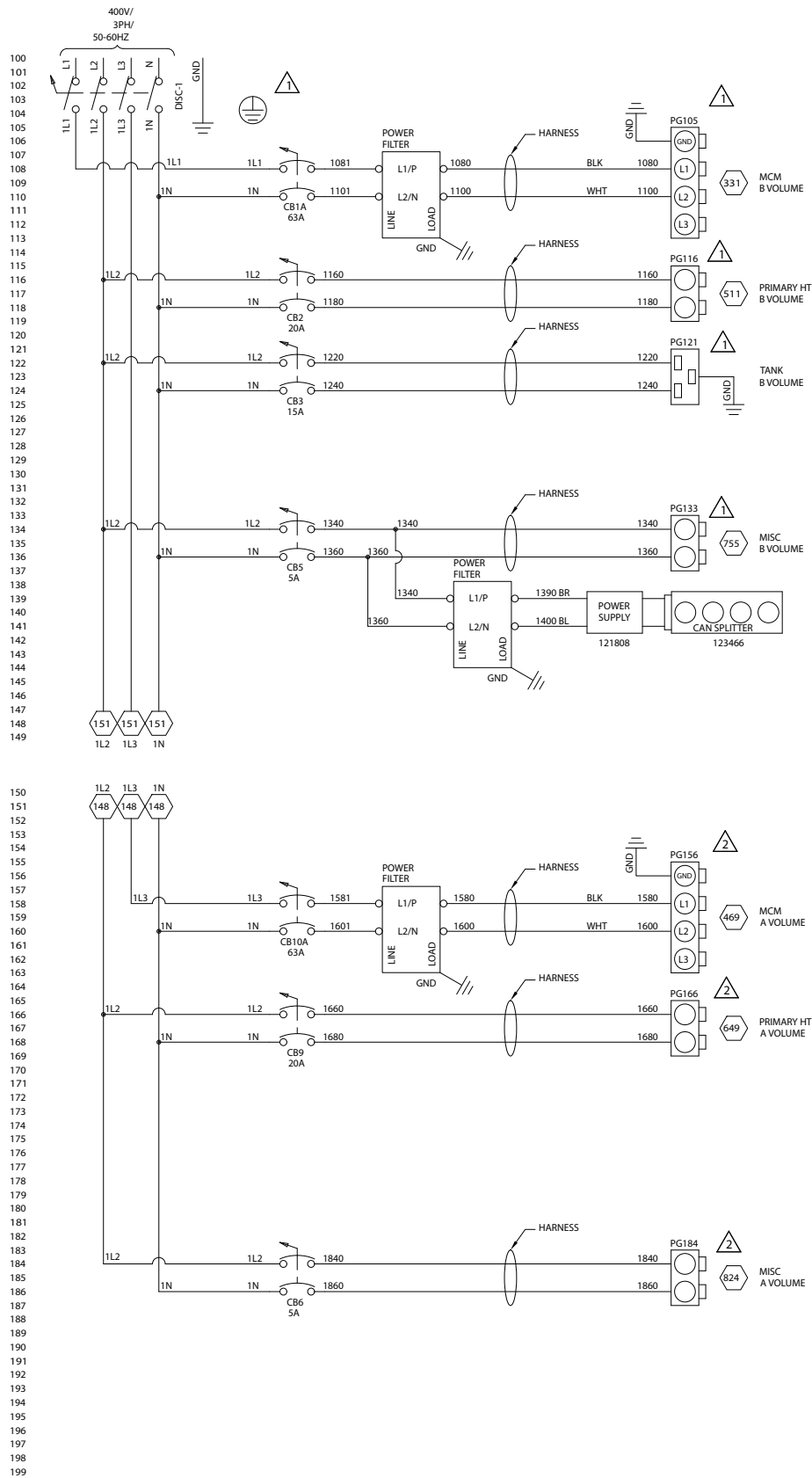
### 230V, 3 Phase, Loaded VPM Module Schematic



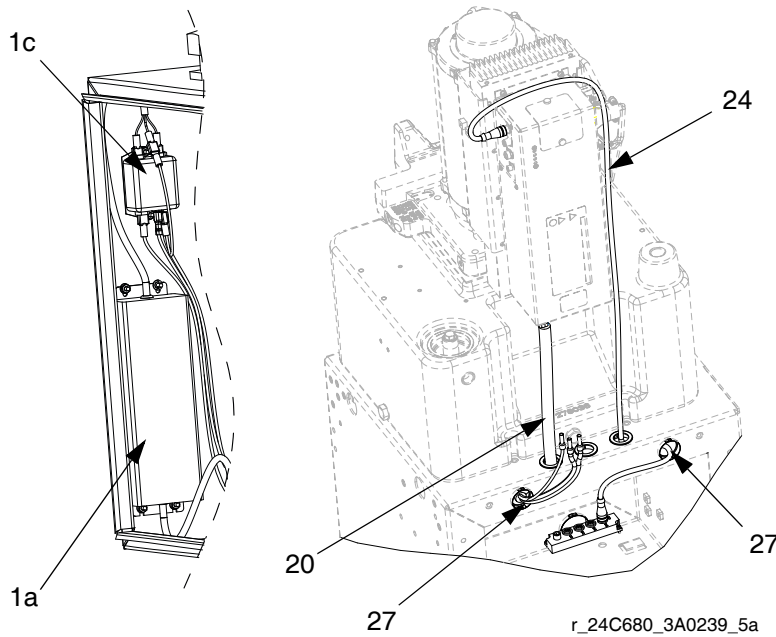
### 400V, 3 Phase, Loaded, Non-CE, VPM Module Schematic



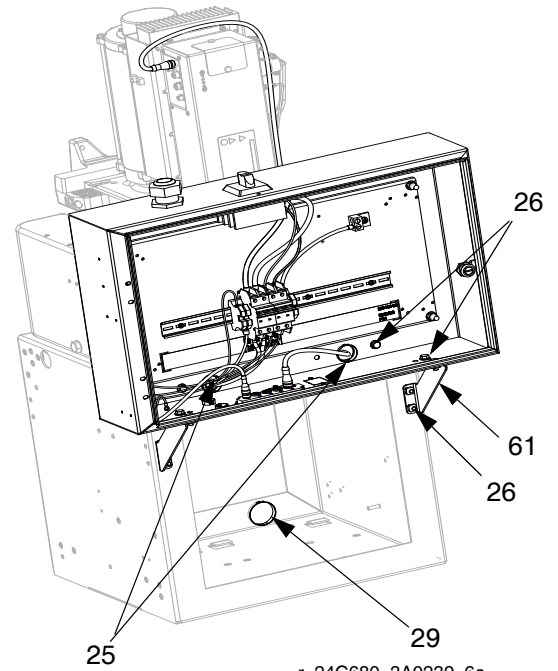
### 400V, 3 Phase, Loaded, CE approved, VPM Module Schematic







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**Parts Used on All HFR Modules**

Ref.	Part	Description	Qty	Ref.	Part	Description	Qty
1	---	ENCLOSURE	1	24	122487	CABLE, CAN, male-female, 1.5 m	1
1a	24D207	SUPPLY, power; 24 Vdc, 4A, 100W, 230 Vac	1	25	123589	BUSHING, wire protector, snap-in	2
★▲1b	196548	LABEL, caution (on enclosure door)	1	26	111800	SCREW, cap, hex head	10
1c	123718	FILTER	1	27	123679	BUSHING, wire protector; 1 3/8 OD	3
2	---	PANEL, electrical	1	29	123590	PLUG, hole; 2 in. diameter	2
3	123396	NUT, flange, serrated; 3/8-16	4	61	---	BRACKET, support, electric	2
4	117666	TERMINAL, ground	1	69	---	LABEL, identification	1
5	113783	SCREW, mach, pan hd	1				
6	100985	WASHER, lock ext	1				
7	16A647	RAIL, din, 17.7 in.	1				
9	16A649	HARNESS, ground wire; 8 awg	1				
10	123363	BLOCK, terminal, ground, 10mm	4				
11	---	LABEL, identification	1				
12	24D217	HARNESS, wire, 16 awg, ferrule	2				
13	24D218	HARNESS, wire, 16 awg, ferrule, terminal ground	1				
14	24D220	HARNESS, wire, 18 awg, ring, terminal, ground	1				

★ Not shown.

--- Not for sale.

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

## Parts that Vary by HFR Module

Use the following table to locate parts that vary by module. See **Parts Used on All HFR Modules**, page 21, for parts used on all HFR modules.

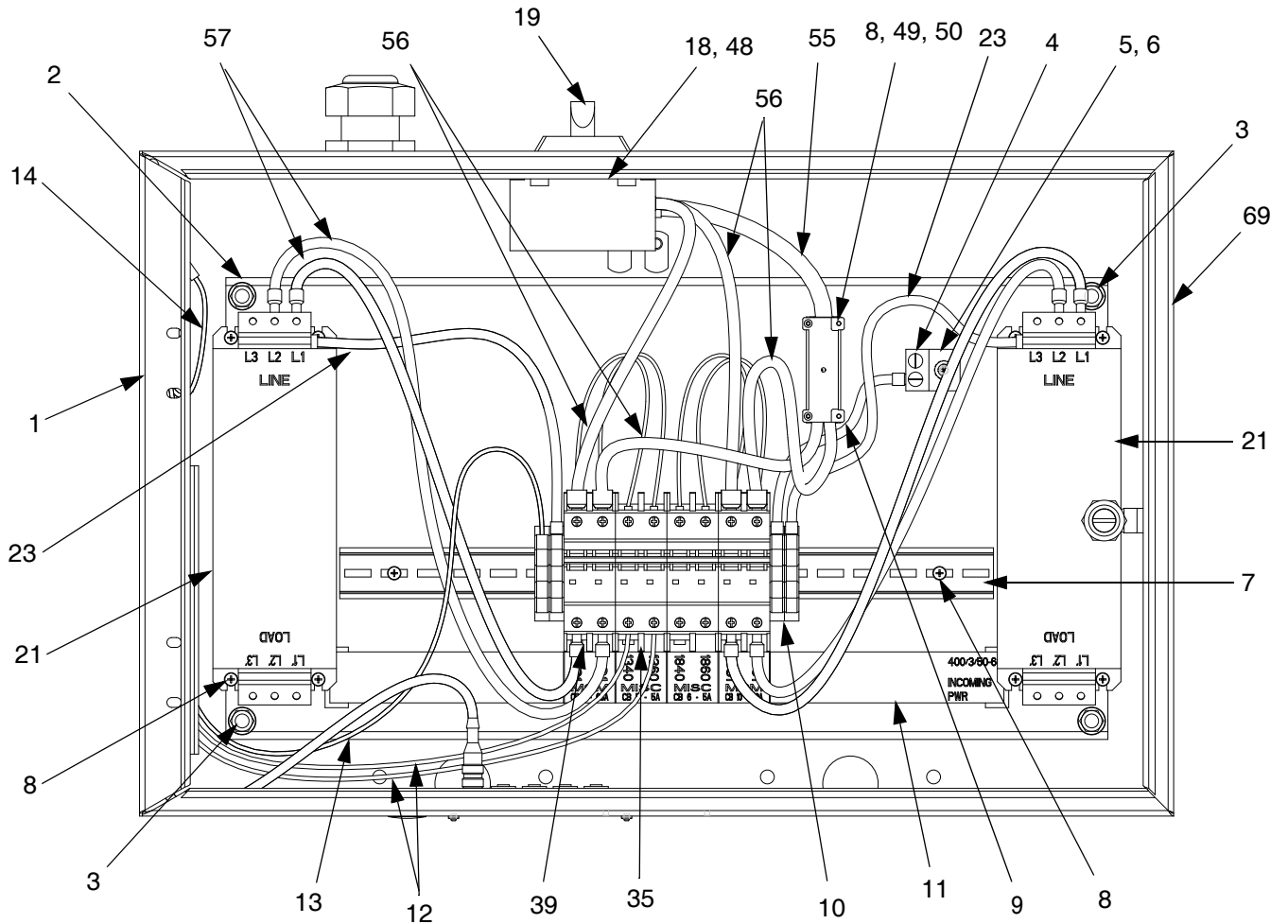
Ref.	Description	230V, 1 phase, basic	230V, 1 phase, loaded	230V, 3 phase, basic	230V, 3 phase, loaded	400V, 3 phase, basic	4000V, 3 phase, loaded	Qty.
8	SCREW, machine	103833(4)	103833(4)	103833(4)	103833(4)	103833(8)	103833(8)	-
18	SWITCH, disconnect	123969	123360	123969	123969	123969	123969	1
19	KNOB, operator disconnect	123967	123362	123967	123967	123967	123967	1
20	HARNESS, wire, MCM; 6/3	24C515	24C515			24C515	24C515	1
	HARNESS, wire, MCM; 10/4			24C516	24C516			1
21	FILTER, 55A, 3P					123785	123785	1
23	HARNESS, wire, 8 awg, ground					24D216	24D216	1
35	CIRCUIT, breaker, 2P, 5A	123296 (1)	123296 (2)	123296 (1)	123296 (2)	123296 (1)	123296 (2)	-
36	CIRCUIT, breaker, 2P, 15A		123350		123350		123350	2
38	CIRCUIT, breaker, 2P, 40A		123455		123455		123455	4
39	CIRCUIT, breaker, 2P, 63A	123668	123668			123668	123668	1
40★	CIRCUIT, breaker, 3P, 30A			123302	123302			1
41★	BUSS BAR, 3P, 6 PIN, 115A							1
43★	BUSS BAR, 3P, 18 PIN, 115A							1
44	BUSS BAR, 2P, 6 PIN, 115A		123310 (1)				123310 (3)	-
45★	BUSS BAR, 2P, 12 PIN, 115A		123474					1
46	CONNECTOR, lug, power, 115A		123306 (2)	123306 (3)	123306 (3)		123306 (8)	-
47★	CAP, lug, power			---				1
48	SWITCH, disconnect, ph exp 100A					123968	123968	1
56	HARNESS, wire 6 awg, 14 awg	16A650				16A650		2
57★	HARNESS, wire 6 awg			16A694 (3)				-
58★	HARNESS, wire 4 awg, ferruled		24D221 (4)		24D221 (3)		24D221 (6)	-
59★	HARNESS, wire, plug, tanks		24C517		24C517		24C517	2
62	HARNESS, wire, 6 awg, ferruled					16D536	16D536	2
72★	LATCH, plug, 30A		24E823		24E823		24E823	2

★ Not shown.

--- Not for sale.

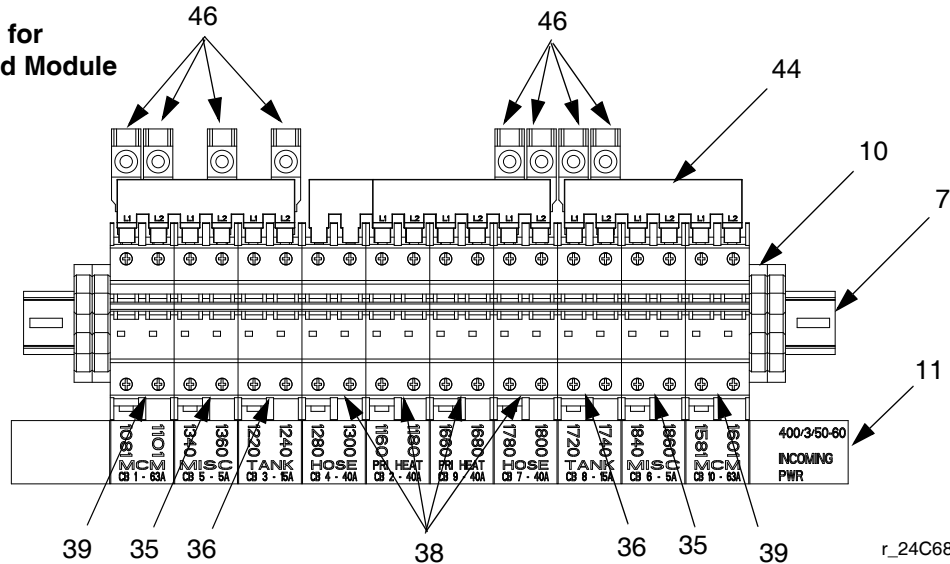
# VRM Power Distribution Modules

## 400V, 3 Phase, Basic Module Shown



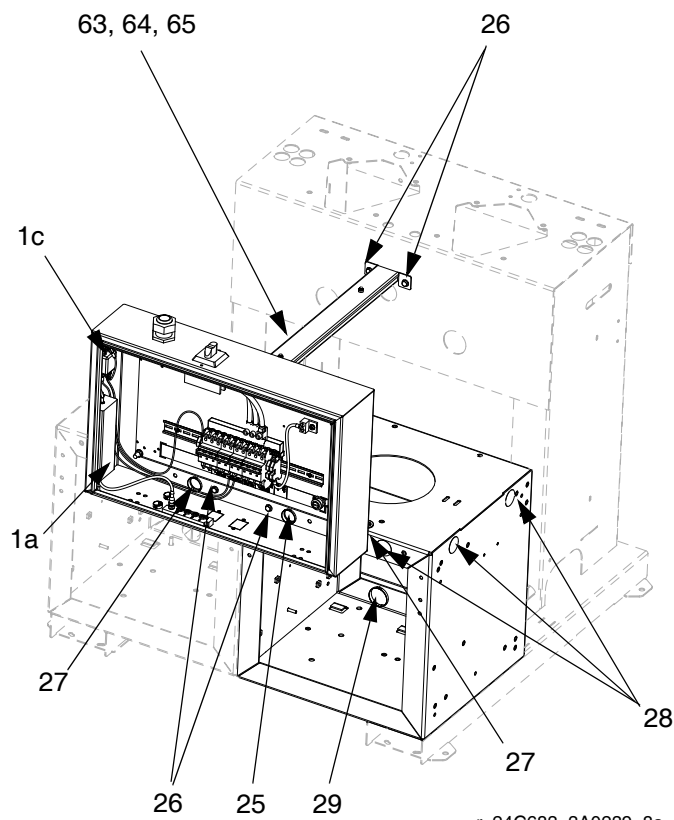
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### Circuit Breaker Detail for 400V, 3 Phase, Loaded Module

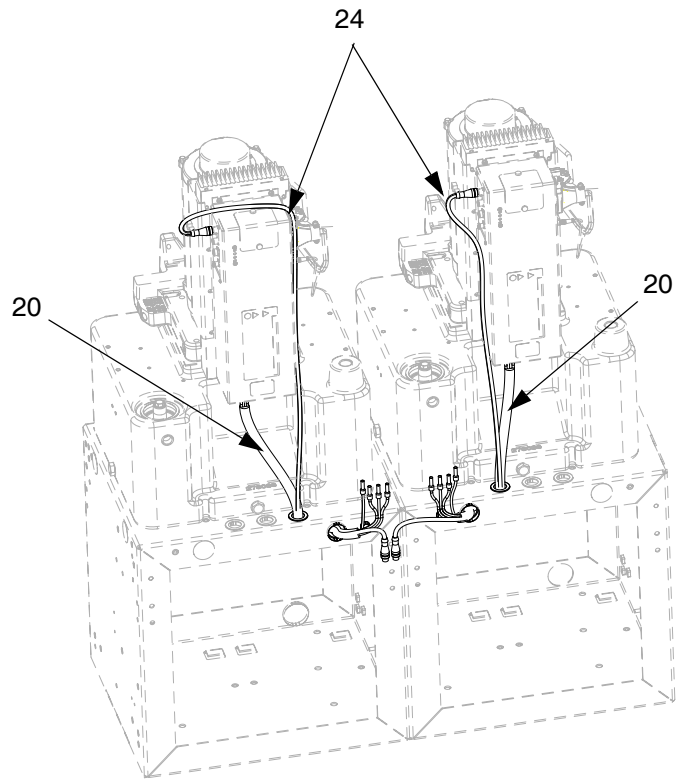


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Parts



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r\_24C683\_3A0239\_9a

Parts Used on All VRM Modules

Ref.	Part	Description	Qty	Ref.	Part	Description	Qty
1	---	ENCLOSURE	1	25	123589	BUSHING, wire protector, snap-in	2
1a	24D207	SUPPLY, power; 24 Vdc, 4A, 100W, 230 Vac	1	26	111800	SCREW, cap, hex head	10
★▲1b	196548	LABEL, caution (on enclosure door)	1	27	123679	BUSHING, wire protector; 1 3/8 OD	3
1c	123718	FILTER	1	28	123398	PLUG, hole, 1.5 in. diameter	2
2	---	PANEL, electrical	1	29	123590	PLUG, hole; 2 in. diameter	2
3	123396	NUT, flange, serrated; 3/8-16	4	35	123296	CIRCUIT, breaker, 2P, 5A	2
4	117666	TERMINAL, ground	1	63	24C477	BRACE, wireway, divided	1
5	113783	SCREW, mach, pan hd	1	64	24C478	COVER, wireway	1
6	100985	WASHER, lock ext	1	65	102040	NUT, lock, hex	2
7	16A647	RAIL, din, 17.7 in.	1	66★	124128	BUSHING, wire protector	1
9	16A649	HARNESS, ground wire; 8 awg	1	69	---	LABEL, identification	1
10	123363	BLOCK, terminal, ground, 10mm	4				
11	---	LABEL, identification	1				
12	24D217	HARNESS, wire, 16 awg, ferrule	2				
13	24D218	HARNESS, wire, 16 awg, ferrule, terminal ground	1				
14	24D220	HARNESS, wire, 18 awg, ring, terminal, ground	1				
24	122487	CABLE, CAN, male-female; 1.5 m	2				

★ Not shown.

--- Not for sale.

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.



## Parts that Vary by VRM Module

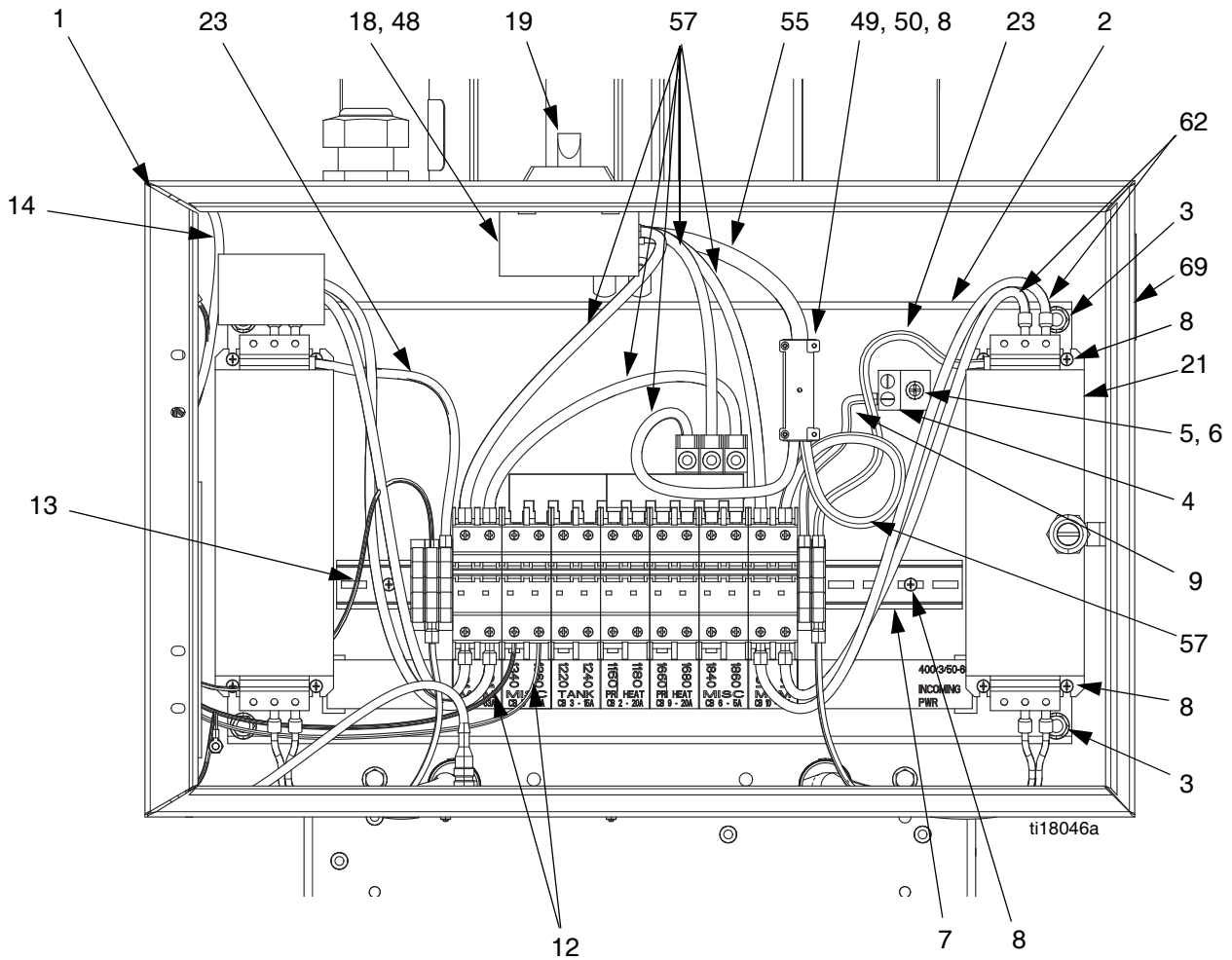
Use the following table to locate parts that vary by module. See **Parts Used on All VRM Modules**, page 24, for parts used on all VRM modules.

Ref	Description	230V,3 phase, basic	230V, 3 phase, loaded	400V, 3 phase, basic	400V, 3 phase, loaded	Qty
8	SCREW, machine	103833 (4)	103833 (4)	103833 (14)	103833 (12)	-
18	SWITCH, disconnect	123969	123360	123969	123969	1
19	KNOB, operator disconnect	123967	123362	123967	123967	1
20	HARNESS, wire, MCM; 6/3			24C515	24C515	2
	HARNESS, wire, MCM; 10/4	24C516	24C516			2
21	FILTER, 55A, 3P			123785	123785	2
23	HARNESS, wire, 8 awg, ground			24D216	24D216	2
36	CIRCUIT, breaker, 2P, 15A		123350		123350	2
38	CIRCUIT, breaker, 2P, 40A		123455		123455	4
39	CIRCUIT, breaker, 2P, 63A			123668	123668	2
40★	CIRCUIT, breaker, 3P, 30A	123302	123302			2
42★	BUSS BAR, 2P, 6 PIN, 115A	123308	123308			1
43★	BUSS BAR, 3P, 12 PIN, 115A		123309			1
44	BUSS BAR, 2P, 6 PIN, 115A				123310	4
46	CONNECTOR, lug, power, 115A	123306 (3)	123306 (3)		123306 (8)	-
47★	CAP, lug, power	123311				1
48	SWITCH, disconnect, ph exp 100A			123968	123968	1
49	BLOCK, power distribution, 1 pole, 4 wire			123489		1
50	COVER, power distribution block			123490		1
55	HARNESS, wire, 2 awg		16A646 (3)	16A646 (1)		-
56	HARNESS, wire, 6 awg, 14 awg			16A650		4
57	HARNESS, wire, 6 awg	16A694 (3)				-
58★	HARNESS, wire, 4 awg				24D221	6
59★	HARNESS, wire, plug, tanks		24C517		24C517	2
62★	HARNESS, wire, 4 awg; 23 in.			16D536	16D536	4
72★	LATCH, plug, 30A		24E823		24E823	2

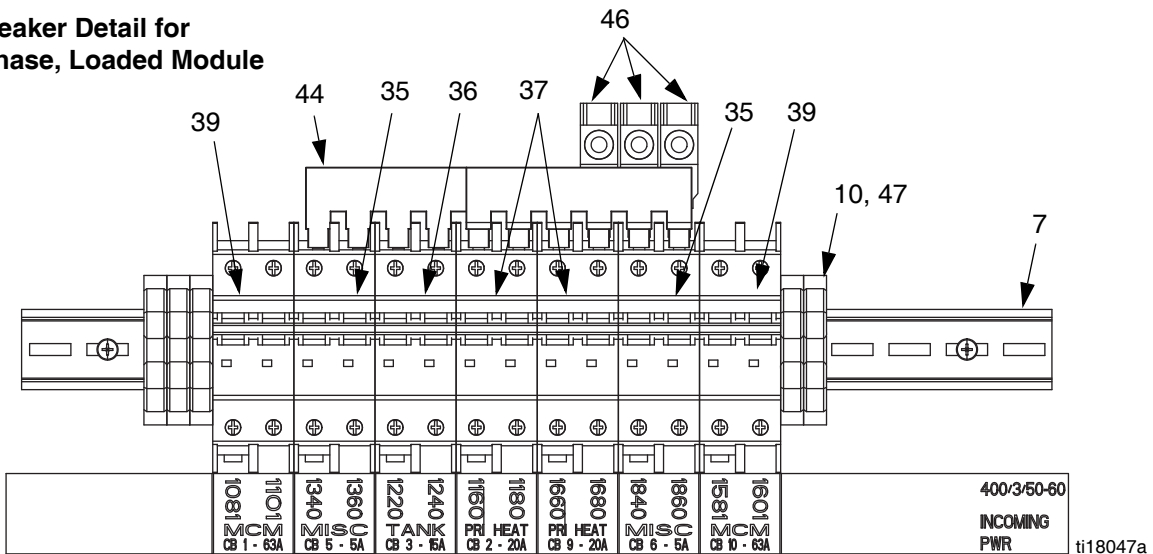
★ Not shown.

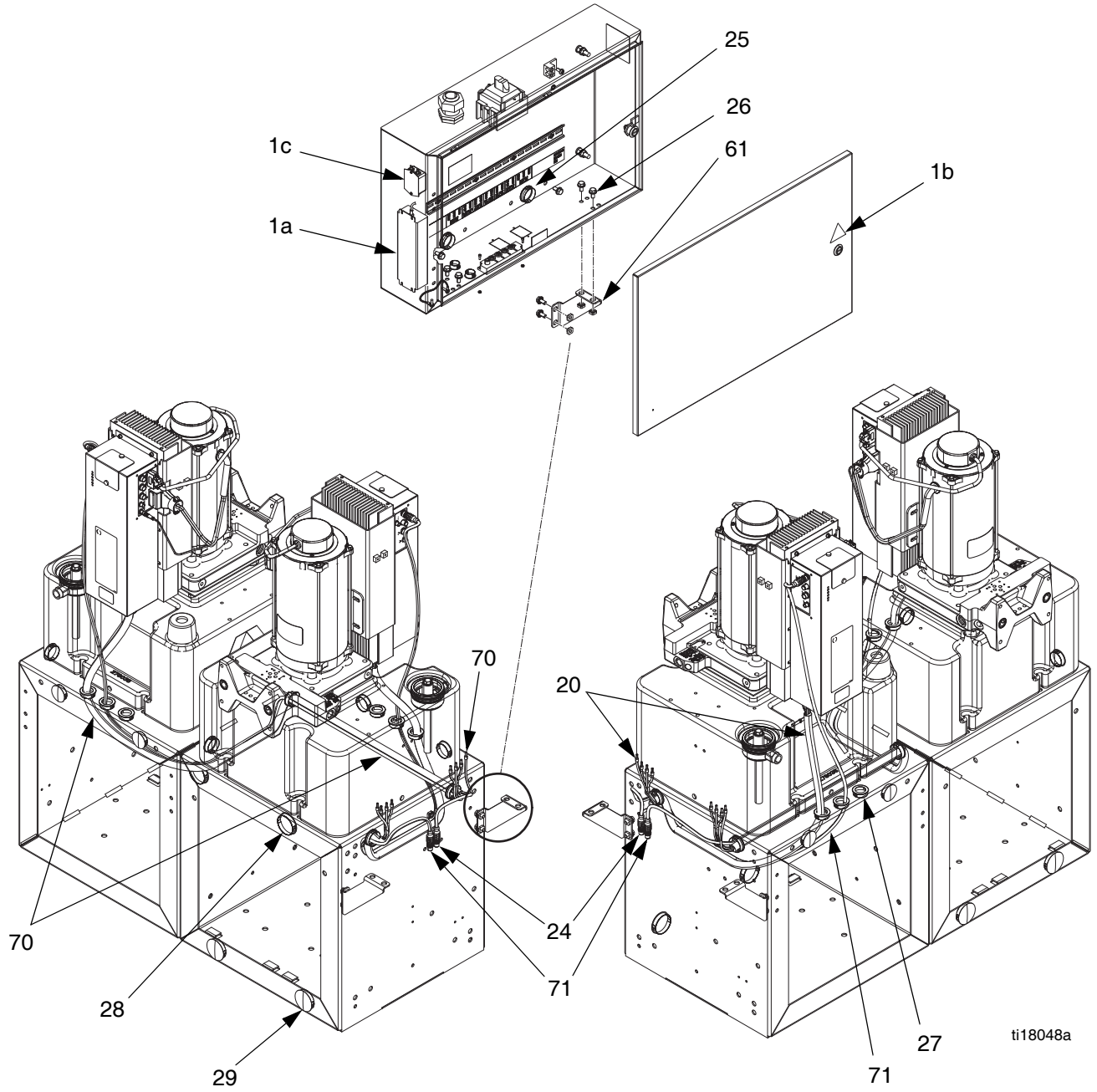
# VPM Power Distribution Modules

## 400V, 3 Phase, Basic Module Shown



## Circuit Breaker Detail for 400V, 3 Phase, Loaded Module





## Parts Used on All VPM Modules

Ref.	Part	Description	Qty	Ref.	Part	Description	Qty
				18	123969	SWITCH, disconnect	1
1	---	ENCLOSURE	1	19	123967	KNOB, operator disconnect	1
1a	24D207	SUPPLY, power; 24Vdc, 4A, 100W, 230 Vac	1	24	122487	CABLE, can, male-female, 1.5 m	1
★▲1b	196548	LABEL, caution (on enclosure door)	1	25	123589	BUSHING, wire protector, snap-in	4
1c	123718	FILTER	1	26	111800	SCREW, cap, hex hd	10
2	16A360	PANEL, electrical	1	27	123679	BUSHING, wire protector, snap-in	6
3	123396	NUT, flange, serrated; 3/8-16	4	28	123398	PLUG, hole, 1 1/2 diameter	6
4	117666	TERMINAL, ground	1	29	123590	PLUG, hole, 2 in. diameter	4
5	113783	SCREW, mach, pan hd	1	35	123296	CIRCUIT, breaker, 2P, 5A	2
6	100985	WASHER, lock ext	1	36	123350	CIRCUIT, breaker, 2P, 15A	1
7	16A647	RAIL, din, 17.7 in.	1	37	123298	CIRCUIT, breaker, 2P, 20A	2
8	103833	SCREW, mach, crbh	6	46	123306	CONNECTOR, lug, power, 115A	3
9	16A649	HARNESS, ground wire; 8 awg	1	61	---	BRACKET, support, electric	2
10	123363	BLOCK, terminal, ground, 10mm	5	69	---	LABEL, identification	1
12	24D217	HARNESS, wire, 16 awg, ferrule	2	71	123652	CABLE, can, male / female 3.5m	1
13	24D218	HARNESS, wire, 16 awg, ferrule, terminal ground	1				
14	24D220	HARNESS, wire, 18 awg, ring, terminal, ground	1				
						★ Not shown.	
						--- Not for sale.	
						▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.	

## Parts that Vary by VPM Module

Use the following table to locate parts that vary by module. See **Parts Used on All VPM Modules**, page 28, for parts used on all VPM modules.

Ref.	Description	400V, 3 phase, non-CE	230V, 3 phase	400v, 3 phase, CE	Qty.
20	HARNESS, wire, MCM	24E624	24E625	24E624	1
21	FILTER, 55A, 3P			123785	2
23	HARNESS, wire, 8 awg, ground			24D216	2
39	CIRCUIT, breaker, 2P, 63A	123688		123668	2
	CIRCUIT, breaker, 3P, 30A		123302		2
42	BUSS BAR, 3P, 12 PIN, 115A		123308		1
44	BUSS BAR, 3P, 18 PIN, 115A		123309		1
	BUSS BAR, 2P, 6 PIN, 115A	123310		123310	2
47	CAP, lug, power (not shown)		123311		1
48	SWITCH, disconnect, ph exp 100A	123968		123968	1
49	BLOCK, power distribution, 1 pole, 4 wire	123489		123489	1
50	COVER, power distribution block	123490		123490	1
55	HARNESS, wire, 2 awg	16A646		16A646	1
57	HARNESS, wire, 6 awg	16A694		16A694	6
	HARNESS, wire, 4 awg, ferruled		24D221		3
62	HARNESS, wire, 6 awg, ferruled			16D536	4
70	HARNESS, wire, MCM	24E620	24E621	24E620	1



# Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

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This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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