

**7416A MRVF Motion
Controller & 7415A
MRVF Battery Box**

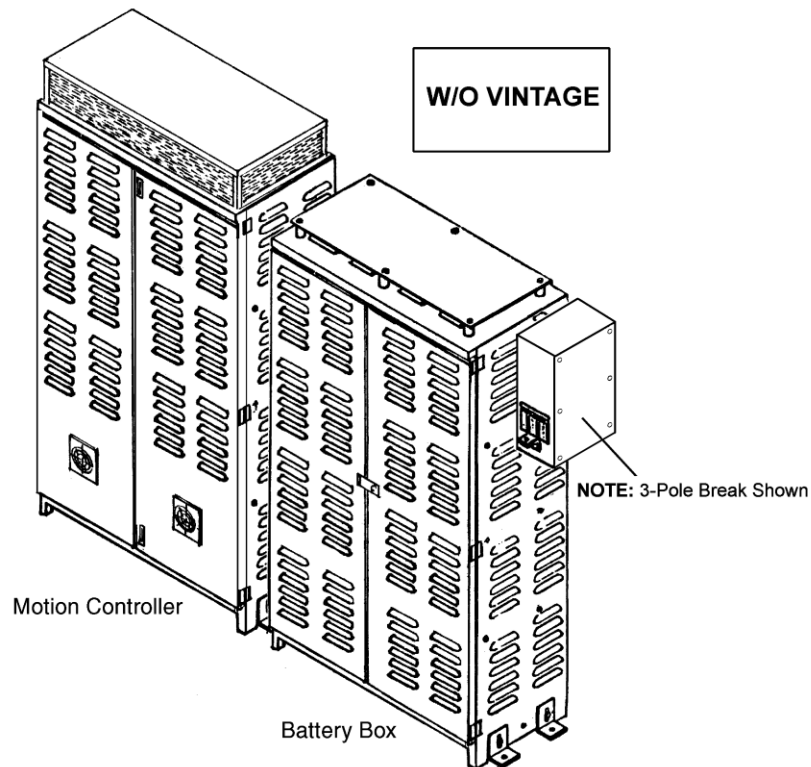
Spare Parts Leaflet

C-3035

September 28, 2022 / Page 1 of 25

OBSOLESCENCE NOTICE

The product covered in this SPL has been designated as obsolete and is no longer supported. See TIP 32.2-1, *Obsolete Components*, for potential upgrade. Replacement lower-level parts listed within and unique to this design will be reviewed for obsolescence.



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This document does not contain any technical data subject to EAR or ITAR

**SERVICE ENGINEERING
Otis Elevator Company
Bloomfield, Connecticut USA**

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Leaflet Description

This SPL details all spare parts for the 7416 MRVF motion controller and 7415 MRVF battery box. In this revision, new battery AAA718G4 replaced the G2 and G3; a retrofit kit AAA27076AS1 also replaced 7416E transistor heat sink assemblies.

Leaflet Revisions

Date Revised	Subject Matter Expert	Reason for Revision
September 1984	Jeffrey S. Costley, Technical Writer	New Leaflet
June 1998	Burt Greenfield	Update parts, and add history page
November 1, 1999	Burt Greenfield	Update parts on p. 7
February 12, 2002	John Dwyer	Update battery parts on p. 23, break up dense pages, and add retrofit kit AAA27076AS on p.11 and AAA21350A base drive assemblies on p.12. Superseded SPL 10-B7415A and added its parts to this leaflet.
June 15, 2004	John Dwyer	Update parts pgs.: 1, 2, 7, 8, 11, 12, 14, and 15
March 5, 2008	Anh Pham	Updated parts.
October 30, 2008	Anh Pham	Corrected illustration on page 7.
September 28, 2022	Juan Murillo	Updated to include OBSOLESCENCE note on cover

Related Drawings

Drawing No.	Title	Drawing No.	Title
7416E	Subassembly, Base Drive	AAA21350A	Assembly, Inverter Power Module

(Continued on next page)

Related Documents

Document ID	Title
TIP 1.1.4.3-26	MRVF Control System Update
TIP 1.1.4.3-44	MRVF Load Weighing Using the 8128CN1 Load Weighing Board
TIP 1.1.4.3-45	Update to the 8128CN Load Weighing Board on MRVF 1 & 2 Level
TIP 1.1.4.3-47	MRVF Elevator DLU Modifications
TIP 1.1.4.3-48	Installation of MRVF Drive Logic Boards Kit # 1F-7416BB1
TIP 1.1.4.3-51	MRVF Must Change Rope Drag Fuse Monitor Panel
TIP 1.1.4.3-55	MRVF Battery Voltage Monitor ABA7416BE1
TIP 1.1.4.3-56	MRVF Electronic Stepper Retrofit
TIP 1.1.4.3-65	MRVF Battery Acquisition and Disposal Process
TIP 6.2.7-6	215DT Machine Installation of Rope Drag Device
TIP 22.9-21	7777 Operator Retrofit on Hydraulic & MRVF
TIP 1.1.4.3-68	Inverter Power Module Replacement
TIP 1.1.4.3-69	Replacement for Obsolete BDC Contactor

Subject Matter Expert

Name	Department
Anh Pham	OSC Service Engineering

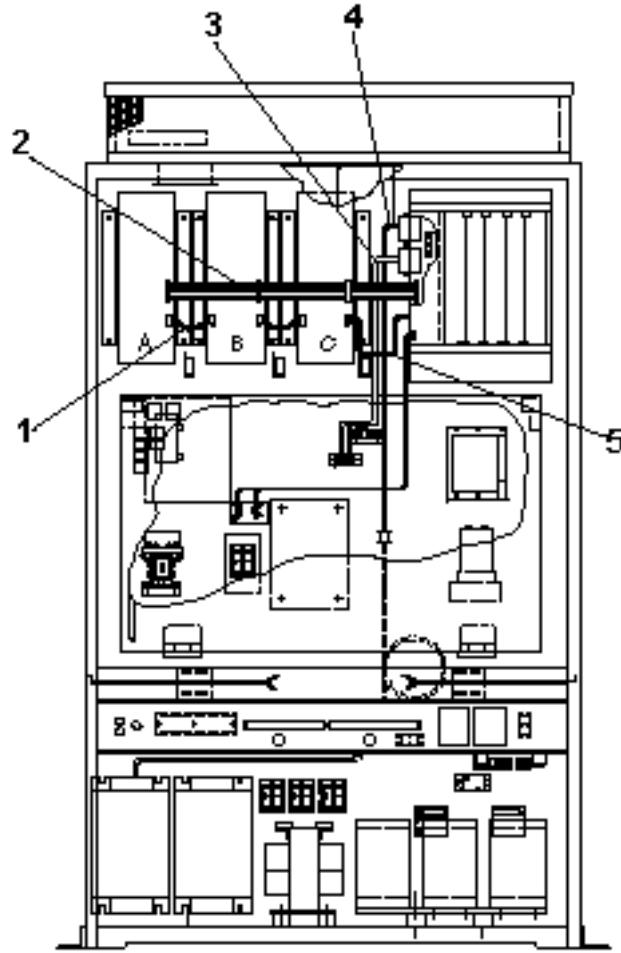
About Spare Parts Leaflets...

This document lists the lowest replaceable units (LRUs) for the standard version of the product. The LRUs are chosen by a team of Otis associates representing engineering and manufacturing.

While goal of this document is to make parts identification as easy as possible, the document cannot be all-inclusive. Elevator and escalator contracts classified as “special” or “custom” are not addressed here. For such contracts, please refer to specified information, the contract folder, TIPs, Field Education Articles, Construction Letters, etc. for further information.

If you have any suggestions about this document, please contact the subject matter expert listed on this page.

7416A MRVF Motion Controller Cable Assemblies

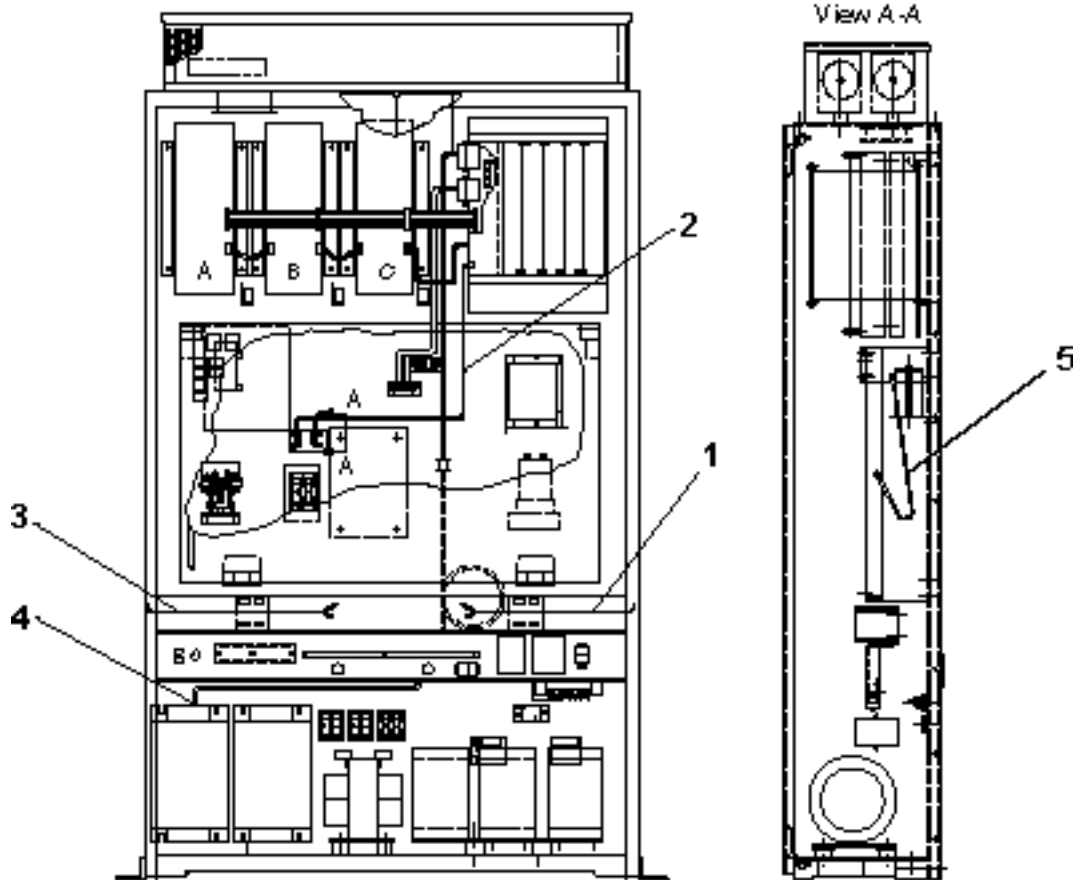


TIP 1.1.4.3-26, *MRVF Control System Update*,
for all updated information.

W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	174DS1	Assembly, Cable, Connector, 6 in. L
2	174DR1	Assembly, Cable, Connector, 35.5 in. L
3	174DP1	Assembly, Cable, Connector (current sensor), 28 in. L
4	174EB1	Assembly, Cable, Connector (encoder), 50 ft. L
5	174DS2	Assembly, Cable, Connector, 2 ft. L

(Continued on next page)

Cable Assemblies

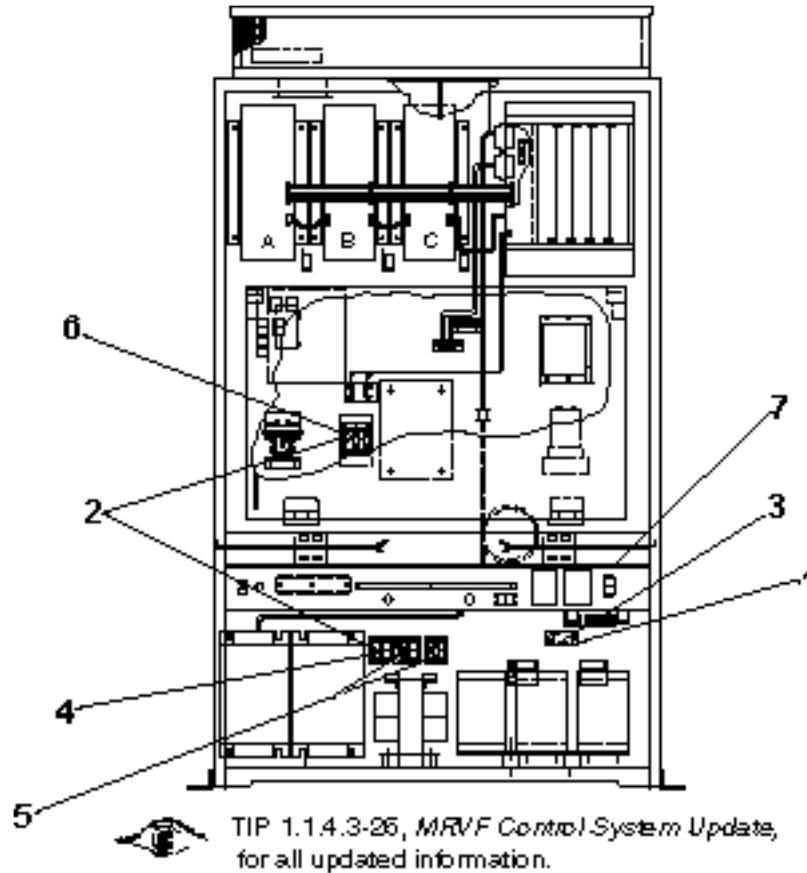


TIP 1.1.4.3-26, MRVF Control System Update,
for all updated information.

W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	174FD1	Assembly, Cable, 53 in.
2	B174DT1	Assembly, Cable, 18 in.
3	174FD2	Assembly, Cable, 5 ft. 5 in.
4	174ET1	Assembly, Cable, 6 ft.
5	712AAA1	Cable, Rope

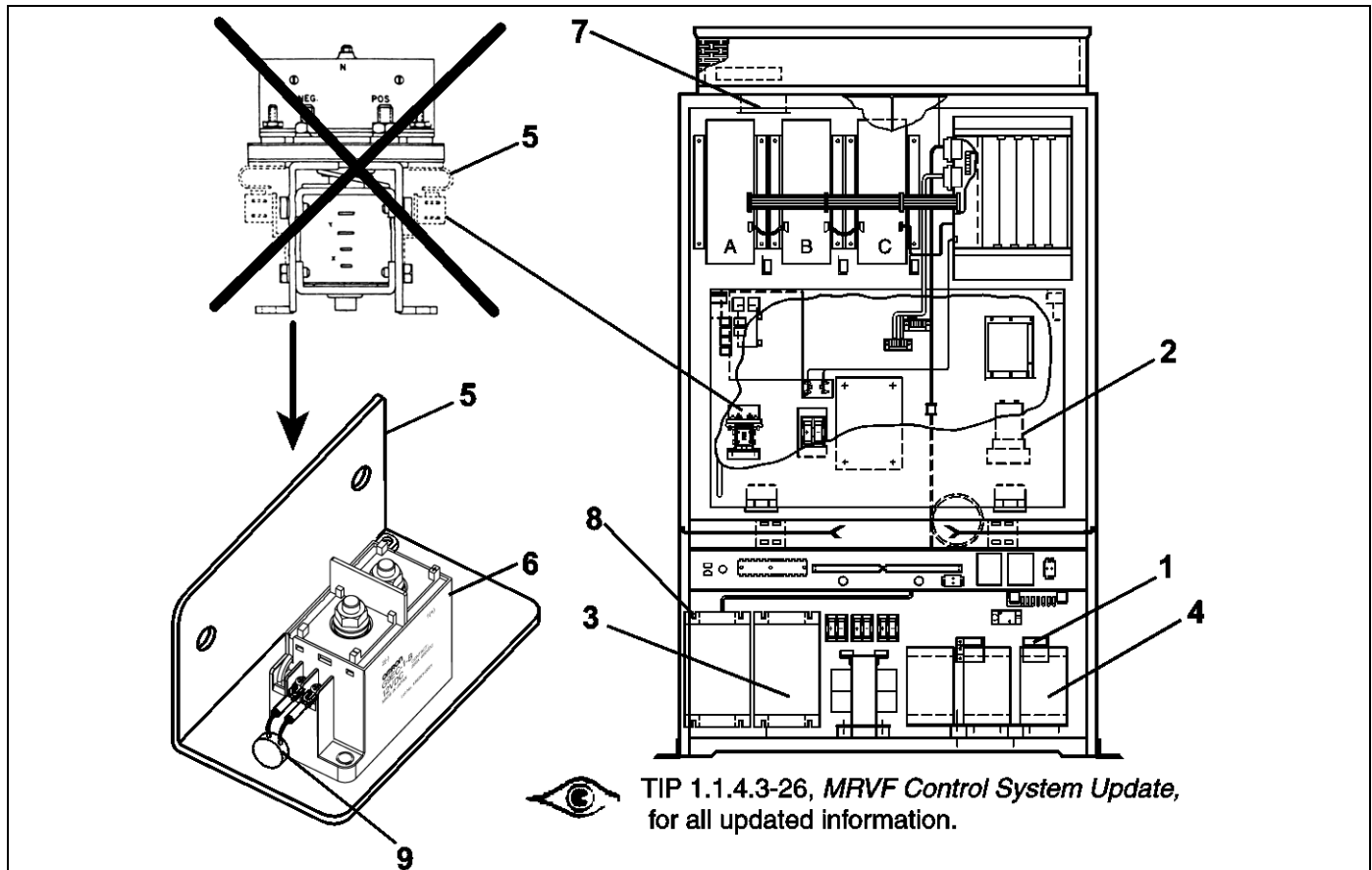
7416A MRVF Motion Controller

Fuses & Fuse Subassemblies



W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	P180BS2	Block, Fuse, Bussman®
2	P180BP1	Block, Fuse, Marathon®
3	P375AX2	Fuse, 250 V, 150 A, F1D, F2D, w/2035, 2535 Duties
	P375AX3	Fuse, 250 V, 200 A, F1D, F2D, w/3035, 3535 Duties
4	P375AS3	Fuse, 6 A, Limitron®, F1C
5	P375AS2	Fuses, 30 A, Limitron®, F2C, F3C
6	375Y30 AAA375BW41	Fuses, 250 V, 30 A, Fusetron®, F4C
7	7416B1	Subassembly, Fuse Panel, pp. 18-19

Service Parts

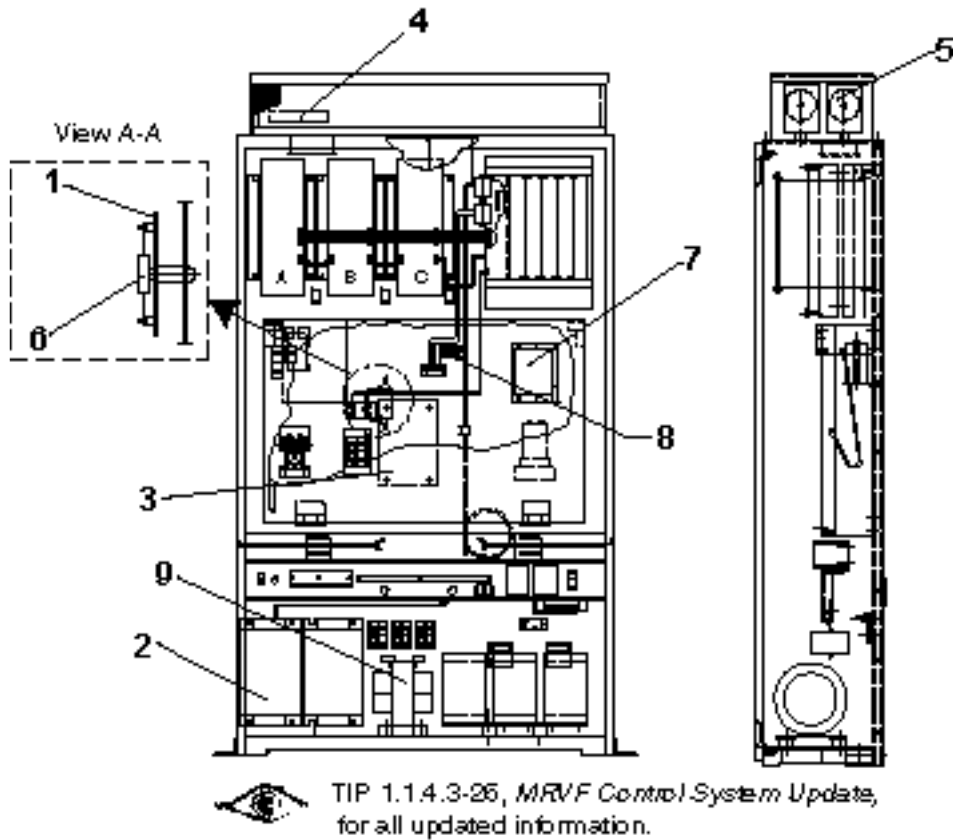


REF. No.	W/O VINTAGE PART No.	DESCRIPTION
1	P303BP6	Block, Power
2	P226DA3 AAA226FN13	Capacitor, 100 VDC, w/DOV Resistance Control Door Operator, 10,000 MFD
3	855A1 A628G4 1F-7416AV1	Charger, Battery
4	224AB4 234W1	Coil, Choke (All three chokes must be the same part number. Do not mix types.)
5	P613BM1 AAA21305AR1	Contactors (contact kit: P613BM2; coil kit: P613BM3) Contactors Assembly, see TIP 1.1.4.3-69
6	AAA638AF25	Contactors, 400 VDC, 60 A, 48 VDC Coil
7	P727A1 AAA6091AQ1	Fan
8	P334AP1 334AS2	Mount, Rubber
9	AAA605AA19	Suppressor, MOV

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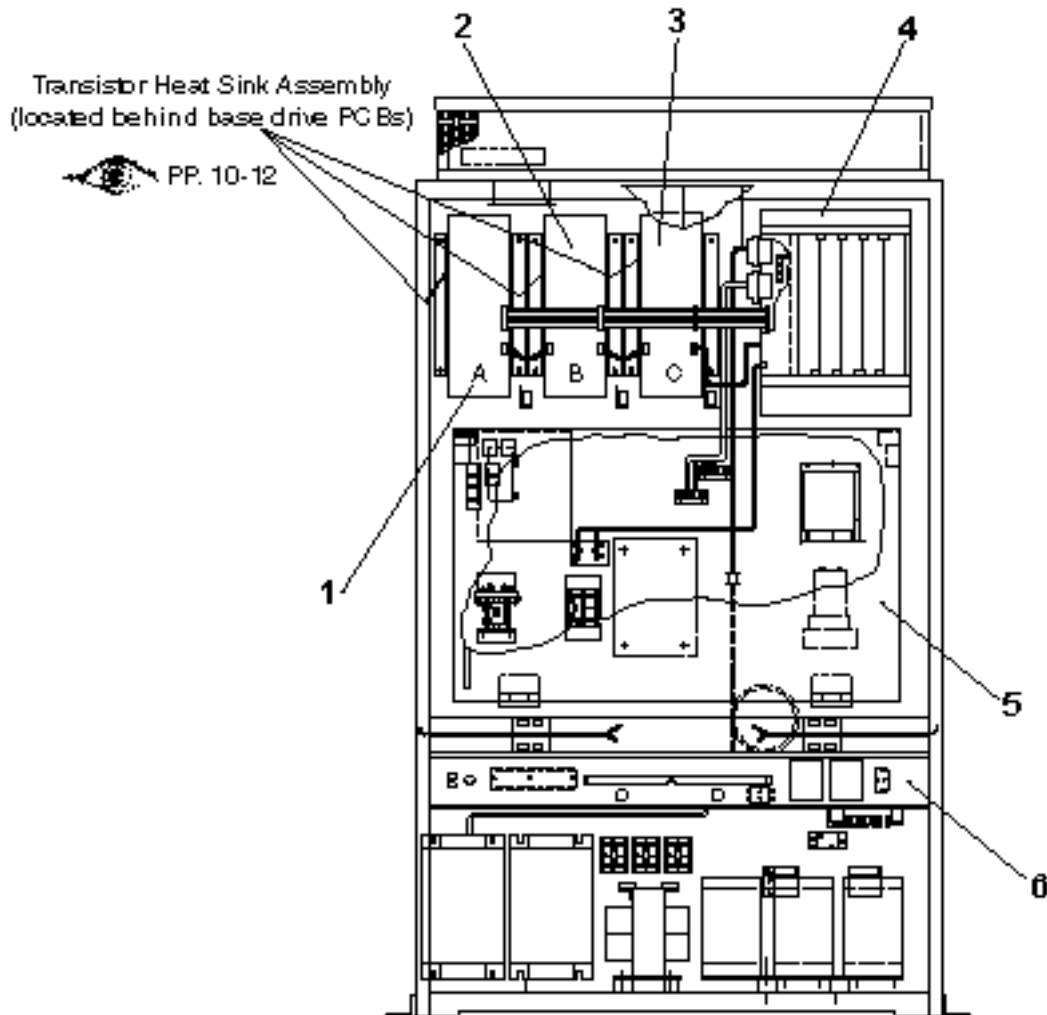
7416A MRVF Motion Controller




Service Parts



	W/O VINTAGE				
REF. No.	PART No.	DESCRIPTION			
1	7416F1	Panel, Resistor			
2	7460R4 621W1	Power Supply, DC (PPS) (for 621W1 power supply, 7416AW1 filter, mounting & wiring material, <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>ORDER</td></tr><tr><td> </td></tr><tr><td> </td></tr></table> Kit 1F-7416AM1)	ORDER		
ORDER					
3	621G4 C621G1	Power Supply, Digital, Carrier Supply			
4	232EW1	Resistor, 1.5 Ω, 550 W			
5	232EN1	Resistor, 10 Ω, 2000 W			
6	232T14 AAA232FP66 AAA232HR51	Resistor, 5.1 K, 2 W, Mounted on 7416F1 Panel			
7	7156C1	Switch, Speed			
8	622F1	Transducer, Current Sensor			
9	855A2 877A2	Transformer, Charger (for external transformer, 480/277 V, <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>ORDER</td></tr><tr><td> </td></tr><tr><td> </td></tr></table> 225ES1)	ORDER		
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Subassemblies



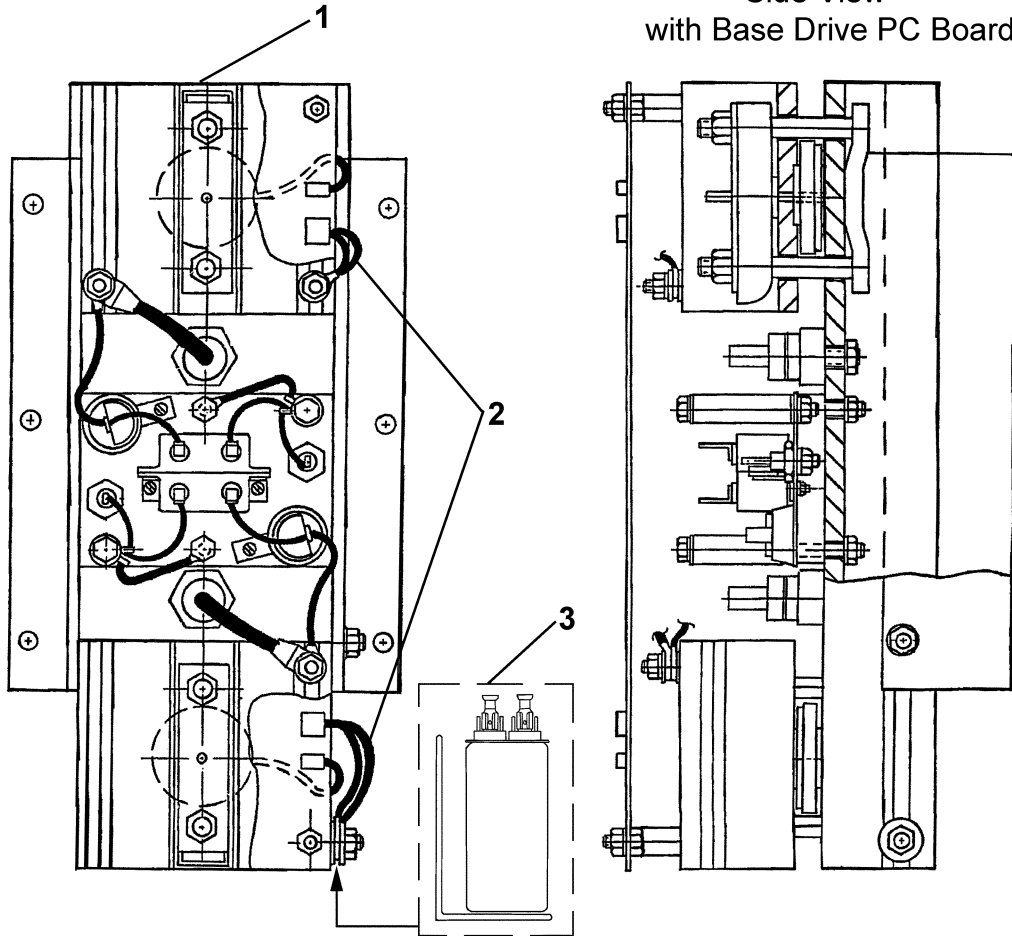
W/O VINTAGE			
REF. No.	PART No.	DESCRIPTION	
1	A8211F1 C8211F1	PCB, Base Drive, Phase A	NOTE: Mounted to the front of the transistor heat sink assembly.
2	A8211F2 C8211F2	PCB, Base Drive, Phase B	
3	A8211F3 C8211F3	PCB, Base Drive, Phase C	
4	7416D1	Subassembly, Card Cage, 	p. 13
5	7416C1	Subassembly, Relay Panel, 	pp. 14-17
6	7416B1	Subassembly, Fuse Panel, 	pp. 18-19


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7416E Transistor Heat Sink Assembly

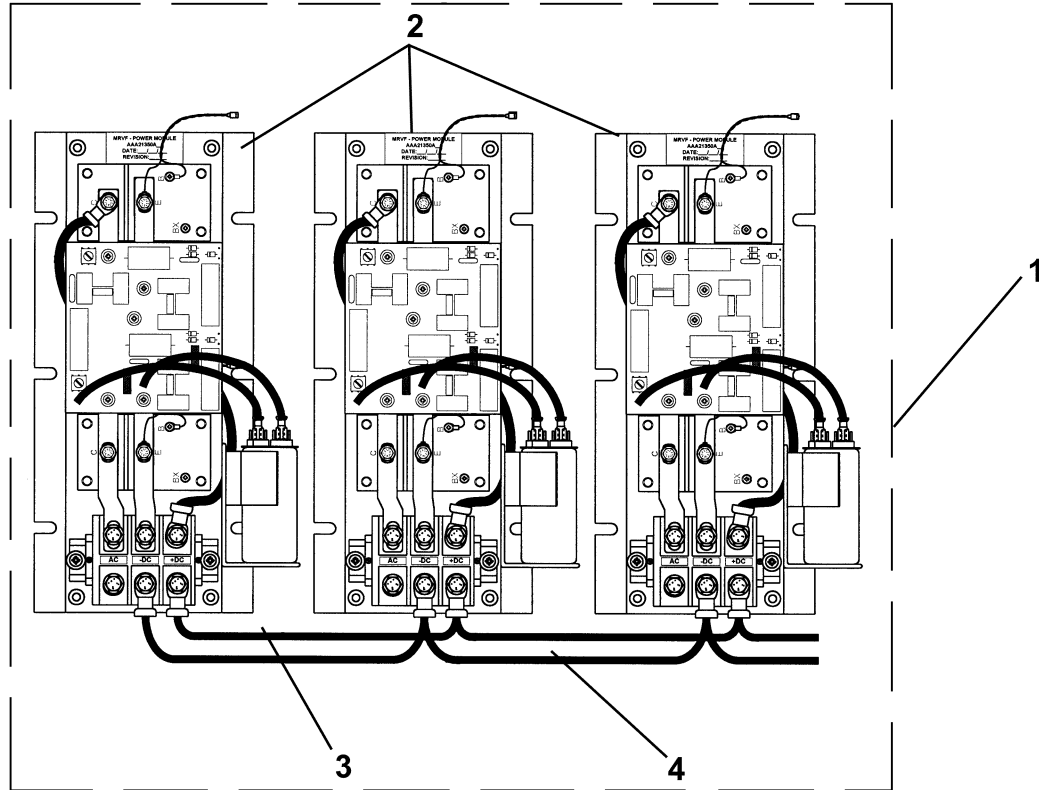
Shown with Base Drive PC Board Removed

Side View
with Base Drive PC Board



W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	7416E1	Assembly, Transistor Heat Sink (NOTE: These items are subject to availability. A retrofit kit for transistor heat sink assembly has been made available,  page 11.)
2	175CB2	Assembly, Diode (baker clamp)
3	226DT3	Capacitor, 370 VAC, 40 MFD

Heat Sink Assembly Retrofit Kit



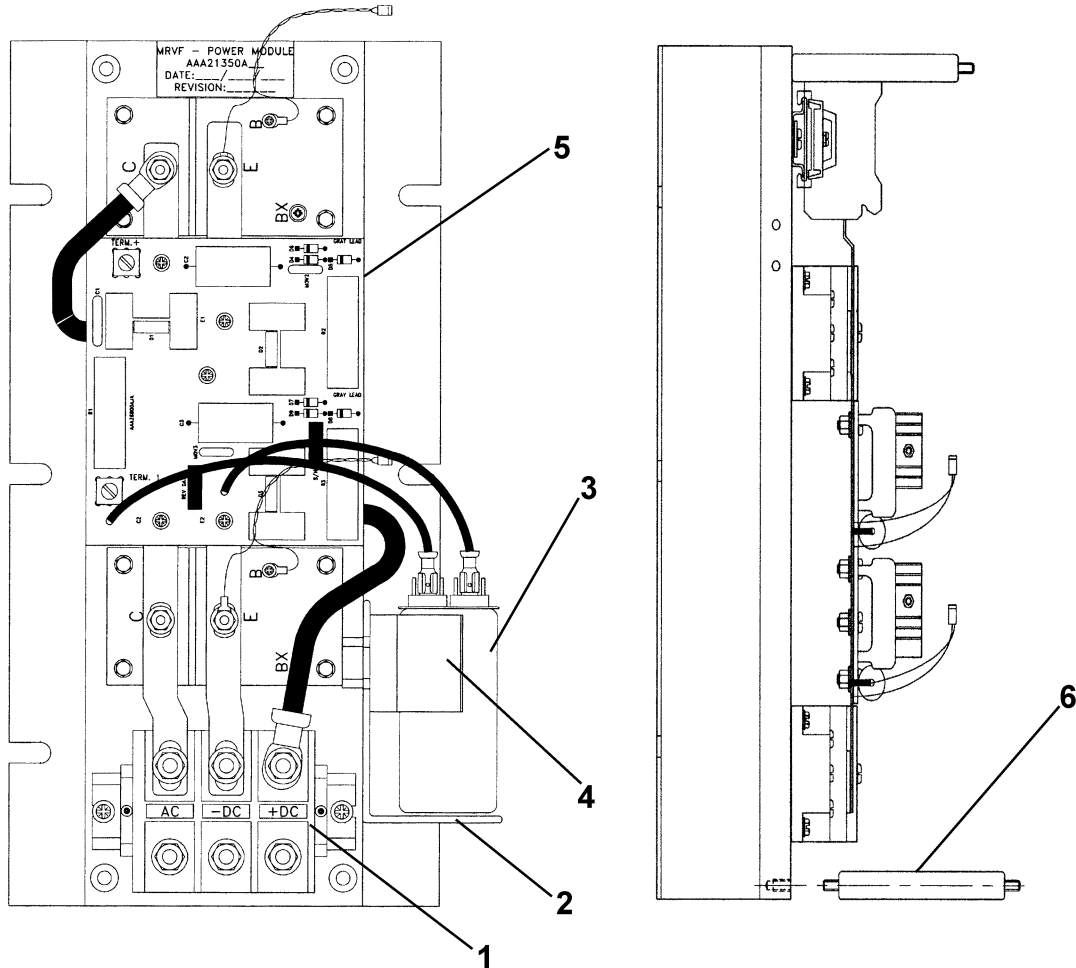
W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	AAA27076AS1	Assembly, Retrofit Kit, Invert Power Module (transistor heat sink), TIP 1.1.4.3-68 for details, and also NOTES .
2	AAA21350A1	Assembly, Inverter Power Module (transistor heat sink), Page 12 for Service Replacement Parts
3	AAA174ABZ2	Cable, Electrical, DC+
4	AAA174ABZ3	Cable, Electrical, DC-

NOTE 1: The retrofit kit includes (3) AAA21350A1, (2) AAA174ABZ2 and (2) AAA174ABZ3 along with other items required for installation.

NOTE 2: All three 7416E1 (transistor heat sink) assemblies must be replaced with the AAA21350A1 assemblies when kit is installed. Base drive boards are mounted to studs on the AAA21350A1 assemblies similar to the mounting on the 7416E1 assemblies.

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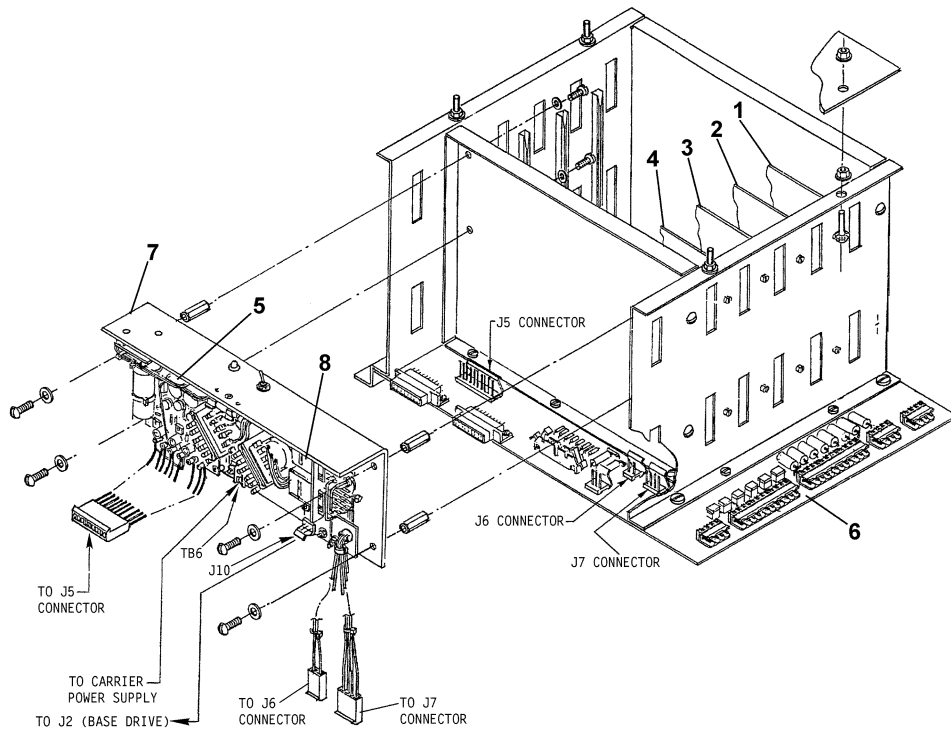
AAA21350A1 Inverter Power Module (transistor heat sink) Assembly




W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	AAA21303CM1	Assembly, Terminal block
2	AAA316GSW1	Bracket, Capacitor
3	226DT2	Capacitor, 40 μ FD, 370 VAC
4	AAA180HY1	Holder, Capacitor
5	AAA26800AJA1	PCB
6	AAA354DG8	Piece, Distance

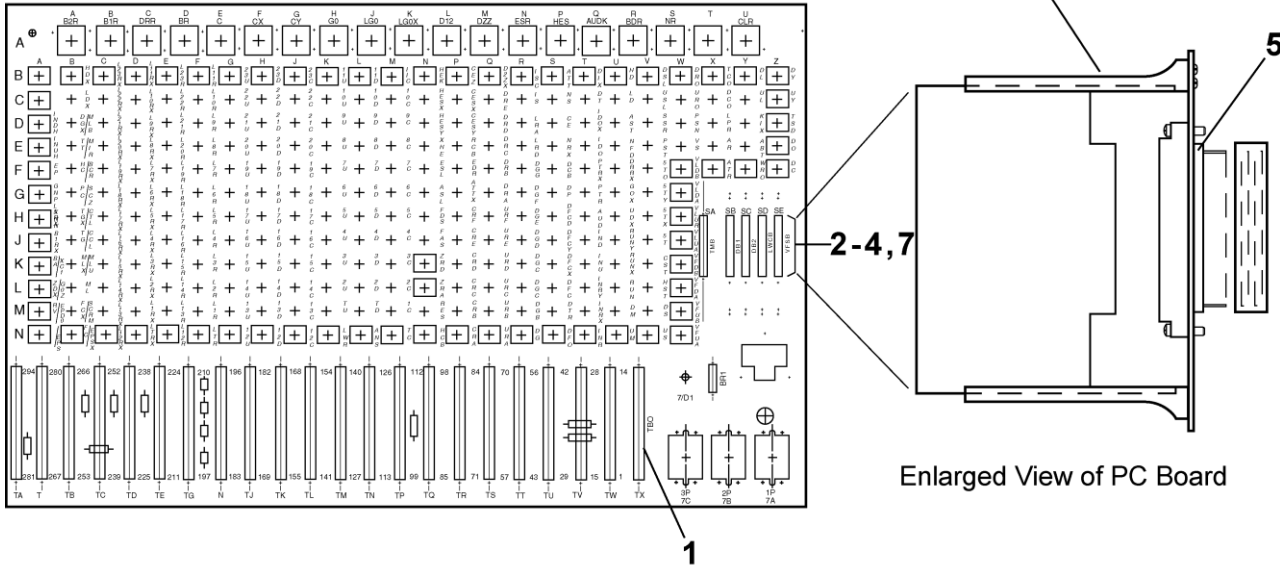
7416D Card Cage Subassembly

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W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	A8211E1 E8211E1	Board, Speed Dictation
2	8211D1 B8211D1	Board, Frequency & Amplitude Control
3	8211C1 E8211C1	Board, Speed Control
4	8211B1 D8211B1	Board, Inverter Control
5*	AAA375BT8	Fuse, Ceramic 250 V, ABC5 Amp
- - -	1F-7416BB1	Kit, Drive Logic Unit (DLU) Upgrade (consisting of Ref. 1, 2, 3, & 4),  TIP 1.1.4.3-47, MRVF Elevator DLU Modifications, and TIP 1.1.4.3-48, Installation Of MRVF Drive Logic Boards Kit # 1F-7416BB1.
6	8211A1	Motherboard
7	621J1 A621J1	Power Supply
8*	AMHP-48VDC P613AY6	Relay, 48 VDC (for old version 621J1 only)

* For location only. Part not shown.



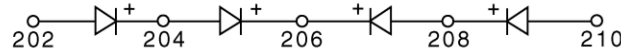
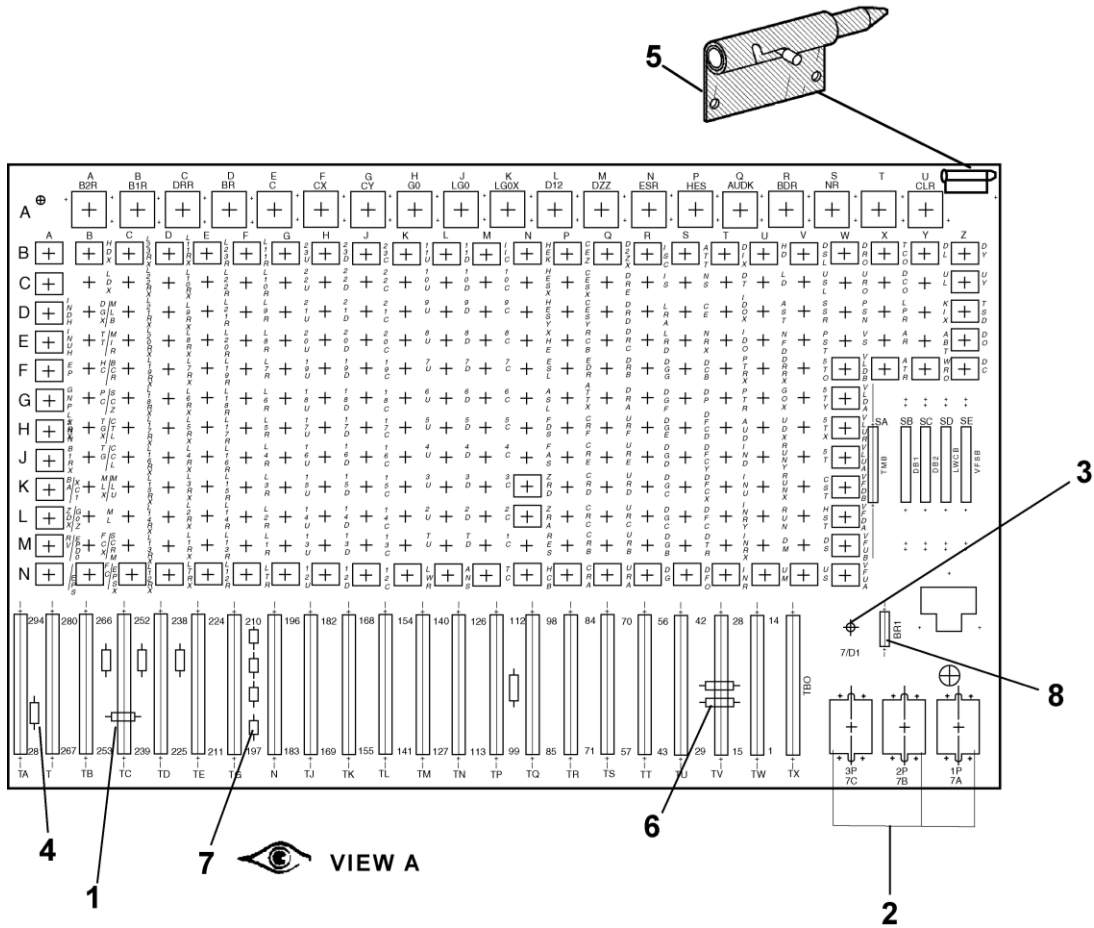
REF. No.	W/O VINTAGE PART No.	DESCRIPTION
1	P303CC1	Block, Terminal, 14-Pin
2*	A8121AN1	Board, Diode, DB1, DB2
3*	A8121AS4 8128CM1	Board, Load-Weighing Comparator (LWCB), W → 8128CN1 Load-Weighing Amplifier Assembly (NOTE: A8121AS1 is the original board), 👁️ TIP 1.1.4.3-44, <i>MRVF Load Weighing W/8128CN Board</i> , and TIP 1.1.4.3-45, <i>Update to the 8128CN Load Weighing Board</i>
4*	A8121AL23	Board, Timing, TMB
5	P614T5	Connector
6	P385MT4	Guide, Card
7*	A8121AH5 AAA8121W1	Kit, Vacuum-Fluorescent Speech Board (VFSB), w/Speech Option (includes B8121AH2 board)

* Part not shown. For location only.

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7416C Relay Panel

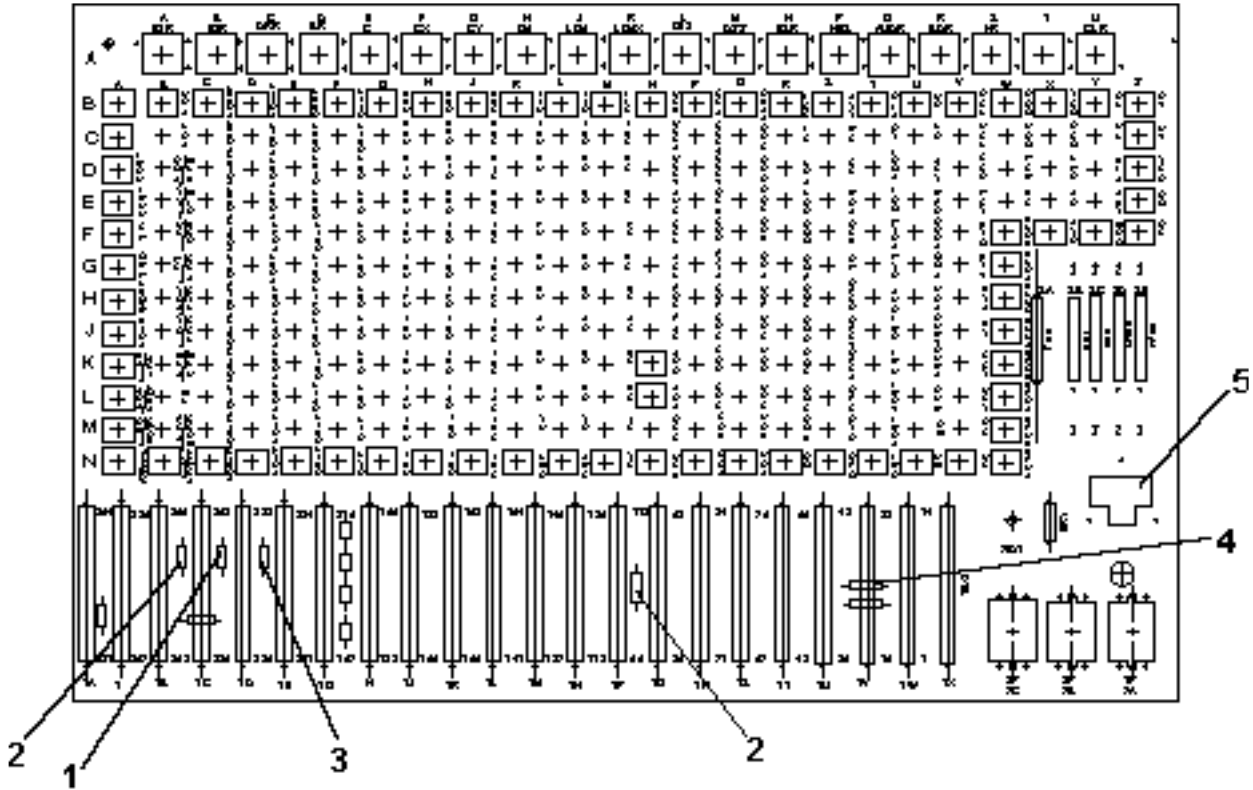
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VIEW A

REF. No.	W/O VINTAGE PART No.	DESCRIPTION
1	P226DH2 226EH1	Capacitor, 400 VDC, 3.9 μ FD
2	P614H7	Connector, 1P, 2P, 3P
3	P606D4	Diode, Zener®, 18 V
4	642B2 AAA612AF2	Diodes (1N5060)
5	391BS3	Latch Release Hinge,
	391BS4	Latch Release Hinge,
6	230BD4	Rectifier
7	230BD4	Rectifier (duplex, elevator B only)
8	P230BN1	Rectifier

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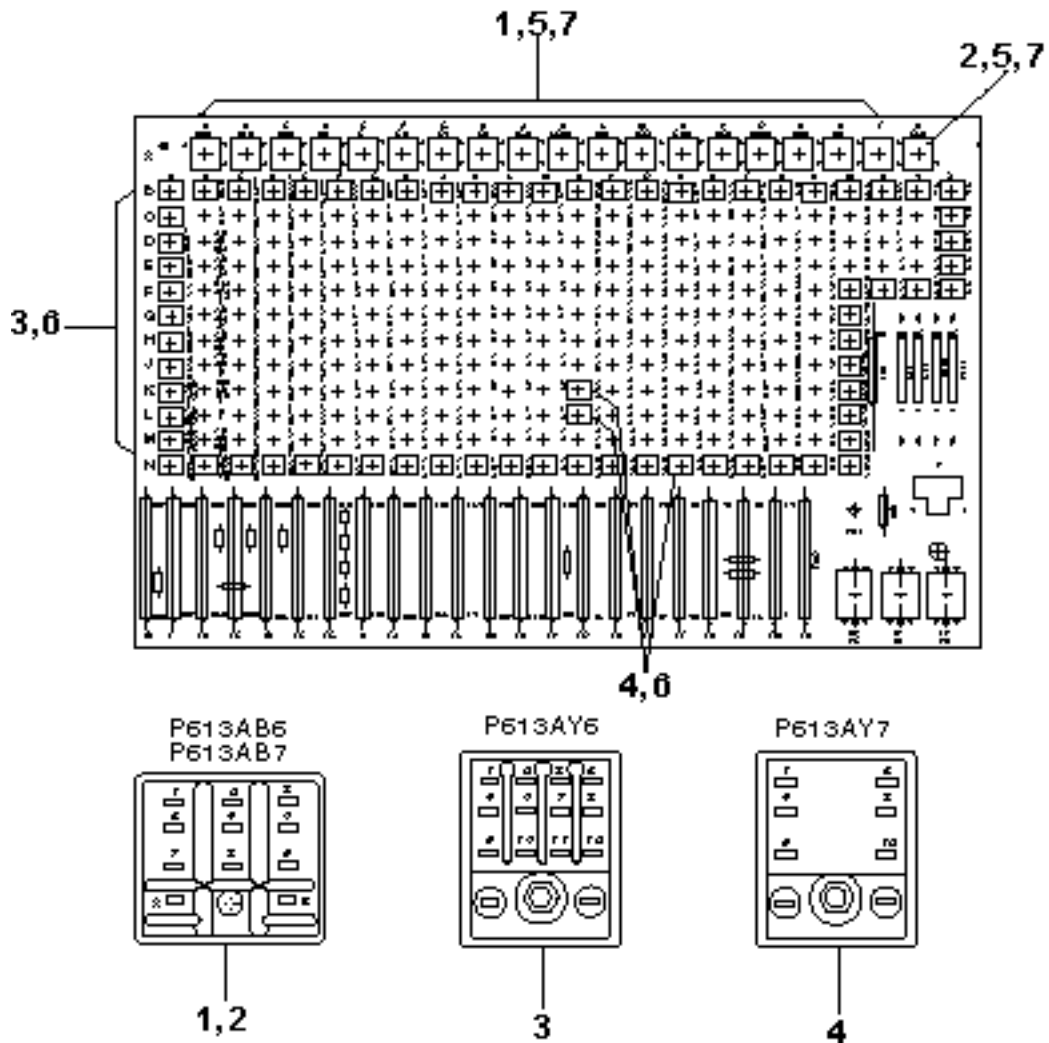


REF. No.	W/O VINTAGE PART No.	DESCRIPTION
1	232AT7 AAA232GJ58	Resistor, 2,000 Ω
2	232AT11 AAA232GJ53	Resistor, 1,000 Ω
3	232AT5 AAA232GJ30	Resistor, 120 Ω
4	P232T42 AAA232FP33	Resistor, 220 Ω
5	P613BR2 P613BY2	Switch, Stepping, Rotary,  TIP 1.1.4.3-56, MRVF Electronic Stepper Retrofit

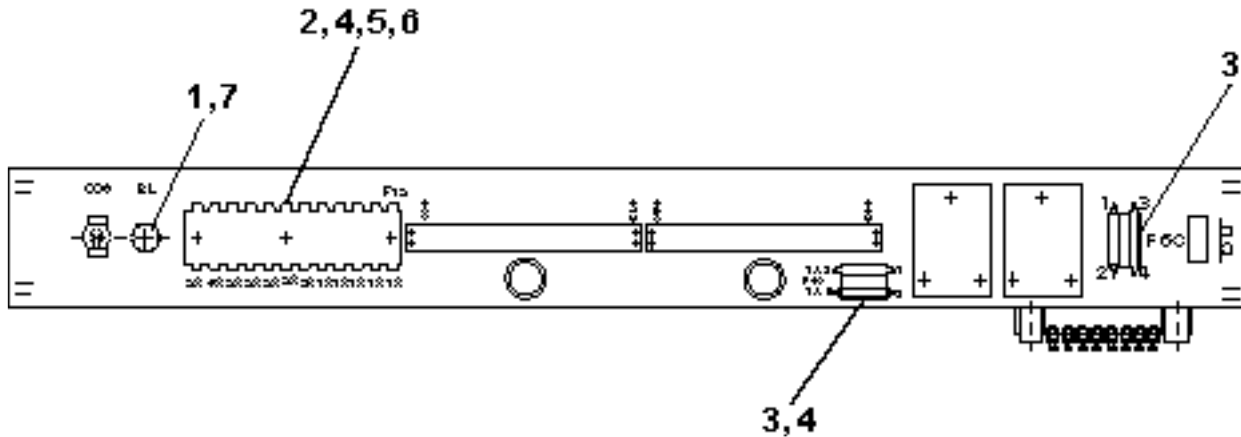
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7416C Relay Panel

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REF. No.	W/O VINTAGE PART No.	DESCRIPTION
1	P613AB6	Relay, 48 VDC, 3-Pole
2	P613AB7 P613AB12	Relay, 115 VAC, (CLR)
3	P613AY6	Relay, 48 VDC, 4-Pole
4	P613AY7 630H2	Relay, 48 VDC, 2-Pole (CES, DG, ZRD, ZRA)
5	P467AS1	Socket, for Relay P613AB6, P613AB7
6	P618T1	Socket, for Relay P613AY6, P613AB7
7	P94DA1	Spring, for P613AB6, P613AB7

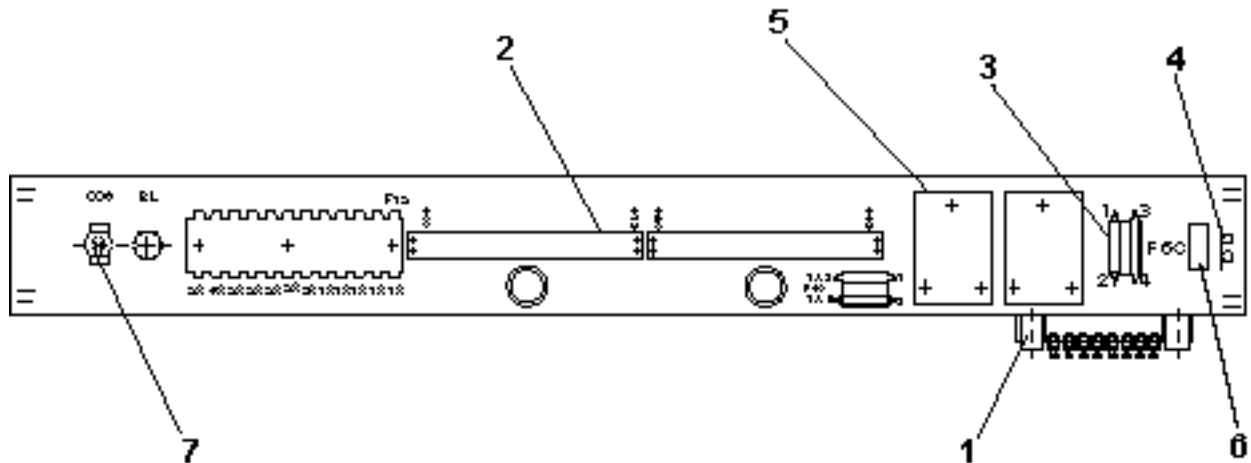


W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	P467AY1	Assembly, BL Indicator Base & Lens
2	P303BA5	Block, Fuse
3	P180BR2	Block, Fuse
4	375P1 AAA375BT17	Fuse, 1 A (F8–F12, F5C1–2, F5C3–4)
5	375P2 AAA375BT27	Fuse, 2 A (F1, F3–F7)
6	375P6	Fuse, 6 A (F2)
7	424A10	Lamp, Neon, for BL Indicator

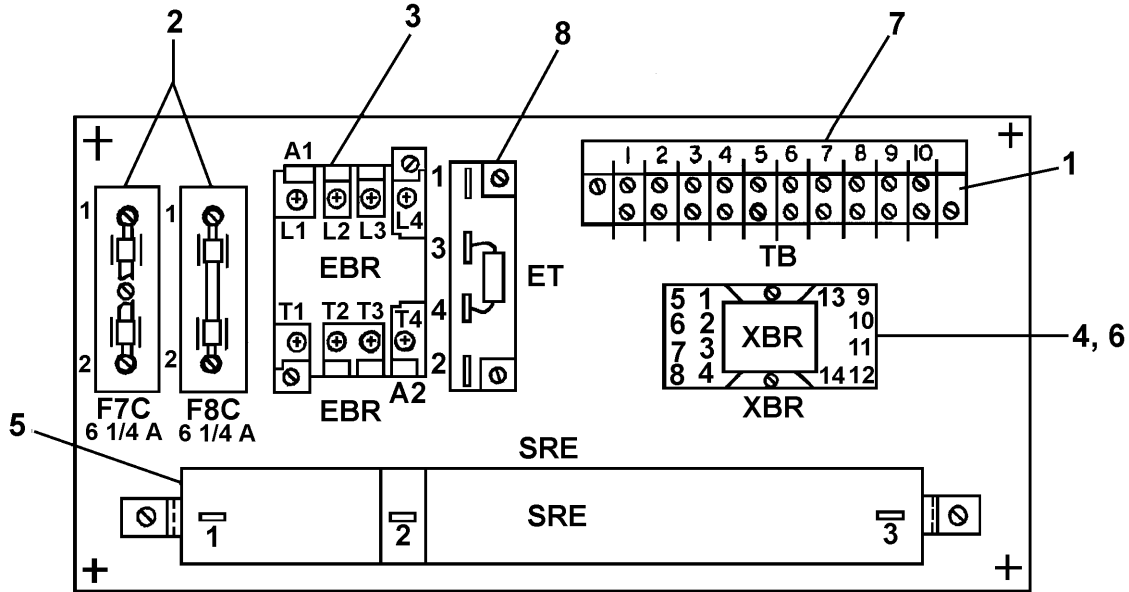
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7416B Fuse Panel

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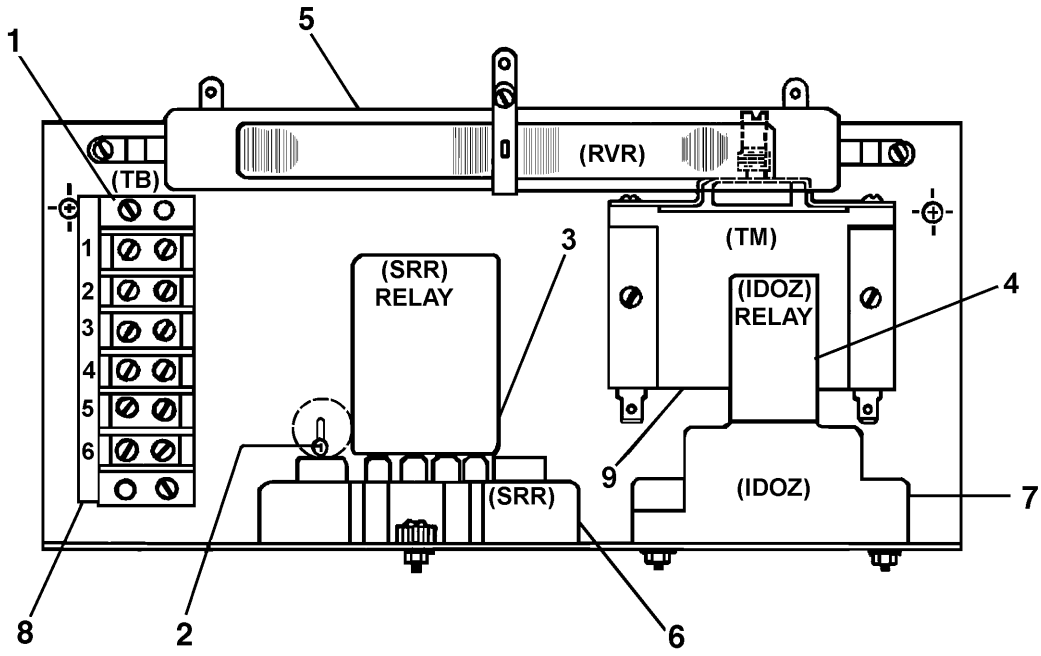


W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	252W2	Bar, Bus (grounding)
2	P303CG1	Block, Terminal, 20 Connections
3	375P3 AAA375BT18	Fuse, 3 A (F6C1-2, F6C3-4)
4	7416AF1	Panel, Suppressor, for 613BX10 (includes AAAGJ30 resistor, 230BD4 diode, & 226EH1 capacitor)
5	P613BL1	Relay, 48 VDC, w/Contacts 2NO, 2NC (DO & DC w/7777A for center-opening resistance-controlled door operator)
6	613BX10 613BX40	Relay, Brake
7	6599A7	Switch, Toggle, COS



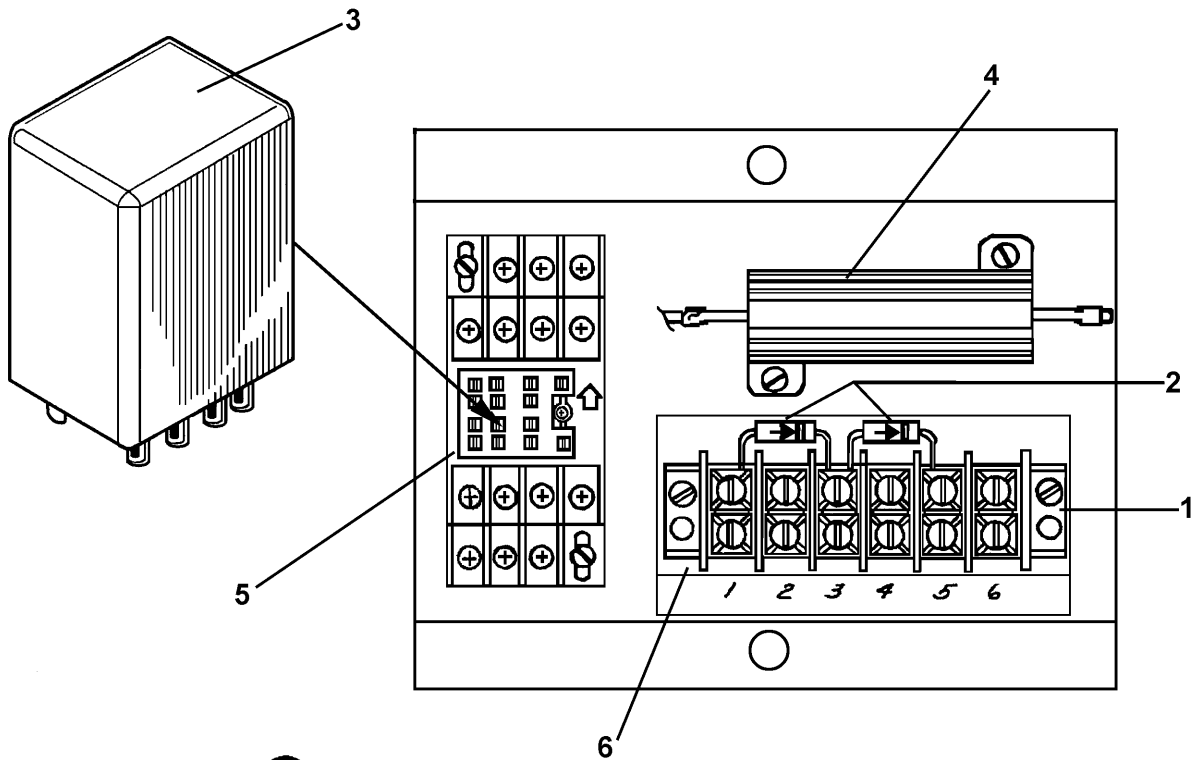
TIP 6.2.7-6, 215DT Machine Installation of Rope Drag Device

W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	P303CG3	Block, Terminal, 10-Terminal, Wire Clamp Type
2	AAA375BR16	Fuse, 6-1/4 A (Slo-Blo®)
3	613BX28	Relay, 110 VDC Coil (Sprecher & Schuh® CA7-12C-M40-110 VDC)
4	AAA613CZ12	Relay, 110 VDC Coil, 4PDT (4 form C)
5	AAA617T5	Resistor, 175 W, 25 Ω (Ohmite® D175K25R)
6	PBFD27E166	Socket, Relay (P & B Type 27E166)
7	P102KP3	Strip, Marker
8	AAA623AA7	Timer, Artisan®, Set at 1 Sec. (use instead of original timer)



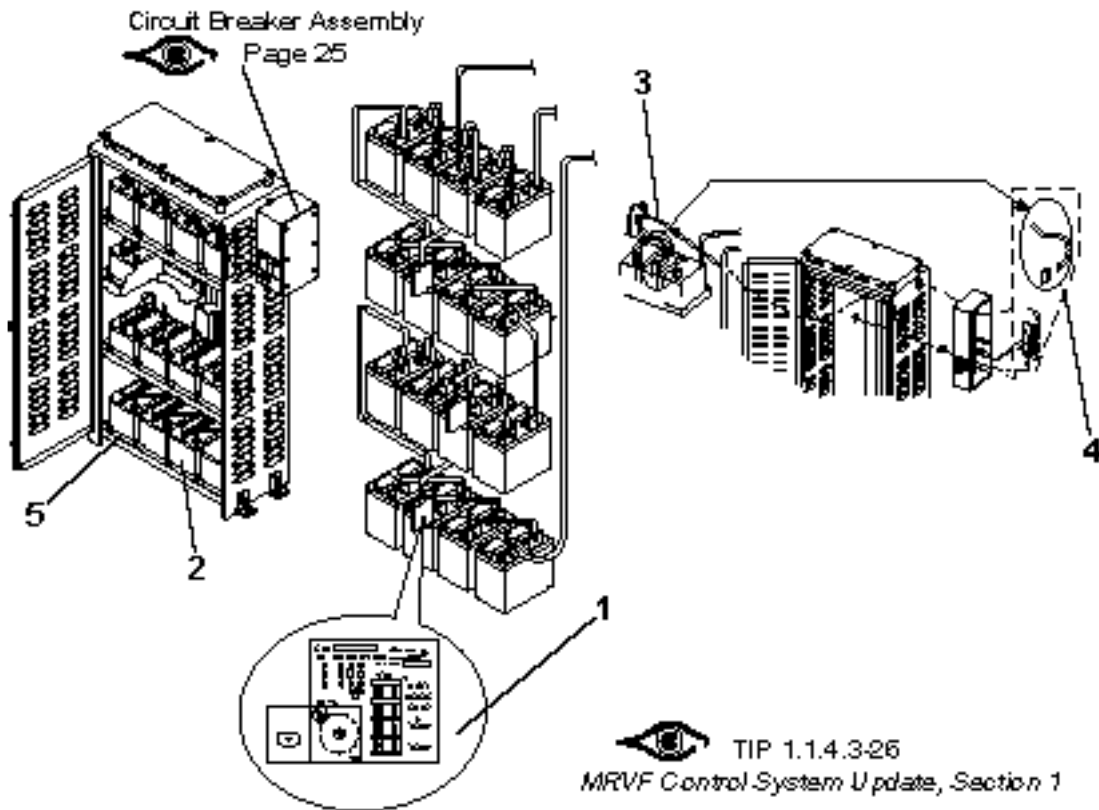
TIP 22.9-21, 7777 Operator Retrofit on Hydraulic & MRVF


W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	P303CG9	Block, Terminal, 6-Terminal, Wire Clamp Type
2	AAA612AF2	Diode, 1 A, 400 V, Type 1N5060
3	P613AB6	Relay, 48 VDC Coil, 3PDT (3 form C)
4	P613AY6	Relay, 48 VDC Coil, 4PDT (4 form C)
5	AAA617L13	Resistor, 100 W, 250 Ω
6	P467AE2	Socket, Relay
7	618AE2	Socket, Relay
8	P102KP6	Strip, Marker
9	AAA623AA9	Timer, 0.4–2 sec. (Artisan® 438AP-48)



TIP 1.1.4.3-51, MRVF Must Change Rope Drag Fuse Monitor Panel

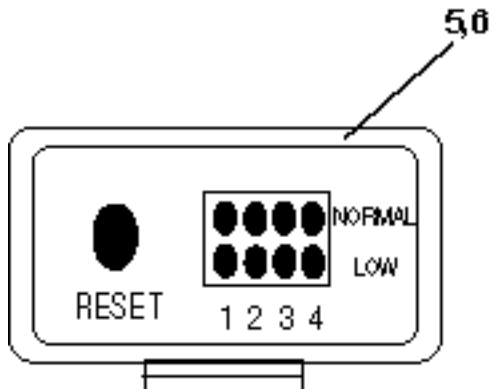
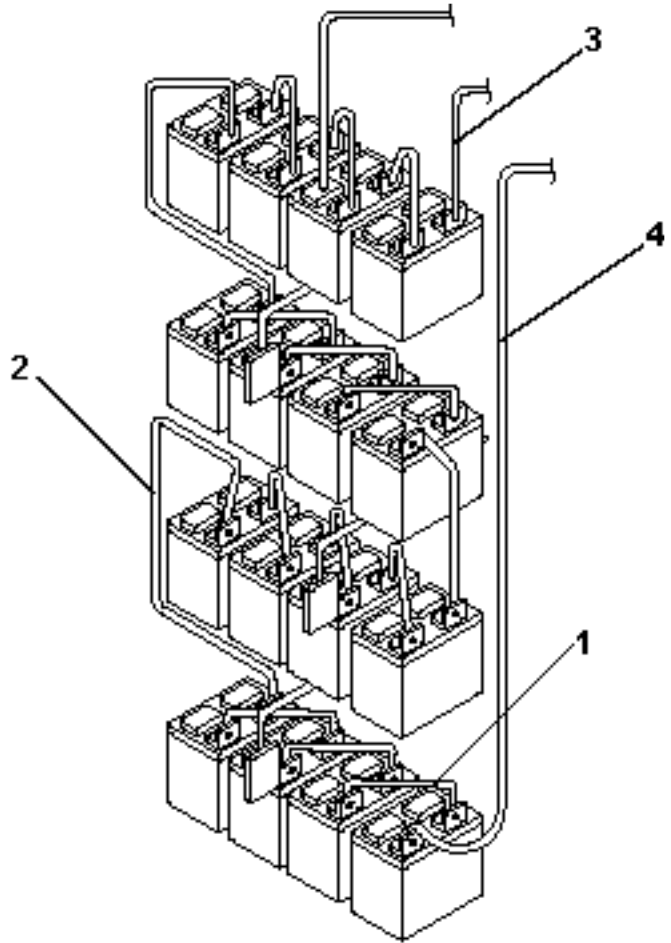
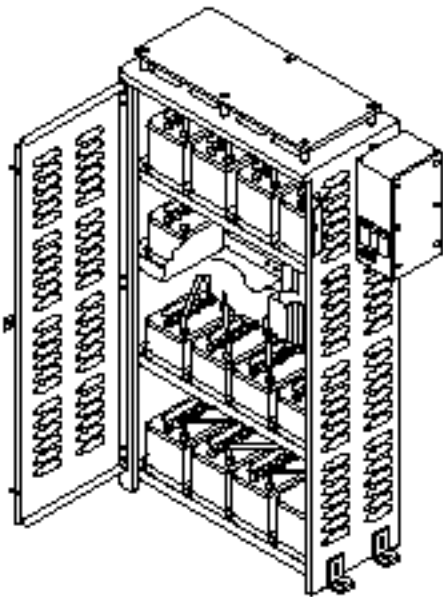
W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	P303CG9	Block, Terminal, 6 Terminal, Wire Clamp Type
2	AAA612AX18	Diode, Zener®, 56 V, 5 Percent, Motorola® 1N5370B
3	AAA613CZ12	Relay, 110 VDC Coil, 4PDT (4 form C)
4	AAA232FE8	Resistor, Dale® RH-50, 2.5 K, 50 W, 1 Percent
5	618AE2	Socket
6	P102KP6	Strip, Marker





REF. No.	W/O VINTAGE PART No.	DESCRIPTION
1	8128BM1	Assembly, Battery Temperature Sensing
2	P718AAF4 AAA718G2	Batteries, Interstate® GC12V75B (82 Ampere-Hour) Field Optional
	P718AAF2 AAA718G3	Batteries, Interstate® GC12V100B (88 Ampere-Hour) Field Optional
	AAA718G4 AAA718G5	Batteries, Interstate® DCM0100L (100 Ampere-Hour)
3	174GC1	Cable, Temperature Sensing System
4	1F-7416AT1	Kit, Temperature Sensor, Consisting of Cable (174GC1), Battery Temperature Sensing Assembly (8128BM1), & Battery Temperature Sensing Terminal Block (8128BN1, Ref. 1 on p. 25),  TIP 1.1.4.3-26, MRVF Control System Update, Section 1
5	437CE2	Pan, Battery

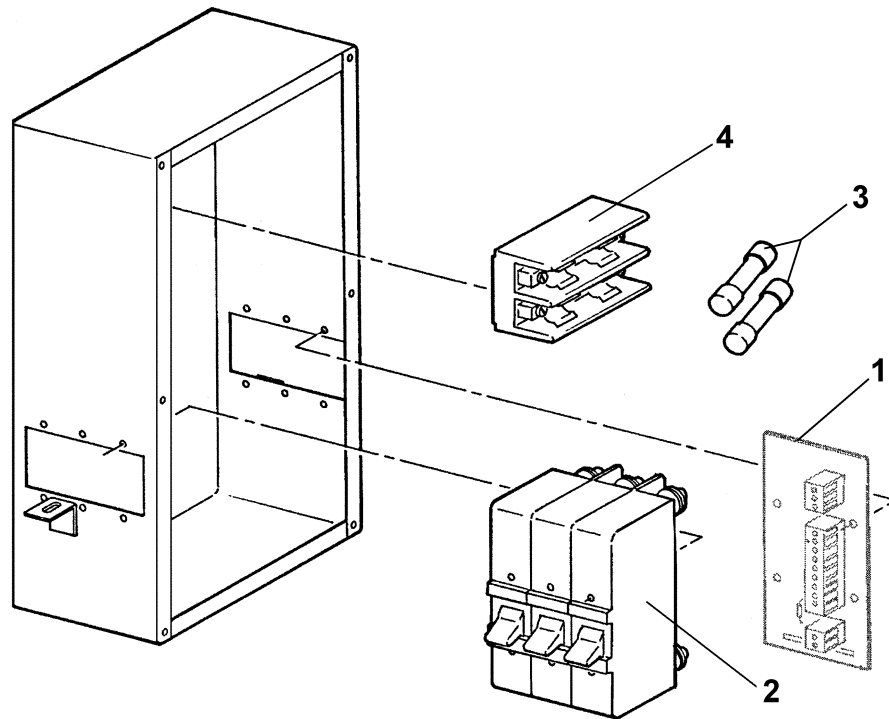
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7415A Battery Box



 TIP 1.1.4.3-55
MRVF Battery Voltage Monitor ABA7416BE1

W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	174DB1	Cable, 14 in.
2	174DB2	Cable, 28 in.
3	174DB3	Cable, 43 in.
4	174DB4	Cable, 9 ft.
5	AAA375BT21	Fuse, 1/16 A (1 per monitor)
6	AAA7416BE1 ABA7416BE1 ACA7416BE1	Monitor, Battery Voltage (1 per shelf),  TIP 1.1.4.3-55, MRVF Battery Voltage Monitor ABA7416BE1



W/O VINTAGE		
REF. No.	PART No.	DESCRIPTION
1	8128BN1	Assembly, Terminal Block, Temperature Sensing System
2	630D1	Breaker, Circuit, 200 A
	P630C3	
3	P375AS2	Fuse, 35 A, 250 V
	P375AS7	
4	P180BW1	Holder, Fuse