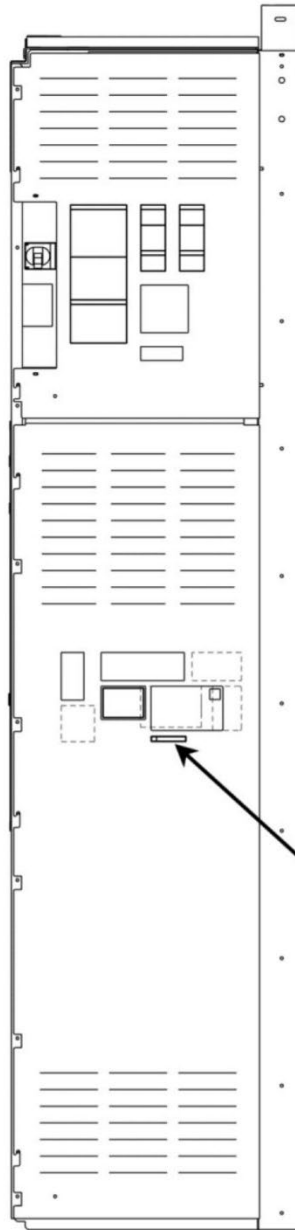


**Variable Frequency
Controller for NSAA
Gen2® Underslung**

Spare Parts Leaflet

10-AAA21305DH

September 25, 2024 / Page 1 of 23



- 10 A - AAA21305DH
- 10 A - AAB21305DH
- 10 A - ABA21305DH
- 10 A - ACA21305DH

OTIS

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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History

10-AAA21305DH

Leaflet Description

This leaflet lists the lowest replaceable units for type AAA21305DH controllers. These controllers are Gen2 variable frequency controllers, used in NSAA for Gen2 units running at 150, 200, or 350 fpm. These systems have also been sometimes referred to as Phoenix, Gen2-S, or Gen2 150, and Gen2 Underslung.

Leaflet Revisions

Date Revised	Subject Matter Expert	Reason for Revision
See next page for Revision History		

Related Drawings

Drawing No.	Title	Drawing No.	Title
AAA21305DH	Controller Assembly	HAA21310AZ	OVFR05A-404 & OVFR05A-204
AAA21305DG	Inspection and Test Assembly	KCA21310AAV	40A Regenerative Drive, OVFR2B-404 & OVFR2B-204, OVFR05A-404 & OVFR05A-204
KDA21310AAT	20A Regenerative Drive, OVFR2B-402	AAA174TP	Cable, Electrical
AAA21603S1 / AAA21603S2 / AAA21603S3	Wire Drive Extension	KCA21810ABL	40A Ultra Drive
ABA21305DH / ACA21305DH	Controller Assembly	KCA21310ABR5	60A R3 DRIVE (480VAC)
ACA21305DH	Controller Assembly	AAA27076FK	Controller wire harness

Related Documents

Document ID	Title
TIP 1.1.18.2-3	20 / 25 / 30 / 40 Amps ReGen Drives Replacement with New UD404

Subject Matter Expert

Name	Department
Ali Bozorgzadeh	OSC Service Engineering

History

10-AAA21305DH

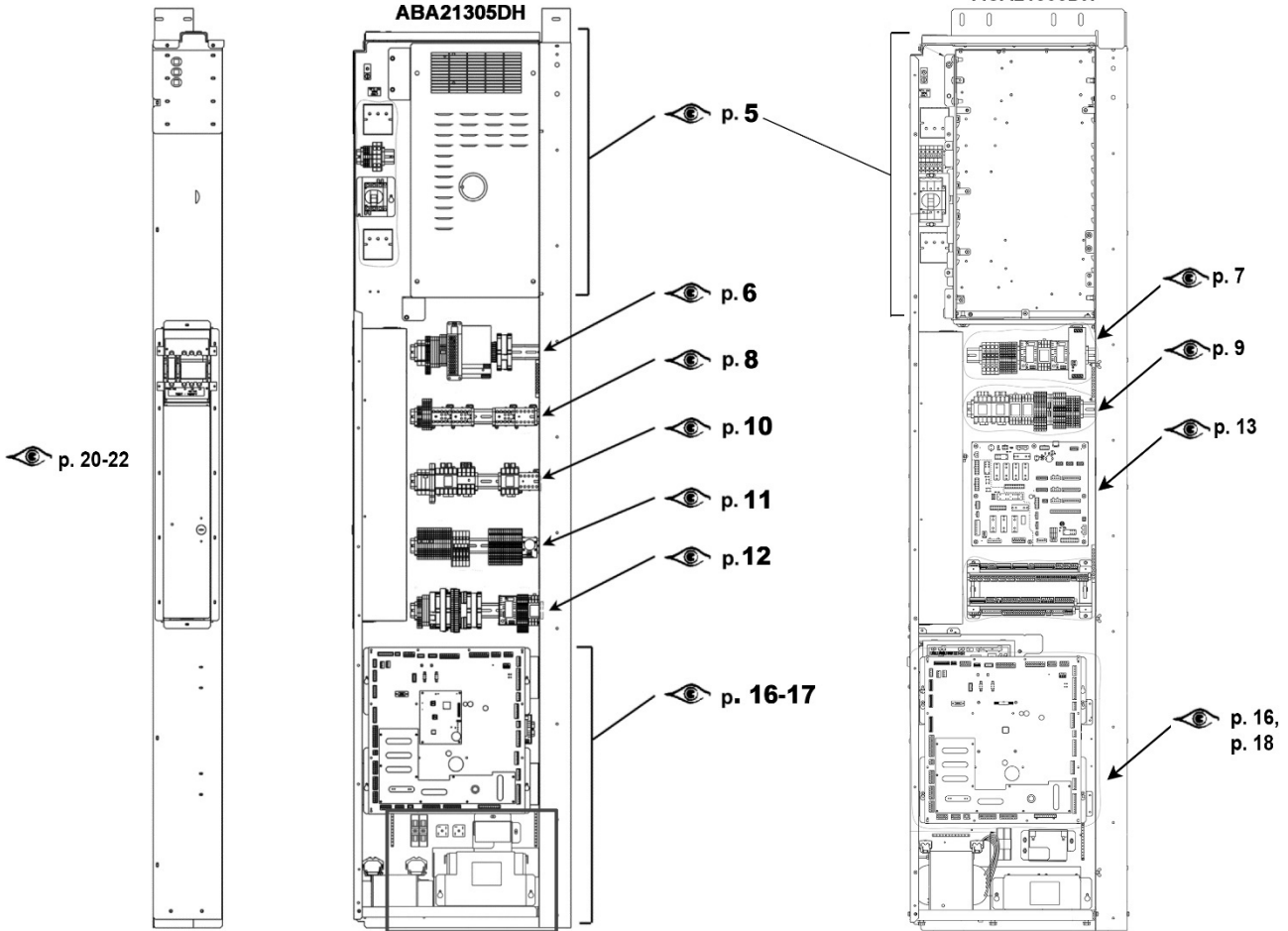
Leaflet Revisions

Date Revised	Subject Matter Expert	Reason for Revision
September 5, 2012	Jim Harte	New SPL
June 11, 2014	Jim Harte/ Ali Bozorgzadeh	Added AAA176HH62 & AAA176HH103; circuit breakers AAA637E53, 54, 55 to I & T Assy; and lockout hasp AAA661G14; AAA141AN3 snap rivet & AAA354DT14 distance piece.
June 24, 2015	Ali Bozorgzadeh	Corrected p/n typo in ref. 6 on p. 11
August 26, 2015	Ali Bozorgzadeh	Updated p. 10
July 20, 2016	Cuauhtemoc Castro Inzunza	Updated pp. 3, 4, 5, 7, 10, and 12
September 27, 2017	Kyle Bates	Added p/ns AAA303EP199 & -216, GAA648AV5, AAA612AK1, and AAA31256DAA software.
November 8, 2017	Cuauhtemoc Castro Inzunza	Clarified Ref. 4 on p. 10
May 16, 2018	Anh Pham	Corrected typo. Added new p/ns to p. 4
December 11, 2019	Ali Bozorgzadeh	Added ribbon cable p/n 174HT10 to p. 10
June 10, 2020	Ali Bozorgzadeh	Added p/ns AAA638AN100 and AAA638AN101 on p. 6
November 25, 2020	Ali Bozorgzadeh	Added p/n AAA180JT3 on p. 11
March 16, 2022	Charles Demery	Added ABA21305DH vintage information
May 4, 2022	Justas Gailius	Added 60A drive p/n KCA21310ABR5 on pp. 2 and 4
August 17, 2022	Doug LaBrecque	Corrected description for p/n AAA26800ASG2 on p. 12
May 3, 2023	Lu Xu	Added ACA21305DH. Remove p/n: AAA621AT14 for ABA21305DH vintage tag and add p/n: AAA621AT41.
February 21, 2024	Charles Demery	Page 2 – Add in the new ref. drive drawings/associated items and new wire drive ext. harness. Page 5 – Add new 40A drive p/n and removed old 40A drive p/n; update note 2.
June 19, 2024	Charles Demery	Change PSS power supply AAA621AT41 to AAA621AT14 (p. 7–8).
September 25, 2024	Raghavendra Mudumbai	Changed description of AAA375BT19 (p. 11).

Inspection & Test Assy.
AAA21305DG

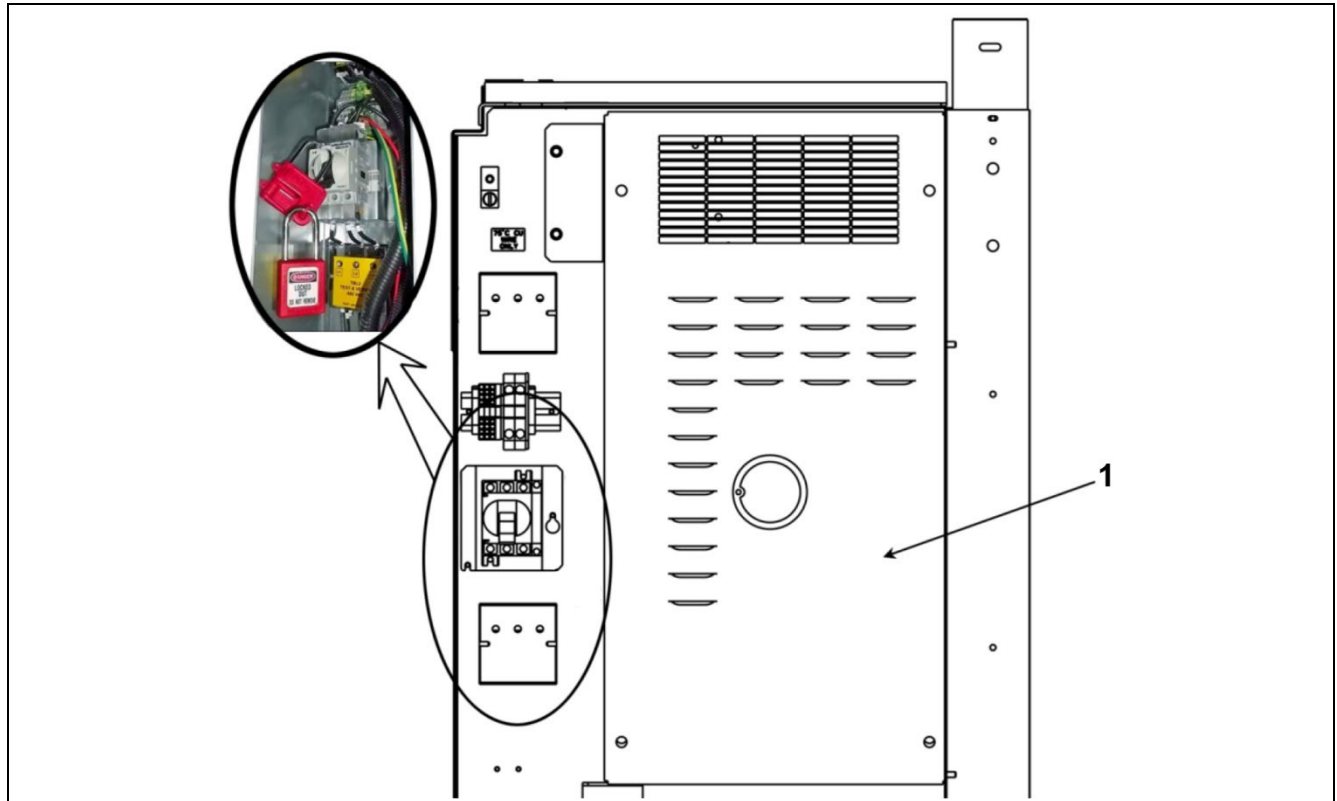
Controller
AAA21305DH
AAB21305DH
ABA21305DH

Controller
ACA21305DH



Upper Controller Section, Drive

10-AAA21305DH



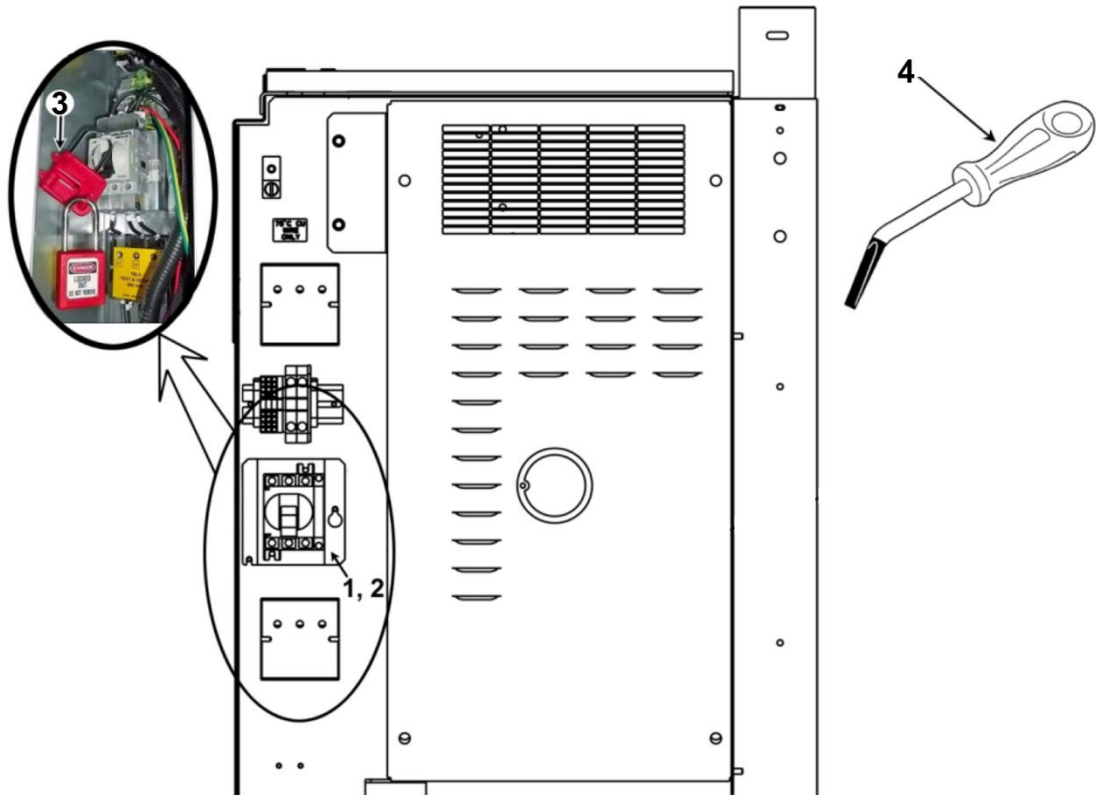
ALL VINTAGES			
REF. No.	PART No.	DESCRIPTION	
1	KDA21310AAT2 KCA21310ABL7 KDA21310ABL7 HAA21310AZ1	Drive, Regenerative (OVFR2B-402), 480 VAC, 20 A Drive Ultra, Regenerative (OVFR3B-404) 480 VAC, 40 A Drive UD404R2 (OVFR05A-404) 480 VAC, 40A	See NOTES 1 and 2
	KCA21310AAN2 KCA21310ABL7 KDA21310ABL7 HAA21310AZ1	Drive, Regenerative (OVFR2B-403), 480 VAC, 30 A Drive Ultra, Regenerative (OVFR3B-404) 480 VAC, 40 A Drive UD404R2 (OVFR05A-404) 480 VAC, 40A	
	KCA21310AAV2 KCA21310ABL7 KDA21310ABL7 HAA21310AZ1	Drive, Regenerative (OVFR2B-404), 480 VAC, 40 A Drive Ultra, Regenerative (OVFR3B-404) 480 VAC, 40 A Drive UD404R2 (OVFR05A-404) 480 VAC, 40A	
	KCA21310AAN6 KCA21310ABL8 KDA21310ABL8 HAA21310AZ2	Drive, Regenerative (OVFR2B-203) 208 VAC, 30 A Drive Ultra, Regenerative (OVFR3B-204) 208 VAC, 40 A Drive UD404R2 (OVFR05A-204) 208 VAC, 40A	
	KCA21310ABR5	Drive, Regenerative (OVFR03A-406) 480 VAC, 60 A	

NOTE 1: Remove and discard drive cover prior to installation.

NOTE 2: When replacing an LCRD (OVFR2B) with an Ultra Drive, refer to TIP 1.1.18.2-3. Order extension harnesses p/ns AAA21603S1, AAA21603S2, and AAA21603S3. If replacing a 20A drive, additionally order brackets p/ns AAA316HXN1 and AAA316HXN2.

Upper Controller Section, Misc.

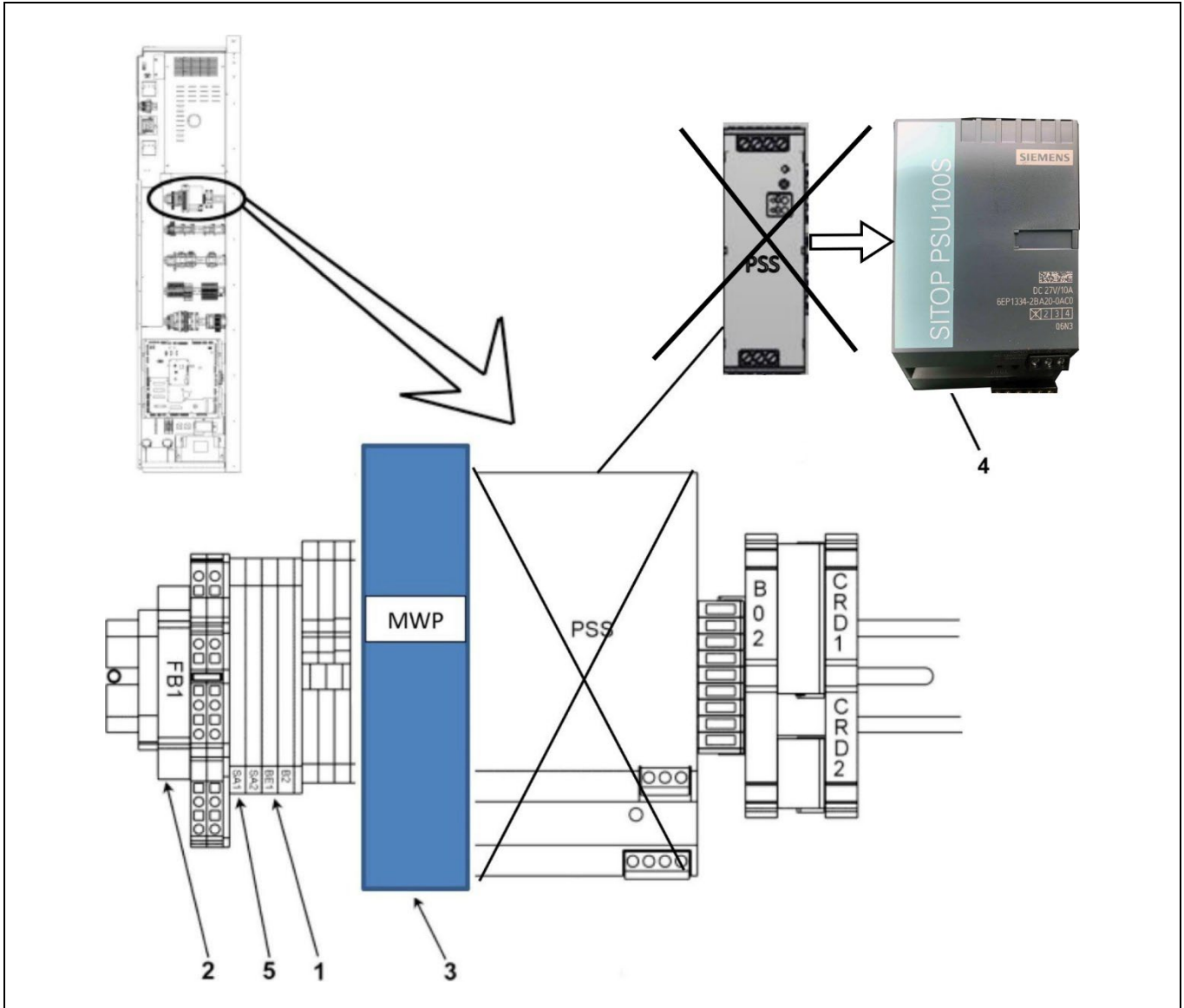
10-AAA21305DH



ALL VINTAGES		
REF. No.	PART No.	DESCRIPTION
1	AAA661G9	Contacts, Auxiliary (PSW AUX)
2	AAA661G8	Disconnect, Non-Fusible, 40 A (PSW)
	AAA661G11	Disconnect, Non-Fusible, 63 A (PSW)
3	AAA661G14	Hasp, Lockout. For disconnect (ref. 2).
4	MT-105041	Tool, Terminal Block Operating, Used with all Wago terminal blocks.

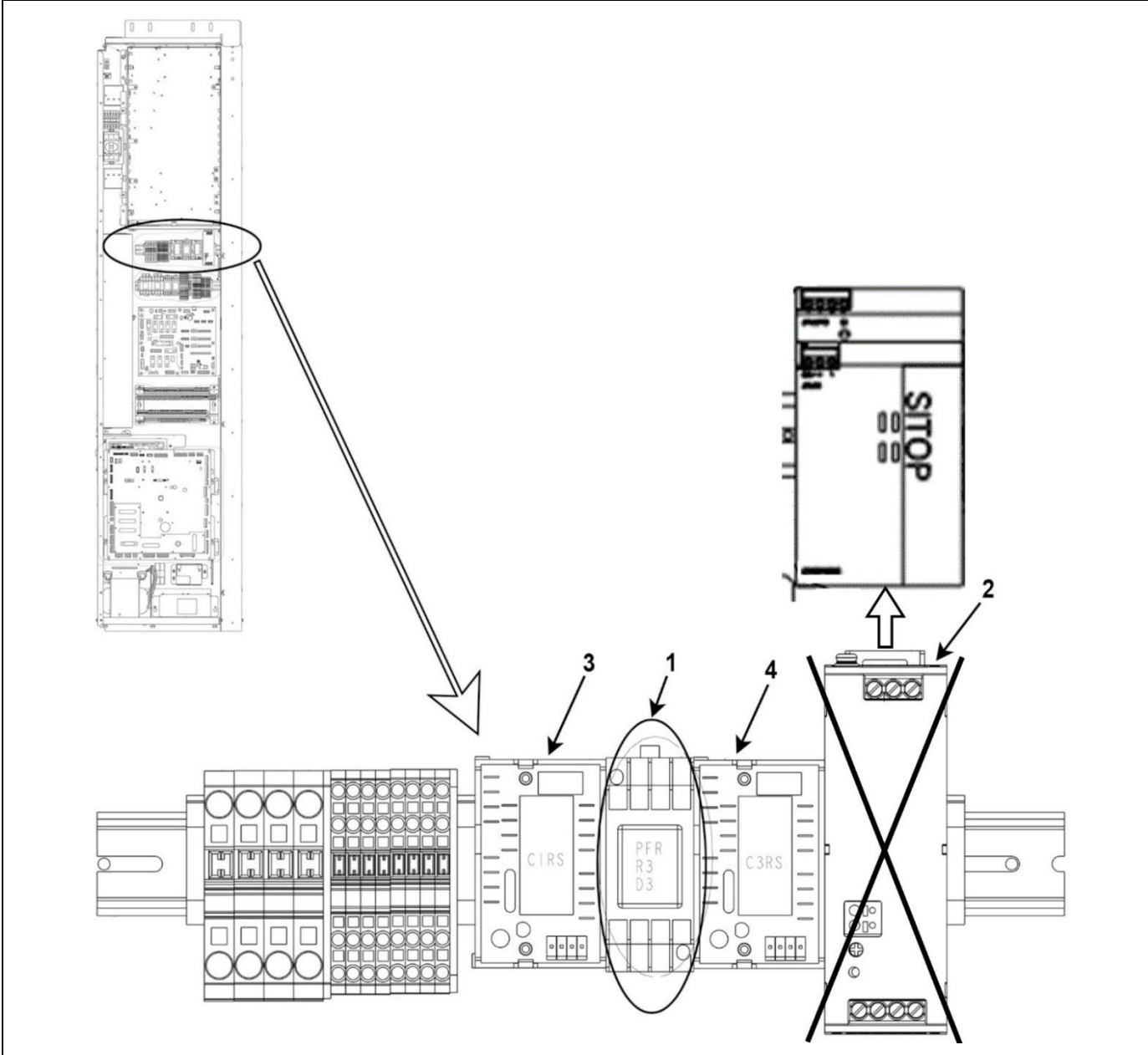
Power Supplies, Fuses/Diodes

10-AAA21305DH



	AAA21305DH	AAB21305DH	ABA21305DH		
REF. No.	PART No.			DESCRIPTION	SYMBOL
1	AAA612AM13			Diode	BE1,B2
2	AAA375CJ4	---		Fuse, Time-Delay, 10 A, 250 V	FB1
	---	AAA375CJ11		Fuse, Time-Delay, 8 A, 250 V	
*	AAA621AN22			Power Supply, 12 VDC	PSR
3	---			AAA621AT40	Power Supply. 5 VDC
4	AAA621AT14			AAA621AT14 AAA621AT44 AAA621AT14	Power Supply, 24 VDC
5	AAA605AA28			Suppressor, 130 V	SA1, SA2

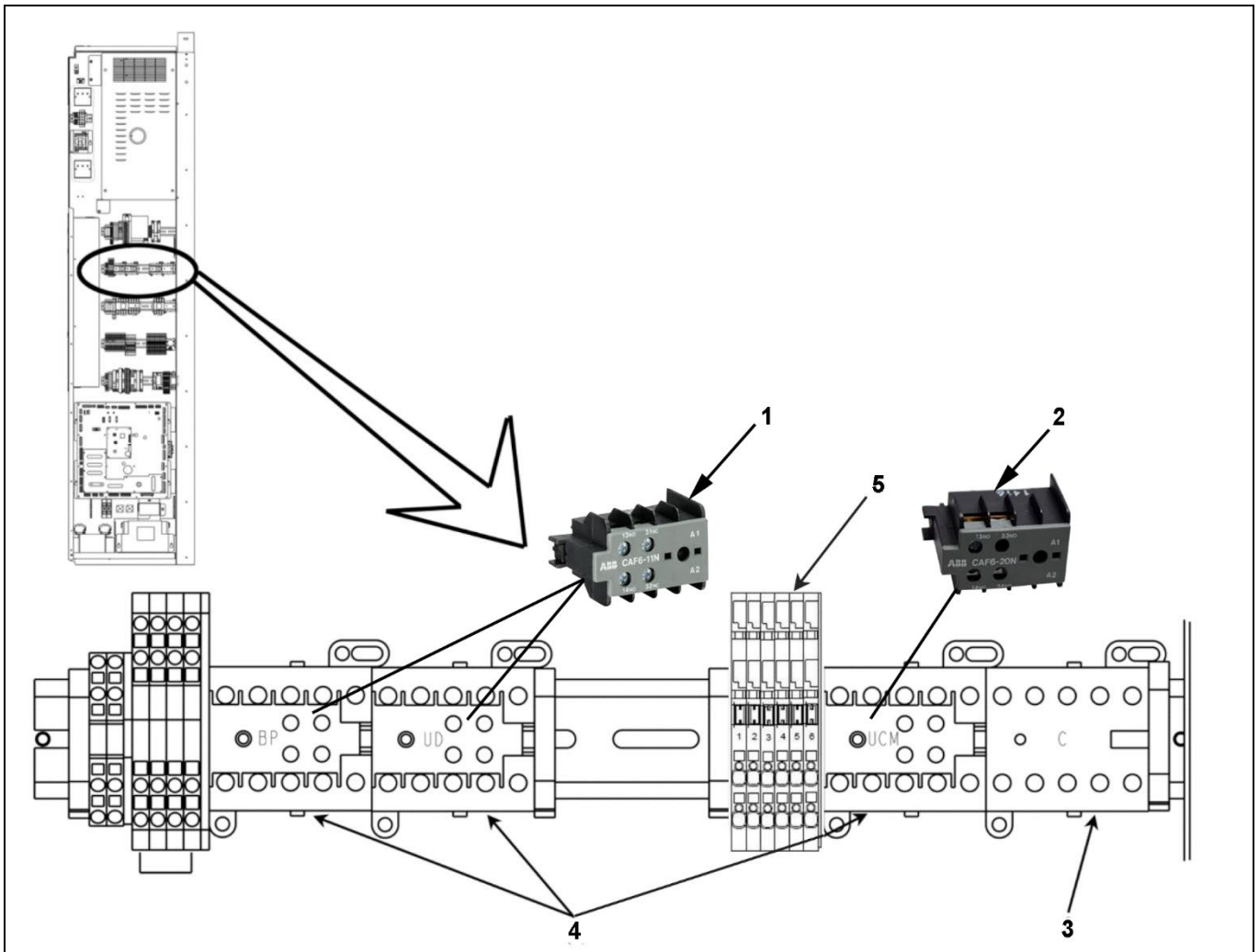
* Part not shown.



ACA21305DH			
REF. No.	PART No.	DESCRIPTION	SYMBOL
1	AAA613CZ8	Relay, 24 VDC	PFR
	618AE2	Relay Socket	PFR
	AAA612AF3	Diode, 400 V	PFR
	AAA232FV73	Resistor, 1K Ohm, 1/4 W, 5%	PFR
2	AAA621AT41 AAA621AT14	Power Supply, 24 VDC	PSS
3	AAB26810A1	Remote Station PC Board Assembly	C1RS
4	AAB26810A1	Remote Station PC Board Assembly	C3RS (FLD Option)

Relays

10-AAA21305DH

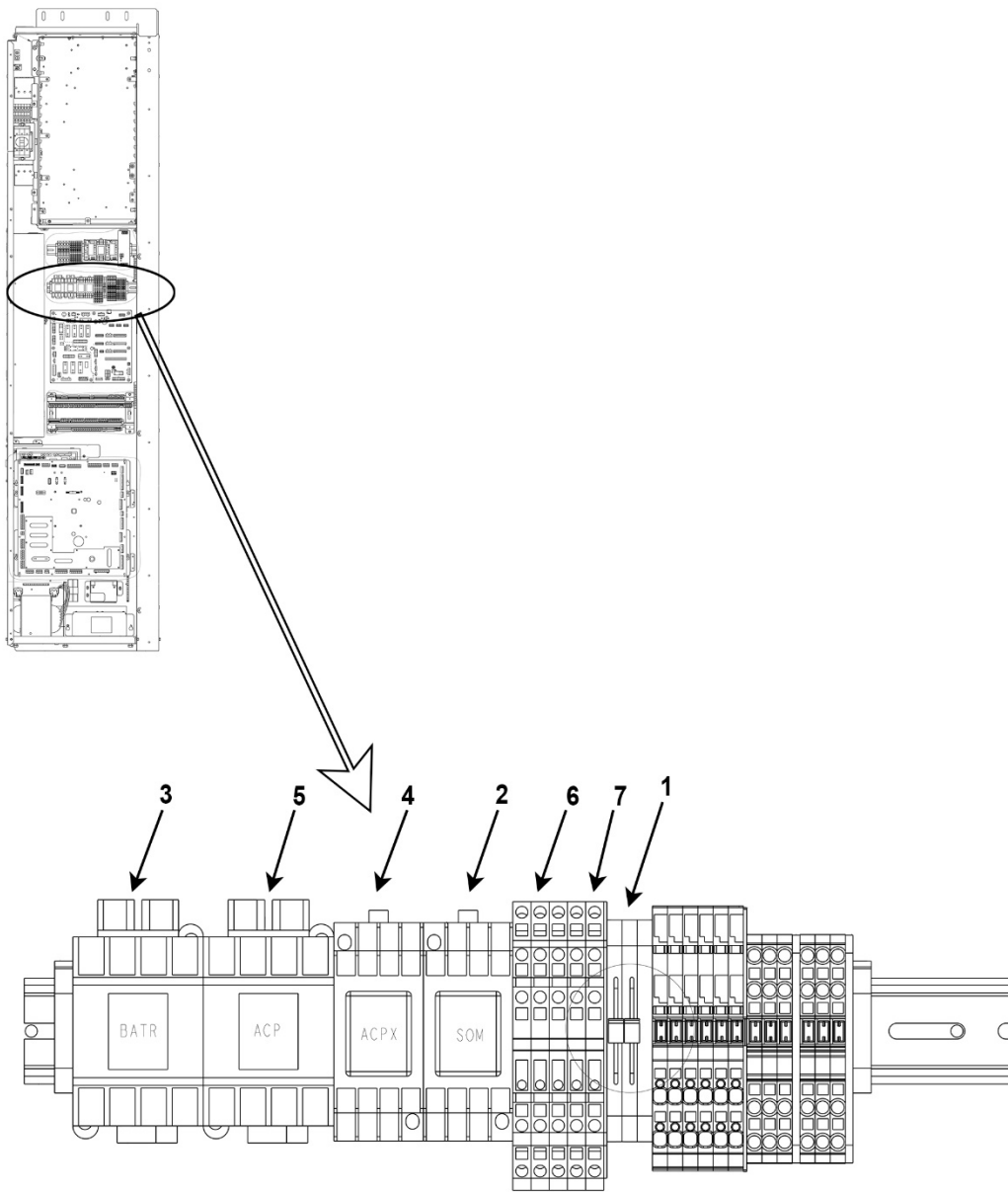


**AAA21305DH
AAB21305DH
ABA21305DH**

REF. No.	PART No.	DESCRIPTION	SYMBOL
1	AAA638AN100	Block, Auxiliary Contact, 1NO / 1NC	UD, BP
2	AAA638AN101	Block, Auxiliary Contact, 2NO	UCM
3	AAA638AN2	Relay, 120 VAC	C
4	AAA638AN1	Relay, Contactor	BP, UD, UCM
5	AAA303EP216	Terminal Block	MTI-1 – MTI-6

Relays

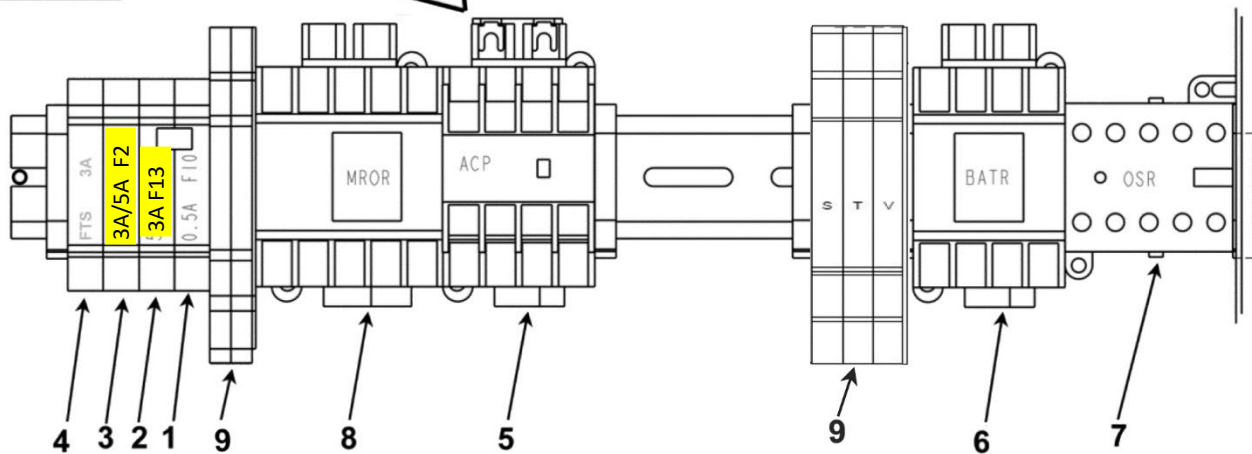
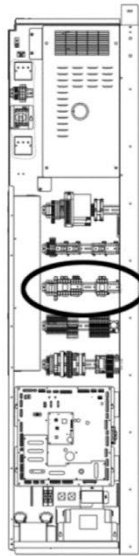
10-AAA21305DH



ACA21305DH			
REF. No.	PART No.	DESCRIPTION	SYMBOL
1	AAA612AK1	Diode	D1,D2
2	AAA613CZ8	Relay, 24 VDC	SOM
	618AE2	Socket, Relay	SOM
3	AAA613DL119	Relay, 48 VDC, 3 NO, 1 NC	BATR
4	AAA613CZ9	Relay, 110 VAC	ACPX
	618AE2	Socket, Relay	ACPX
5	AAA613DL31	Relay, 120 VAC	ACP
6	AAA303EP243	Terminal Block, with Relay	P
7	AAA303EP199	Terminal Block, with Relay	FS,E,S,T,V

Relays, Fuses

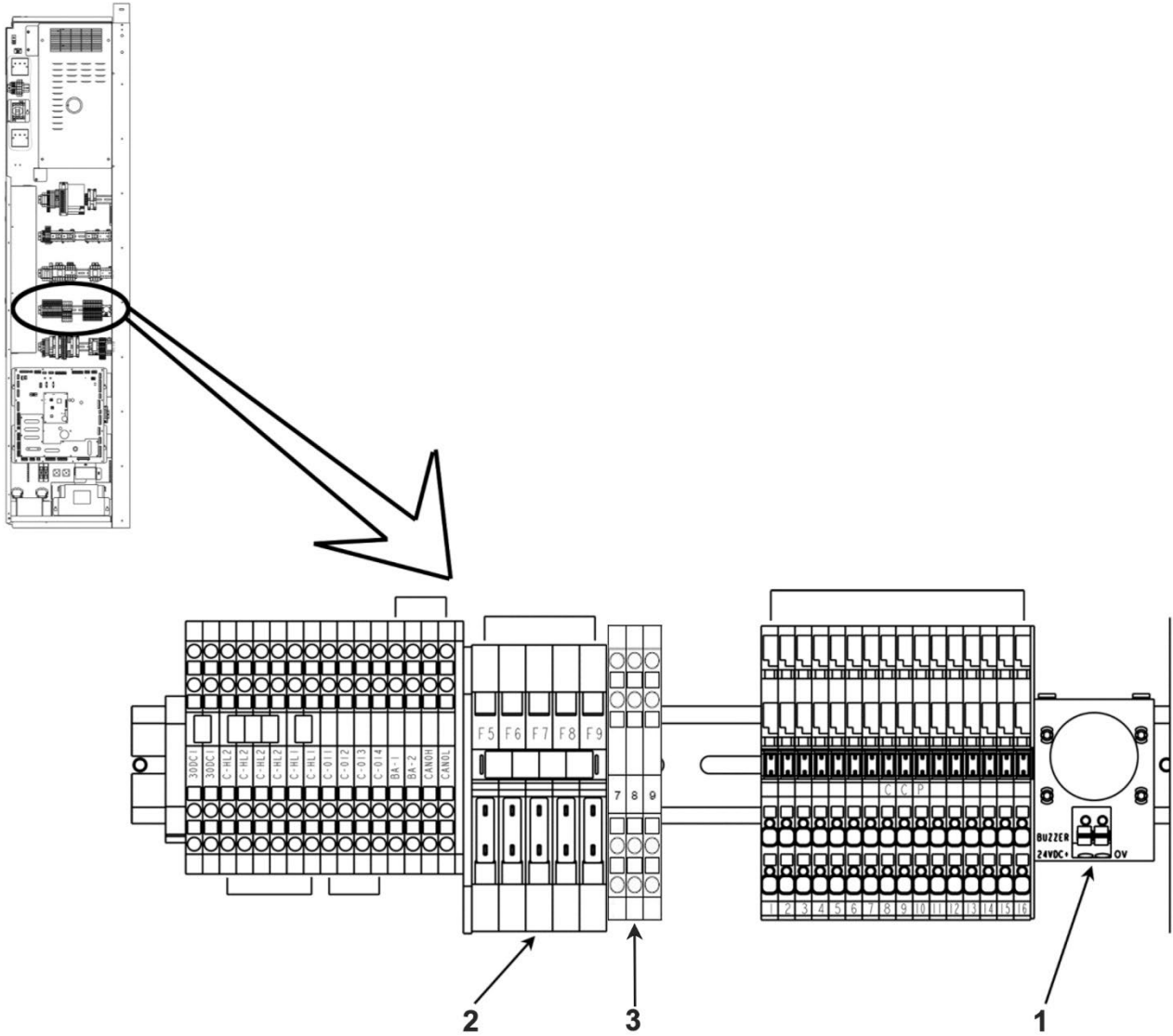
10-AAA21305DH



REF. No.	PART No.		DESCRIPTION	SYMBOL
	AAA21305DH	AAB21305DH ABA21305DH		
1	AAA375BR4		Fuse, 0.5 A, 250 V	F10
2	AAA375BT19		Fuse 3 A, 250 V	F13
3	AAA375BR16	---	Fuse, 6.25 A, 250 V	F2
	---	AAA375BR15	Fuse, 5 A, 250 V	
4	---	AAA375BR12	Fuse, 3 A, 250 V	FTS
5	AAA613DL31		Relay, 120 VAC	ACP
6	AAA613DL119		Relay, 48 VDC, 3 NO, 1 NC	BATR
7	AAA638AN1		Relay, Contactor	OSR
8	AAA638AF21		Relay, Contactor, 24 VDC	MROR
9	AAA303EP199		Terminal Block, with Relay	S, T, V, X, Z

Fuses, Buzzer

10-AAA21305DH

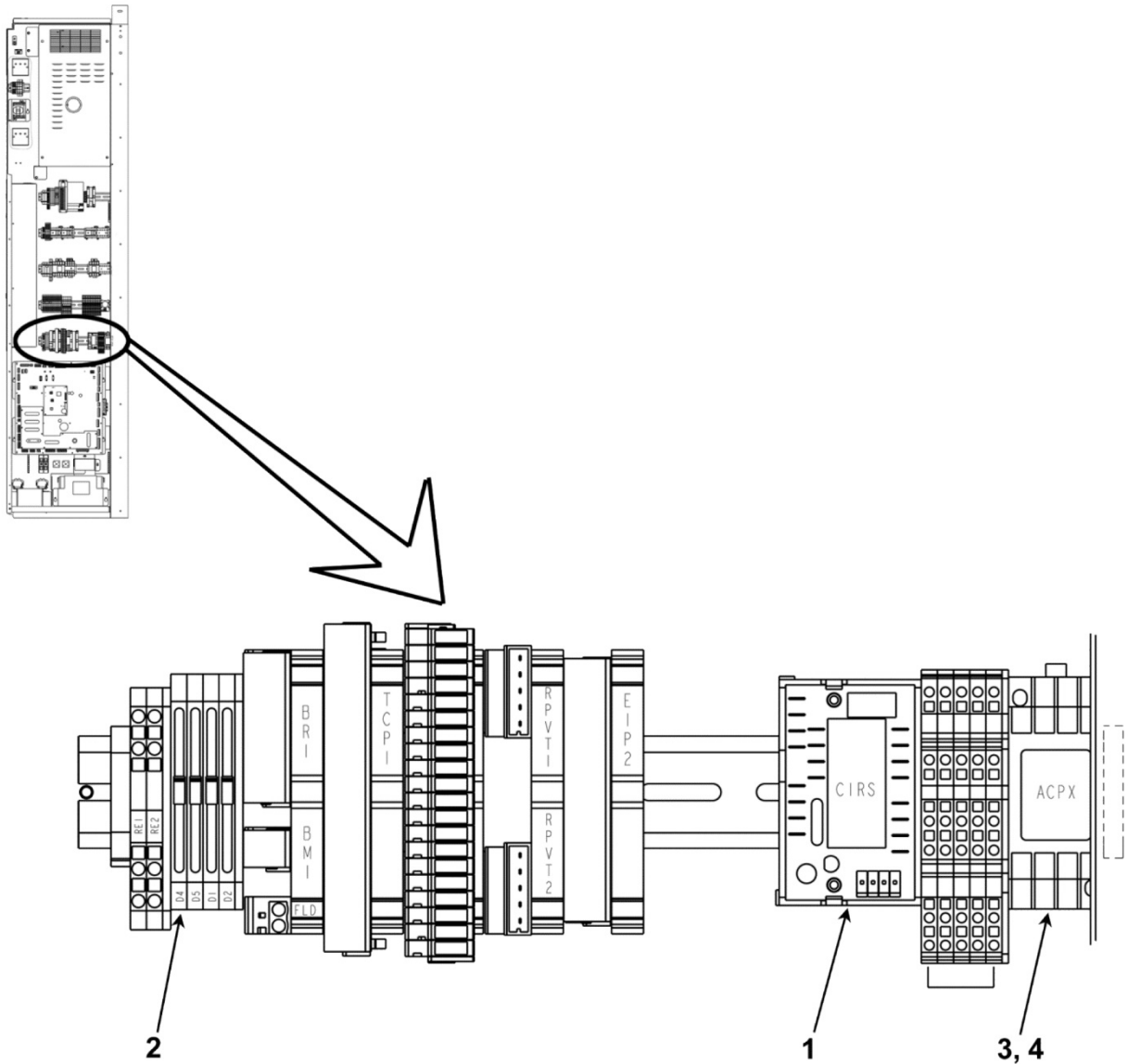


**AAA21305DH
AAB21305DH
ABA21305DH**

REF. No.	PART No.	DESCRIPTION	SYMBOL
1	AAA731C11	Alarm Assembly	CBUZ
2	AAA375C9	Fuse, ATC Type, 5A, 32 V	F5 – F9
3	GAA648AV5	Terminal Block	MTI-7 – MTI-9

Diodes, Relay, RS Module

10-AAA21305DH

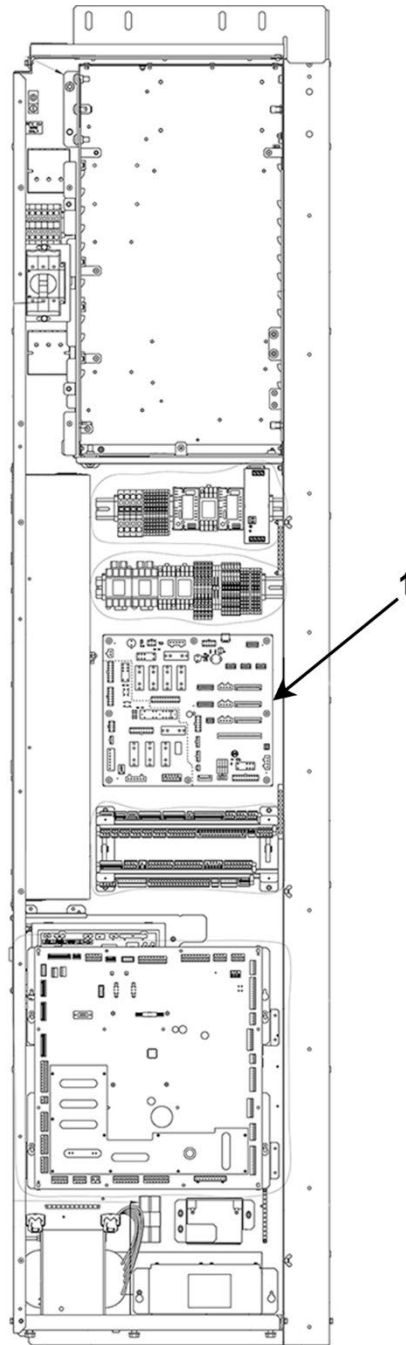


REF. No.	PART No.		DESCRIPTION	SYMBOL
	AAA21305DH AAB21305DH	ABA21305DH		
1	AAB26810A1		Assembly, Remote Station PC Board	C1RS
2	AAA612AK1	see NOTE	Diode	D2, D4, D5, D1 (REFK Option)
3	AAA613CZ9		Relay, 110 VAC	ACPX
4	618AE2		Socket, Relay	ACPX

NOTE: D4 AND D5 are no longer required on ABA21305DH.

Relay Interface Board

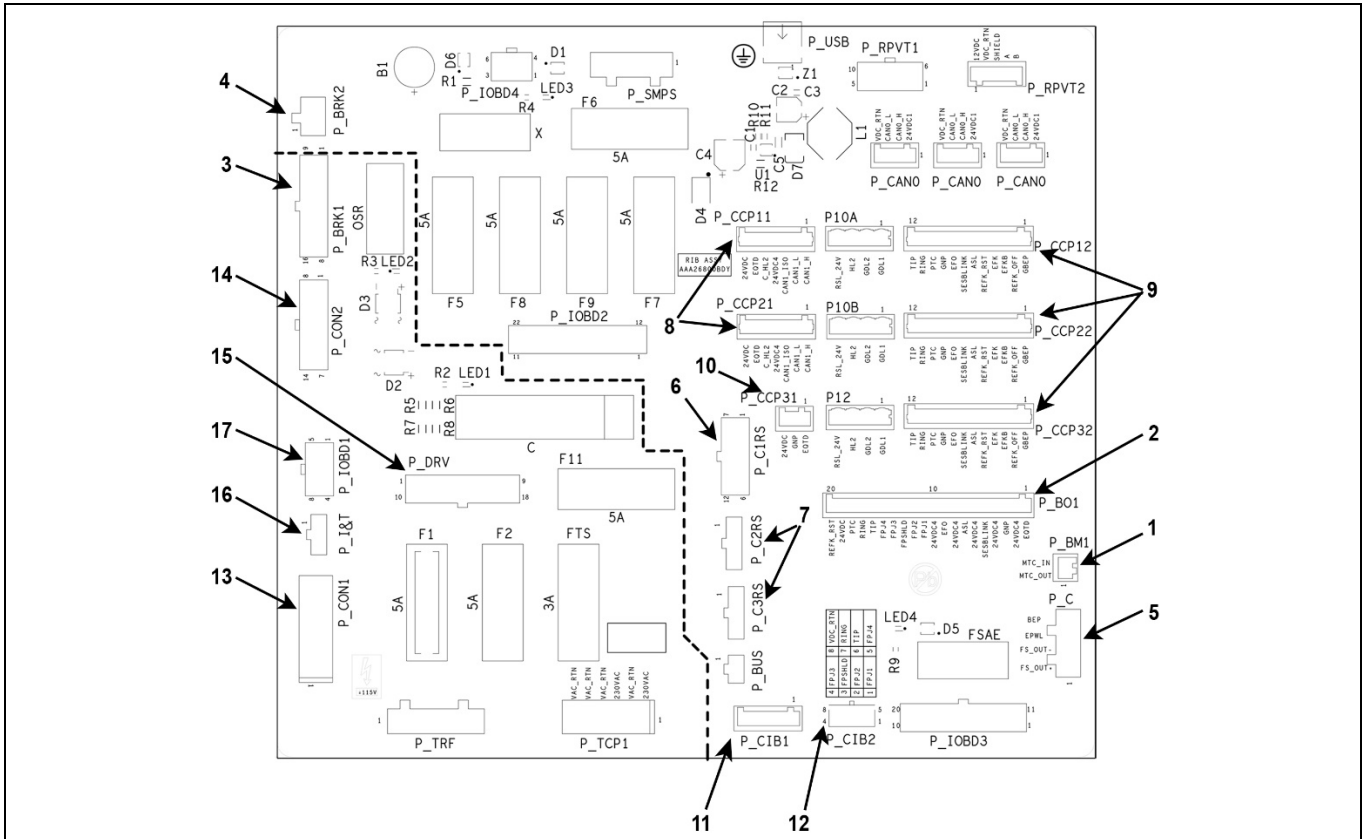
10-AAA21305DH



REF. No.	PART No.	DESCRIPTION	SYMBOL
1	AAA26800BDY1	Relay and Interface Board (see p. 14-15)	RIB

Connectors for AAA26800BDY1

10-AAA21305DH

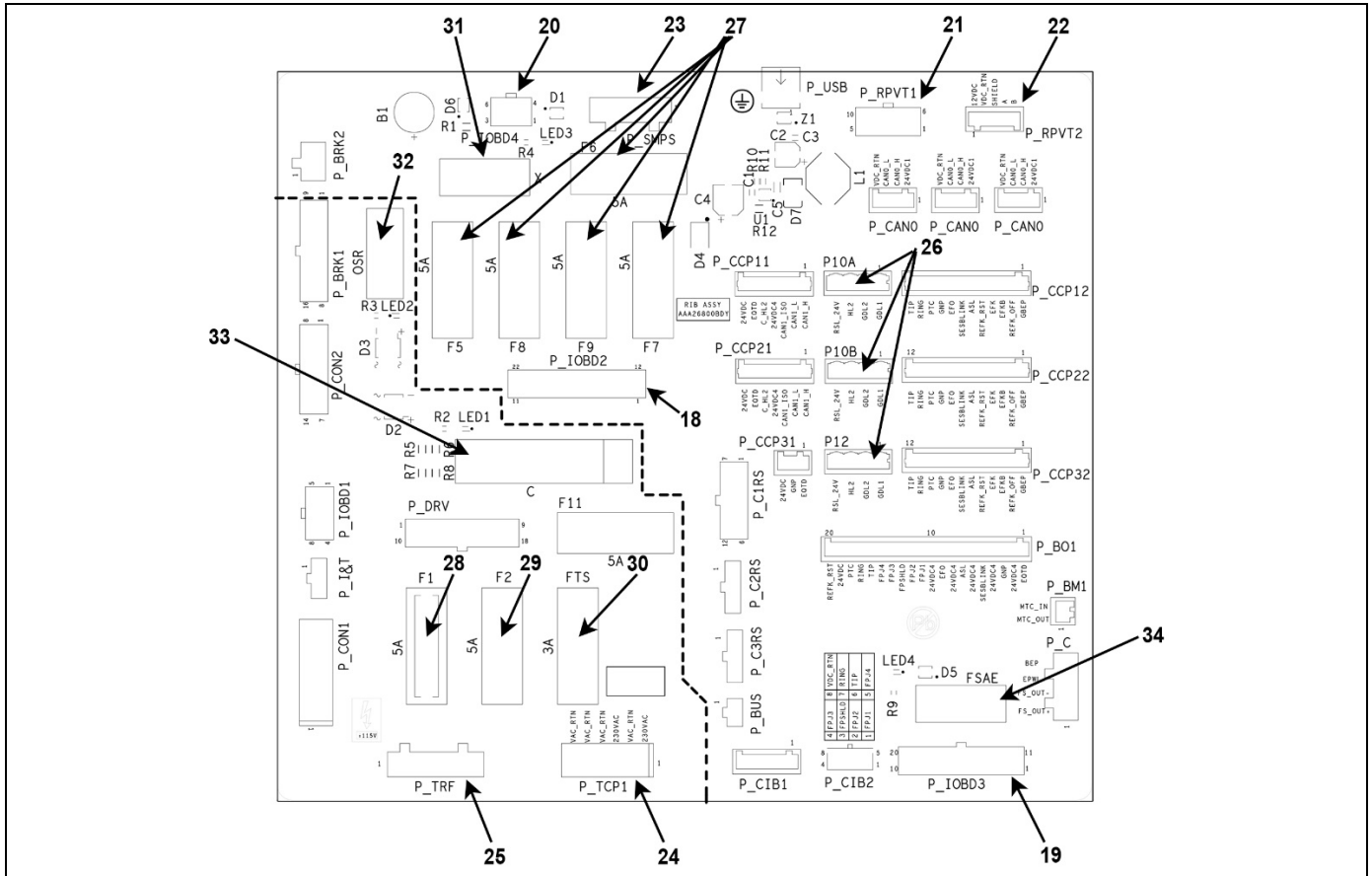


REF. No.	ACA21305DH PART No.	DESCRIPTION	SYMBOL (ON RIB)
1	AAA176KP48	Mating connector in wire harness	P_BM1
2	AAA176KP45	Mating connector in wire harness	P_BO1
3	AAA176HF54	Mating connector in wire harness	P_BRK1
4	AAA176KP53	Mating connector in wire harness	P_BRK2
5	AAA176KP61	Mating connector in wire harness	P_C
6	AAA176HF96	Mating connector in wire harness	P_C1RS
7	AAA176HF49	Mating connector in wire harness	P_C2RS, P_C3RS
8	AAA176KP58	Mating connector in wire harness	P_CCP11, P_CCP21
9	AAA176KP59	Mating connector in wire harness	P_CCP12, P_CCP22, P_CCP32
10	AAA176KP49	Mating connector in wire harness	P_CCP31
11	AAA176KP51	Mating connector in wire harness	P_CIB1
12	AAA176HF122	Mating connector in wire harness	P_CIB2
13	AAA176KP54	Mating connector in wire harness	P_CON1
14	AAA176HF53	Mating connector in wire harness	P_CON2
15	AAA176HF55	Mating connector in wire harness	P_DRV
16	AAA176HF48	Mating connector in wire harness	P_I&T
17	AAA176HF51	Mating connector in wire harness	P_IOBD1

Continued On Next Page

Connectors for AAA26800BDY1

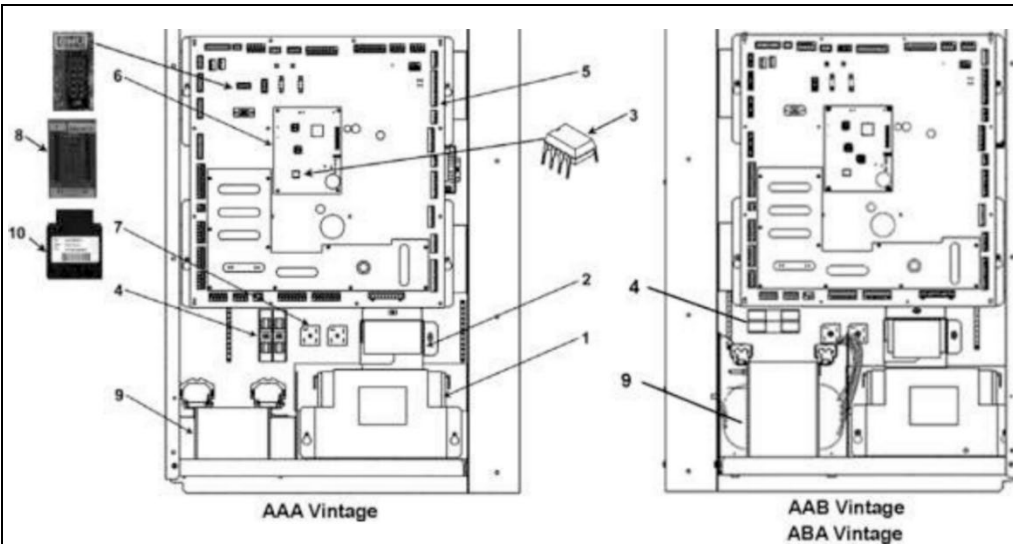
10-AAA21305DH



REF. No.	PART No.	DESCRIPTION	SYMBOL (ON RIB)
18	AAA176HF95	Mating connector in wire harness	P_IIOBD2
19	AAA176HF80	Mating connector in wire harness	P_IIOBD3
20	AAA176HF50	Mating connector in wire harness	P_IIOBD4
21	AAA176HF52	Mating connector in wire harness	P_RPVT1
22	AAA176KP24	Mating connector in wire harness	P_RPVT2
23	AAA176KP33	Mating connector in wire harness	P_SMPS
24	AAA176KP55	Mating connector in wire harness	P_TCP1
25	AAA176KP52	Mating connector in wire harness	P_TRF
26	AAA176KP60	Mating connector in wire harness	P10A, P10B, P12
27	AAA375BT8	Fuse, 5A, Ceramic	F5,F6,F7,F8,F9,F11
28	AAA375BT19	Fuse, 5A, Glass	F1
29	AAA375BR15	Fuse, 5A, Glass	F2
30	AAA375BR12	Fuse, 3A, Glass	FTS
31	AAA613DB65	Relay, 24 VDC,16 A	X
32	AAA613DB66	Relay, 110 VDC, 6 A	OSR
33	AAA613DG77	Relay, 110 VDC, 6 A	C
34	AAA613DB65	Relay, 24 VDC, 16 A	FSAE

Lower Controller Section

10-AAA21305DH



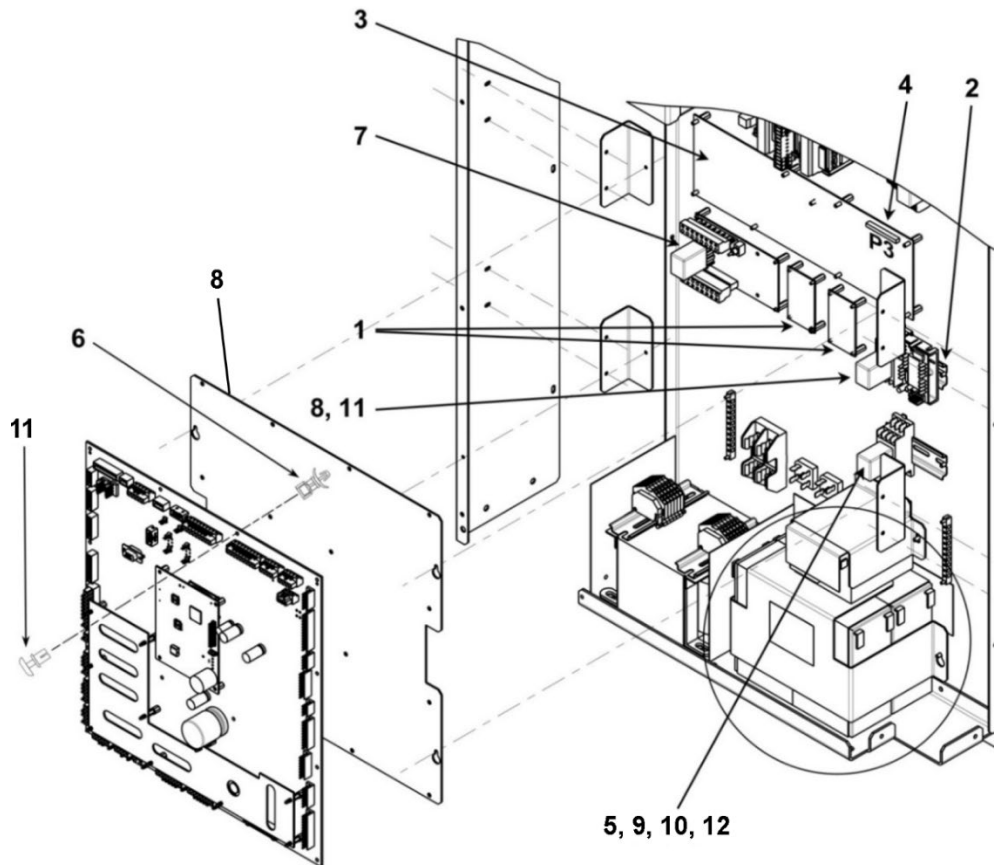
REF. No.	AAA21305DH	AAB21305DH ABA21305DH	ACA21305DH	DESCRIPTION	SYMBOL
	PART No.				
1		AAA718E14		Battery, MRO, 12 V, 7 AH	BAT2
2		AAA718E3		Battery, Position Loss Recovery, 12 V, 4 AH	BAT1
*		174HT10		Cable, Ribbon (Maintenance)	---
3		AAA616NL15 AAA616NL26		EEPROM, Blank, U8, 1M-Bit, Serial	---
4	AAA375BK31	---		Fuse, Time Delay, 5 A, 600 V	FM
	---	AAA375BK37		Fuse, Time Delay, 8 A, 600 V	
	AAA375BK39	---		Fuse, Time Delay, 10 A, 600 V	
	---	AAA375BK43		Fuse, Time Delay, 20 A, 600 V	
5		AFA26800ANY3 AGA26800ANY3 AHA26800ANY3		PC Board, I/O	I/O Board
6		AEA26800AML4 AEA26800AML11 ABA26800AVP1		PC Board, Microprocessor (v2) (see CAUTION)	I/O Board
7		230BS3	---	Rectifier, Bridge, 600 V, 25 A	BR2, BR3
8		DAA26800K1		Socket, Adapter, for OMU Programming Tool	---
9	AAA225MV1	---		Transformer, 480 VAC Input	TRM
	AAA225MV2	---		Transformer, 208 VAC Input	
	---	AAA225MV5		Transformer, 480 VAC Input	
	---	AAA225MV6		Transformer, 208 VAC Input	
10		DAA26800H1 DCA26800H21		Tool, OMU Software Download, Blank	---
		AAA31256BAG AP131256BAL		OMU Software, Preprogrammed; for use with A--26800AML boards.	
		AAA31256DAA		OMU Software, Preprogrammed; for use with A--26800AVP boards.	
		---31256---		Contact OSC Customer Service for the latest version of software	

* Part not shown.

CAUTION: Remove the EEPROM U8 from AML or AVP. See TIP 1.1.22.1-29 for AML-to-AVP microprocessor upgrade.

Lower Controller Section

10-AAA21305DH



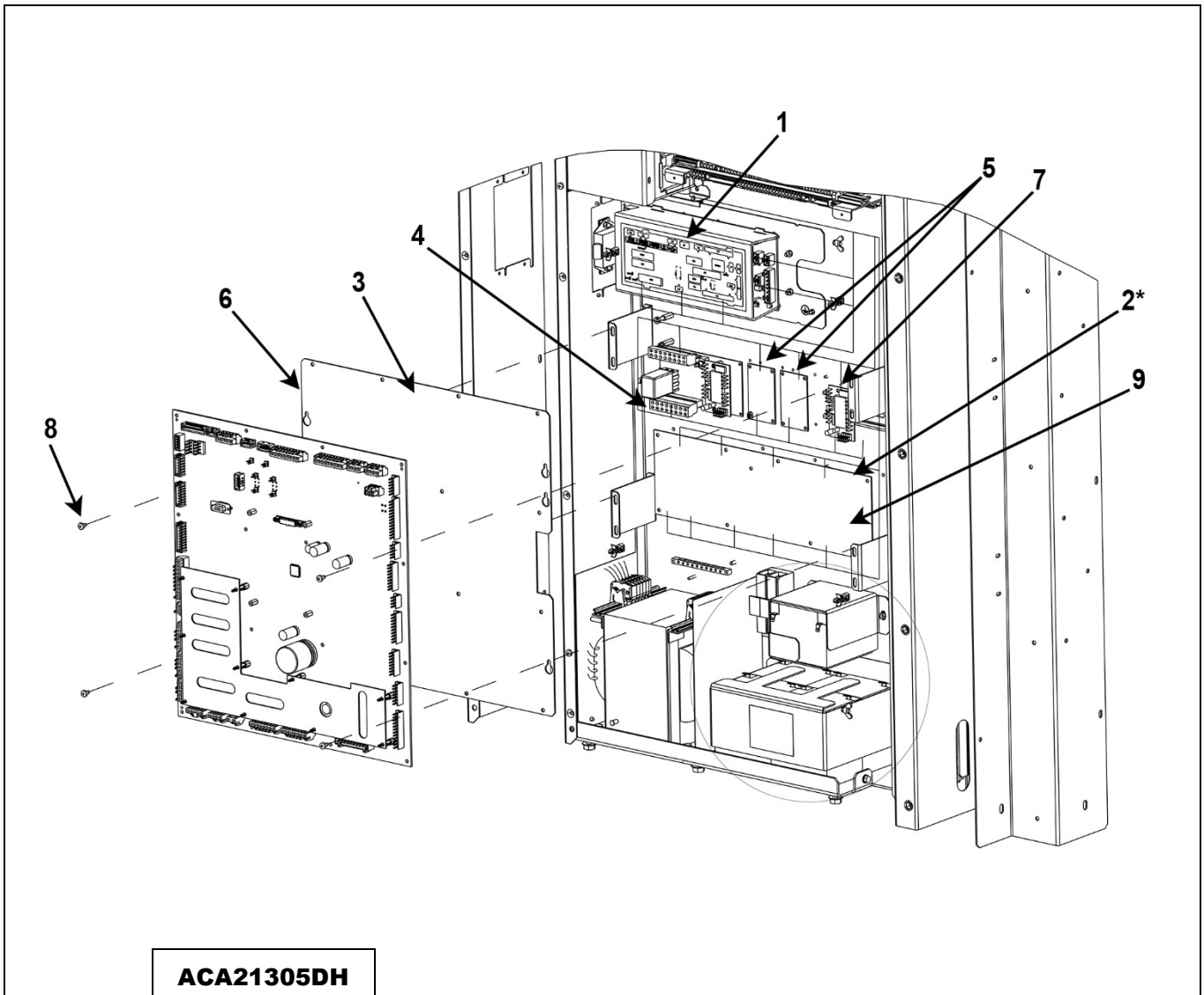
**AAA21305DH
AAB21305DH
ABA21305DH**

REF. No.	PART No.	DESCRIPTION	SYMBOL
1	AAA26800KP1	Assembly, Filter Module	ZB1, ZB2 (REFK, EQP Options)
2	AAB26810A1	Assembly, Remote Station	C3RS (FLD Option)
3	GBA26800LV1	Assembly, Service Panel	SPB
4*	AAA174TP13	Cable, Ribbon, 34 Contacts. For GBA26800LV1 board.	P3
5	AAA612AF3	Diode, 400 V	PFR
6	AAA354DT14	Distance Piece (qty. = 16). For mounting I/O board.	
7	ABB21380E4	Earthquake Module	EQIB
8	AAA180JT3	Plate, Mounting, I/O PCB	---
9	AAA613CZ8	Relay, 24 VDC	SOM, PFR
10	AAA232FV73	Resistor, 1K Ohm, 1/4 W, 5%	PFR
11	AAA141AN3	Rivet, Snap (qty. = 16). For mounting I/O board.	---
12	618AE2	Socket, Relay	SOM, PFR

* For location only; part itself not shown in illustration.

Lower Controller Section

10-AAA21305DH

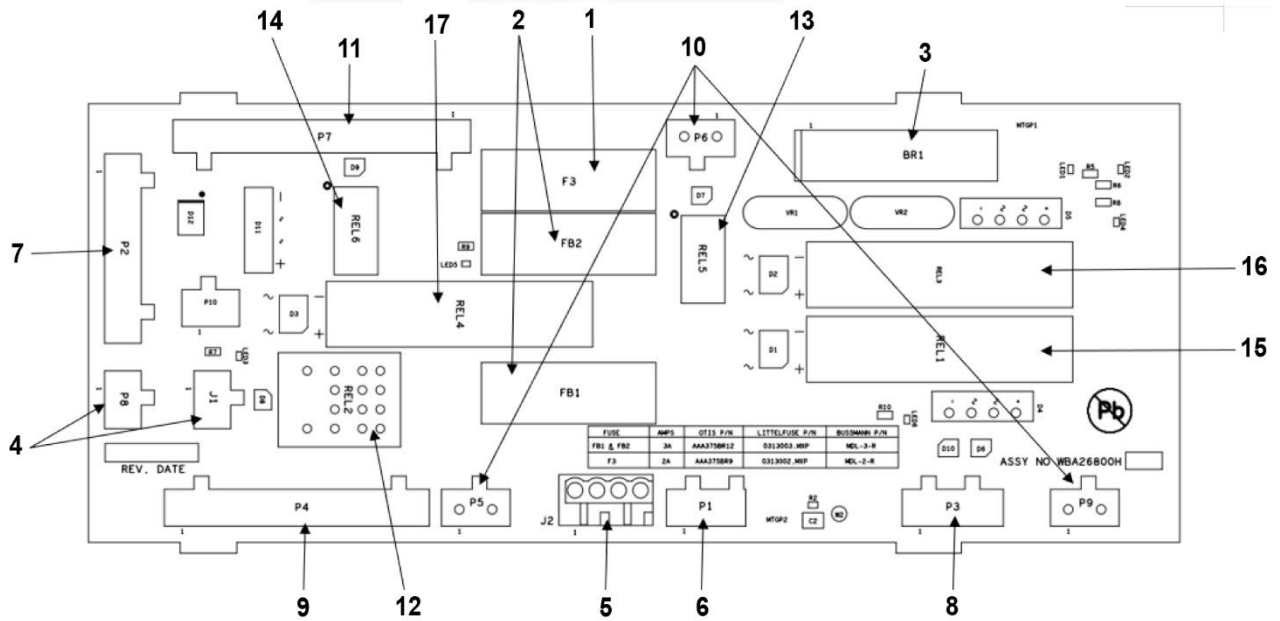


ACA21305DH			
REF. No.	PART No.	DESCRIPTION	SYMBOL
1	AAA21305GY1	Brake Board Assembly (see p. 19)	BBD
2*	AAA174TP13	Cable, Ribbon, 34 Contacts. For GBA26800LV1 board.	P3
3*	AAA354DT14	Distance Piece (qty. = 16). For mounting I/O board.	
4	ABB21380E4	Earthquake Module	EQIB
5	AAA26800KP1	Filter Module Assembly	ZB1, ZB2 (REFK, EQP Options)
6	AAA180JT5	Plate, Mounting, I/O PCB	---
7	AAB26810A1	Remote Station Assembly	C4RS (ELRISE>60 ft options)
8	AAA141AN3	Rivet, Snap (qty. = 16). For mounting I/O board.	---
9	GBA26800LV1	Service Panel Assembly	SPB

* Location only; part not shown in picture

Brake Board

10-AAA21305DH

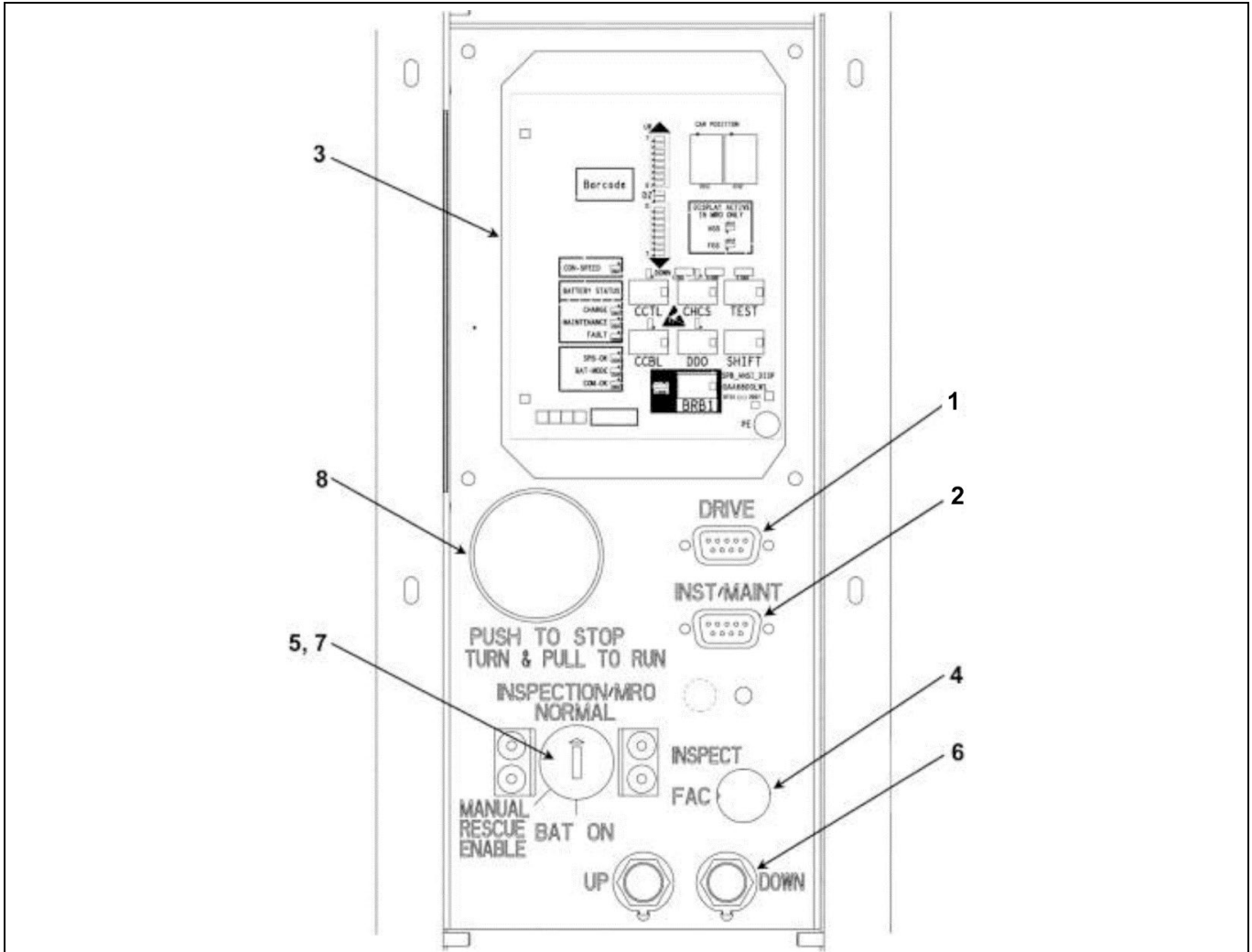


ACA21305DH

REF. No.	PART No.	DESCRIPTION	SYMBOL (ON BBD)
1	AAA375BR9	Fuse, 2 A, Glass	F3
2	AAA375BR12	Fuse, 3 A, Glass	FB1, FB2
3	AAA176HH305	Mating Connector in Wire Harness	BR1
4	AAA447AP66	Mating Connector in Wire Harness	J1, P8
5	AAA176HH51	Mating Connector in Wire Harness	J2
6	AAA447AP67	Mating Connector in Wire Harness	P1
7	AAA447AP72	Mating Connector in Wire Harness	P2
8	AAA447AP68	Mating Connector in Wire Harness	P3
9	AAA447AP94	Mating Connector in Wire Harness	P4
10	AAA176HH69	Mating Connector in Wire Harness	P5, P6, P9
11	AAA447AP77	Mating Connector in Wire Harness	P7
12	AAA613CZ31	Relay, 24 VDC	REL2
13	AAA613DB19	Relay, 24 VDC	REL5
14	AAA613DB19	Relay, 24 VDC	REL6
15	AA613DG73 or AAA613DG76	Relay, Safety, 110 VDC, 6 A	REL1
16	AA613DG69 or AAA613DG71	Relay, Safety, 110 VDC, 6 A	REL3
17	AA613DG69 or AAA613DG71	Relay, Safety, 110 VDC, 6 A	REL4

Inspection and Test Assembly (Type AAA21305DG)

10-AAA21305DH



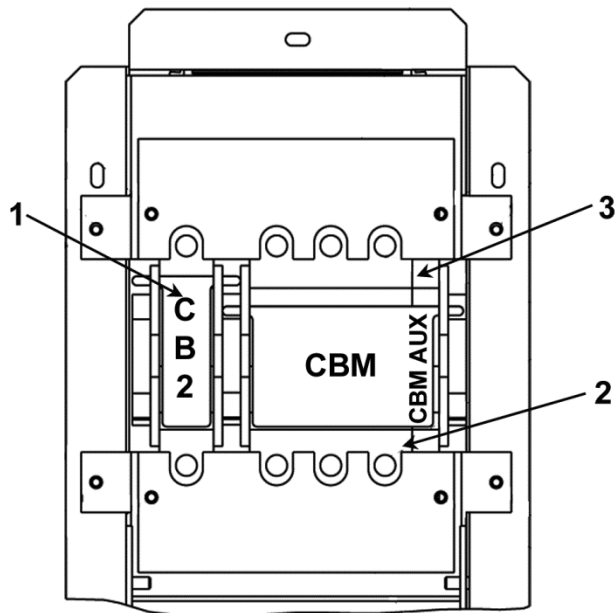
AAA21305DH	AAB21305DH ABA21305DH ACA21305DH
-------------------	---

REF. No.	PART No.	DESCRIPTION	SYMBOL
1*	174HT10	Assembly, Ribbon Cable	DRIVE
2*	AAA26800ASG2	Board, Power Buffer	INST/MAINT
3	GAA26800LW1	Display, Service Panel Board	---
4	AAA375CJ4	---	FAC
	---	AAA375CJ3	
5	AAA431AF27	Lock, with Key	CIS/MROR
6	AAA635L3	Switch, Pushbutton	CUIB, CDIB
7	ABA636A21	Switch, Rotary	CIS/MROR
8	JAA635ABT101	Switch, Stop	CES

* For location only; parts not shown in illustration.

Inspection and Test Assembly (Type AAA21305DG)

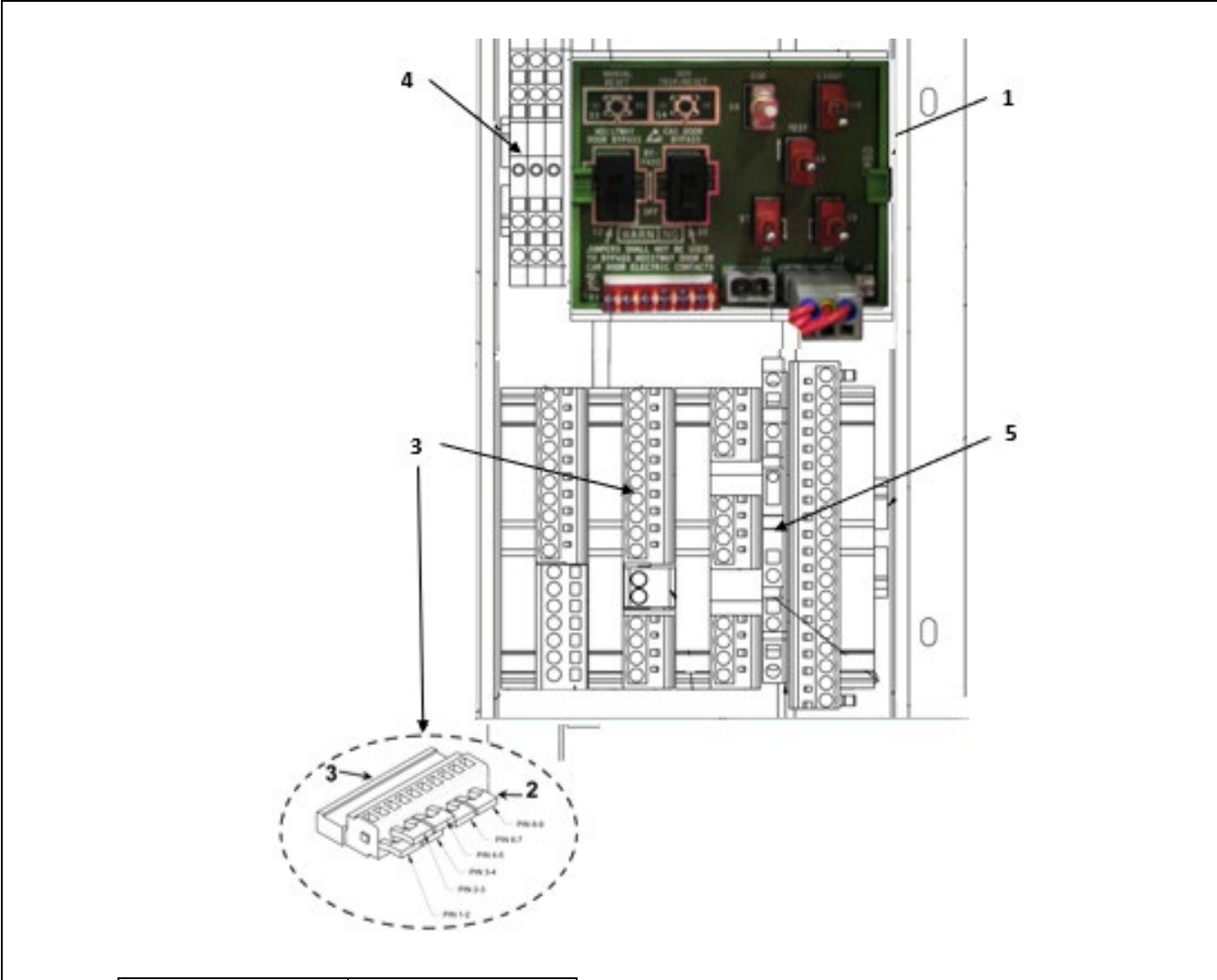
10-AAA21305DH



ALL VINTAGES			
REF. No.	PART No.	DESCRIPTION	SYMBOL
1	AAA637E24	Circuit Breaker, 15 A. For all drives other than 60 A.	CB2
	AAA637E54	Circuit Breaker, 15 A. For 60 A drives.	
2	AAA637E36	Circuit Breaker, 3-Phase, 25 A	CBM
	AAA637E46	Circuit Breaker, 3-Phase, 40 A	
	AAA637E47	Circuit Breaker, 3-Phase, 60 A, 208 VAC	
	AAA637E53	Circuit Breaker, 3-Phase, 60 A, 480 VAC	
	AAA637E55	Circuit Breaker, Single-Phase, 60 A	
3	AAA637E38	Contacts, Auxiliary	CBM w/ARU

Inspection and Test Assembly (Type AAA21305DG)

10-AAA21305DH



REF. No.	PART No.	DESCRIPTION	SYMBOL
	AAA21305DH AAB21305DH ABA21305DH	ACA21305DH	
1	ABA26800AQR1 ABA26800AQR2	Assembly, Reset/Bypass Board	Local code = DT
2	AAA176HH103	Jumper, MSP Connector	
3	AAA176HH62	Plug, MSP	CO1, NO1
4	AAA303EP205	Terminal Block, with LED	B, BE
	---	AAA303EP205	Terminal Block, with LED
5	AAA303EP199	Terminal Block, with Relay	Y