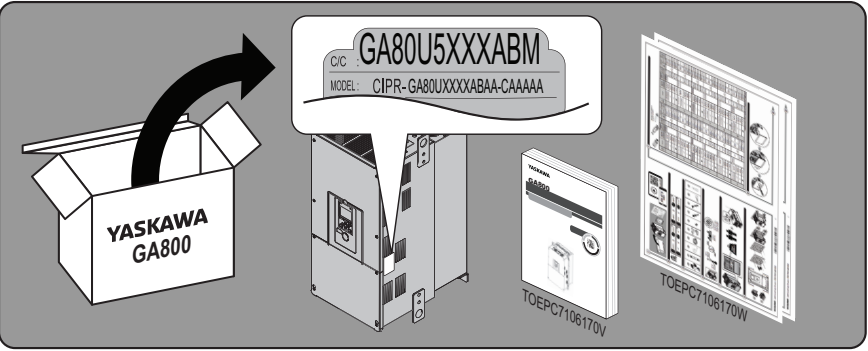
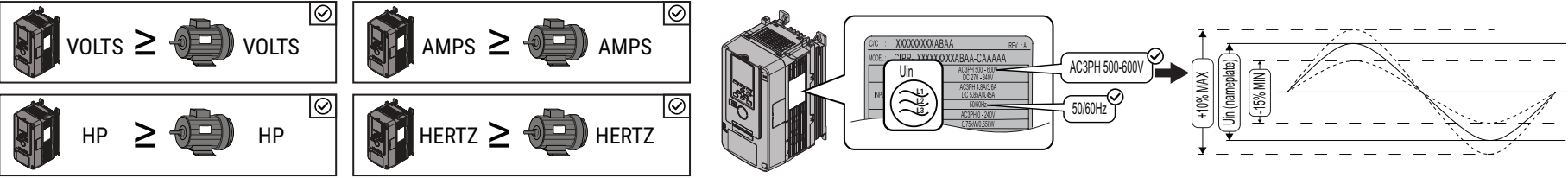


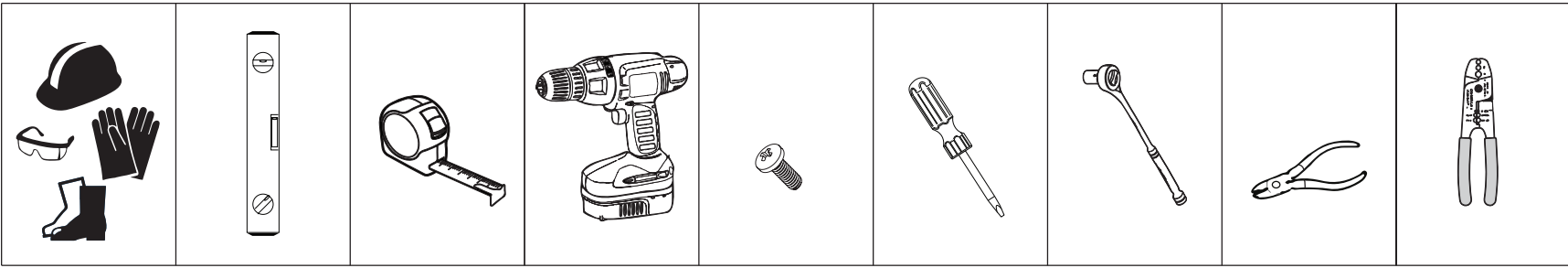
TOEPC7106170W



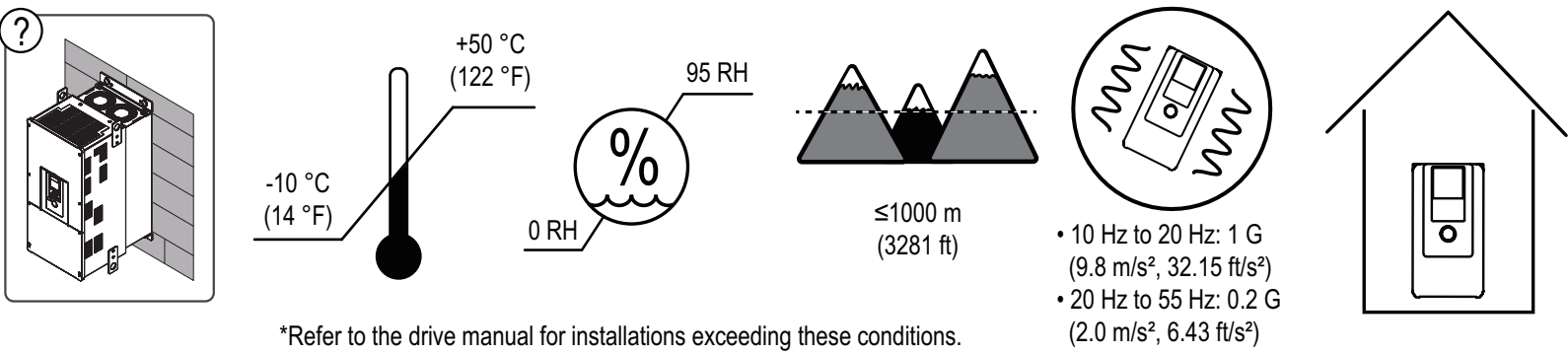
1 Confirm the Drive and Motor Specifications



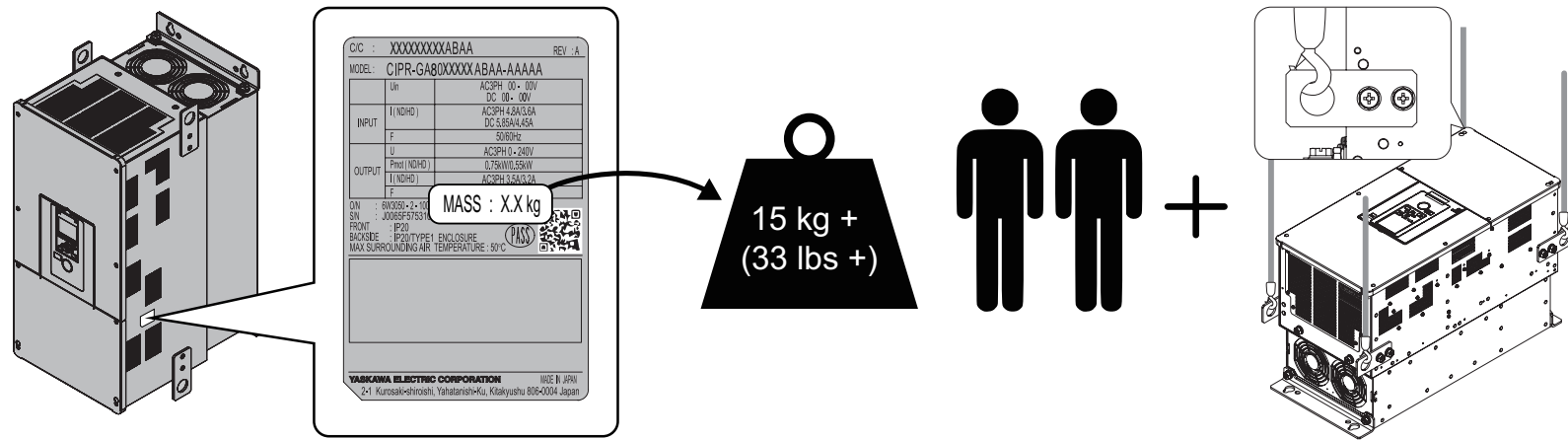
2 Collect the Required Tools and Equipment



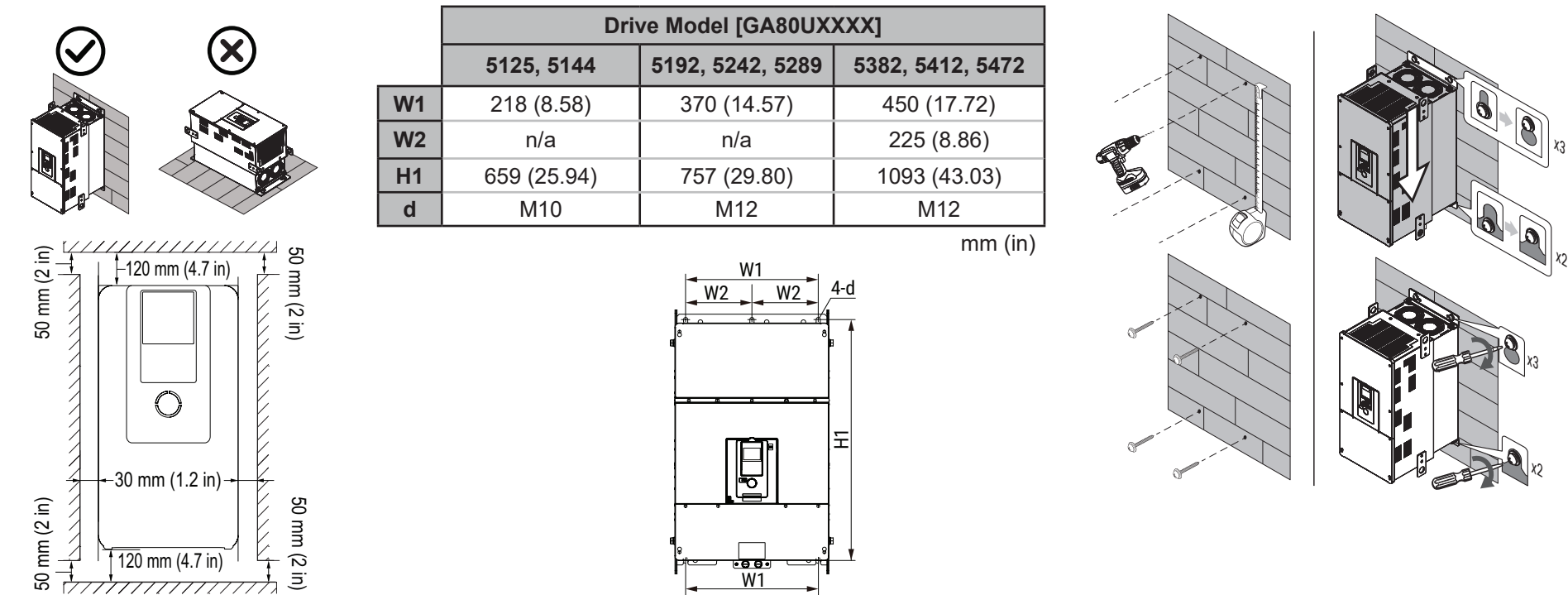
3 Confirm the Correct Drive Installation Environment



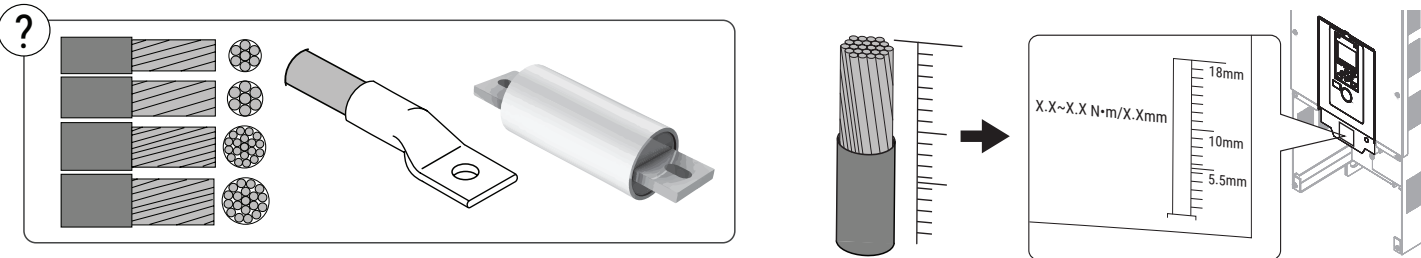
4 Correctly Lift the Drive



5 Mount the Drive



6 Select the Wires, Wire Strip Length, Crimp Terminals, and Fuses

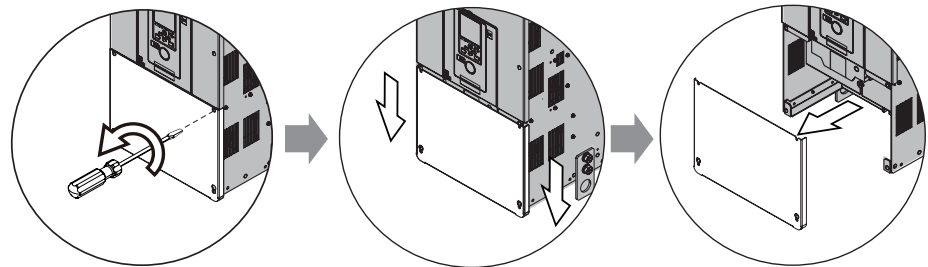


Factory-Recommended Wires and Crimp Terminals: Use UL-Listed, vinyl-coated insulated copper wires for operation with a continuous maximum permitted temperature of 75 °C at 600 V. Use UL-Listed closed-loop crimp terminals to maintain compliance with UL 508C. Use the tools recommended by PANDUIT Corp. to crimp the closed-loop crimp terminals. To comply with UL standards, use only insulated crimp terminals or crimp terminals with heat-shrinkable tubing.

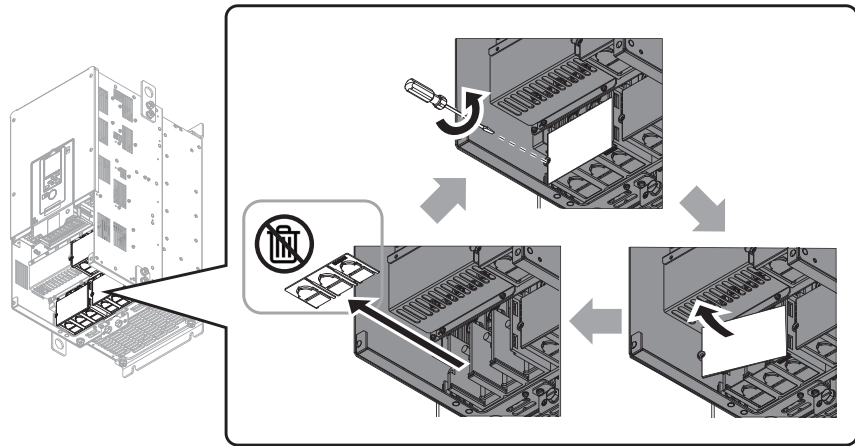
Model	R/L1 S/L2 T/L3		U/T1 V/T2 W/T3		- +1		+3				Semiconductor Fuse Manufacturer: Eaton/Bussmann or Mersen Part Number
	Wire AWG, kcmil *1	PANDUIT Crimp Terminal Part Number *2	Wire AWG, kcmil *1	PANDUIT Crimp Terminal Part Number *2	Wire AWG, kcmil *1	PANDUIT Crimp Terminal Part Number *2	Wire AWG, kcmil *1	PANDUIT Crimp Terminal Part Number *2	Wire AWG, kcmil *1	PANDUIT Crimp Terminal Part Number *2	
Three-Phase 600 V Class											
5125	1 - 4/0 x 2P (2/0)	S2/0-38R	1 - 4/0 x 2P (2/0)	S2/0-38R	2/0 - 250 x 2P (3/0)	S3/0-38R	3 - 1/0 x 2P (2)	S2-38R	3 - 300 (3)	LCA4-56-L	A070UD31L1250
5144	1/0 - 4/0 x 2P (2/0)	S2/0-38R	2/0 - 4/0 x 2P (3/0)	S3/0-38R	3/0 - 250 x 2P (4/0)	S4/0-38R	3 - 1/0 x 2P (1/0)	S1/0-38R	3 - 300 (3)	LCA4-56-L	A070UD31L1250
5192	2/0 - 300 x 2P (250)	S250-12R	2/0 - 300 x 2P (250)	S250-12R	1 - 400 x 2P (400)	LCAX400-12	3 - 300 x 2P (3/0)	S3/0-12R	1 - 350 (1)	S2-12R	A070UD32L1315
5242	2/0 - 300 x 2P (2/0 x 2P)	S2/0-12R	2/0 - 300 x 2P (2/0 x 2P)	S2/0-12R	1 - 400 x 2P (3/0 x 2P)	S3/0-12R	3 - 300 x 2P (4/0)	S4/0-12R	1 - 350 (1)	S2-12R	A070UD32L1350
5289	2/0 - 300 x 2P (2/0 x 2P)	S2/0-12R	2/0 - 300 x 2P (3/0 x 2P)	S3/0-12R	3/0 - 400 x 2P (4/0 x 2P)	S4/0-12R	1 - 4/0 x 2P (1/0 x 2P)	S1/0-12R	1 - 350 (1)	S2-12R	A070UD32L1400
5382	2/0 - 300 x 4P (4/0 x 2P)	S4/0-12R	2/0 - 300 x 4P (250 x 2P)	S250-12R	3/0 - 400 x 4P (350 x 2P)	LCAX350-12	2 - 4/0 x 4P (3/0 x 2P)	S3/0-12R	1 - 300 (1)	S2-12R	FWP-600A
5412	2/0 - 300 x 4P (2/0 x 4P)	S2/0-12R	2/0 - 300 x 4P (2/0 x 4P)	S2/0-12R	3/0 - 400 x 4P (4/0 x 4P)	S4/0-12R	2 - 4/0 x 4P (1/0 x 4P)	S1/0-12R	1 - 300 (1)	S2-12R	FWP-600A
5472	2/0 - 300 x 4P (3/0 x 4P)	S3/0-12R	2/0 - 300 x 4P (3/0 x 4P)	S3/0-12R	3/0 - 400 x 4P (4/0 x 4P)	S4/0-12R	1 - 4/0 x 4P (1/0 x 4P)	S1/0-12R	1/0 - 300 (1/0)	S1/0-12R	FWP-700A

*1 Values in bold parentheses are the recommended values.
*2 For use with PANDUIT Corp. heat-shrinkable tubing HSTT series or an equivalent UL-recognized heat-shrinkable tubing rated 600 V minimum.
*3 When you use semiconductor fuses for the drive with UL Type 1 Kit, install the drive in a supplemental enclosure. The UL Type 1 Kit does not support internal fuses for this drive model.

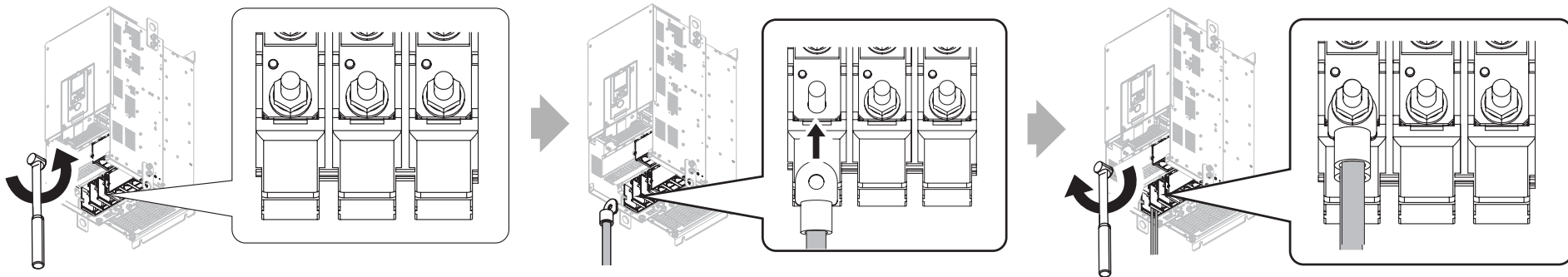
7 Remove the Terminal Cover



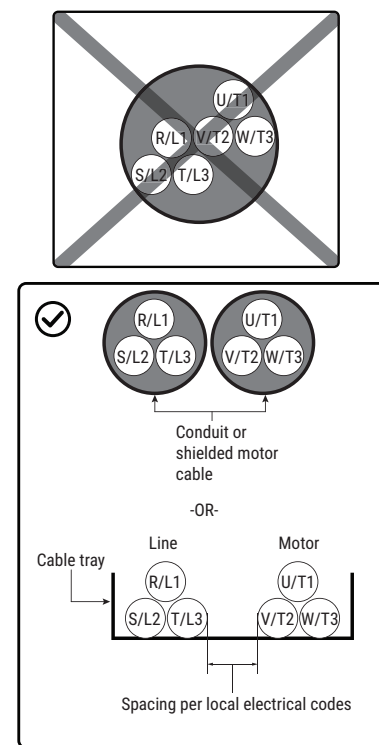
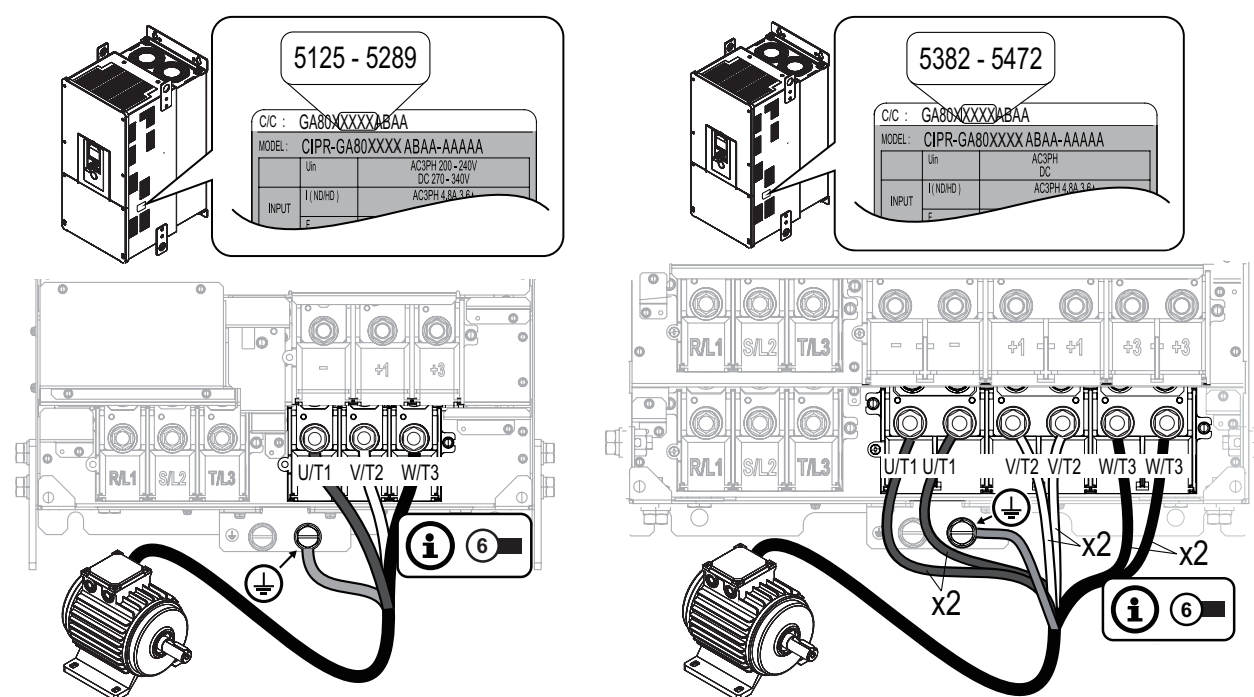
8 Remove the Terminal Block Cover and Wiring Cover



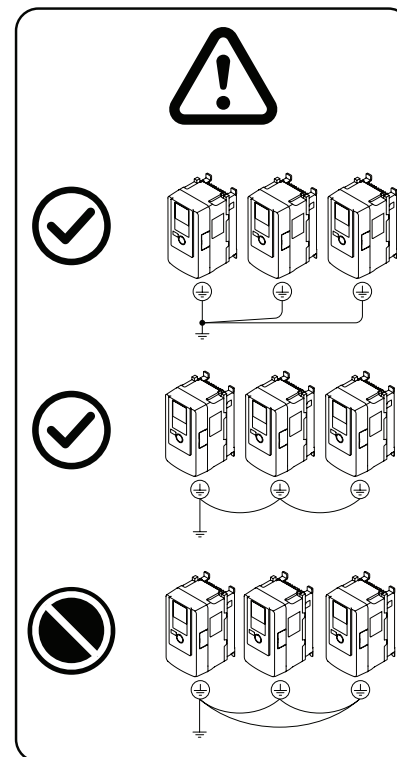
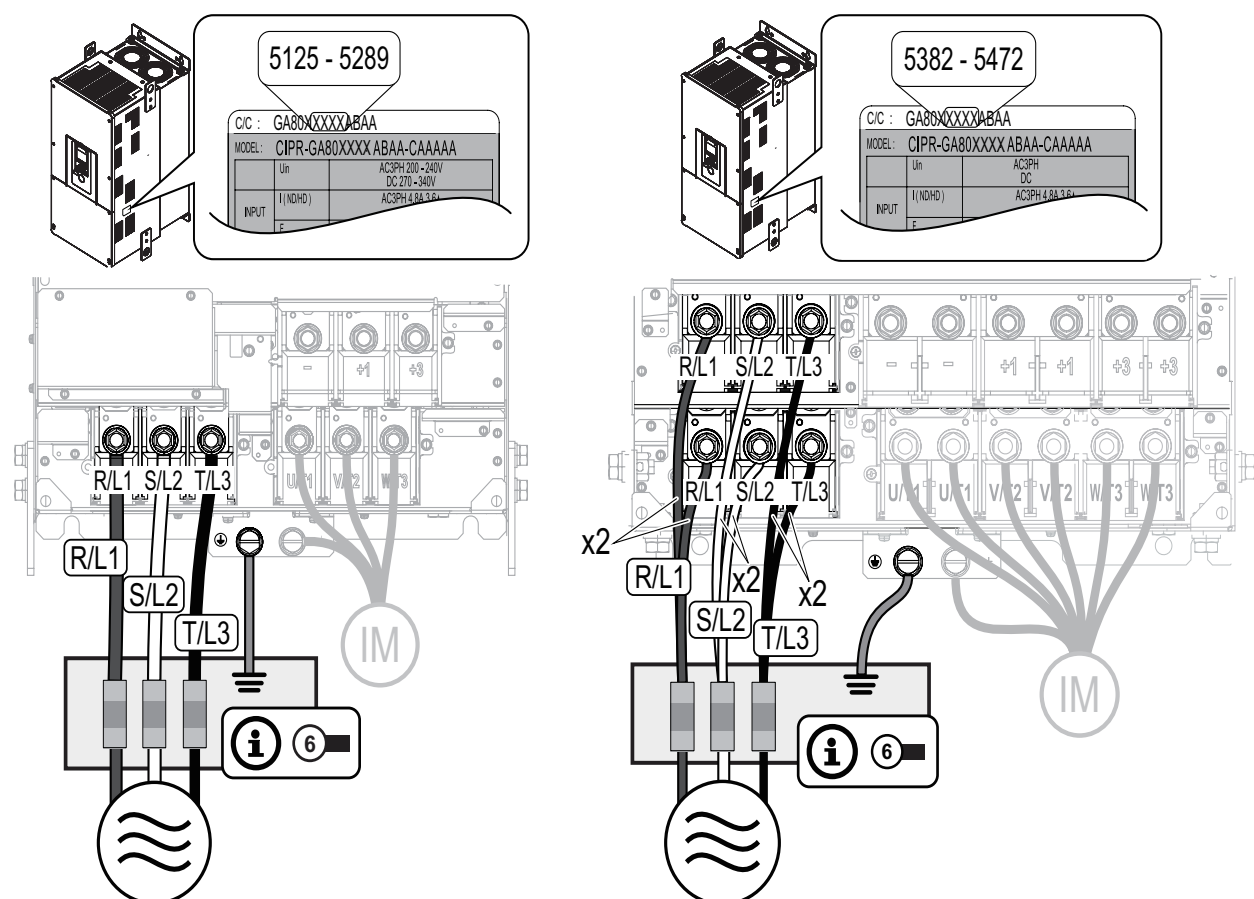
9 Remove Terminal Block Nut to Attach Crimp Terminals



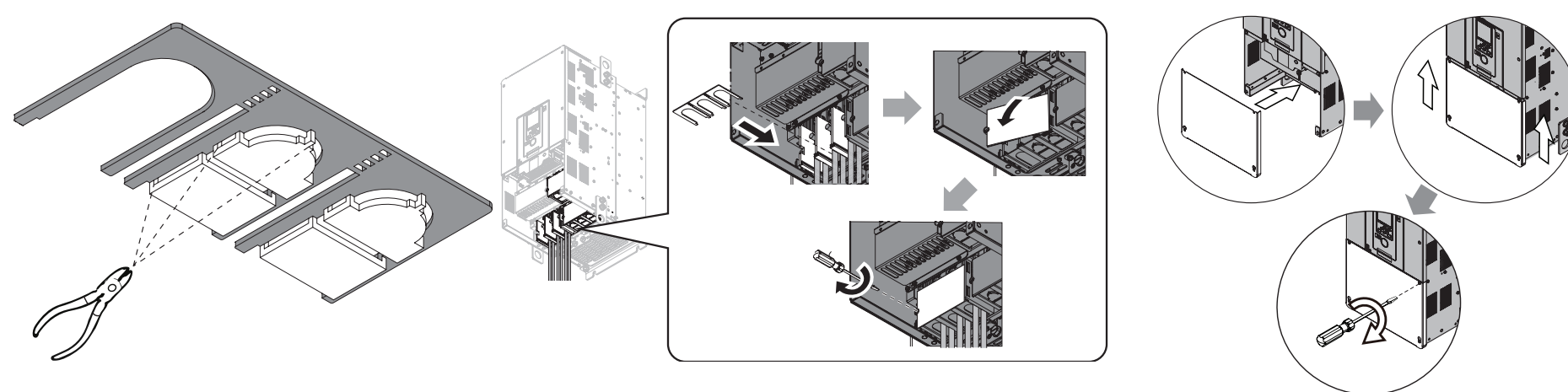
10 Install the Motor Wiring



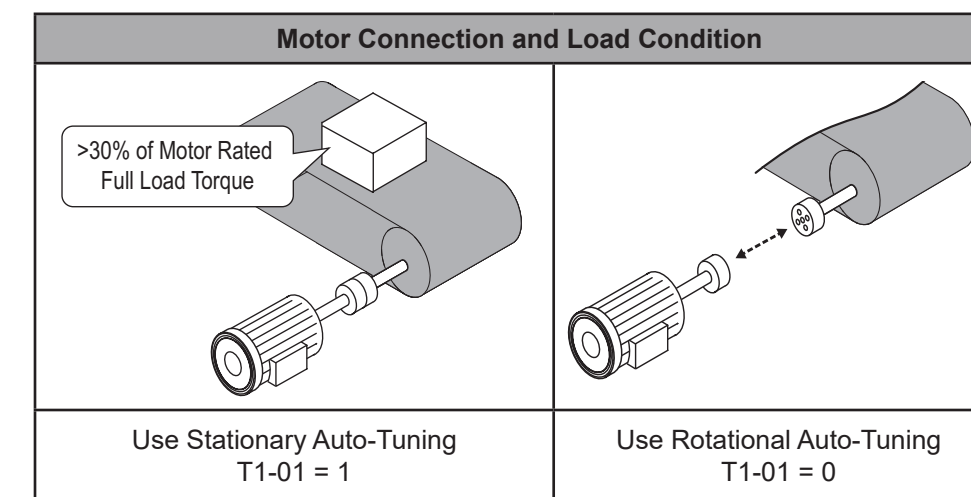
11 Install the Power Wiring



12 Remove the Tabs and Install the Wiring Cover, Terminal Block Cover, and Terminal Cover



13 Determine the Correct Auto-Tuning Method



14 Collect and Record Auto-Tuning Data from Motor Nameplate

3 PHASE INVERTER DUTY AC INDUCTION MOTOR NAMEPLATE EXAMPLE

MODEL **E** XX

POLES **X**

VOLTS **XXX** **B**

SF 1.0 DUTY CONT

SERIAL

MAX RPM 4200

123AAAA123XX-X0

ENC XXX CODE X

FL **F** RPM **XXXX**

MAX AMB °C XX

G

N.L. AMPS **XX.X/X.X**

S.E. BRG. 309

O.S.E. BRG. XXX

X FRAME 123A

TYPE ABC INS X

FL **C** AMPS **XX/XX**

TEMP SENSORS

T-STATS

ROTOR WK² X.X

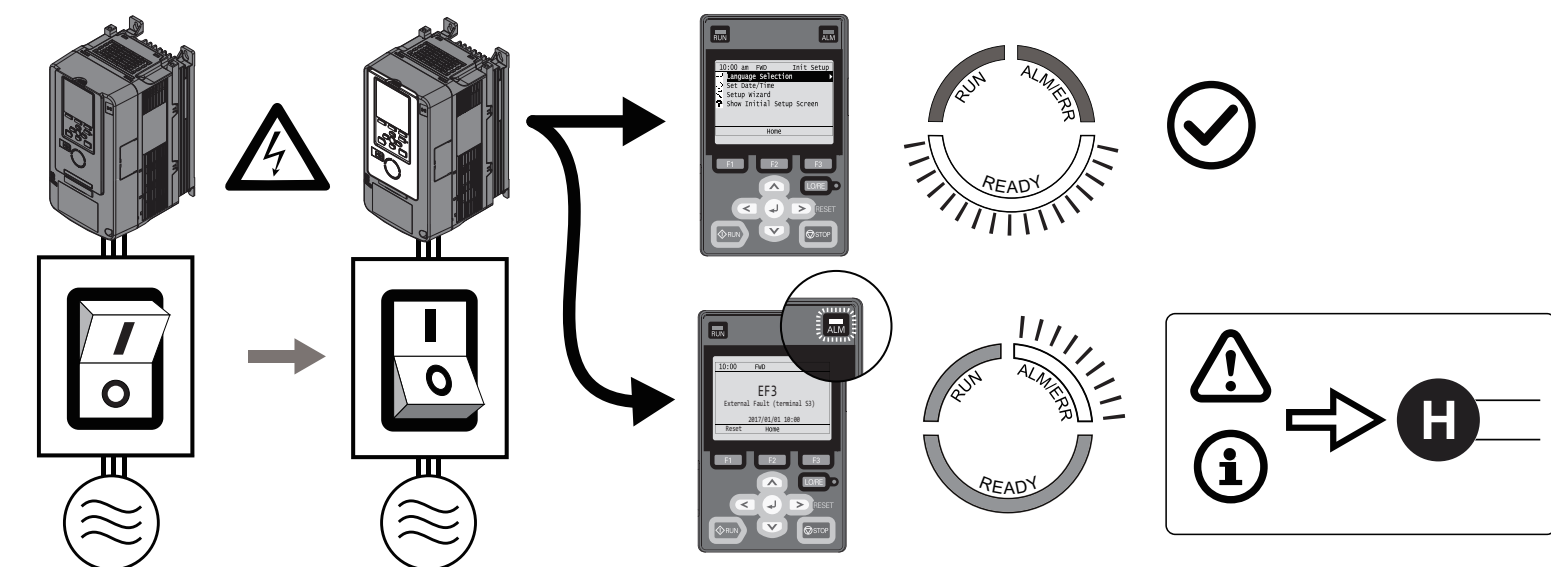
HZ	HP	RPM	TORQUE (LB FT)	VOLTS (HIGH CONN)	AMPS (HIGH CONN)
1	-	0	XX.X	-	XX.X
D 60	XX A	XXXX	XX.X	XXX	XX.X
120	XX	XXXX	XX.X	XXX	XX.X
OHMS PH.	R1 : .XXX	R2 : .XXX	x1: X.XX	X2: X.XX	XM: XX.X

P/N XXXXXXXX

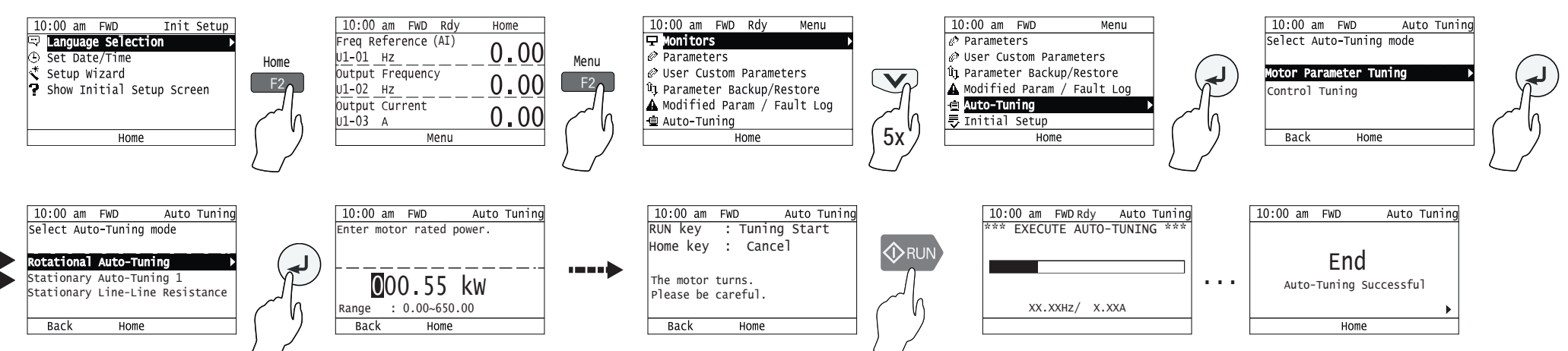
Reference	Motor Nameplate Data	Motor Nameplate Value	T1-xx Parameter (Ex-xx Parameter ^{*1})
A	Motor Rated Power	(HP × 0.746) kW	T1-02 (E2-11)
B	Motor Rated Voltage	V	T1-03 (E1-05)
C	Motor Rated Current (FLA)	A	T1-04 (E2-01)
D	Motor Rated Frequency (Base Frequency)	Hz	T1-05 (E1-04/E1-06)
E	Motor Pole Count	-	T1-06 (E2-04)
F	Motor Rated RPM	RPM	T1-07
G	Motor No-Load Current ^{*2}	A	T1-09 (E2-03)
-	Motor Rated Slip ^{*2 *3}	0.000 Hz	T1-10 (E2-02)
-	Test Mode Selection ^{*2}	-	T1-12
-	Motor No-Load Voltage	V	T1-13

^{*3}If you do not know this value, leave at the default value of 0.000.

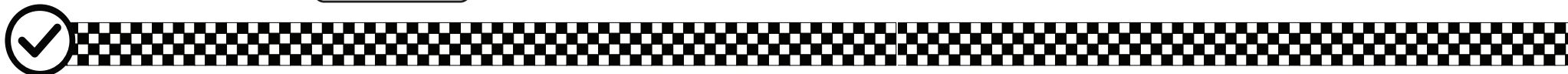
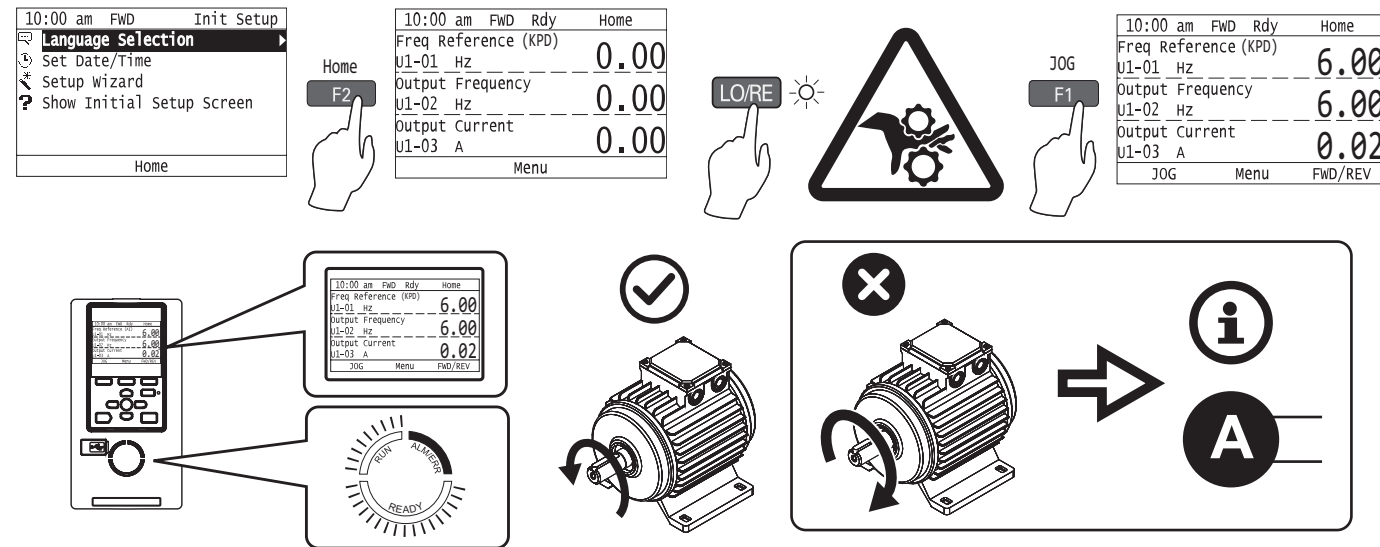
15 Energize the Drive and Confirm It Is Ready



16 Use Auto-Tuning Data from Motor Nameplate to Set Parameters and Auto-Tune the Drive

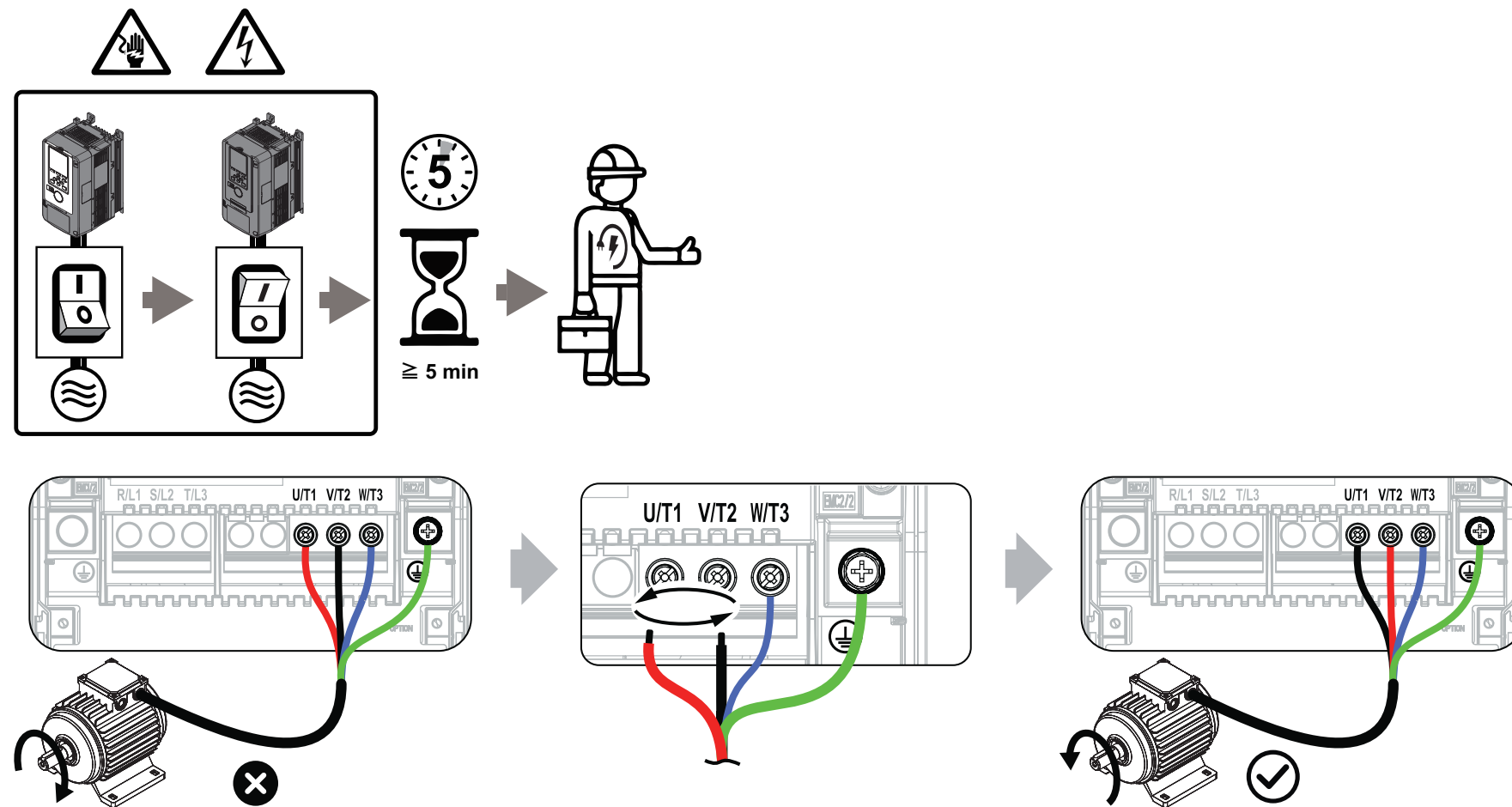


17 Set the Drive for LOCAL Control and Check the Motor Rotation Direction

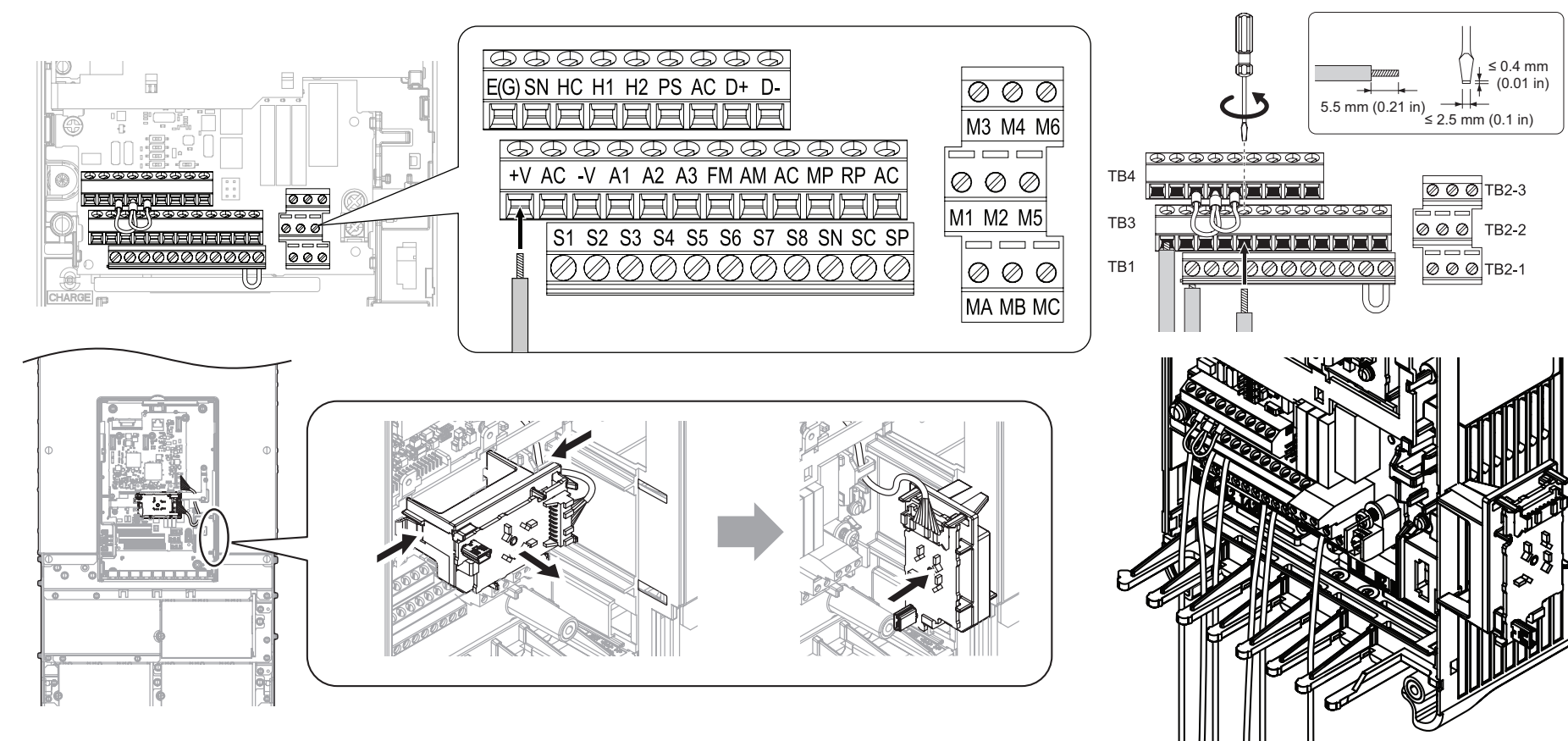


Additional Information for Installation and Primary Operation

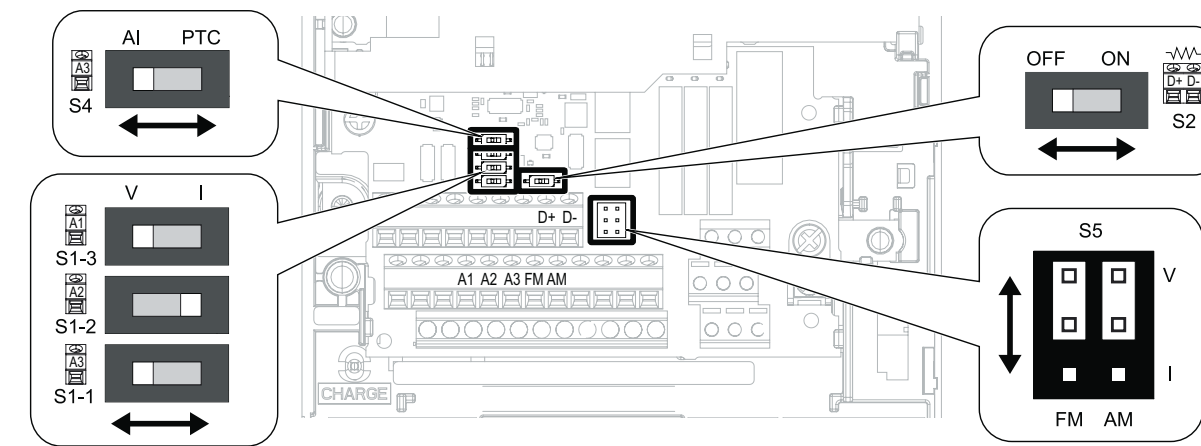
A If the Motor Does Not Rotate in the Correct Direction



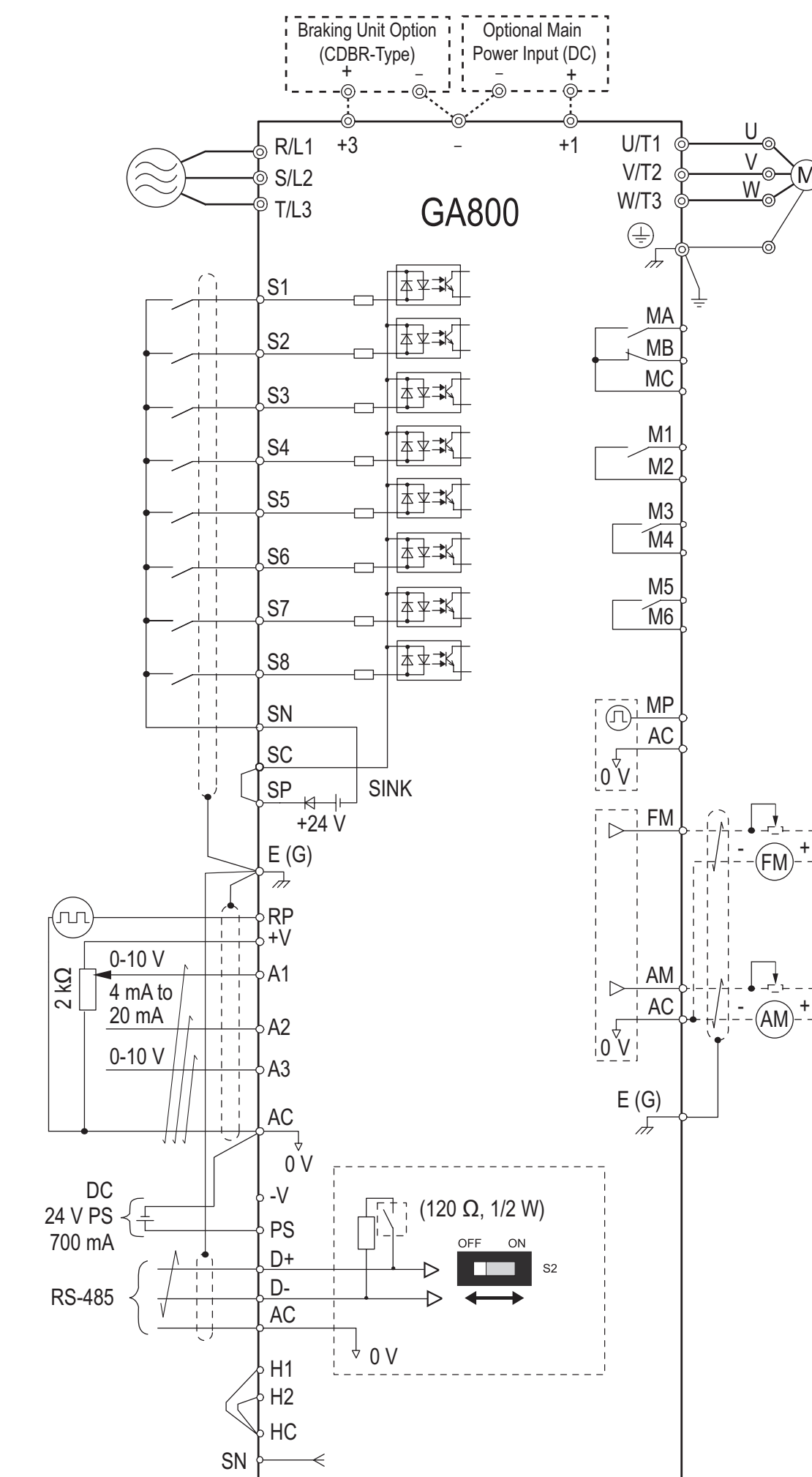
B Control Circuit Configuration and Assembly



C Switches and Jumpers on the Control Board



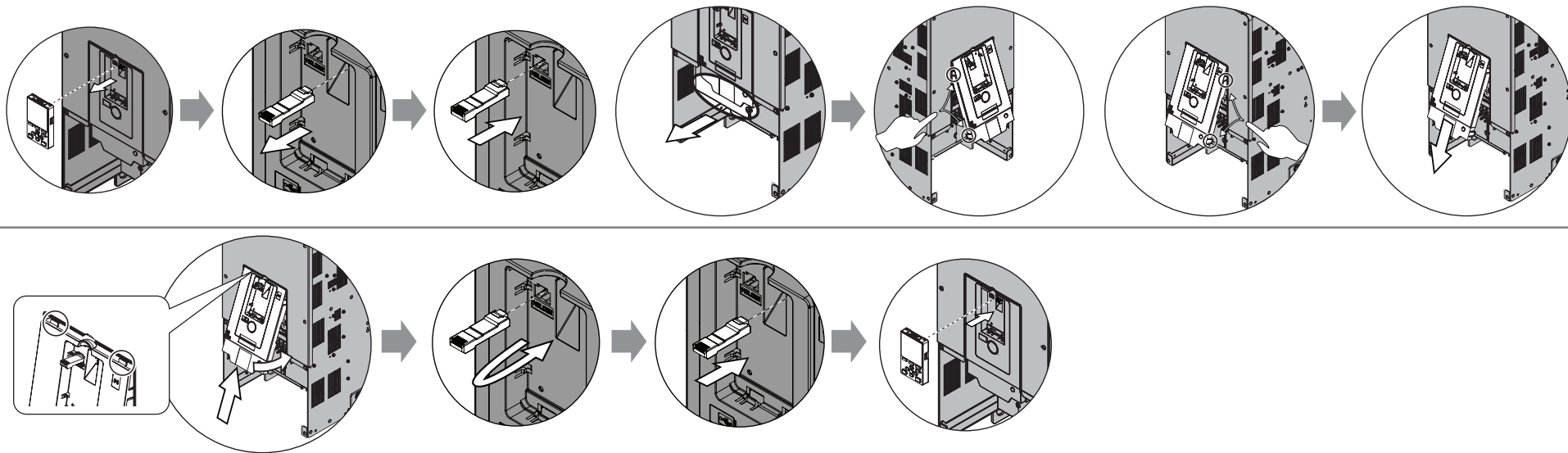
D Connection Diagram and Terminal Functions



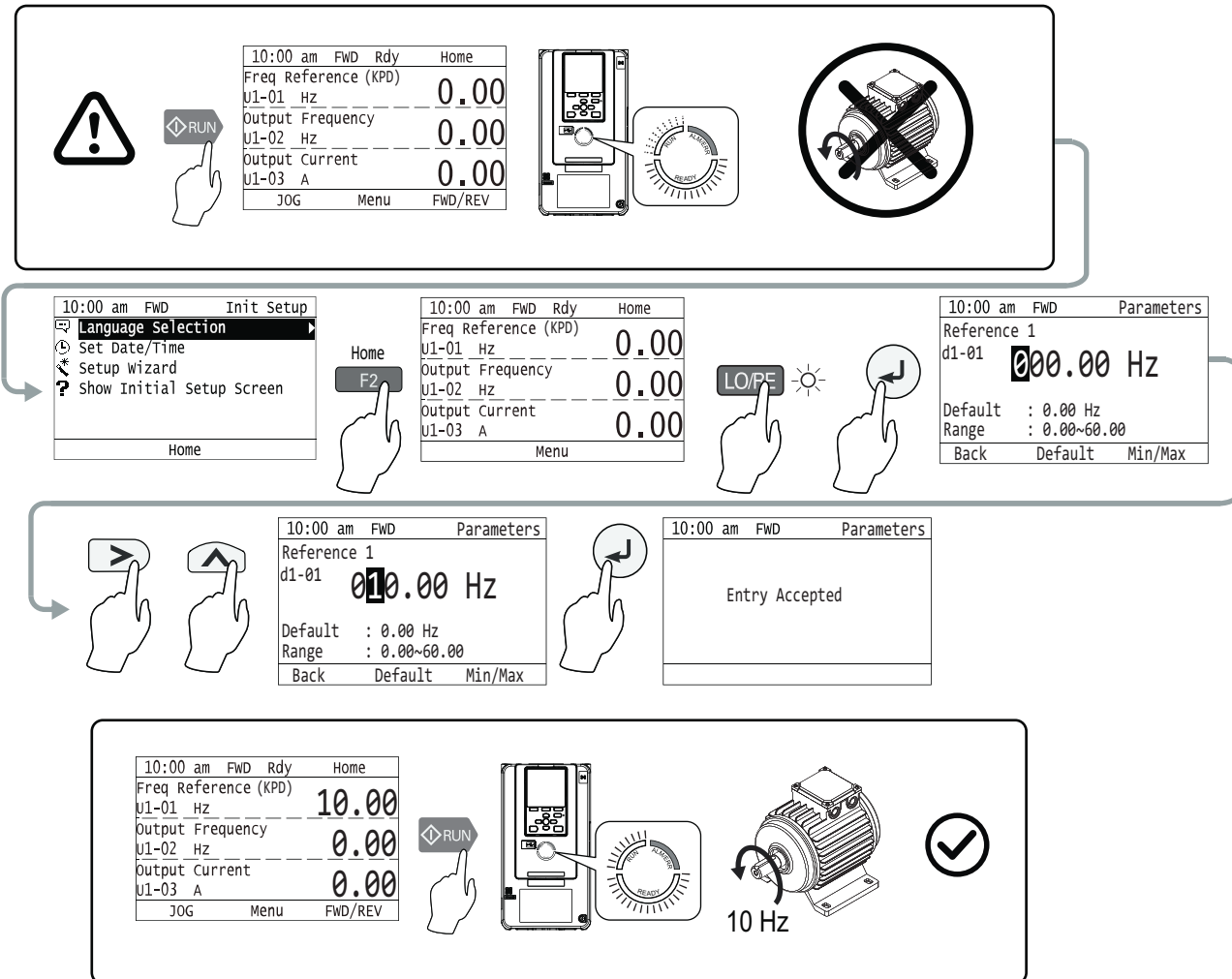
Terminal	Type	Signal Level	Default
S1	MFDI selection 1	Photocoupler 24 V, 6 mA	Forward run/Stop
S2	MFDI selection 2		Reverse run/Stop
S3	MFDI selection 3		External fault (N.O.)
S4	MFDI selection 4		Fault reset
S5	MFDI selection 5		Multi-step speed reference 1
S6	MFDI selection 6		Multi-step speed reference 2
S7	MFDI selection 7		Jog command
S8	MFDI selection 8		Baseblock command (N.O.)
SN	MFDI power supply 0 V	24 V, 150 mA maximum	-
SC	MFDI selection common		-
SP	MFDI power supply +24 Vdc		-
H1	Safe Disable input 1	24 V, 6 mA Internal impedance: 4.7 kΩ Minimum OFF time: 2 ms	-
H2	Safe Disable input 2		-
HC	Safe Disable function common		-
RP	Master frequency reference pulse train input	Response frequency: 0 Hz ~ 32 kHz H level duty: 30% ~ 70% H level voltage: 3.5 V ~ 13.2 V L level voltage: 0.0 V ~ 0.8 V Input impedance: 3 kΩ	Master frequency reference
+V	Power supply for frequency setting	10.5 V (20 mA maximum)	-
-V	Power supply for frequency setting	-10.5 V (20 mA maximum)	-
A1	MFAI 1	-10 V ~ +10 V/-100% ~ +100% 0 V ~ 10 V/100% (input impedance 20 kΩ) 4 mA ~ 20 mA/100% 0 mA ~ 20 mA/100% (input impedance 250 Ω)	Master frequency reference
A2	MFAI 2	-10 V ~ +10 V/-100% ~ +100% 0 V ~ 10 V/100% (input impedance 20 kΩ) 4 mA ~ 20 mA/100% 0 mA ~ 20 mA/100% (input impedance 250 Ω)	Combined to terminal A1
A3	MFAI 3/PTC input	-10 V ~ +10 V/-100% ~ +100% 0 V ~ 10 V/100% (input impedance 20 kΩ) 4 mA ~ 20 mA/100% 0 mA ~ 20 mA/100% (input impedance 250 Ω) PTC input	Auxiliary frequency reference
AC	Frequency reference common	0 V	-
E(G)	Cable shielding connection	-	-
MA	N.O. output	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Fault
MB	N.C. output	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Fault
MC	MA/MB common	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	-
M1	MFDO	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	During Run
M2	MFDO	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Zero Speed
M3	MFDO	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Speed Agree 1
M4	MFDO	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Speed Agree 1
M5	MFDO	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Speed Agree 1
M6	MFDO	30 Vdc, 10 mA ~ 1 A 250 Vac, 10 mA ~ 1 A Minimum load: 5 V, 10 mA	Speed Agree 1
MP	Pulse train output	32 kHz maximum	Output frequency
FM	Analog monitor output 1	0 V ~ +10 V/0% ~ 100% -10 V ~ +10 V/-100% ~ +100% 4 mA ~ 20 mA	Output frequency
AM	Analog monitor output 2	0 V ~ +10 V/0% ~ 100% -10 V ~ +10 V/-100% ~ +100% 4 mA ~ 20 mA	Output current
AC	Monitor common	0 V	-
PS	External 24 V power supply input	21.6 Vdc ~ 26.4 Vdc, 700 mA	-
AC	External 24 V power supply ground	0 V	-
D+	Communication input/output (+)	MEMOBUS/Modbus, RS-485 115.2 kbps maximum	-
D-	Communication output (-)	MEMOBUS/Modbus, RS-485 115.2 kbps maximum	-
AC	Signal ground	0 V	-

MFDI: Multi-function Digital Input
MFAI: Multi-function Analog Input

E How to Remove the Drive Front Cover



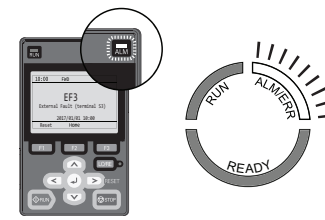
F If You Push the Run Button but the Motor Does Not Spin

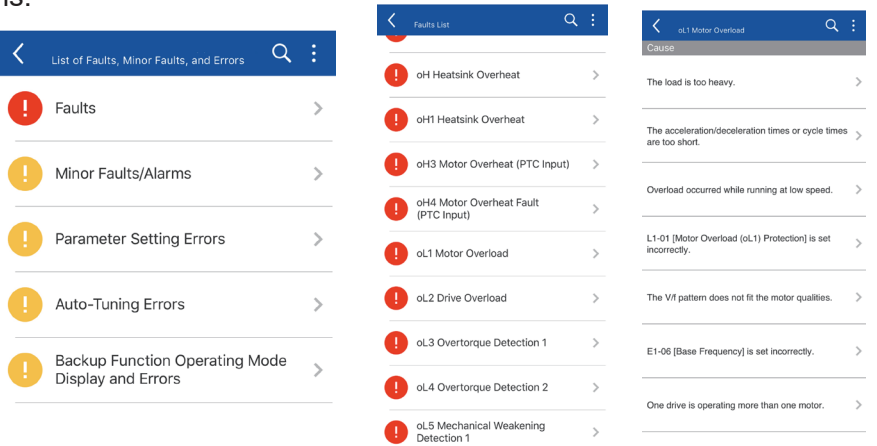


G Parameter Groups

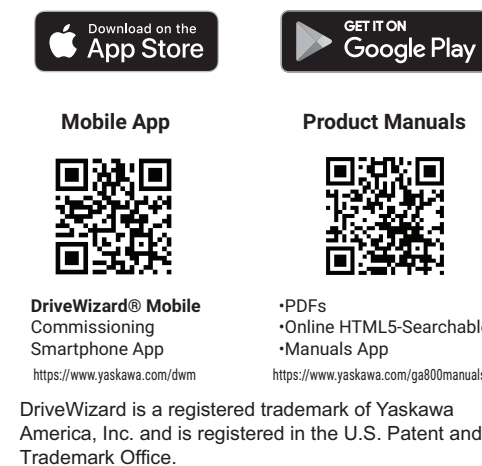
A: Initialization	d: Reference Settings	F: Options	L: Protection Functions	o: Keypad-Related Settings
A1 Initialization	d1 Frequency Reference	F1 Encoder Option Setup	L1 Motor Protection	o1 Keypad Display
A2 User Parameters	d2 Reference Limits	F2 Analog Input Option	L2 Power Loss Ride Through	o2 Keypad Operation
b: Application	d3 Jump Frequency	F3 Digital Input Option	L3 Stall Prevention	o3 Copy Keypad Function
b1 Operation Mode Selection	d4 Frequency Ref Up/Down & Hold	F4 Analog Output Option	L4 Speed Detection	o4 Maintenance Monitors
b2 DC Injection Braking and Short Circuit Braking	d5 Torque Control	F5 Digital Output Option	L5 Fault Restart	o5 Log Function
b3 Speed Search	d6 Field Weakening/Forcing	F6 Communication Option	L6 Torque Detection	q: DriveWorksEZ Parameters
b4 Timer Function	d7 Offset Frequency	F7 Ethernet Options	L7 Torque Limit	r: DWEZ Connection 1-20
b5 PID Control	E: Motor Parameters	H: Terminal Functions	L8 Drive Protection	U: Monitors
b6 Dwell Function	E1 V/f Pattern for Motor 1	H1 Digital Inputs	L9 Drive Protection 2	U1 Operation Status Monitors
b7 Droop Control	E2 Motor 1 Parameters	H2 Digital Outputs	n: Special Adjustment	U2 Fault Trace
b8 Energy Saving	E3 V/f Pattern for Motor 2	H3 Analog Inputs	n1 Hunting Prevention	U3 Fault History
b9 Zero Servo	E4 Motor 2 Parameters	H4 Analog Outputs	n2 Auto Freq Regulator (AFR)	U4 Maintenance Monitors
C: Tuning		H5 Modbus Communication	n3 High Slip/Overexcite Braking	U5 PID Monitors
C1 Accel & Decel Time		H6 Pulse Train Input/Output	n4 Adv Open Loop Vector Tune	U6 Operation Status Monitors
C2 S-Curve Characteristics		H7 Virtual MFIO selection	n5 Feed Forward Control	U8 DriveWorksEZ Monitors
C3 Slip Compensation			n6 Online Tuning	
C4 Torque Compensation				
C5 Auto Speed Regulator (ASR)				
C6 Duty & Carrier Frequency				

H Troubleshooting Resources for Drive Faults and Alarms



Resource	Choose This When:	URL	QR Code
Installation & Primary Operation	You have access to the paper copy of the manual that was packaged with the drive. This manual lists all drive faults and alarms, and offers a selection of causes and solutions. 	https://www.yaskawa.com/toepc7106170v	 PDF download
DriveWizard Mobile App	You want to use your smartphone or tablet and use the embedded help to look up the full complement of causes and solutions to all drive faults and alarms. 	https://www.yaskawa.com/dwm	 App download
Technical Reference	You want to download a PDF of the manual to your smartphone or tablet. This manual lists the full complement of causes and solutions to all drive faults and alarms and also includes detailed information about drive maintenance, wiring, and programming. 	https://www.yaskawa.com/siepc7106170v	 PDF download

I Additional Resources



J Customer Feedback

Comments or questions about this document?
Fill out our online form:



or
Email us: technical_documentation@yaskawa.com
Call us: 1-800-YASKAWA (927-5292)

www.yaskawa.com/DRV-F-0006

Please consider following us on social media:

 www.youtube.com/yaskawayea
 www.linkedin.com/company/18822

Headquarters Address:

YASKAWA AMERICA, INC.
2121 Norman Drive South
Waukegan, IL 60085
USA