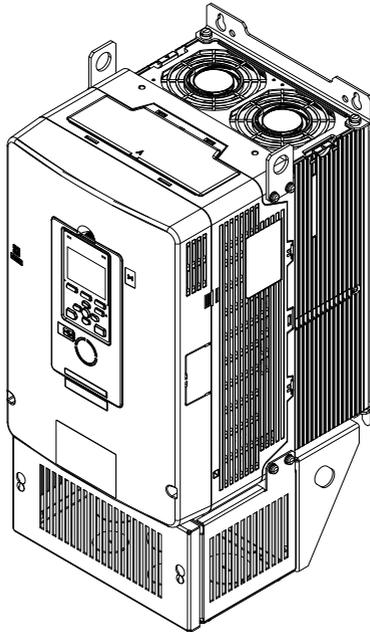


## YASKAWA AC Drive Option UL Type 1 Kit Installation Manual

Model 900-192-121-xxx

To properly use the product, read this manual thoroughly and retain for easy reference, inspection, and maintenance. Ensure the end user receives this manual.



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## 1 Receiving

### ◆ Applicable Documentation

Document	Description
Yaskawa AC Drive Option UL Type 1 Kit Installation Manual	Read this manual before you install this option to the drive. This manual gives information about how to install the option and change the enclosure type of the drive from IP20/UL Open Type to IP20/UL Type 1.
Yaskawa AC Drive Manuals	Refer to the manual packaged with the drive for basic information about the drive. Refer to the Technical Manual for more information about programming and parameter settings. You can download the Technical Manual from the Yaskawa website shown on the back cover of this manual.

### ◆ Glossary

Terminology Used in this Document	Description
Drive	<ul style="list-style-type: none"> <li>• YASKAWA AC Drive GA700</li> <li>• YASKAWA AC Drive GA800</li> <li>• YASKAWA AC Drive CH700</li> <li>• YASKAWA AC Drive CR700</li> <li>• YASKAWA AC Drive HV600</li> <li>• YASKAWA AC Drive FP605</li> </ul>
Kit Option	YASKAWA AC Drive Option UL Type 1 Kit

## 2 General Safety

### ◆ Supplemental Safety Information

**▲ DANGER** This signal word identifies a hazard that will cause serious injury or death if you do not prevent it.

**▲ WARNING** This signal word identifies a hazard that can cause death or serious injuries if you do not prevent it.

**▲ CAUTION** This signal word identifies a hazardous situation, which, if not avoided, can cause minor or moderate injury.

**NOTICE** This signal word identifies a property damage message that is not related to personal injury.

## ◆ Section Safety

### General Precautions

- Some figures in the instructions include options and drives without covers or safety shields to more clearly show the inside of the drive. Replace covers and shields before operation. Use options and drives only as specified by the instructions.
- The figures in this manual are examples only. All figures do not apply to all products included in this manual.
- Yaskawa can change the products, specifications, and content of the instructions without notice to make the product and/or the instructions better.
- If you damage or lose these instructions, contact a Yaskawa representative or the nearest Yaskawa sales office on the rear cover of the manual, and tell them the document number on the front cover to order new copies.

**⚠ DANGER** *Electrical Shock Hazard. Do not examine, connect, or disconnect wiring on an energized drive. Before servicing, disconnect all power to the equipment and wait for the time specified on the warning label at a minimum. The internal capacitor stays charged after the drive is de-energized. The charge indicator LED extinguishes when the DC bus voltage decreases below 50 Vdc. When all indicators are OFF, remove the covers before measuring for dangerous voltages to make sure that the drive is safe. If you do work on the drive when it is energized, it will cause serious injury or death from electrical shock.*

**⚠ WARNING** *Electrical Shock Hazard. Only let approved personnel install, wire, maintain, examine, replace parts, and repair the drive. If personnel are not approved, it can cause serious injury or death.*

**⚠ WARNING** *Sudden Movement Hazard. Tighten the screws to the specified tightening torque. Incorrect tightening torques can cause damage to equipment and cause serious injury or death from falling equipment.*

**⚠ CAUTION** *Burn Hazard. Do not touch a hot drive heatsink. De-energize the drive, wait for a minimum of 15 minutes, then make sure that the heatsink is cool before you replace the cooling fans. If you touch a hot drive heatsink, it can burn you.*

**NOTICE** *Damage to Equipment. When you touch the drive and circuit boards, make sure that you observe correct electrostatic discharge (ESD) procedures. If you do not follow procedures, it can cause ESD damage to the drive circuitry.*

## 3 Overview

This option will change an open-chassis type (IP20) drive to an enclosed wall-mounted type (UL Type I) drive.

This option will let you install the drive outside the enclosure panel as an enclosed wall-mounted type drive.

The option has a bracket that will prevent damage to the wiring and a top protective cover that will not let unwanted material get in the drive. You can use this option when the installation environment of the drive meets the specifications shown in [Installation Environment on page 7](#).

## ◆ Compatible Products

This installation kit is compatible with these drives:

- GA700
- GA800
- CH700
- CR700
- HV600
- FP605

## ◆ Installation Environment

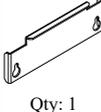
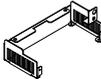
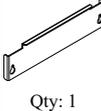
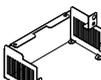
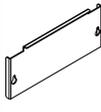
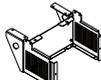
Environment	Conditions
Area of Use	Indoors
Power Supply	Overvoltage Category III
Ambient Temperature Setting	<p>IP20/UL Open Type: -10 °C to +50 °C (14 °F to 122 °F)            IP20/UL Type 1: -10 °C to +40 °C (14 °F to 104 °F)</p> <ul style="list-style-type: none"> <li>• Drive reliability is better in environments where the temperature does not increase or decrease quickly.</li> <li>• When you install the drive in an enclosure, use a cooling fan or air conditioner to keep the internal air temperature in the permitted range.</li> <li>• Do not let the drive freeze.</li> <li>• You can use IP20/UL Open Type drives at a maximum of 60 °C (140 °F) when you derate the output current.</li> <li>• You can use IP20/UL Type 1 drives at a maximum of 50 °C (122 °F) when you derate the output current.</li> </ul>
Humidity	<p>95% RH or less            Do not let condensation form on the drive.</p>
Storage Temperature	-20 °C to +70 °C (-4 °F to +158 °F) (short-term temperature during transportation)
Surrounding Area	<p>Pollution degree 2 or less            Install the drive in an area without:</p> <ul style="list-style-type: none"> <li>• Oil mist, corrosive or flammable gas, or dust</li> <li>• Metal powder, oil, water, or other unwanted materials</li> <li>• Radioactive or flammable materials.</li> <li>• Harmful gas or fluids</li> <li>• Salt</li> <li>• Direct sunlight</li> </ul> <p>Keep wood and other flammable materials away from the drive.</p>
Altitude	<p>1000 m (3281 ft) Maximum  <b>Note:</b>            Derate the output current by 1% for each 100 m (328 ft) to install the drive in altitudes between 1000 m to 4000 m (3281 ft to 13123 ft).            It is not necessary to derate the rated voltage in these conditions:</p> <ul style="list-style-type: none"> <li>• Installing the drive at 2000 m (6562 ft) or lower</li> <li>• Installing the drive between 2000 m to 4000 m (6562 ft to 13123 ft) and grounding the neutral point on the power supply.              Contact Yaskawa or your nearest sales representative if you will not ground the neutral point.</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>• 10 Hz to 20 Hz: 1 G (9.8 m/s<sup>2</sup>, 32.15 ft/s<sup>2</sup>)</li> <li>• 20 Hz to 55 Hz: Different for different models. Refer to the manual packaged with the drive.</li> </ul>
Installation Orientation	Install the drive vertically for sufficient airflow to cool the drive.

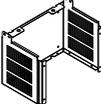
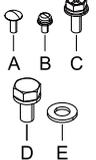
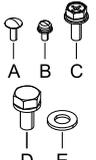
**NOTICE** Do not let unwanted objects, for example metal shavings or wire clippings, fall into the drive during drive installation. Put a temporary cover over the drive during installation. Remove the temporary cover before start-up. Unwanted objects inside of the drive can cause damage to the drive.

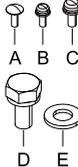
## 4 Receiving

1. Examine the products for damage.  
If there is damage to the products, contact the shipping company immediately. The Yaskawa warranty does not include damage from shipping.
2. Verify the product model number to make sure that you received the correct model.  
If you have problems with the products, contact the distributor where you purchased the products or the Yaskawa sales office immediately.

### ◆ Option Package Contents

Model	Base	Front Cover	Top Protective Cover	Conduit Bracket	Stay Bracket	Mounting Screw
900-192-121-001 900-192-121-002	 Qty: 1	 Qty: 1	 Qty: 1	-	-	 A A - M4 × 10 truss head screws Qty: 2
900-192-121-003	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 1	-	 A B C A - M4 × 10 truss head screws Qty: 2 B - M4 × 10 pan head screws Qty: 4 C - M6 × 14 pan head screws Qty: 2
900-192-121-004	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 1	-	 A B C A - M4 × 10 truss head screws Qty: 2 B - M4 × 10 pan head screws Qty: 4 C - M6 × 14 pan head screws Qty: 2
900-192-121-005	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 1	-	 A B C D A - M4 × 10 truss head screws Qty: 2 B - M4 × 10 pan head screws

Model	Base	Front Cover	Top Protective Cover	Conduit Bracket	Stay Bracket	Mounting Screw
						Qty: 8 C - M5 × 14 pan head screws Qty: 4 D - M6 × 14 pan head screws Qty: 2
900-192-121-006	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 2	 A - M4 × 10 truss head screws Qty: 4 B - M4 × 8 pan head screws Qty: 16 C - M6 × 14 pan head screws Qty: 2 D - M6 × 16 upset head bolts Qty: 4
900-192-121-007	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 2	 A - M4 × 10 truss head screws Qty: 4 B - M4 × 8 pan head screws Qty: 16 C - M6 × 16 upset head bolts Qty: 4 D - M8 × 16 hex bolts Qty: 2 E - M8 plain washers Qty: 2
900-192-121-008	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 2	 A - M4 × 10 truss head screws Qty: 4 B - M4 × 8 pan head screws Qty: 16 C - M6 × 16 upset head bolts Qty: 4 D - M8 × 16 hex bolts Qty: 2 E - M8 plain washers Qty: 2

Model	Base	Front Cover	Top Protective Cover	Conduit Bracket	Stay Bracket	Mounting Screw
						<p>A - M4 × 10 truss head screws Qty: 6 B - M4 × 8 pan head screws Qty: 18 C - M6 × 16 upset head bolts Qty: 4 D - M8 × 16 hex bolts Qty: 2 E - M8 plain washers Qty: 2</p>
<p>900-192-121-009</p>	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 2	 <p>A - M4 × 10 truss head screws Qty: 4 B - M4 × 10 pan head screws Qty: 11 C - M5 × 12 pan head screws Qty: 16 D - M10 × 20 hex bolts Qty: 2 E - M10 plain washers Qty: 2</p>
<p>900-192-121-010</p>	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 1	 Qty: 2	 <p>A - M4 × 10 truss head screws Qty: 6 B - M4 × 10 pan head screws Qty: 17 C - M4 × 14 pan head screws Qty: 6 D - M5 × 14 pan head screws Qty: 6</p>

## ◆ Necessary Tools

To install the kit, use these tools:

- Phillips screwdriver #2, #3
- Wrench
- Slotted screwdriver
- File

## 5 Kit Models and Installation Procedure

**▲ WARNING** *Crush Hazard. Before you hang the drive vertically, use screws to correctly attach the drive front cover and other drive components. If you do not secure the front cover, it can fall and cause minor injury.*

**▲ WARNING** *Crush Hazard. When you use a crane or hoist to lift the drive during installation or removal, prevent more than 1.96 m/s<sup>2</sup> (0.2 G) vibration or impact. Too much vibration or impact can cause serious injury or death from falling equipment.*

**▲ WARNING** *Crush Hazard. When you lift the drive during installation or removal, do not try to turn the drive over and do not ignore the hanging drive. If you move a hanging drive too much or if you ignore it, the drive can fall and cause serious injury or death.*

**▲ CAUTION** *Crush Hazard. Tighten terminal cover screws and hold the case safely when you move the drive. If the drive or covers fall, it can cause moderate injury.*

## ◆ Drive Exterior and Mounting Dimensions

### ■ Exterior and Mounting Dimensions

**Table 5.1 Drive Models and Exterior and Mounting Dimensions (GA700, GA800)**

Drive Model		Drive Exterior and Mounting Dimensions (Page)	Knock-Out Hole Dimension Diagram (Page)
GA700 GA800	2004, 2006, 2008, 2010, 2012 4002, 4004, 4005	15	27
	2018, 2021 4007, 4009, 4012	16	28
	2030, 2042 4018, 4023		
	2056 4031, 4038	17	29
	2070	18	30
	4044		
	2082	19	31
	4060	20	32
	2110	21	33
	4075		
	2138	22	34
	4089		
	4103		
	2169, 4168	23	35
	4140		
	2211	24	36
	2257, 2313	25	37
	4208, 4250, 4296, 4302		
	2360	26	38
	4371		
GA700	2415 4389, 4453, 4568, 4675	-	-
	GA800	2415	38
GA800	4371, 4414	*1	-
	4477, 4568, 4605, 4720		

- \*1 Refer to the installation manual below for more information.  
 UL Type 1 Kit Installation Manual (TOEPYAIGA8003A)  
 Models: UUX001700, UUX 001701

**Table 5.2 Drive Models and Exterior and Mounting Dimensions (CH700, CR700)**

Drive Model		Drive Exterior and Mounting Dimensions (Page)	Knock-Out Hole Dimension Diagram (Page)
CH700 CR700	2003, 2005, 2007, 2008, 2011 4002, 4003, 4005	15	27
	2014, 2018 4006, 4007, 4009	16	28
	2025, 2033 4015, 4018		
	2047 4024, 4031	17	29
	2060	18	30
	4039		
	2075	19	31
	4045	20	32
	2088	21	33
	4060		
	2115	22	34
	4075		
	4091		
	2145, 4150	23	35
	4112		
	2180	24	36
	2215, 2283	25	37
	4180,4216 4260		
	2346	26	38
	4304		
2415 4371, 4414, 4453, 4605	-	-	

**Table 5.3 Drive Models and Exterior and Mounting Dimensions (HV600)**

Drive Model		Drive Exterior and Mounting Dimensions (Page)	Knock-Out Hole Dimension Diagram (Page)
HV600	2211	25	37

Drive Model		Drive Exterior and Mounting Dimensions (Page)	Knock-Out Hole Dimension Diagram (Page)
	4180		
	2273, 4240		
	4302	26	38

**Table 5.4 Drive Models and Exterior and Mounting Dimensions (FP605)**

Drive Model		Drive Exterior and Mounting Dimensions (Page)	Knock-Out Hole Dimension Diagram (Page)
FP605	2211	25	37
	2273		
	4180		
	4240		
	4302		
	2343	26	38
	2396		
	4361, 4414	*1	-
	4477, 4515, 4590, 4720		

\*1 Refer to the installation manual below for more information.  
 UL Type 1 Kit Installation Manual (TOEPYAIGA8003A)

■ IP20/UL Type 1

Exterior and Mounting Dimension Diagram 1

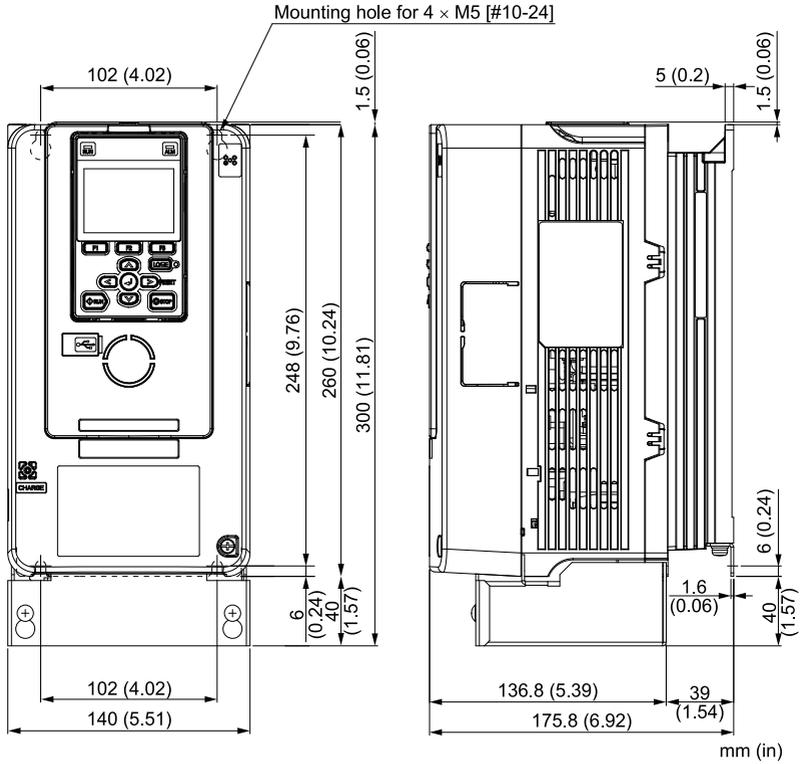
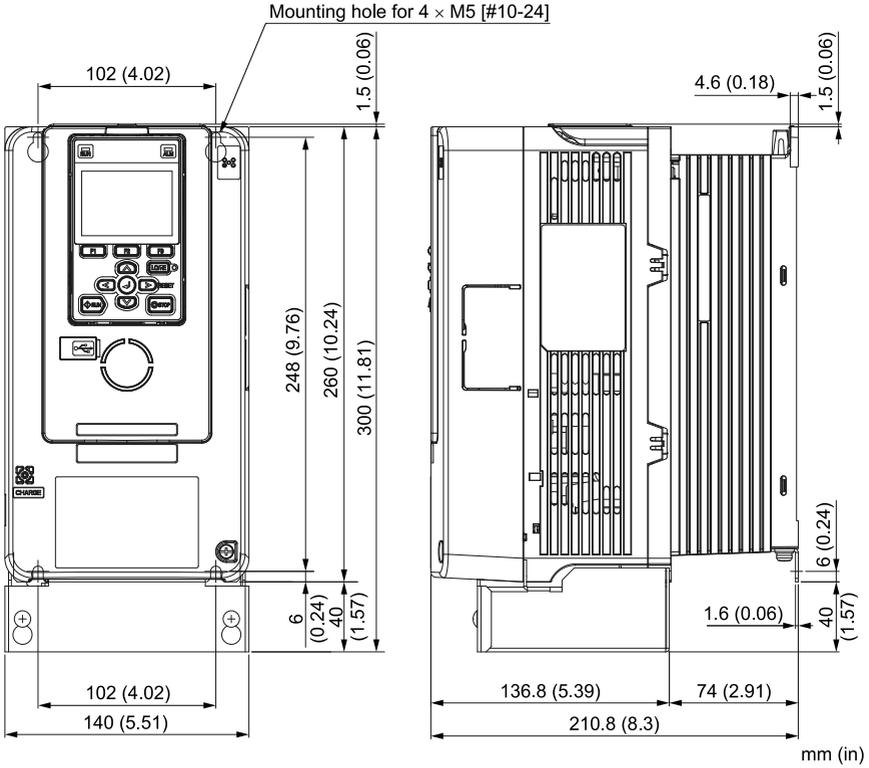


Figure 5.1 Dimension Diagram 1

**Exterior and Mounting Dimension Diagram 2**



**Figure 5.2 Dimension Diagram 2**

### Exterior and Mounting Dimension Diagram 3

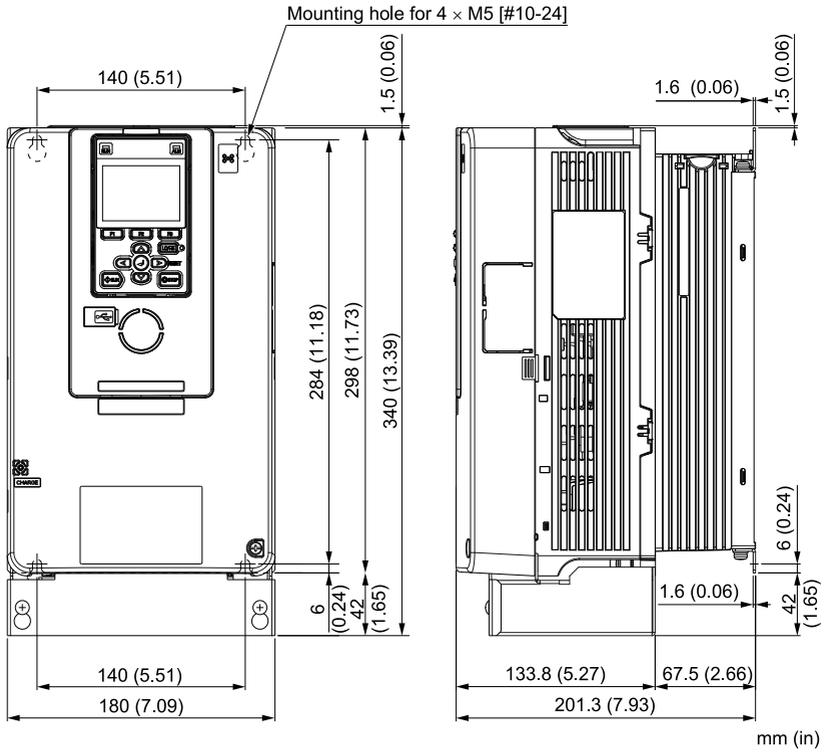
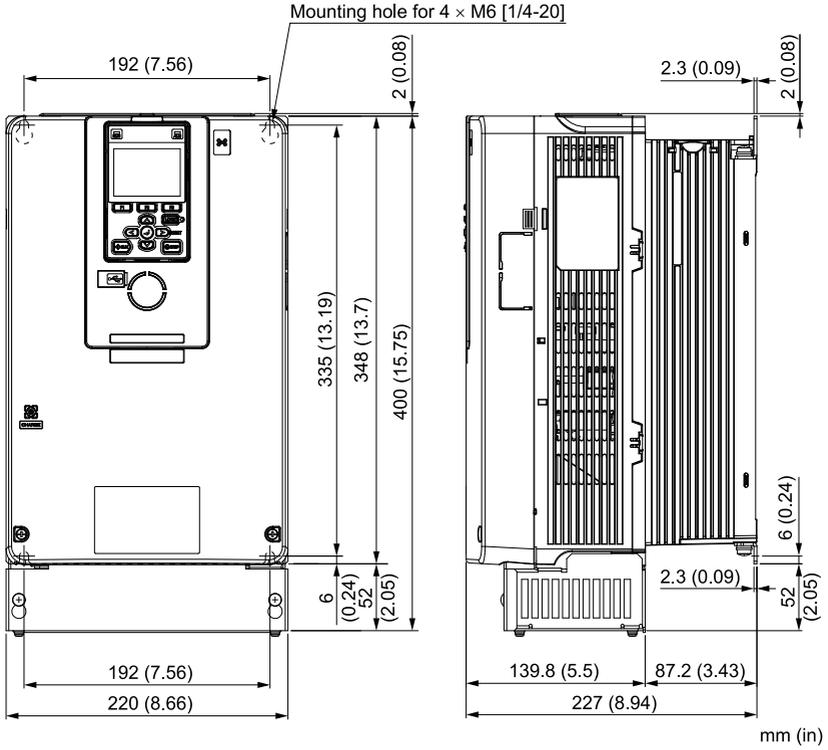


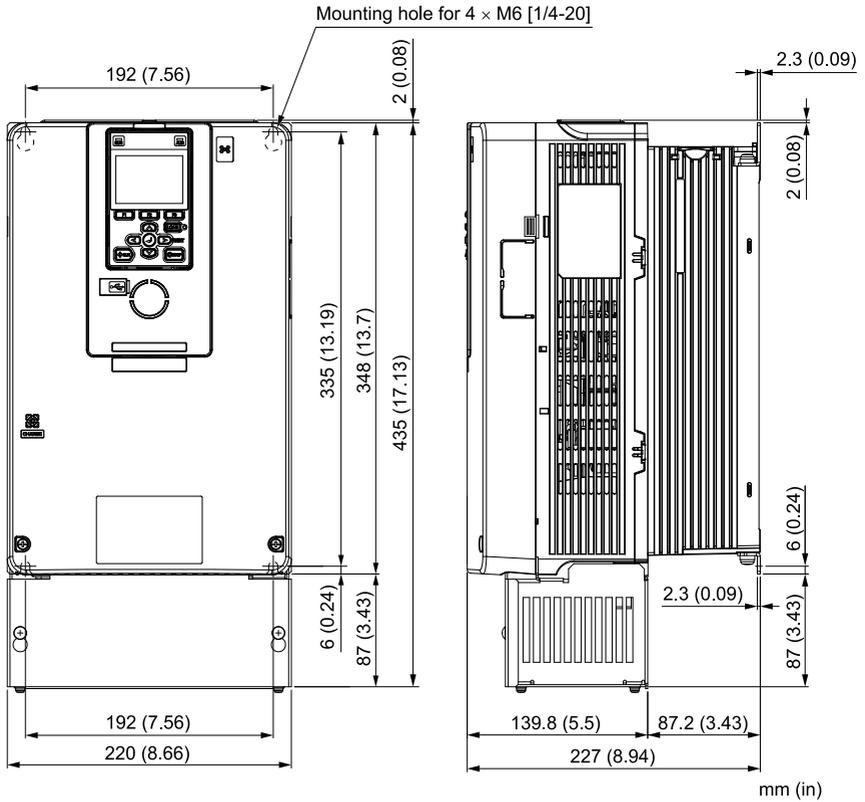
Figure 5.3 Dimension Diagram 3

**Exterior and Mounting Dimension Diagram 4**



**Figure 5.4 Dimension Diagram 4**

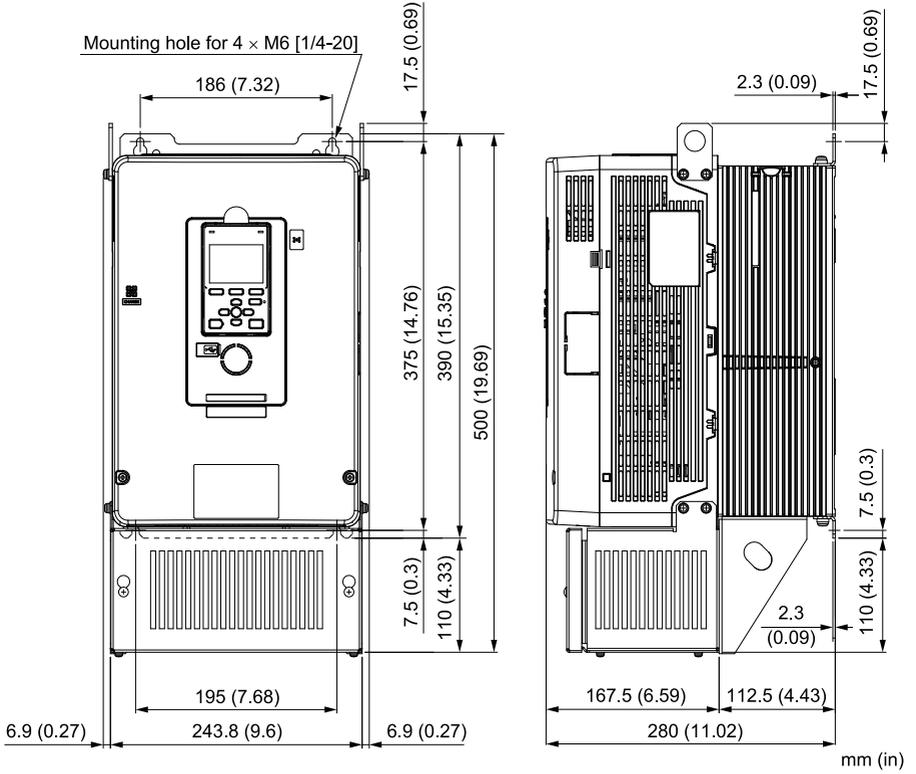
**Exterior and Mounting Dimension Diagram 5**



**Figure 5.5 Dimension Diagram 5**

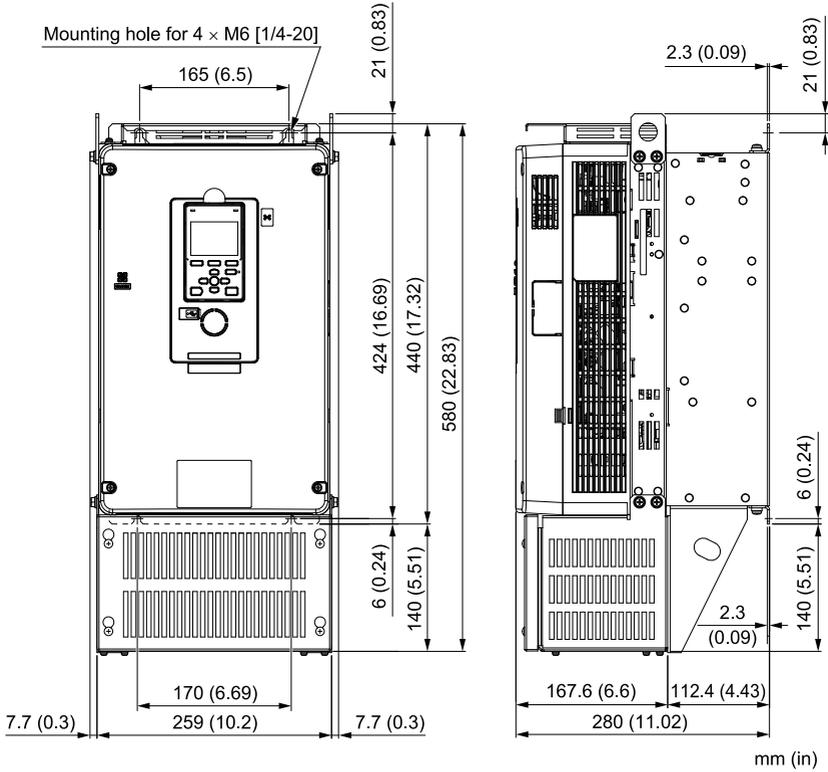


**Exterior and Mounting Dimension Diagram 7**



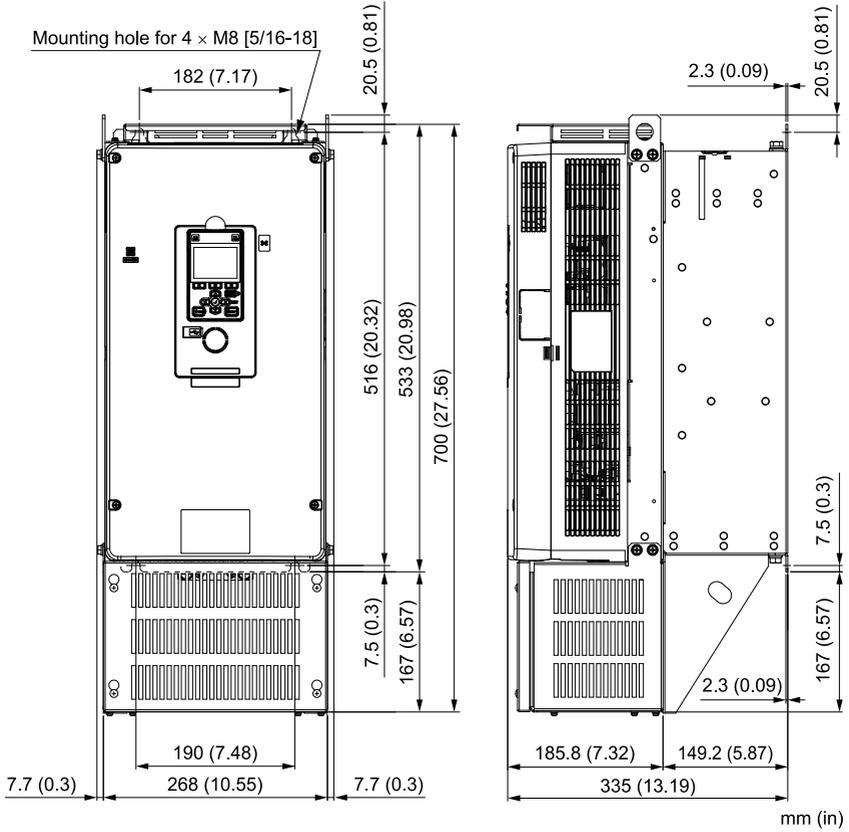
**Figure 5.7 Dimension Diagram 7**

**Exterior and Mounting Dimension Diagram 8**



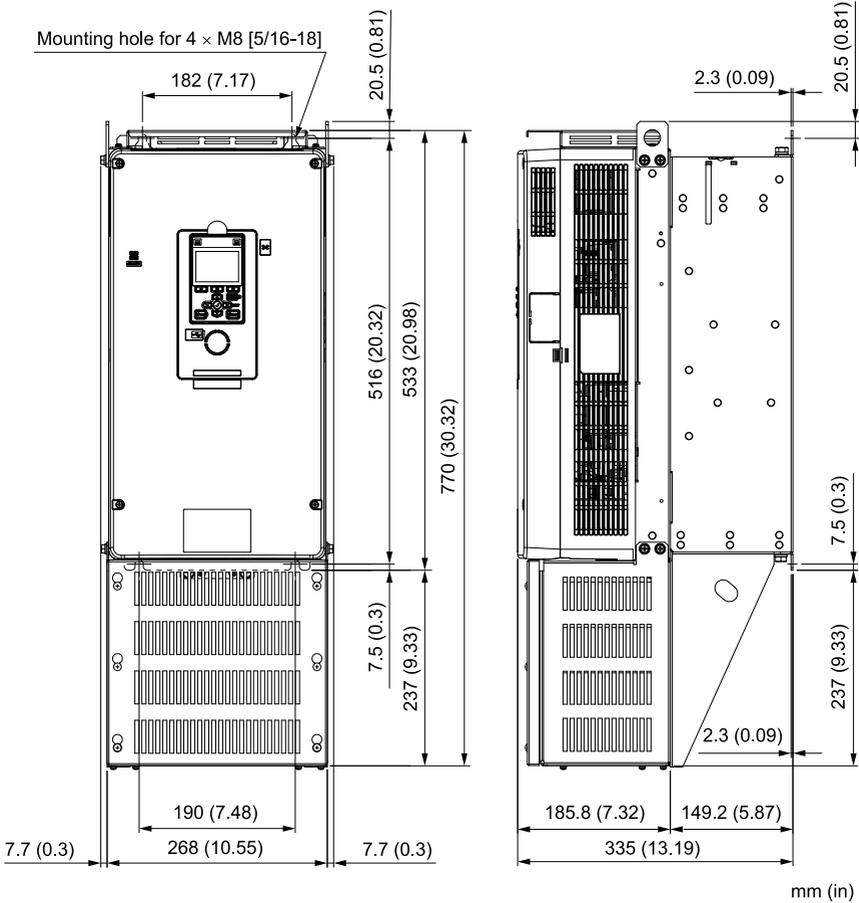
**Figure 5.8 Dimension Diagram 8**

**Exterior and Mounting Dimension Diagram 9**



**Figure 5.9 Dimension Diagram 9**

**Exterior and Mounting Dimension Diagram 10**



**Figure 5.10 Dimension Diagram 10**

### Exterior and Mounting Dimension Diagram 11

**Note:**

The appearance is different for different drives, but the dimensions are the same.

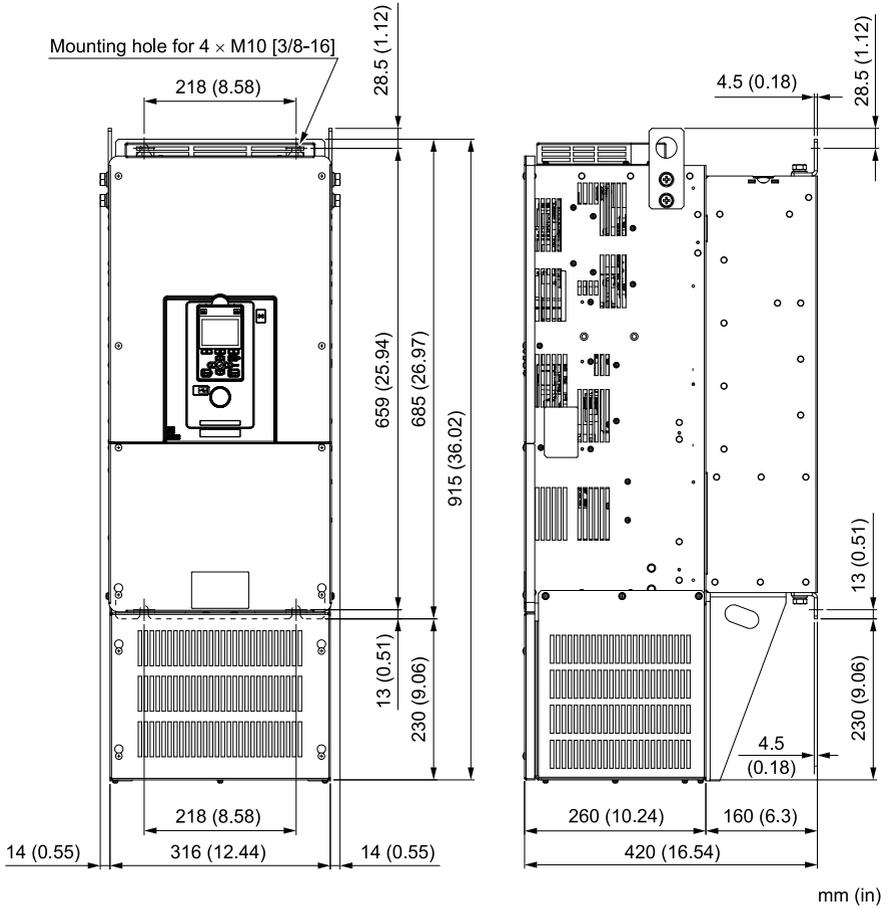
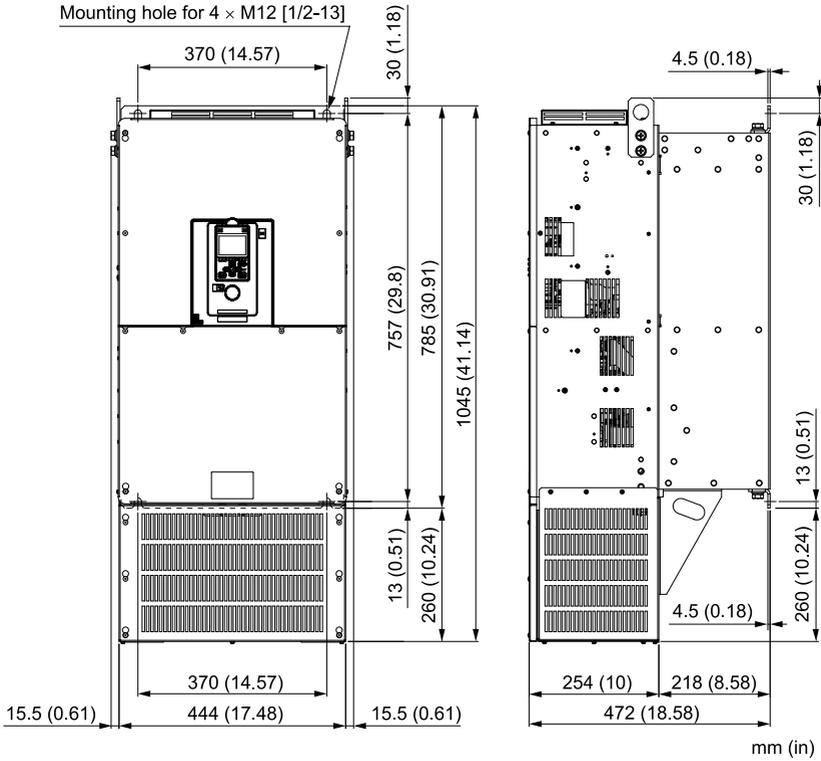


Figure 5.11 Dimension Diagram 11

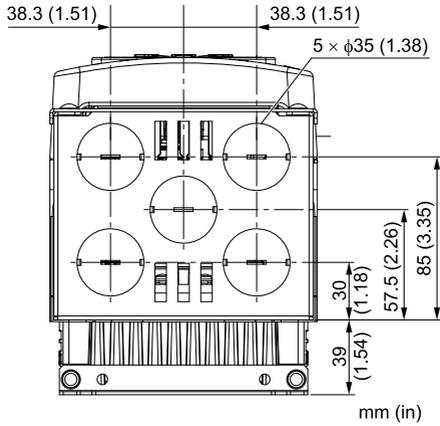
## Exterior and Mounting Dimension Diagram 12

**Note:**

The appearance is different for different drives, but the dimensions are the same.



**Figure 5.12 Dimension Diagram 12**

**■ Knock-Out Hole Dimensions (IP20/UL Type 1)****Knock-Out Hole Dimension Diagram 1****Figure 5.13 Knock-Out Hole Dimension Diagram 1**

### Knock-Out Hole Dimension Diagram 2

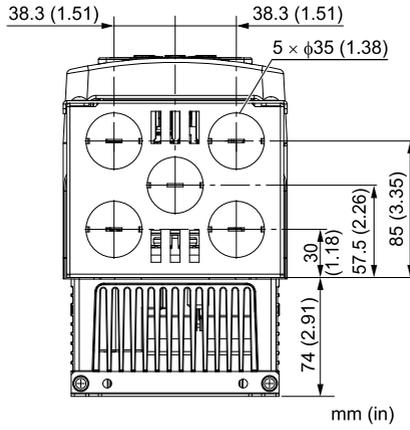
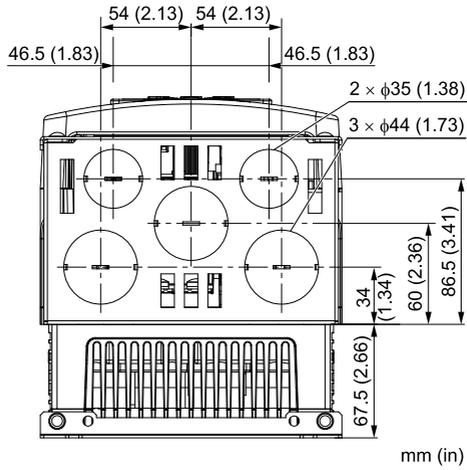


Figure 5.14 Knock-Out Hole Dimension Diagram 2

**Knock-Out Hole Dimension Diagram 3****Figure 5.15 Knock-Out Hole Dimension Diagram 3**

### Knock-Out Hole Dimension Diagram 4

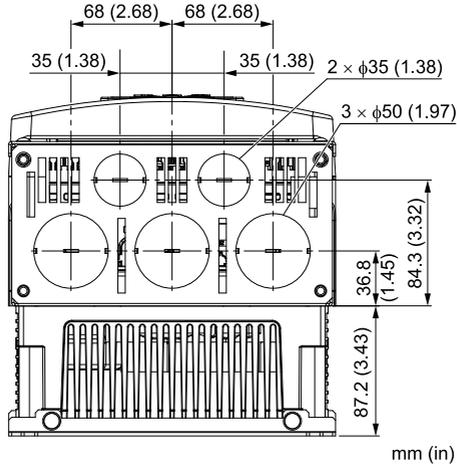
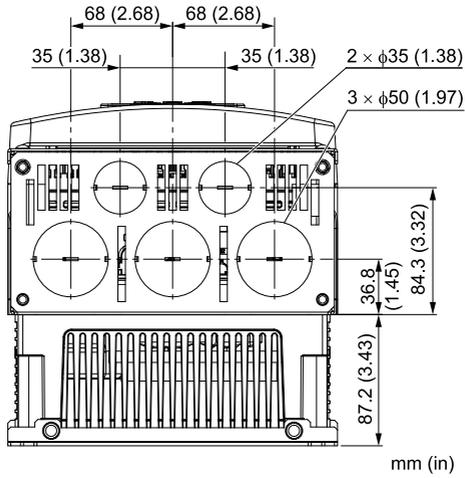
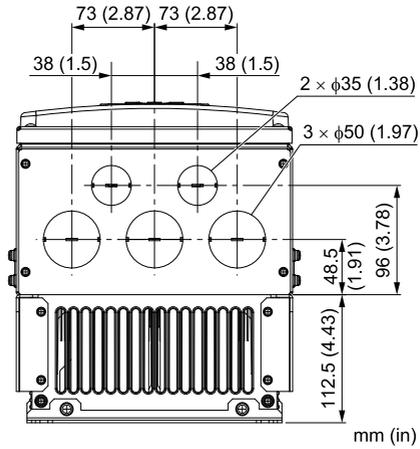


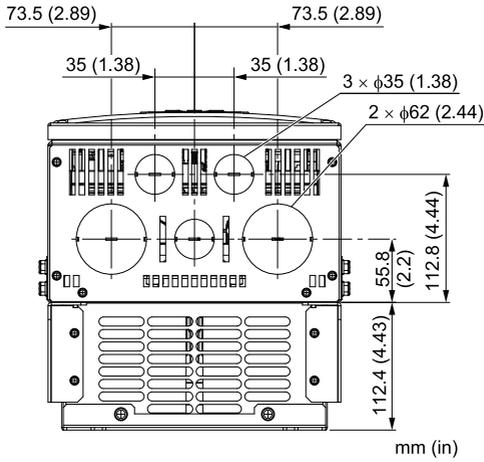
Figure 5.16 Knock-Out Hole Dimension Diagram 4

**Knock-Out Hole Dimension Diagram 5****Figure 5.17 Knock-Out Hole Dimension Diagram 5**

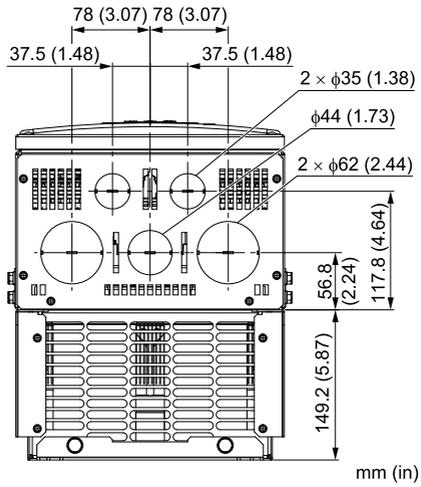


**Knock-Out Hole Dimension Diagram 7****Figure 5.19 Knock-Out Hole Dimension Diagram 7**

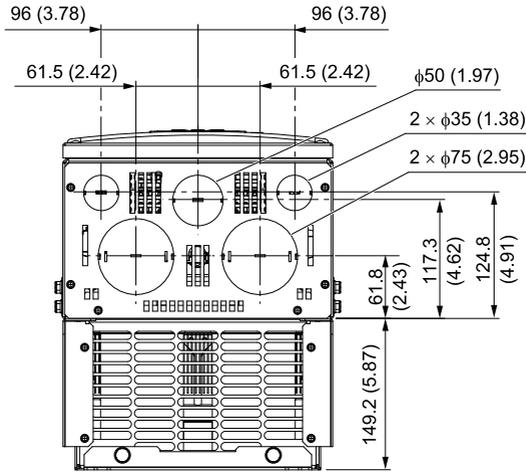
**Knock-Out Hole Dimension Diagram 8**



**Figure 5.20 Knock-Out Hole Dimension Diagram 8**

**Knock-Out Hole Dimension Diagram 9****Figure 5.21 Knock-Out Hole Dimension Diagram 9**

**Knock-Out Hole Dimension Diagram 10**



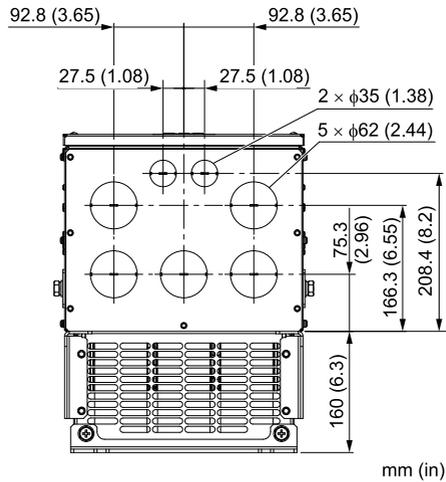
mm (in)

**Figure 5.22 Knock-Out Hole Dimension Diagram 10**

## Knock-Out Hole Dimension Diagram 11

**Note:**

The appearance is different for different drives, but the dimensions are the same.

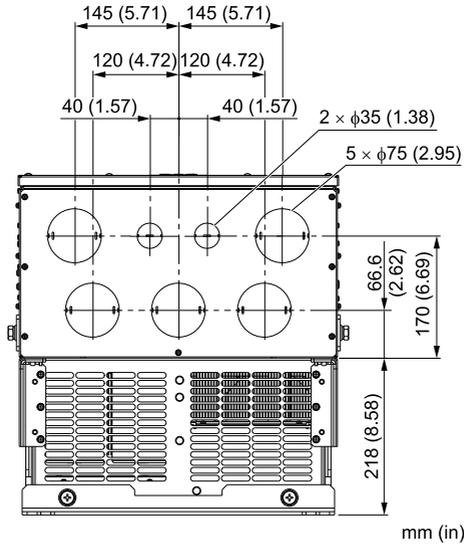


**Figure 5.23 Knock-Out Hole Dimension Diagram 11**

### Knock-Out Hole Dimension Diagram 12

**Note:**

The appearance is different for different drives, but the dimensions are the same.



**Figure 5.24 Knock-Out Hole Dimension Diagram 12**

## ◆ Kit Installation Procedure

**Table 5.5 Kit Installation Procedure**

Drive Model		Kit Model	Procedure	Reference page
GA700 GA800	2004, 2006, 2008, 2010, 2012, 2018, 2021, 2030, 2042 4002, 4004, 4005, 4007, 4009, 4012, 4018, 4023	900-192-121-001	Procedure A	42
	2056 4031, 4038	900-192-121-002		
	2070 4044, 4060	900-192-121-003	Procedure B	44
	2082	900-192-121-004		
	2110 4075	900-192-121-005	Procedure C	47
	2138 4089, 4103	900-192-121-006	Procedure D	50
	2169 4140, 4168	900-192-121-007	Procedure E	53
	2211	900-192-121-008		
	2257, 2313 4208, 4250, 4296, 4302	900-192-121-009	Procedure F	56
	2360	900-192-121-010	Procedure G	60
GA700 4371				
GA800	2415	UUX001700	*/	-
	4371, 4414			
	4477, 4568, 4605, 4720	UUX001701		
CH700 CR700	2003, 2005, 2007, 2008, 2011, 2014, 2018, 2025, 2033 4002, 4003, 4005, 4006, 4007, 4009, 4015, 4018	900-192-121-001	Procedure A	42
	2047 4024, 4031	900-192-121-002		
	2060 4039, 4045	900-192-121-003	Procedure B	44
	2075	900-192-121-004		
	2088 4060	900-192-121-005	Procedure C	47
	2115 4075, 4091	900-192-121-006	Procedure D	50
	2145	900-192-121-007	Procedure E	53

## 5 Kit Models and Installation Procedure

Drive Model		Kit Model	Procedure	Reference page
	4112, 4150	900-192-121-007	Procedure E	53
	2180	900-192-121-008		
	2215, 2283 4180, 4216, 4260	900-192-121-009	Procedure F	56
	2346 4304	900-192-121-010	Procedure G	60
HV600	2211, 2273 4180, 4240	900-192-121-009	Procedure F	56
	4302	900-192-121-010	Procedure G	60
FP605	2211, 2273 4180, 4240, 4302	900-192-121-009	Procedure F	56
	2343, 2396	900-192-121-010	Procedure G	60
	4361, 4414	UUX001700	*/	-
	4477, 4515, 4590, 4720	UUX001701		

\*1 Refer to the installation manual below for more information.  
UL Type 1 Kit Installation Manual (TOEPYAIGA8003A)

## ◆ Remove the Knock-Out Holes

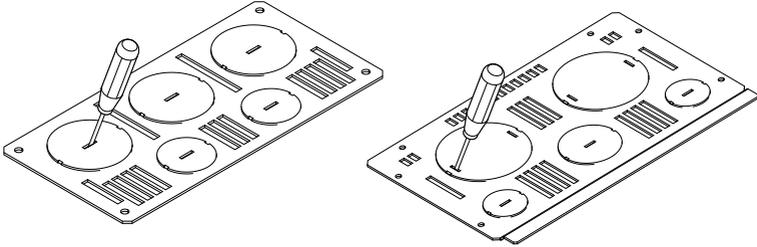
**▲ WARNING** *Injury to Personnel. Carefully move the screwdriver to remove the knock-out holes. If you use too much pressure on the circular metal plates, they can eject and cause injury.*

**▲ CAUTION** *Injury to Personnel. Use a file to remove sharp edges from the knock-out hole. If you touch the rough edges, it can cause injury.*

**Note:**

Remove the knock-out holes on the UL Type 1 base before you install the conduit bracket to the drive.

1. Put the end of the straight-edge screwdriver into the holes of the circular metal plates and move it up and down to remove the plates.



2. Use a file to make the rough surface of the plate smooth.

Do the necessary procedures to prevent damage to the wiring, for example install a conduit.

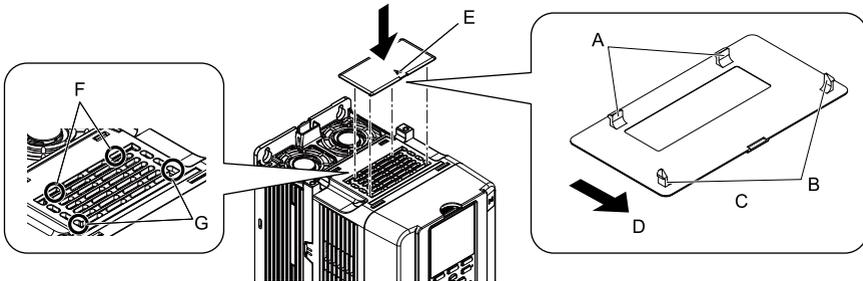
## ◆ Attach the Protective Cover (Procedure A)

### ■ Install the Top Protective Cover

Insert the back hooks on the top protective cover (A) into the back side placement holes (F) on the drive. Slightly bend the center of the top protective cover and put the front hooks (B) into the front side placement holes (G) until the cover clicks into place.

#### Note:

Install the top protective cover and make sure that the mark (△) on the upper surface of the top protective cover is on the front side of the drive.



A - Back hooks

B - Front hooks

C - Underside of top protective cover

D - Drive front side

E - Mark

F - Back side placement holes

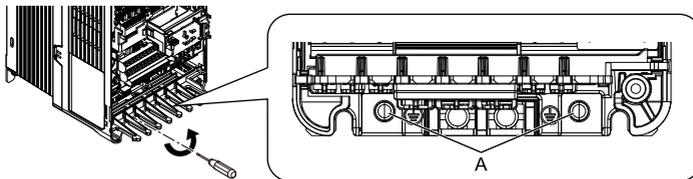
G - Front side placement holes

Figure 5.25 Install the Top Protective Cover

### ■ Install the Conduit Bracket

Remove the keypad, connector, and front cover before you do these steps.

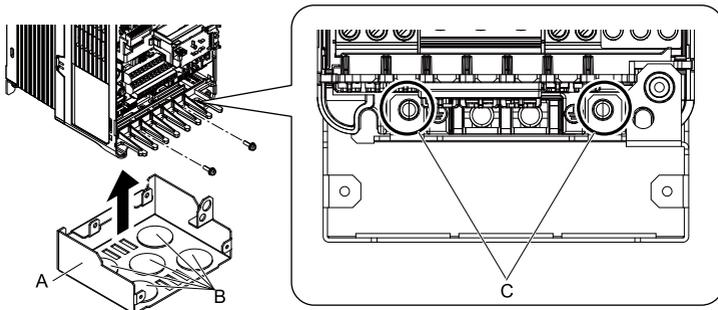
1. Remove the screws that install the protective covers to the drive.



A - Screws

Figure 5.26 Remove the Screws that Install the Protective Cover

2. Remove the knock-out holes on the UL Type 1 base before you install the kit. Refer to [Remove the Knock-Out Holes on page 41](#) for more information.
3. Align the screw holes of the UL Type 1 base with the screw holes on the drive and safety the UL Type 1 base to the drive with the screws.  
Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)

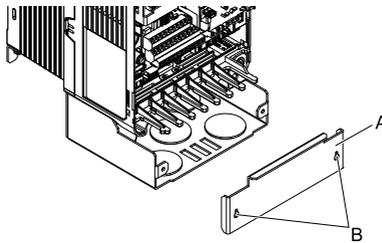


A - UL Type 1 base  
B - Knock-out holes

C - Screw holes

**Figure 5.27 Install the UL Type 1 Base**

4. Remove the masking tape from the screw holes on the UL Type 1 front cover and apply a conductive grease to prevent anticorrosion.

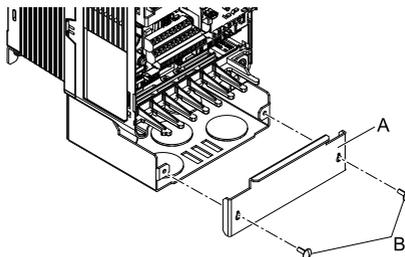


A - Front cover

B - Masking tape

**Figure 5.28 Masking Tape Position**

5. Use the included screws to install the front cover to the base.  
Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



A - Front cover

B - M4 × 10 truss head screws

**Figure 5.29 Install the Front Cover**

6. Install the drive front cover.

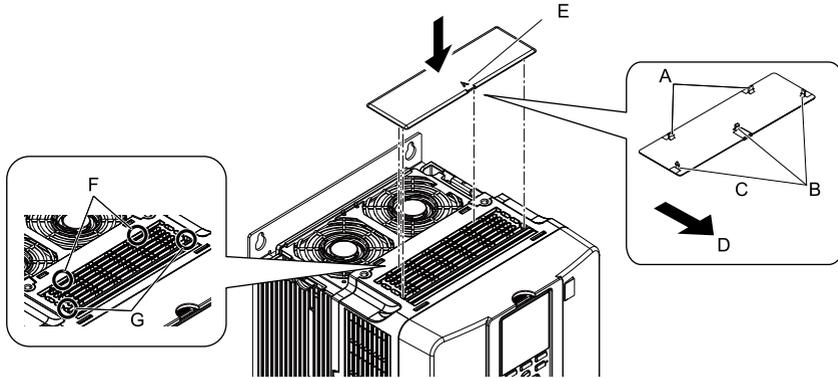
## ◆ Attach the Protective Cover (Procedure B)

### ■ Install the Top Protective Cover

Insert the back hooks on the top protective cover (A) into the back side placement holes (F) on the drive. Slightly bend the center of the top protective cover and put the front hooks (B) into the front side placement holes (G) until the cover clicks into place.

#### Note:

Install the top protective cover and make sure that the mark (△) on the upper surface of the top protective cover is on the front side of the drive.



A - Back hooks

B - Front hooks

C - Underside of top protective cover

D - Drive front side

E - Mark

F - Back side placement holes

G - Front side placement holes

Figure 5.30 Install the Top Protective Cover

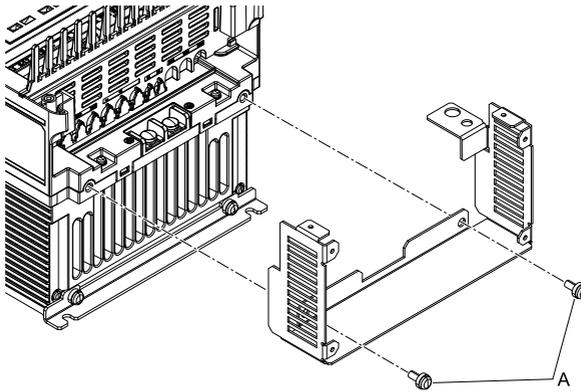
### ■ Install the Conduit Bracket

Remove the keypad, connector, and front cover before you do these steps.

Remove the knock-out holes on the UL Type 1 base before you install it to the drive.

Refer to [Remove the Knock-Out Holes on page 41](#) for more information.

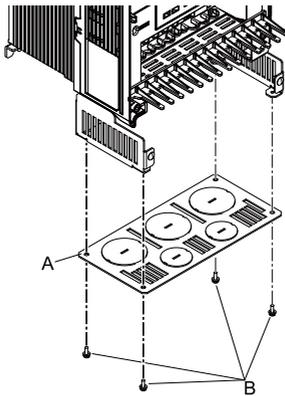
1. Remove the knock-out holes on the UL Type 1 base before you install the kit. Refer to [Remove the Knock-Out Holes on page 41](#) for more information.
2. Use the included screws to install the UL Type 1 base to the drive.  
Tighten the screws to a correct tightening torque:
  - 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)



**A - M6 × 14 pan head screws**

**Figure 5.31 Safety the Base**

3. Use the included screws to install the UL Type 1 conduit bracket to the base. Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)

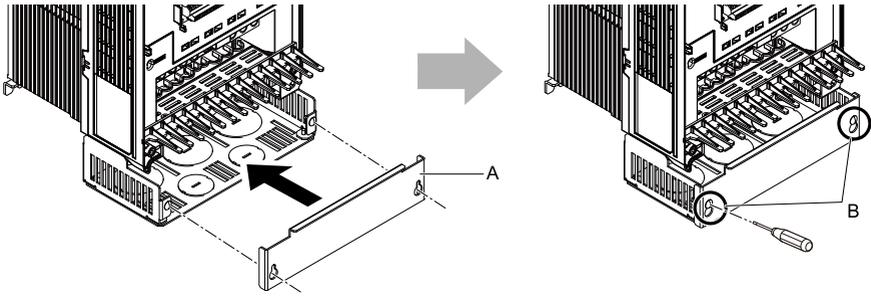


**A - Conduit bracket**

**B - M4 × 10 pan head screws**

**Figure 5.32 Install the Conduit Bracket**

4. Use the included screws to install the front cover to the base. Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)



**A - Front cover**

**B - M4 × 10 truss head screws**

**Figure 5.33 Install the Front Cover**

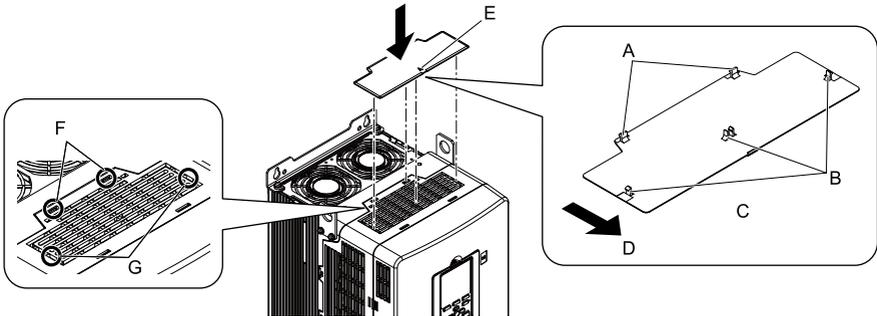
## ◆ Attach the Protective Cover (Procedure C)

### ■ Install the Top Protective Cover

Insert the back hooks on the top protective cover (A) into the back side placement holes (F) on the drive. Slightly bend the center of the top protective cover and put the front hooks (B) into the front side placement holes (G) until the cover clicks into place.

#### Note:

Install the top protective cover and make sure that the mark (▲) on the upper surface of the top protective cover is on the front side of the drive.



A - Back hooks

B - Front hooks

C - Underside of top protective cover

D - Drive front side

E - Mark

F - Back side placement holes

G - Front side placement holes

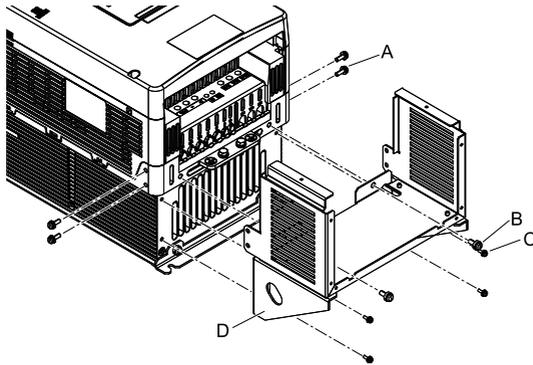
Figure 5.34 Install the Top Protective Cover

### ■ Install the Conduit Bracket

Remove the knock-out holes on the UL Type 1 base before you install it to the drive.

Refer to [Remove the Knock-Out Holes on page 41](#) for more information.

1. Use the included screws to install the UL Type 1 base on the drive.  
Tighten the screws to a correct tightening torque:
  - M5 × 14 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf-in to 22.39 lbf-in)
  - M6 × 14 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf-in to 43.37 lbf-in)
  - M4 × 10 pan head screws: 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)

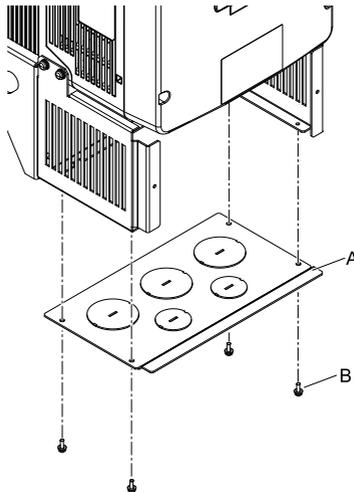


- A - M5 × 14 pan head screws
- B - M6 × 14 pan head screws

- C - M4 × 10 pan head screws
- D - Base

**Figure 5.35 Safety the Base**

2. Use the included screws to install the UL Type 1 conduit bracket to the base.  
Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)

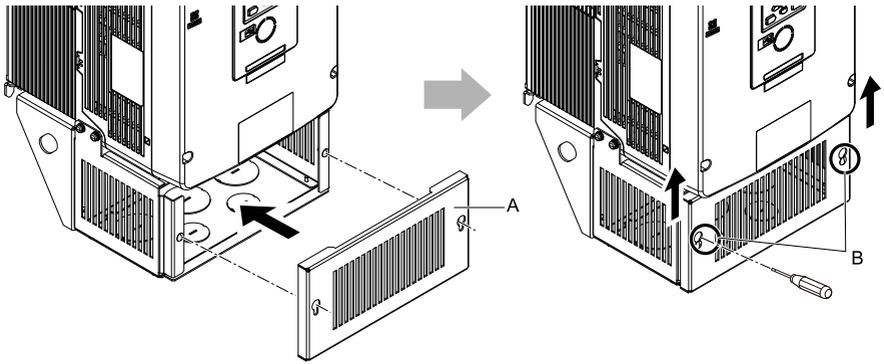


- A - Conduit bracket

- B - M4 × 10 pan head screws

**Figure 5.36 Install the Conduit Bracket**

3. Use the included screws to install the front cover to the base.  
While slightly lifting the front cover, tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



**A - Front cover**

**B - M4 × 10 truss head screws**

**Figure 5.37 Install the Front Cover**

## ◆ Attach the Protective Cover (Procedure D)

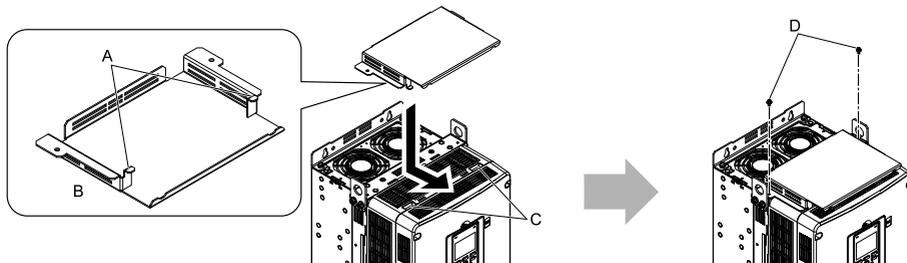
### ■ Install the Top Protective Cover

Put the hooks on the back of the top protective cover into the hook holes on the top of the drive.

Move the top protective cover forward to align the screw holes.

Tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



A - Hooks

B - Underside of top protective cover

C - Placement holes

D - M4 × 8 pan head screws

Figure 5.38 Install the Top Protective Cover

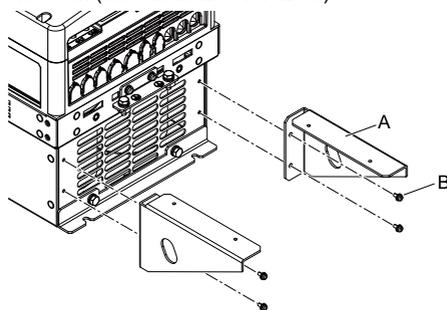
### ■ Install the Conduit Bracket

- Remove the drive hanging brackets before you install the kit.
- Remove the knock-out holes on the UL Type 1 base before you install it to the drive. Refer to [Remove the Knock-Out Holes on page 41](#) for more information.

1. Use the included screws to install the stay bracket on the drive.

Tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



A - Stay brackets

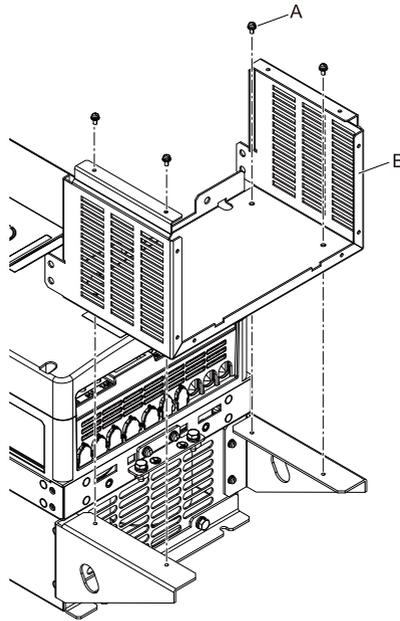
B - M4 × 8 pan head screws

Figure 5.39 Install the Stay Brackets

2. Use the included screws to install the UL Type 1 base on the stay brackets.

Tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)

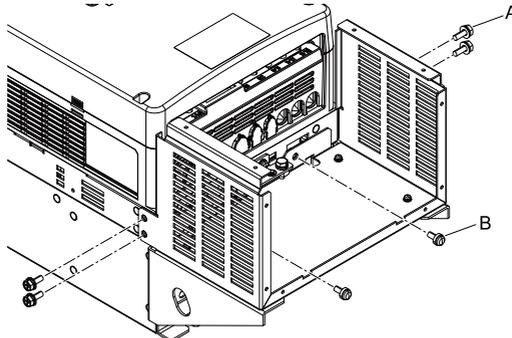


A - M4 × 8 pan head screws

B - Base

**Figure 5.40 Install the Base on the Stay Brackets**

3. Use the included bolts and screws to install the UL Type 1 base to the drive. Tighten the bolts and screws to a correct tightening torque:
  - M6 × 16 upset head bolts 3.92 N·m to 4.90 N·m (34.70 lbf-in to 43.37 lbf-in)
  - M6 × 14 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf-in to 43.37 lbf-in)



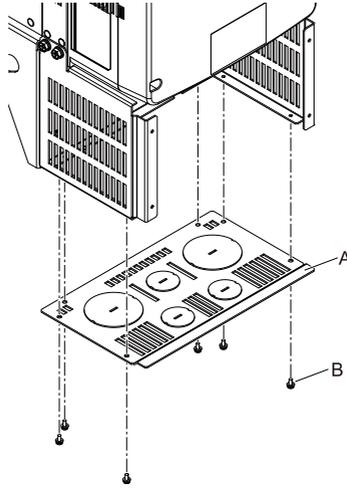
A - M6 × 16 upset head bolts

B - M6 × 14 pan head screws

**Figure 5.41 Safety the Base**

4. Use the included screws to install the UL Type 1 conduit bracket to the base. Tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)



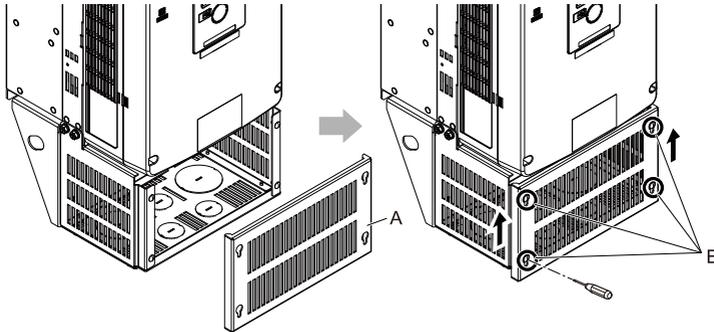
A - Conduit bracket

B - M4 × 8 pan head screws

**Figure 5.42 Install the Conduit Bracket**

5. Use the included screws to install the front cover to the base. While slightly lifting the front cover, tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)



A - Front cover

B - M4 × 10 truss head screws

**Figure 5.43 Install the Front Cover**

## ◆ Attach the Protective Cover (Procedure E)

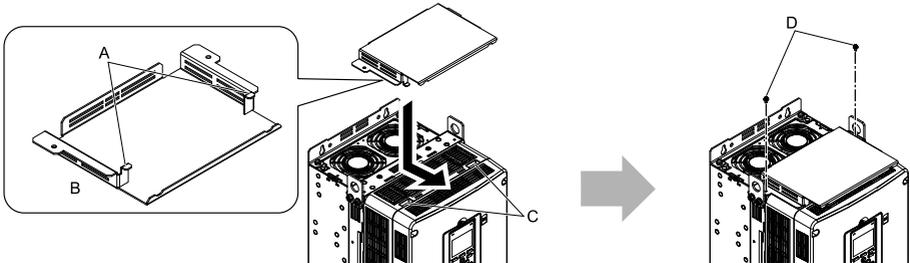
### ■ Install the Top Protective Cover

Put the hooks on the back of the top protective cover into the hook holes on the top of the drive.

Move the top protective cover forward to align the screw holes.

Tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



A - Hooks

B - Underside of top protective cover

C - Placement holes

D - M4 × 8 pan head screws

**Figure 5.44 Install the Top Protective Cover**

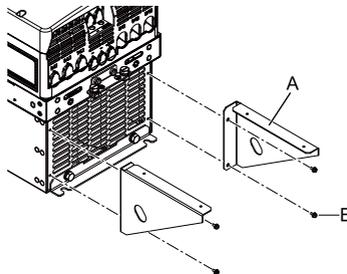
### ■ Install the Conduit Bracket

- Remove the drive hanging brackets before you install the kit.
- Remove the knock-out holes on the UL Type 1 base before you install it to the drive. Refer to [Remove the Knock-Out Holes on page 41](#) for more information.

1. Use the included screws to assemble the stay brackets.

Tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



A - Stay brackets

B - M4 × 8 pan head screws

**Figure 5.45 Install the Stay Brackets**

2. Use the included screws to install the UL Type 1 base on the stay brackets.

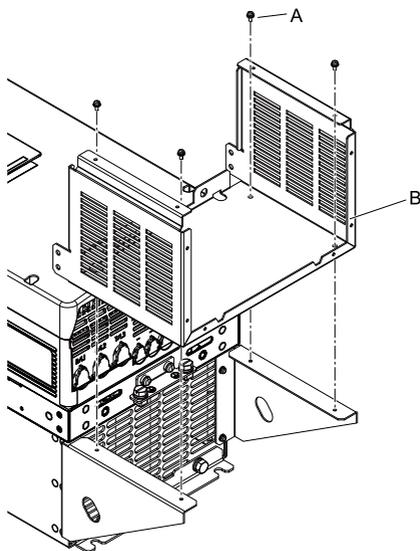
Tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)

**Note:**

The number of screws are different for different models.

- 100-192-121-007: 4 screws
- 100-192-121-008: 6 screws



**A - M4 × 8 pan head screws**

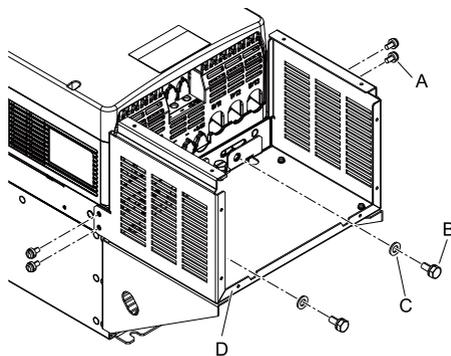
**B - Base**

**Figure 5.46 Install the Base on the Stay Brackets**

3. Use the included bolts to install the UL Type 1 base to the drive.

Tighten the bolts to a correct tightening torque:

- M6 × 16 upset head bolts 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)
- M8 × 16 hex bolts: 8.83 N·m to 10.79 N·m (78.15 lbf·in to 95.49 lbf·in)



**A - M6 × 16 upset head bolts**

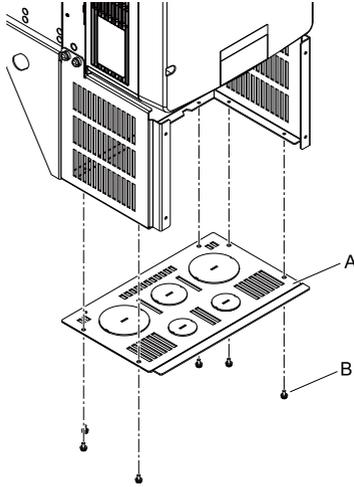
**B - M8 × 16 hex bolts**

**C - M8 plain washers**

**D - Base**

**Figure 5.47 Safety the Base**

4. Use the included screws to install the UL Type 1 conduit bracket to the base.  
Tighten the screws to a correct tightening torque:
- 0.98 N-m to 1.33 N-m (8.67 lbf-in to 11.77 lbf-in)



A - Conduit bracket

B - M4 × 8 pan head screws

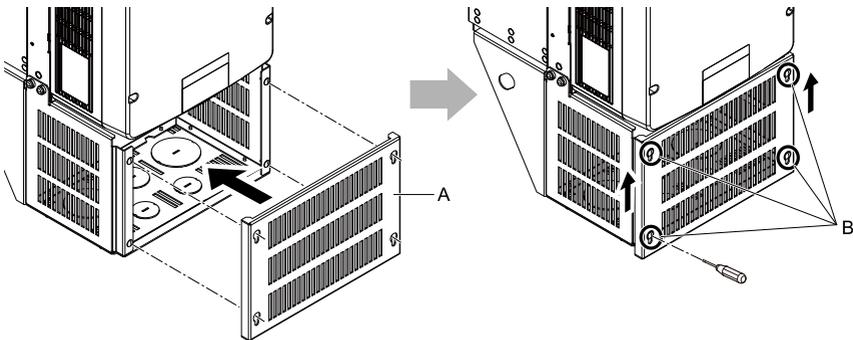
**Figure 5.48 Install the Conduit Bracket**

5. Use the included screws to install the front cover to the base.  
While slightly lifting the front cover, tighten the screws to a correct tightening torque:
- 0.98 N-m to 1.33 N-m (8.67 lbf-in to 11.77 lbf-in)

**Note:**

The number of screws are different for different models.

- 100-192-121-007: 4 screws
- 100-192-121-008: 6 screws



A - Front cover

B - M4 × 10 truss head screws

**Figure 5.49 Install the Front Cover**

## ◆ Attach the Protective Cover (Procedure F)

### ■ Install the Top Protective Cover

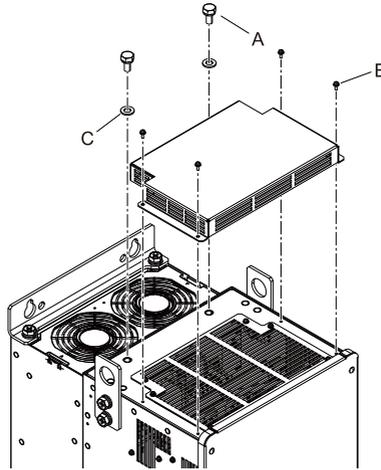
**Note:**

The appearance is different for different drives, but the installation procedures are the same.

Align the screw holes of the top protective cover with the screw holes on the drive and safety the top protective cover to the drive with the included screws.

Tighten the bolts and screws to a correct tightening torque:

- M10 × 20 hex bolts: 17.65 N·m to 22.56 N·m (156.22 lbf·in to 199.67 lbf·in)
- M4 × 10 pan head screws: 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



A - M10 × 20 hex bolts *\*1*

C - M10 plain washers

B - M4 × 10 pan head screws

**Figure 5.50 Install the Top Protective Cover**

*\*1* Use the M10 x 20 hex bolts to fill the screw holes. Do not use them to attach the top protective cover.

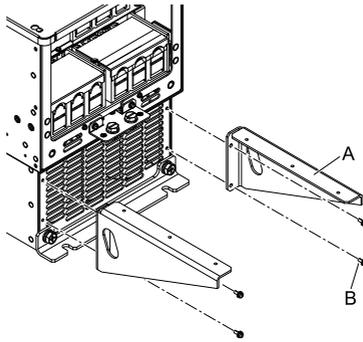
### ■ Install the Conduit Bracket

- Remove the drive hanging brackets before you install the kit.
- Remove the knock-out holes on the UL Type 1 base before you install it to the drive. Refer to [Remove the Knock-Out Holes on page 41](#) for more information.

1. Use the included screws to assemble the stay brackets.

Tighten the screws to a correct tightening torque:

- 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)

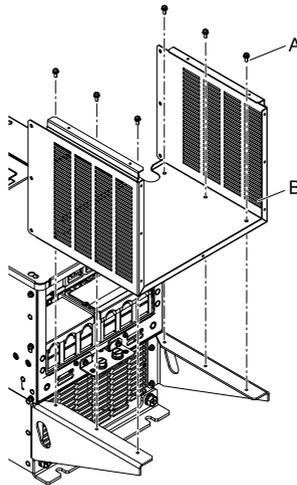


A - Stay brackets

B - M5 × 12 pan head screws

**Figure 5.51 Install the Stay Brackets**

2. Use the included screws to install the UL Type 1 base on the stay brackets. Tighten the screws to a correct tightening torque:
  - 1.96 N·m to 2.53 N·m (17.35 lbf-in to 22.39 lbf-in)



A - M5 × 12 pan head screws

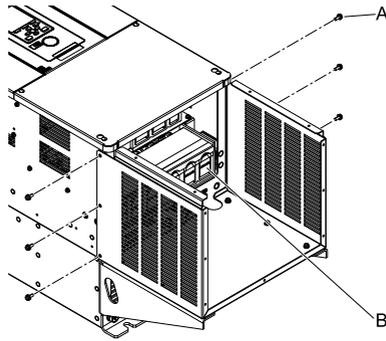
B - Base

**Figure 5.52 Install the Base on the Stay Brackets**

3. Use the included screws to install the UL Type 1 base to the drive. Tighten the screws to a correct tightening torque:
  - 1.96 N·m to 2.53 N·m (17.35 lbf-in to 22.39 lbf-in)

**Note:**

When you wire the drive, you can remove the IP20 cover.

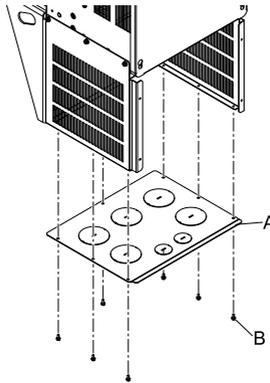


A - M5 × 12 pan head screws

B - IP20 cover

**Figure 5.53 Safety the Base**

4. Use the included screws to install the UL Type 1 conduit bracket to the base.  
Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)

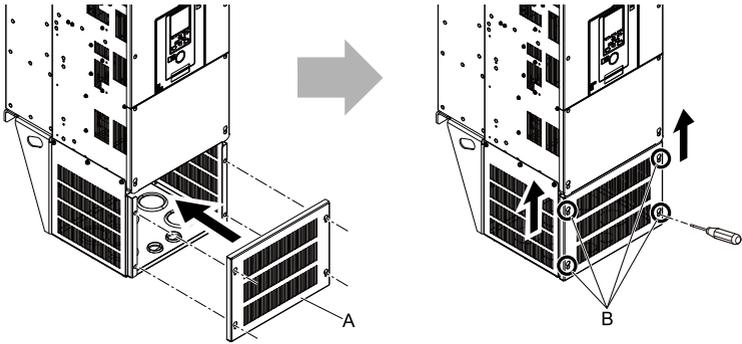


A - Conduit bracket

B - M4 × 10 pan head screws

**Figure 5.54 Install the Conduit Bracket**

5. Use the included screws to install the front cover to the base.  
While slightly lifting the front cover, tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)



A - Front cover

B - M4 × 10 truss head screws

Figure 5.55 Install the Front Cover

## ◆ Attach the Protective Cover (Procedure G)

### ■ Install the Top Protective Cover

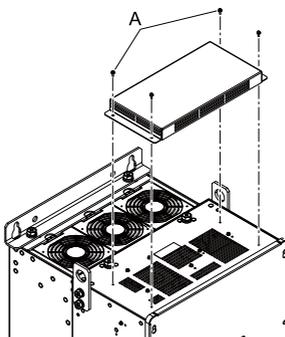
**Note:**

The appearance is different for different drives, but the installation procedures are the same.

Align the screw holes of the top protective cover with the screw holes on the drive and safety the top protective cover to the drive with the included screws.

Tighten the screws to a correct tightening torque:

- 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



A - M4 × 10 pan head screws

Figure 5.56 Install the Top Protective Cover

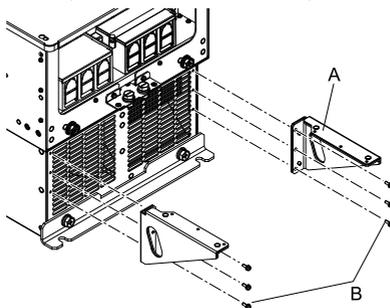
### ■ Install the Conduit Bracket

- Remove the drive hanging brackets before you install the kit.
- Remove the knock-out holes on the UL Type 1 base before you install it to the drive. Refer to [Remove the Knock-Out Holes on page 41](#) for more information.

1. Use the included screws to assemble the stay brackets.

Tighten the screws to a correct tightening torque:

- 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)

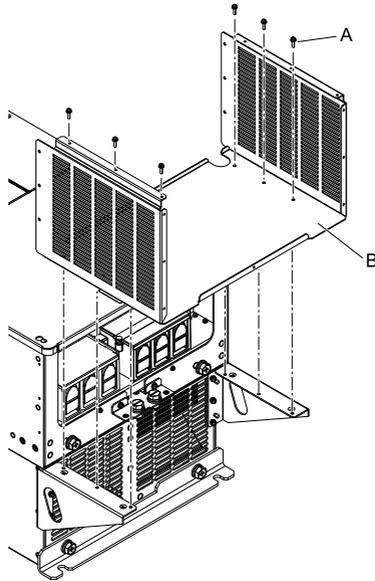


A - Stay brackets

B - M5 × 14 pan head screws

Figure 5.57 Install the Stay Brackets

2. Use the included screws to install the UL Type 1 base on the stay brackets.  
Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)



A - M4 × 14 pan head screws

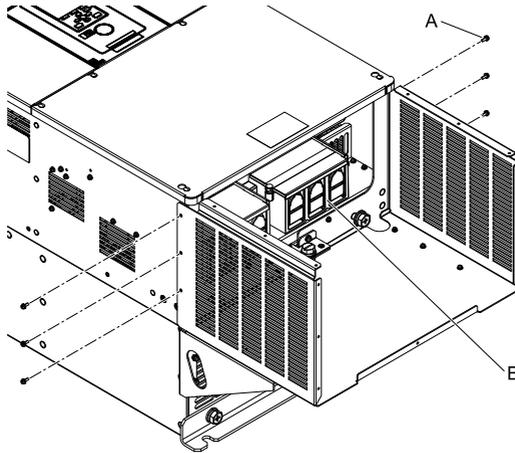
B - Base

**Figure 5.58 Install the Base on the Stay Brackets**

3. Use the included screws to install the UL Type 1 base to the drive.  
Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)

**Note:**

When you wire the drive, you can remove the IP20 cover.

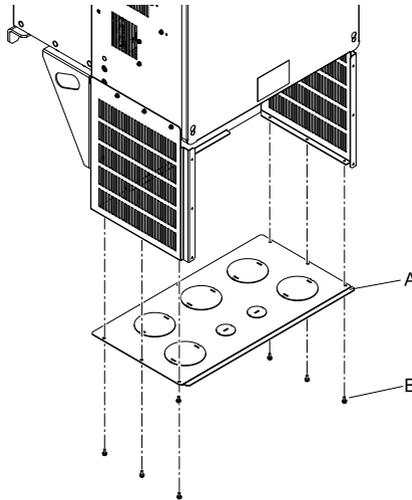


A - M4 × 10 pan head screws

B - IP20 cover

**Figure 5.59 Safety the Base**

4. Use the included screws to install the UL Type 1 conduit bracket to the base. Tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)

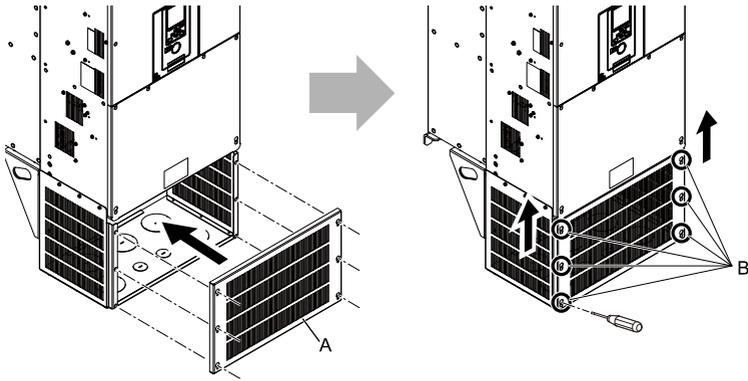


A - Conduit bracket

B - M4 × 10 pan head screws

**Figure 5.60 Install the Conduit Bracket**

5. Use the included screws to install the front cover to the base. While slightly lifting the front cover, tighten the screws to a correct tightening torque:
  - 0.98 N·m to 1.33 N·m (8.67 lbf-in to 11.77 lbf-in)



A - Front cover

B - M4 × 10 truss head screws

Figure 5.61 Install the Front Cover

## 6 Related Parameters

When you install the UL Type 1 kit, set *L8-35* [*Installation Method Selection*]. Refer to the Technical Manual of your drive for more information.

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## Revision History

Date of Publication	Revision Number	Section	Revised Content
October 2021	2	All	Revision: Reviewed and corrected entire documentation Addition: Information on compatible models • FP605
January 2020	1	All	Revision: Reviewed and corrected entire documentation Addition: Information on compatible models • HV600
August 2018	-	-	First Edition



# YASKAWA AC Drive Option UL Type 1 Kit Installation Manual

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# YASKAWA

YASKAWA ELECTRIC CORPORATION

In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply.

Specifications are subject to change without notice for ongoing product modifications and improvements.

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