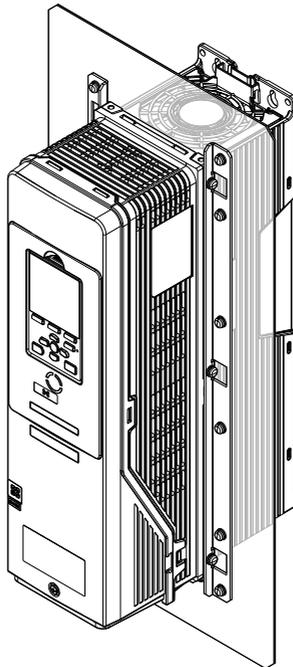


YASKAWA AC Drive Option External Heatsink Installation Kit Installation Manual

Model ZPSD-600-EH12-FRx

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 External Heatsink Installation Kit Installation Manual	Read this manual before you install the kit. The manual contains information about how to install the kit to put the heatsink external to the enclosure panel.
YASKAWA AC Drive Manuals	Refer to the manual packaged with the drive for basic information about the drive. Refer to the Technical Reference/Technical Manual for more information about programming and parameter settings. You can download the Technical Reference/Technical Manual from the Yaskawa website shown on the back cover of this manual.

◆ Glossary

Terminology Used in this Document	Description
Drive	YASKAWA AC Drive HV600, FP605
Option	External Heatsink Installation 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 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
<ul style="list-style-type: none"> 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

You can install the drive with the heatsink external to the enclosure panel. This installation method is “external heatsink installation”. This kit uses brackets to do an external heatsink installation on IP20/UL Open Type and IP20/UL Type 1 drives. When you use this kit to install the drive with the heatsink external, the drive will release its heat external to the enclosure panel. This will let you install the drive in a smaller enclosure panel and prevent too much heat in the enclosure panel. This manual also tells you how to use the mounting brackets included with the drive to do an external heatsink installation.

◆ Compatible Products

This installation kit is compatible with these drives:

- HV600
- FP605

◆ Installation Environment

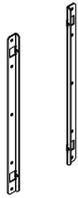
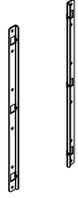
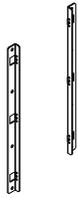
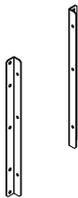
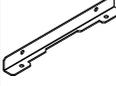
Environment	Conditions
Area of Use	Indoors
Power Supply	Overvoltage Category III
Ambient Temperature Setting	<p>-10 °C - +50 °C (14 °F - 122 °F)</p> <ul style="list-style-type: none"> • Drive reliability is better in environments where the temperature does not increase or decrease quickly. • When you install the drive in an enclosure, use a cooling fan or air conditioner to keep the internal air temperature in the permitted range. • Do not let the drive freeze. • To install the drive in areas with ambient temperatures ≤ 60 °C (140 °F), derate the output current.
Humidity	<p>95% RH or less</p> <p>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</p> <p>Install the drive in an area without:</p> <ul style="list-style-type: none"> • Oil mist, corrosive or flammable gas, or dust • Metal powder, oil, water, or other unwanted materials • Radioactive or flammable materials. • Harmful gas or fluids • Salt • Direct sunlight <p>Keep wood and other flammable materials away from the drive.</p>
Altitude	<p>1000 m (3281 ft) Maximum</p> <p>Note:</p> <p>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).</p> <p>It is not necessary to derate the rated voltage in these conditions:</p> <ul style="list-style-type: none"> • Installing the drive at 2000 m (6562 ft) or lower • Installing the drive between 2000 m to 4000 m (6562 ft to 13123 ft) and grounding the neutral point on the power supply. <p>Contact Yaskawa or your nearest sales representative if you will not ground the neutral point.</p>
Vibration	<ul style="list-style-type: none"> • 10 Hz to 20 Hz: 1 G (9.8 m/s², 32.15 ft/s²) • 20 Hz to 55 Hz: Different for different models. Refer to the manual packaged with the drive.
Installation Orientation	Install the drive vertically for sufficient airflow to cool the drive.

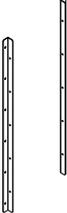
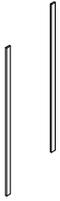
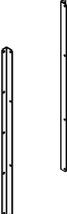
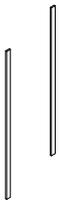
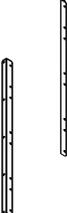
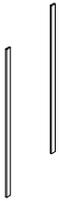
NOTICE *Damage to Equipment. Do not let unwanted objects, for example metal shavings or wire clippings, fall into the drive during drive installation. Put a temporary cover over the drive during installation. Remove the temporary cover before start-up. Unwanted objects inside of the drive can cause damage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

Kit Model	Bracket 1 (Left and Right Sides of the Drive)	Bracket 2 (Bottom of the Drive)	Bracket 3 (Top of the Drive)	Gasket 1	Gasket 2	Mounting Screw
ZPSD-600-EH12-FR1	 Qty: 2	-	-	 Qty: 2	 Qty: 2	 M5 x 12 pan head screws Qty: 4
ZPSD-600-EH12-FR2	 Qty: 2	-	-	 Qty: 2	 Qty: 2	 M5 x 12 pan head screws Qty: 6
ZPSD-600-EH12-FR3	 Qty: 2	 Qty: 1	 Qty: 1	 Qty: 2	 Qty: 2	 A - M6 x 12 pan head screws Qty: 4 B - M5 x 10 pan head screws Qty: 6
ZPSD-600-EH12-FR4	 Qty: 2	-	 Qty: 1	 Qty: 2	 Qty: 2	 A - M6 x 12 pan head screws Qty: 4

Kit Model	Bracket 1 (Left and Right Sides of the Drive)	Bracket 2 (Bottom of the Drive)	Bracket 3 (Top of the Drive)	Gasket 1	Gasket 2	Mounting Screw
	Qty: 2			Qty: 2		B - M5 × 12 pan head screws Qty: 6
ZPSD-600-EH12-FR6	 Qty: 2	-	-	 Qty: 2	 Qty: 2	 M4 × 10 pan head screws Qty: 10
ZPSD-600-EH12-FR9	 Qty: 2	-	-	 Qty: 2	 Qty: 2	 M4 × 10 pan head screws Qty: 8
ZPSD-600-EH12-FR10	 Qty: 2	-	-	 Qty: 2	 Qty: 2	 M5 × 12 pan head screws Qty: 8

5 Install the Attachment

◆ Necessary Tools

To install the kit, use these tools:

- Phillips screwdrivers #2, #3
- Wrench

◆ Drive Mounting Dimensions and Panel Cut-out Dimensions

■ HV600

Table 5.1 Drive Mounting Dimensions and Panel Cut-out Dimensions (HV600)

Drive Model	Drive Mounting Dimensions and Panel Cut-out Dimensions	Ref.
2011, 2017, 4005, 4006, 4008, 4011, 4014	1	11
2024, 2031, 4021, 4027, 4034	2	12
2046, 2059, 4040, 4052, 4065	3	13
2075, 2088, 2114, 4077, 4096, 4124	4	14
2143, 2169, 4156	5	15
2211, 2273, 4180, 4240	6	16
4302	7	17

■ FP605

Table 5.2 Drive Mounting Dimensions and Panel Cut-out Dimensions (FP605)

Drive Model	Drive Mounting Dimensions and Panel Cut-out Dimensions	Ref.
2011, 2017, 4005, 4008, 4011, 4014	1	11
2024, 2031, 4021, 4027, 4034	2	12
2046, 2059, 4040, 4052, 4065	3	13
2075, 2088, 2114, 4077, 4096, 4124	4	14
2143, 2169, 4156	5	15

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 1

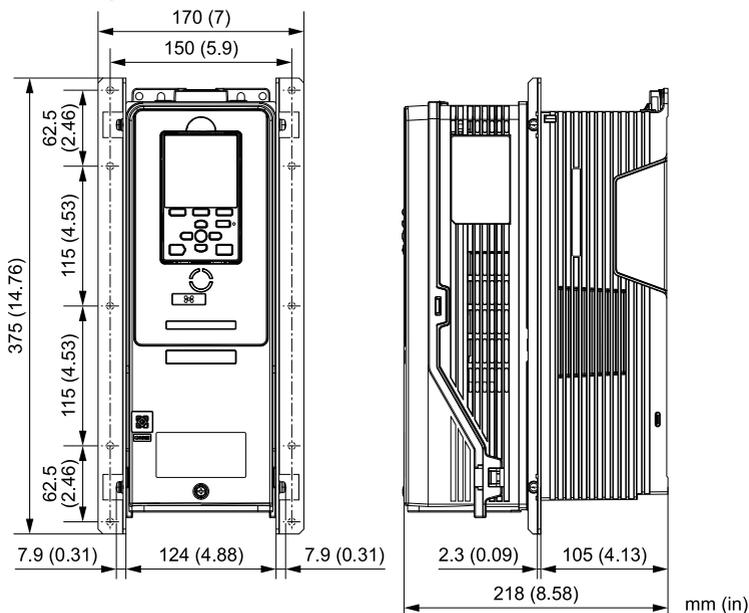


Figure 5.1 Drive Mounting Dimensions 1

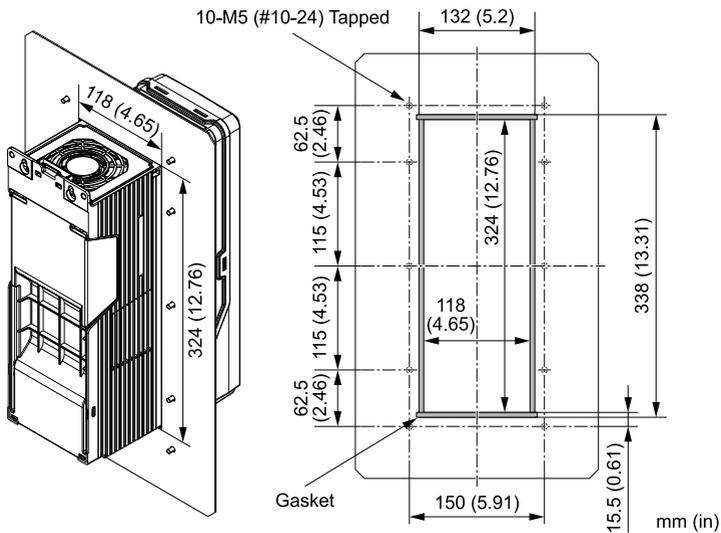


Figure 5.2 Panel Cut-Out Dimensions 1

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 2

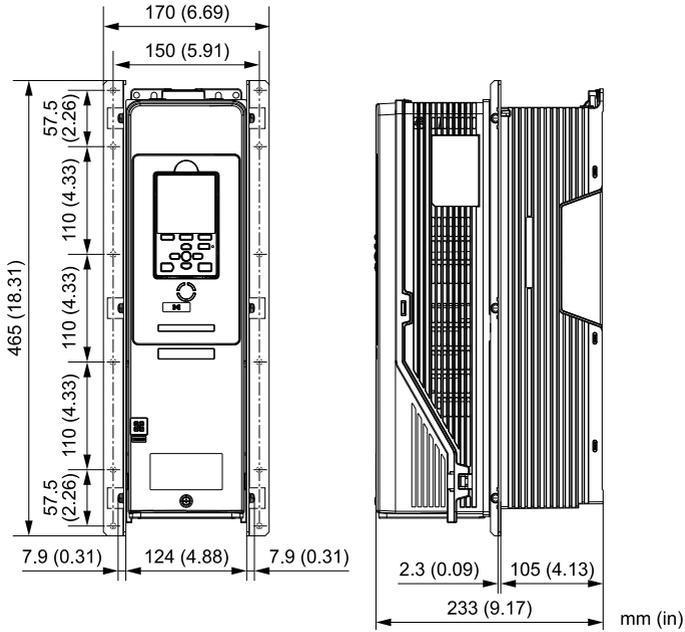


Figure 5.3 Drive Mounting Dimensions 2

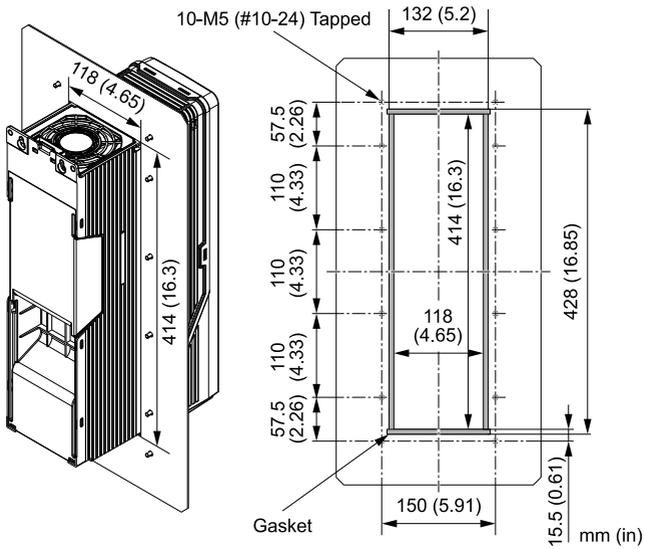


Figure 5.4 Panel Cut-Out Dimensions 2

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 5

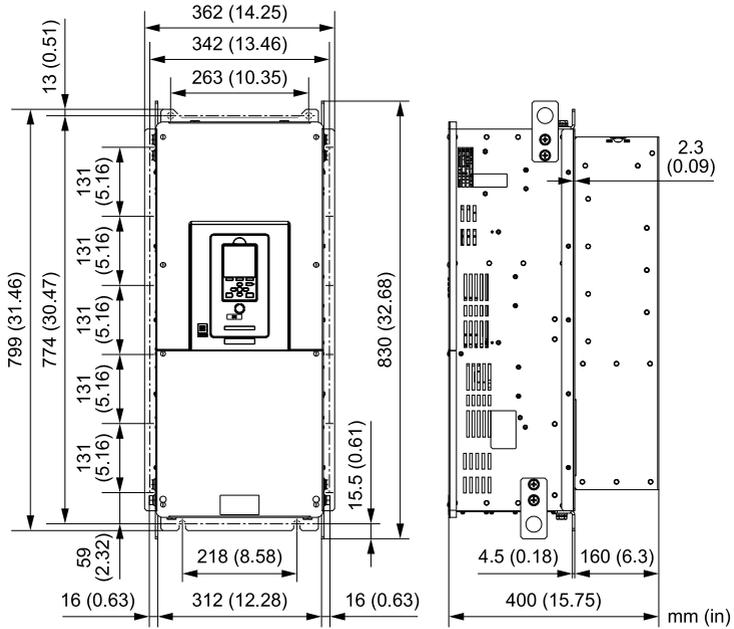


Figure 5.9 Drive Mounting Dimensions 5

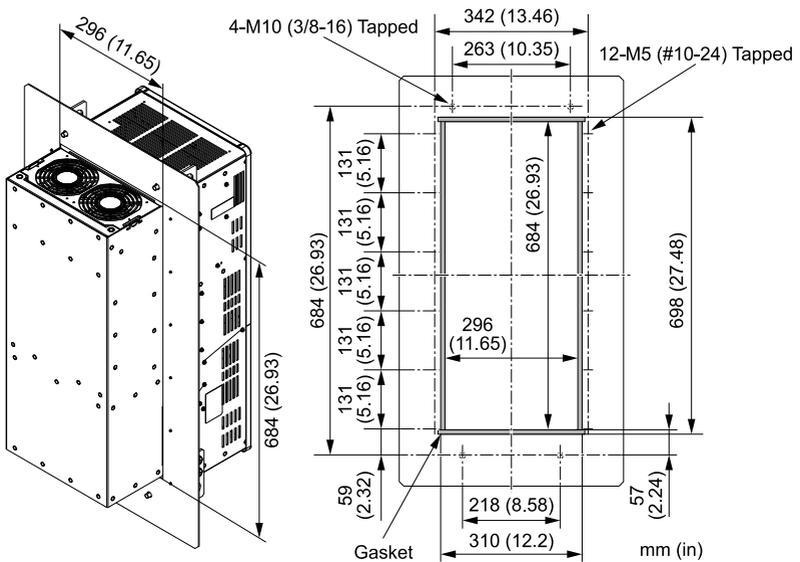


Figure 5.10 Panel Cut-Out Dimensions 5

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 6

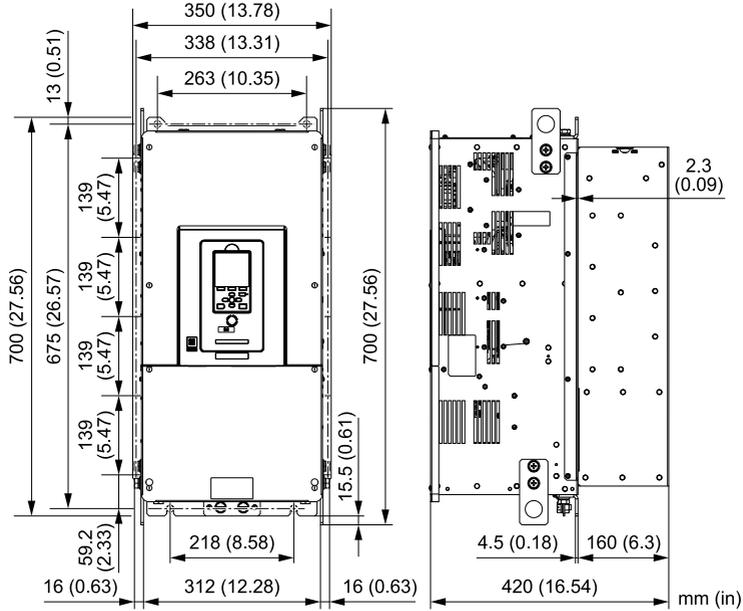


Figure 5.11 Drive Mounting Dimensions 6

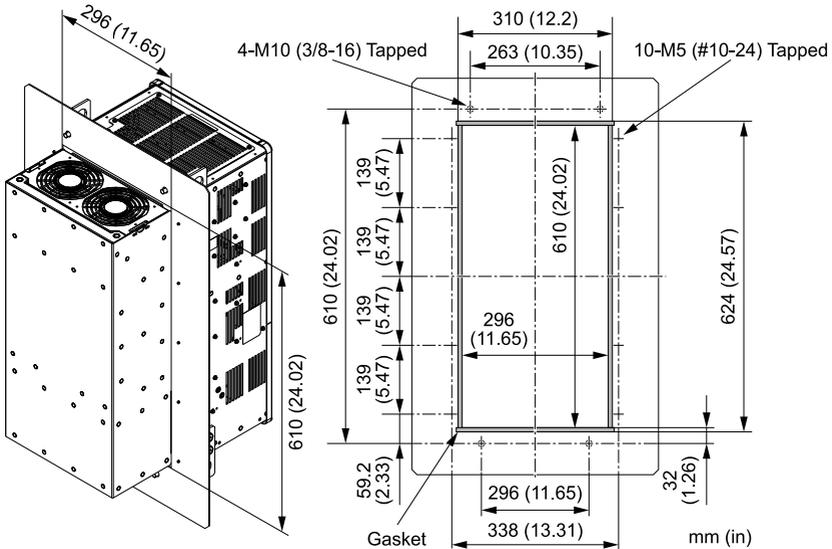


Figure 5.12 Panel Cut-Out Dimensions 6

■ Drive Mounting Dimensions and Panel Cut-out Dimensions 7

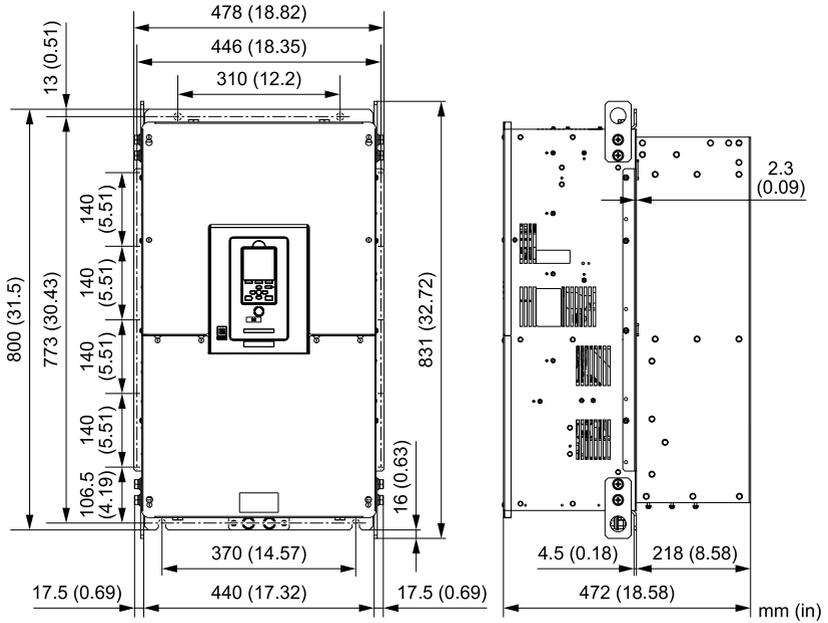


Figure 5.13 Drive Mounting Dimensions 7

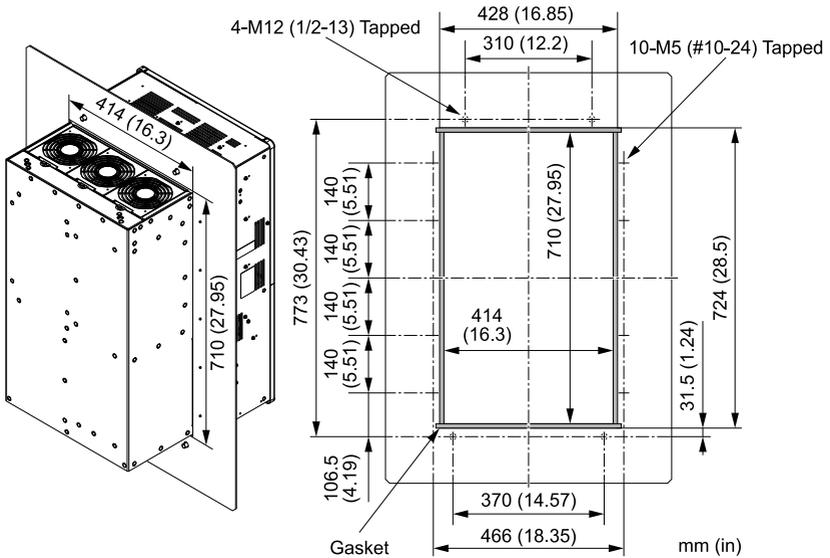


Figure 5.14 Panel Cut-Out Dimensions 7

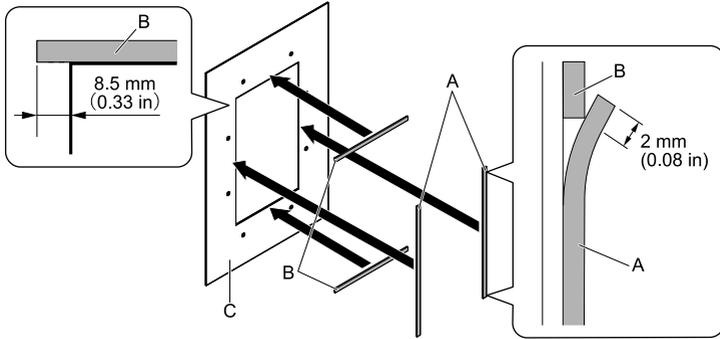
◆ Gasket Application Procedure

Cut an opening in the enclosure panel and then stick the gaskets around the perimeter of the panel. Refer to *Drive Mounting Dimensions and Panel Cut-out Dimensions on page 10* for more information.

1. Stick the gaskets around the cut opening of the enclosure panel.
Stick on gasket 2 and then gasket 1.

Note:

- Make sure that gasket 2 goes past the edge of the enclosure panel opening by 8.5 mm (0.33 in) on each side.
- Stack both ends of gasket 1 on gasket 2 in 2 mm (0.08 in) increments.



- A - Gasket 1
- B - Gasket 2

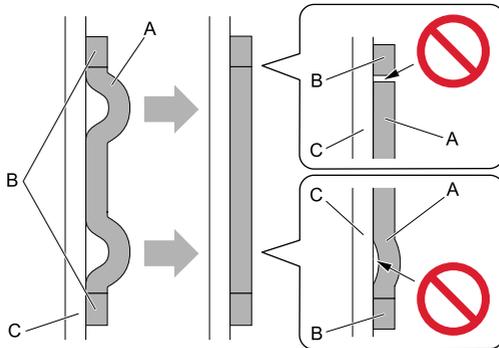
C - Enclosure panel

Figure 5.15 Stick the Gasket on the Enclosure

2. Push the overlapped part of the gasket and make a flat surface.

Note:

- Make sure that there are no gaps between the gaskets when you put gasket 1.
- Make sure that there are no gaps between the gasket and the enclosure panel.



- A - Gasket 1
- B - Gasket 2

C - Enclosure panel

Figure 5.16 Flatten the Gasket

◆ Cut an Opening for Cooling Fan Replacement

Replace the cooling fan from outside of the enclosure panel.

When you must replace a drive cooling fan that is in an enclosure panel, cut a cooling fan replacement opening before you install the drive to make it easier to replace the cooling fan. Make the opening waterproof. Open the opening only when you replace the cooling fan. Refer to [Figure 5.17](#) and [Figure 5.18](#) for more information.

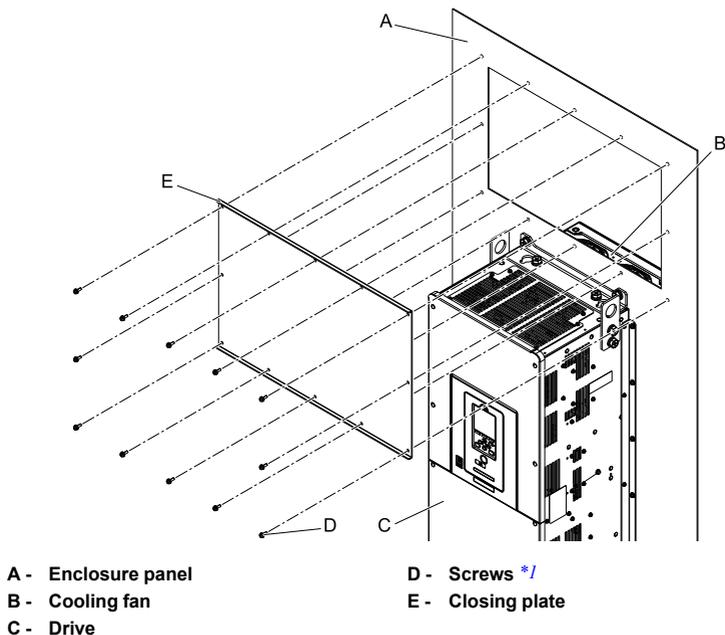


Figure 5.17 Cooling Fan Replacement Opening

*1 You must select the correct screw size for the installation environment.

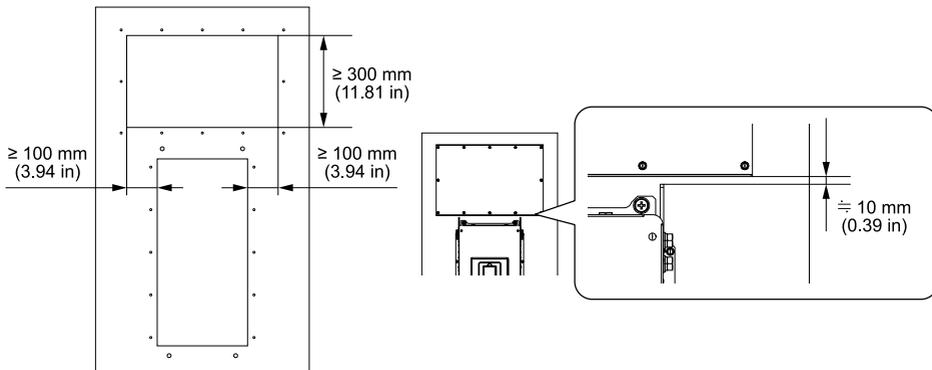


Figure 5.18 Opening Dimensions for Cooling Fan Replacement

◆ 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/s² (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.*

NOTICE *Damage to Equipment. Do not remove the top protective cover of model 4065. If you remove the cover, the drive temperature will increase and it can cause damage to the drive.*

The installation procedure is different for different drive models. Refer to [Table 5.3](#) and [Table 5.4](#) for more information.

■ HV600

Table 5.3 Kit and Installation Method (HV600)

Drive Model	Kit Model	Installation Procedure	Ref.
2011, 2017, 4005, 4006, 4008, 4011, 4014	ZPSD-600-EH12-FR1	Procedure A	21
2024, 2031, 4021, 4027, 4034	ZPSD-600-EH12-FR2		
2046, 2059, 4040, 4052, 4065	ZPSD-600-EH12-FR3	Procedure B	24
2075, 2088, 2114, 4077, 4096, 4124	ZPSD-600-EH12-FR4	Procedure C	28
2143, 2169, 4156	ZPSD-600-EH12-FR6	Procedure D	32
2211, 2273, 4180, 4240	ZPSD-600-EH12-FR9		
4302	ZPSD-600-EH12-FR10		

■ FP605

Table 5.4 Kit and Installation Method (FP605)

Drive Model	Kit Model	Installation Procedure	Ref.
2011, 2017, 4005, 4008, 4011, 4014	ZPSD-600-EH12-FR1	Procedure A	21
2024, 2031, 4021, 4027, 4034	ZPSD-600-EH12-FR2		
2046, 2059, 4040, 4052, 4065	ZPSD-600-EH12-FR3	Procedure B	24
2075, 2088, 2114, 4077, 4096, 4124	ZPSD-600-EH12-FR4	Procedure C	28
2143, 2169, 4156	ZPSD-600-EH12-FR6	Procedure D	32

■ Use the Kit (Procedure A)

Use the figures in this procedure to make sure that the orientation is correct, then install the kit to the drive.

Cut an opening in the enclosure panel and install the gasket before you install the kit. Refer to [Gasket Application Procedure on page 18](#) for more information.

1. Remove the mounting bracket from the bottom of the drive.

Note:

You will not use the removed screws for installation.

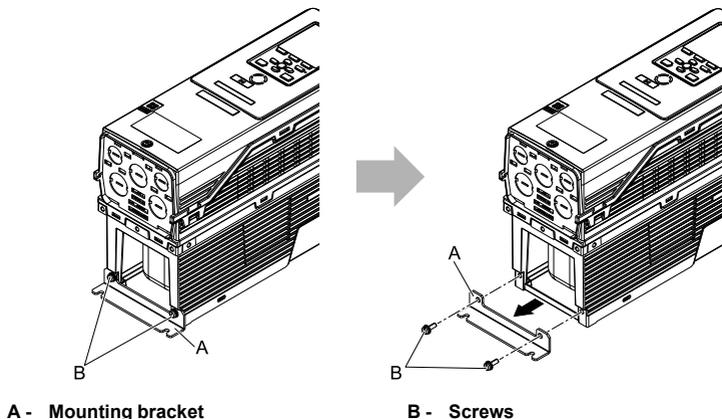


Figure 5.19 Remove the Mounting Bracket

2. Use the screws included with the kit to install bracket 1 to the right side of the drive in the position shown in [Figure 5.20](#).

Tighten the screws to a correct tightening torque:

- M5 × 12 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)

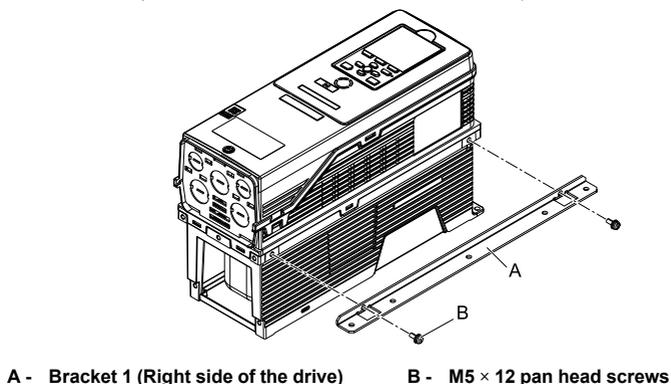
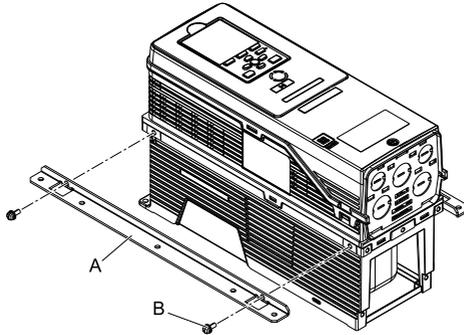


Figure 5.20 Install Bracket 1 (Right Side of the Drive)

3. Use the screws included with the kit to install bracket 1 to the left side of the drive in the position shown in [Figure 5.21](#).
Tighten the screws to a correct tightening torque:
 - M5 × 12 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)

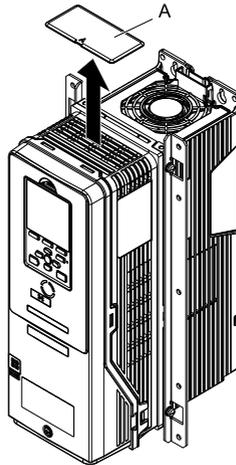


A - Bracket 1 (Left side of the drive)

B - M5 × 12 pan head screws

Figure 5.21 Install Bracket 1 (Left Side of the Drive)

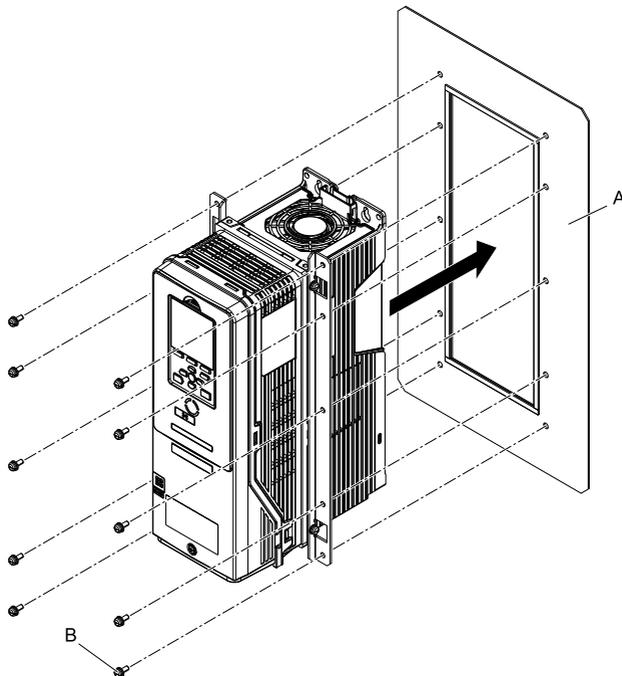
4. Remove the top protective cover.



A - Top protective cover

Figure 5.22 Remove the Top Protective Cover

5. Install the drive in the cut opening of the enclosure panel and use screws to safety it to the enclosure panel.



A - Enclosure panel

B - M5 screws ^{*1}

Figure 5.23 Install the Drive into the Opening of the Enclosure Panel

*1 You must select the correct screw length for the enclosure panel.

■ **Use the Kit (Procedure B)**

Use the figures in this procedure to make sure that the orientation is correct, then install the kit to the drive.

Cut an opening in the enclosure panel and install the gasket before you install the kit. Refer to [Gasket Application Procedure on page 18](#) for more information.

1. Remove the mounting bracket from the bottom of the drive.

Note:

You will not use the removed screws for installation.

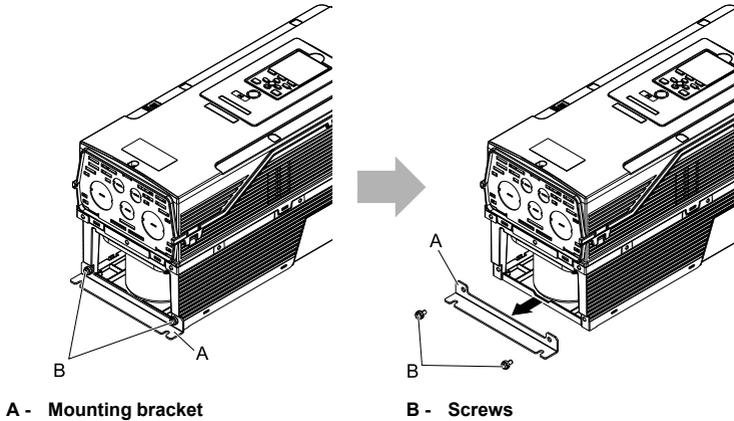


Figure 5.24 Remove the Mounting Bracket

2. Use the screws included with the kit to install bracket 2 to the bottom of the drive in the position shown in [Figure 5.25](#).

Tighten the screws to a correct tightening torque:

- M6 × 12 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf-in to 43.37 lbf-in)

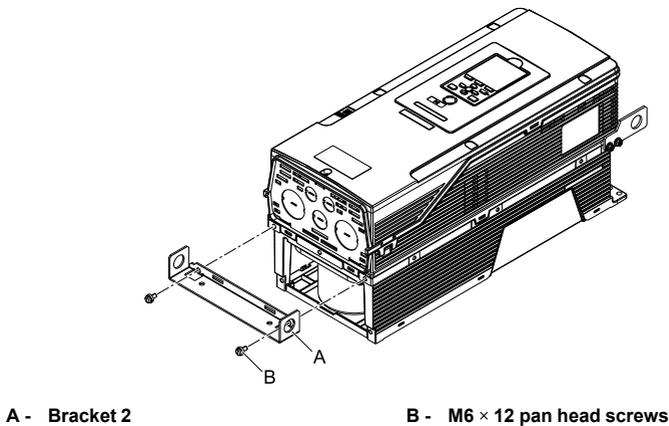
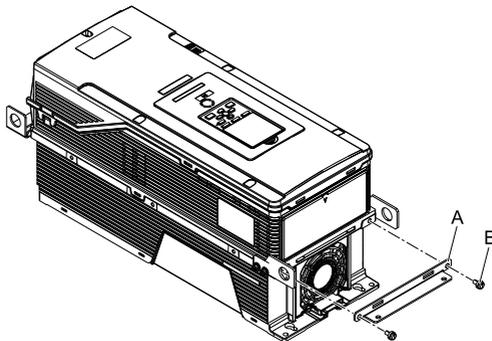


Figure 5.25 Install Bracket 2 (Bottom of the Drive)

3. Use the screws included with the kit to install bracket 3 to the top of the drive in the position shown in [Figure 5.26](#).
Tighten the screws to a correct tightening torque:
 - M6 × 12 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)

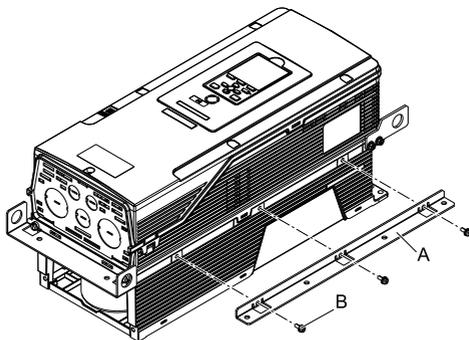


A - Bracket 3

B - M6 × 12 pan head screws

Figure 5.26 Install Bracket 3 (Top of the Drive)

4. Use the screws included with the kit to install bracket 1 to the right side of the drive in the position shown in [Figure 5.27](#).
Tighten the screws to a correct tightening torque:
 - M5 × 10 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)

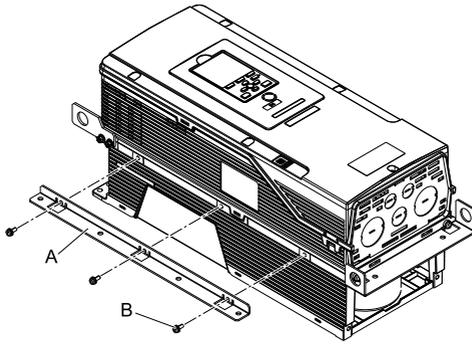


A - Bracket 1 (Right side of the drive)

B - M5 × 10 pan head screws

Figure 5.27 Install Bracket 1 (Right Side of the Drive)

5. Use the screws included with the kit to install bracket 1 to the left side of the drive in the position shown in [Figure 5.26](#).
Tighten the screws to a correct tightening torque:
 - M5 × 10 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)



A - Bracket 1 (Left side of the drive)

B - M5 × 10 pan head screws

Figure 5.28 Install Bracket 1 (Left Side of the Drive)

6. Remove the top protective cover.

NOTICE *Damage to Equipment. Do not remove the top protective cover of model 4065. If you remove the cover, the drive temperature will increase and it can cause damage to the drive.*

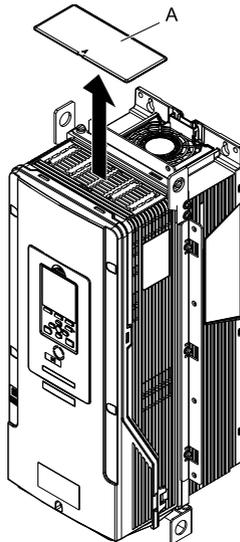
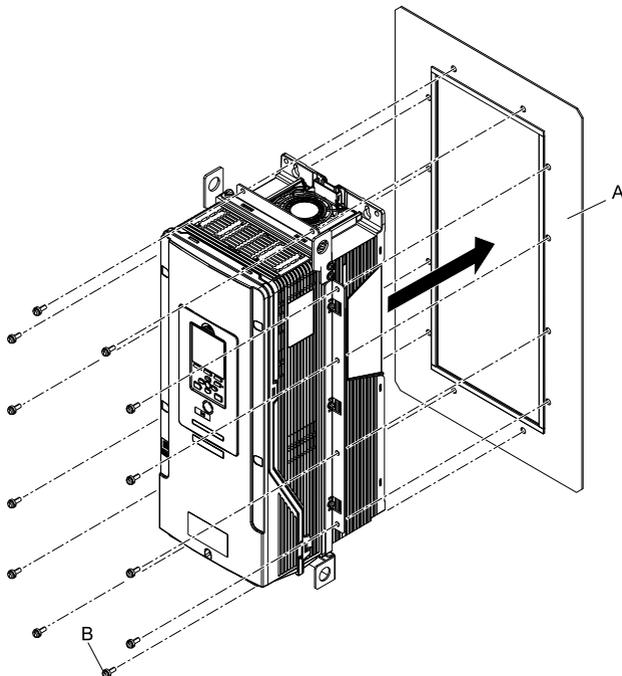


Figure 5.29 Remove the Top Protective Cover

7. Install the drive in the cut opening of the enclosure panel and use M6 screws to safety it to the enclosure panel.



A - Enclosure panel

B - M6 screws ^{*1}

Figure 5.30 Install the Drive into the Opening of the Enclosure Panel

*1 You must select the correct screw length for the enclosure panel.

■ Use the Mounting Bracket Included with the Drive and the Kit (Procedure C)

Use the figures in this procedure to make sure that the orientation is correct, then install the mounting bracket and the kit to the drive.

Cut an opening in the enclosure panel and install the gasket before you install the kit. Refer to [Gasket Application Procedure on page 18](#) for more information.

1. Remove the mounting bracket from the bottom of the drive.

Note:

You will not use the removed screws for installation.

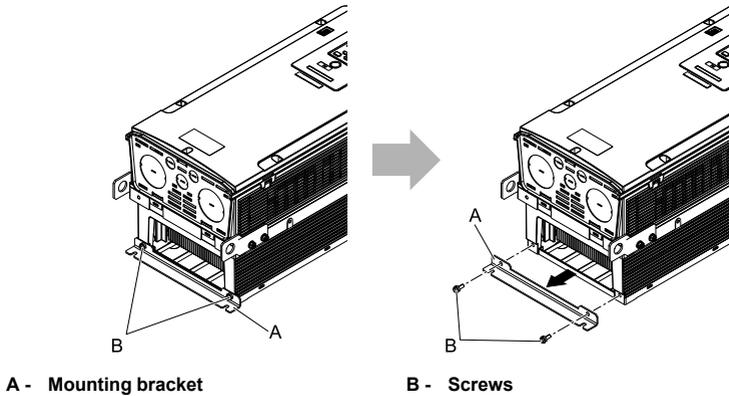


Figure 5.31 Remove the Mounting Bracket

2. Use the screws included with the kit to install the removed mounting bracket to the bottom of the drive in the position shown in [Figure 5.32](#).
Tighten the screws to a correct tightening torque:
 - M6 × 12 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)

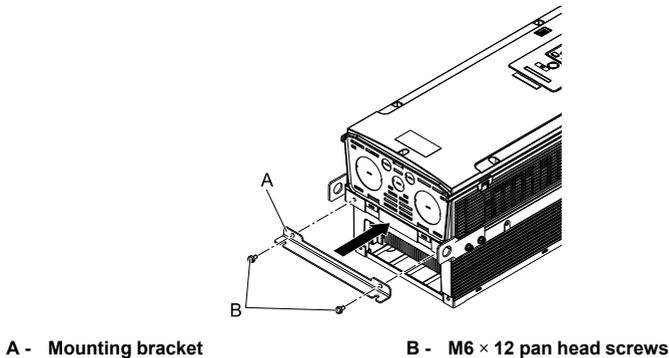
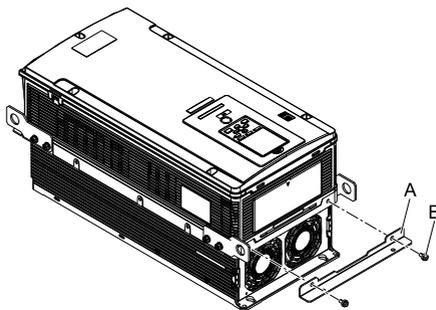


Figure 5.32 Install the Mounting Bracket (Bottom of the Drive)

3. Use the screws included with the kit to install bracket 2 to the top of the drive in the position shown in [Figure 5.33](#).
Tighten the screws to a correct tightening torque:
 - M6 × 12 pan head screws: 3.92 N·m to 4.90 N·m (34.70 lbf·in to 43.37 lbf·in)



A - Bracket 2

B - M6 × 12 pan head screws

Figure 5.33 Install Bracket 2 (Top of the Drive)

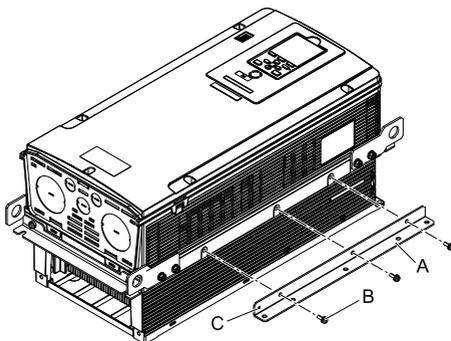
4. Use the screws included with the kit to install bracket 1 to the right side of the drive in the position shown in [Figure 5.34](#).

Tighten the screws to a correct tightening torque:

- M5 × 12 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)

Note:

Bracket 1 has a square hole at the bottom. Align the holes correctly and install bracket 1 in the position shown in [Figure 5.34](#).



A - Bracket 1 (Right side of the drive)

C - Square hole

B - M5 × 12 pan head screws

Figure 5.34 Install Bracket 1 (Right Side of the Drive)

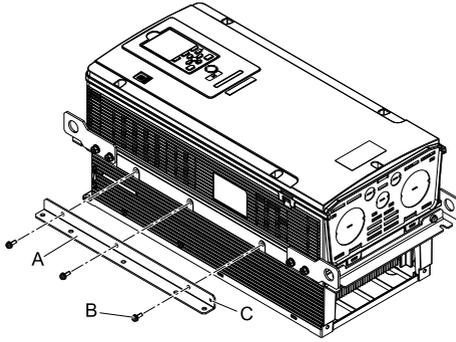
5. Use the screws included with the kit to install bracket 1 to the left side of the drive in the position shown in [Figure 5.33](#).

Tighten the screws to a correct tightening torque:

- M5 × 12 pan head screws: 1.96 N·m to 2.53 N·m (17.35 lbf·in to 22.39 lbf·in)

Note:

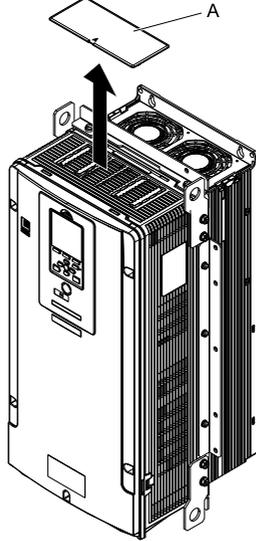
Bracket 1 has a square hole at the bottom. Align the holes correctly and install bracket 1 in the position shown in [Figure 5.33](#).



- A - Bracket 1 (Left side of the drive)
- B - M5 × 12 pan head screws
- C - Square hole

Figure 5.35 Install Bracket 1 (Left Side of the Drive)

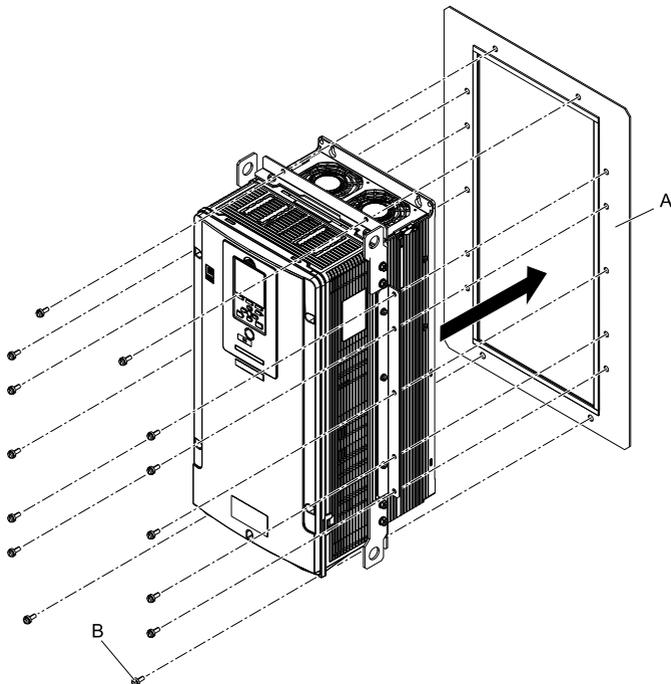
6. Remove the top protective cover.



- A - Top protective cover

Figure 5.36 Remove the Top Protective Cover

7. Install the drive in the cut opening of the enclosure panel and use screws to safety it to the enclosure panel.



A - Enclosure panel

B - M6 screws *1

Figure 5.37 Install the Drive into the Opening of the Enclosure Panel

*1 You must select the correct screw length for the enclosure panel.

■ **Use the Mounting Bracket Included with the Drive and the Kit (Procedure D)**

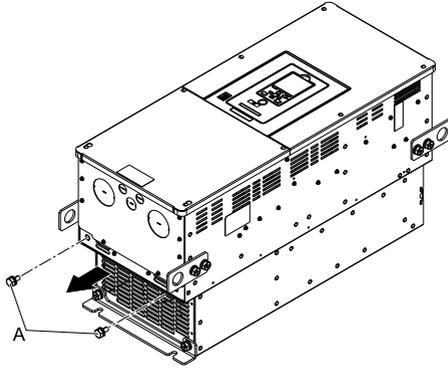
Use the figures in this procedure to make sure that the orientation is correct, then install the mounting bracket and the kit to the drive.

Cut an opening in the enclosure panel and install the gasket before you install the kit. Refer to [Gasket Application Procedure on page 18](#) for more information.

1. Remove the bolts from the bottom of the drive.

Note:

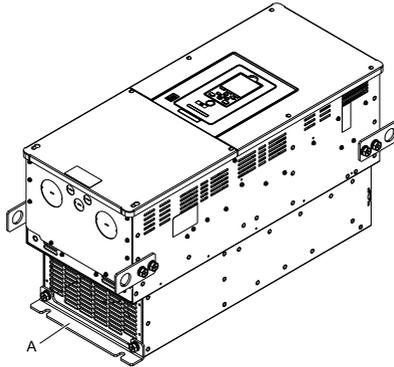
- Drive models 2211, 2273, 4180, and 4240 do not have these bolts on the bottom of the drive.
- You will not use the removed bolts for installation.



A - Bolts

Figure 5.38 Remove the Bolts

2. Remove the mounting bracket from the bottom of the drive.



A - Mounting bracket

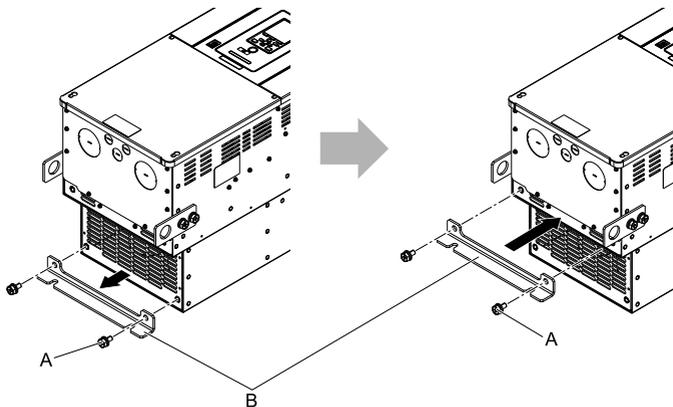
Figure 5.39 Remove the Mounting Bracket

3. Use the bolts included with the drive to install the removed mounting bracket to the bottom of the drive in the position shown in [Figure 5.40](#).

Tighten the bolts to a correct tightening torque:

- Models 2143 to 2273, 4156 to 4240:
M10 × 20 hex bolts: 17.65 N·m to 22.56 N·m (156.22 lbf·in to 199.67 lbf·in)

- Model 4302:
M12 × 30 hex bolts: 31.38 N·m to 39.23 N·m (277.74 lbf-in to 347.21 lbf-in)



A - M10 × 20 hex bolts or M12 × 30 hex bolts

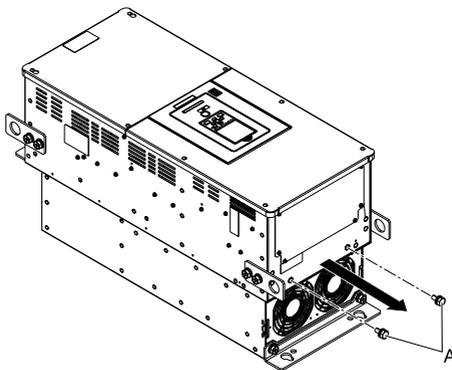
B - Mounting bracket bolts

Figure 5.40 Install the Mounting Bracket (Bottom of the Drive)

4. Remove the bolts from the top of the drive.

Note:

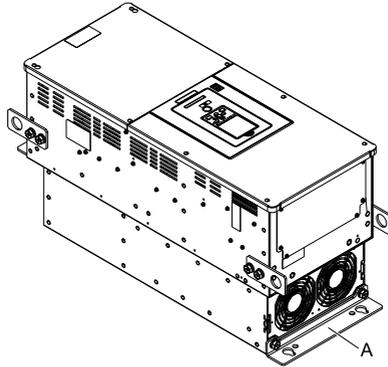
- Drive models 2211, 2273, 4180, and 4240 do not have these bolts on the top of the drive.
- You will not use the removed bolts for installation.



A - Bolts

Figure 5.41 Remove the Bolts

5. Remove the mounting bracket from the top of the drive.

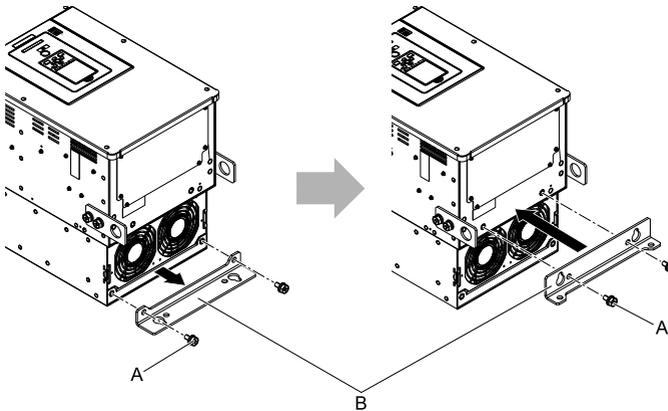


A - Mounting bracket

Figure 5.42 Remove the Mounting Bracket

6. Change the direction of the removed mounting bracket and use the bolts included with the drive to install it to the top of the drive in the position shown in [Figure 5.43](#). Tighten the bolts to a correct tightening torque:

- Models 2143 to 2273, 4156 to 4240:
M10 × 20 hex bolts: 17.65 N·m to 22.56 N·m (156.22 lbf·in to 199.67 lbf·in)
- Model 4302:
M12 × 30 hex bolts: 31.38 N·m to 39.23 N·m (277.74 lbf·in to 347.21 lbf·in)



A - M10 × 20 hex bolts or M12 × 30 hex bolts

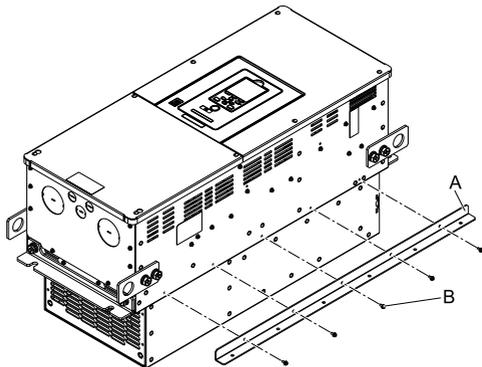
B - Mounting bracket

Figure 5.43 Install the Mounting Bracket (Top of the Drive)

7. Use the screws included with the kit to install bracket 1 to the right side of the drive in the position shown in [Figure 5.44](#).

Tighten the screws to a correct tightening torque:

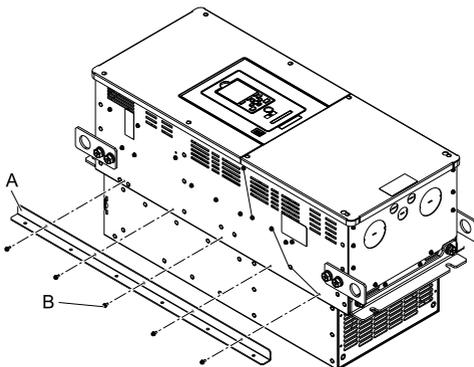
- M4 × 10 pan head screws: 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



A - Bracket 1 (Right side of the drive) B - M4 × 10 pan head screws

Figure 5.44 Install Bracket 1 (Right Side of the Drive)

8. Use the screws included with the kit to install bracket 1 to the left side of the drive in the position shown in [Figure 5.45](#).
Tighten the screws to a correct tightening torque:
- M4 × 10 pan head screws: 0.98 N·m to 1.33 N·m (8.67 lbf·in to 11.77 lbf·in)



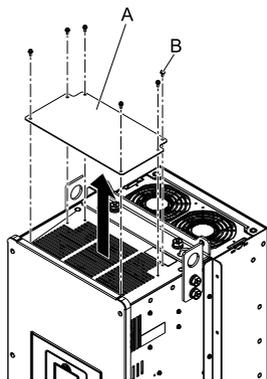
A - Bracket 1 (Left side of the drive) B - M4 × 10 pan head screws

Figure 5.45 Install Bracket 1 (Left Side of the Drive)

9. Remove the top protective cover.

Note:

Drive models 2211 to 2273 and 4180 to 4302 do not have the top protective cover.

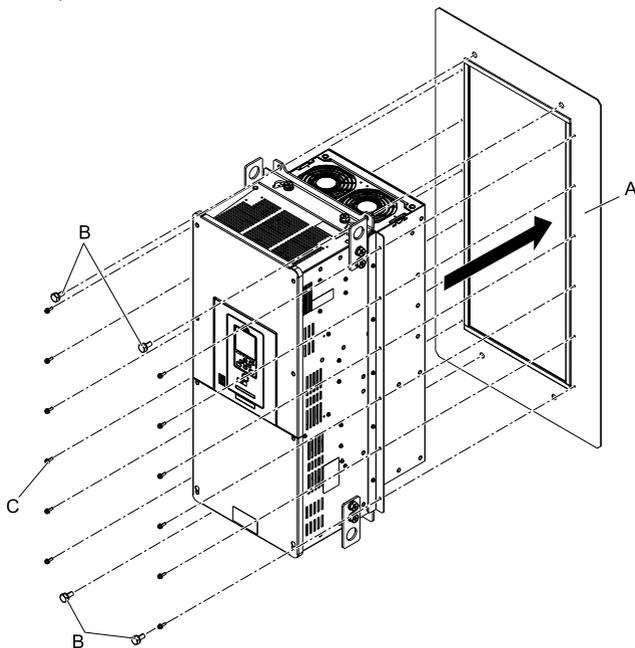


A - Top protective cover

B - M4 × 10 pan head screws

Figure 5.46 Remove the Top Protective Cover

10. Install the drive in the cut opening of the enclosure panel and use bolts to safety it to the enclosure panel.



A - Enclosure panel

C - M5 screws *1

B - M10 hex bolts or M12 hex bolts *1

Figure 5.47 Install the Drive into the Opening of the Enclosure Panel

*1 Refer to the drive manual for more information about the size of bolts and screws. You must select the correct length of bolts and screws for the enclosure panel.

6 Gaskets

You can purchase the gaskets included in the kit separately.

Contact Yaskawa or your nearest sales representative for more information.

Kit Model	Gasket Part Number
ZPSD-600-EH12-FR1	400-126-141-001
ZPSD-600-EH12-FR2	400-126-141-002
ZPSD-600-EH12-FR3	400-126-141-003
ZPSD-600-EH12-FR4	400-126-141-004
ZPSD-600-EH12-FR6	400-126-141-005
ZPSD-600-EH12-FR9	400-126-141-006
ZPSD-600-EH12-FR10	400-126-141-007

7 Related Parameters

When you install the heatsink (cooling fin) to the outside of the enclosure panel, set $L8-35 = 0$ [*Installation Method Selection = IP20/UL Open Type*]. Refer to the Technical Reference/ Technical Manual of your drive for more information.

Revision History

Date of Publication	Revision Number	Section	Revised Content
May 2021	2	All	Revision: Reviewed and corrected entire documentation Addition: Information on compatible models • FP605
April 2020	1	6	Addition: Gasket part numbers
January 2020	-	-	First Edition



YASKAWA AC Drive Option External Heatsink Installation Kit Installation Manual

DRIVE CENTER (INVERTER PLANT)

2-13-1, Nishimiyaichi, Yukuhashi, Fukuoka,
824-8511, Japan
Phone: +81-930-25-2548 Fax: +81-930-25-3431
www.yaskawa.co.jp

YASKAWA ELECTRIC CORPORATION

New Pier Takeshiba South Tower, 1-16-1, Kaigan,
Minatoku, Tokyo, 105-6891, Japan
Phone: +81-3-5402-4502 Fax: +81-3-5402-4580
www.yaskawa.co.jp

YASKAWA AMERICA, INC.

2121, Norman Drive South, Waukegan, IL 60085, U.S.A.
Phone: +1-800-YASKAWA (927-5292) or +1-847-887-7000
Fax: +1-847-887-7310
www.yaskawa.com

YASKAWA ELÉTRICO DO BRASIL LTDA.

777, Avenida Piraporinha, Diadema, São Paulo,
09950-000, Brasil
Phone: +55-11-3585-1100 Fax: +55-11-3585-1187
www.yaskawa.com.br

YASKAWA EUROPE GmbH

Hauptstraße 185, 65760 Eschborn, Germany
Phone: +49-6196-569-300 Fax: +49-6196-569-398
www.yaskawa.eu.com
E-mail: info@yaskawa.eu.com

YASKAWA ELECTRIC KOREA CORPORATION

35F, Three IFC, 10 Gukjegeumyung-ro,
Yeongdeungpo-gu, Seoul, 07326, Korea
Phone: +82-2-784-7844 Fax: +82-2-784-8495
www.yaskawa.co.kr

YASKAWA ASIA PACIFIC PTE. LTD.

30A, Kallang Place, #06-01, 339213, Singapore
Phone: +65-6282-3003 Fax: +65-6289-3003
www.yaskawa.com.sg

YASKAWA ELECTRIC (THAILAND) CO., LTD.

59, 1F-5F, Flourish Building, Soi Ratchadapisek 18,
Ratchadapisek Road, Huaykwang, Bangkok, 10310,
Thailand
Phone: +66-2-017-0099 Fax: +66-2-017-0799
www.yaskawa.co.th

YASKAWA ELECTRIC (CHINA) CO., LTD.

22F, Link Square 1, No.222, Hubin Road, Shanghai,
200021, China
Phone: +86-21-5385-2200 Fax: +86-21-5385-3299
www.yaskawa.com.cn

YASKAWA ELECTRIC (CHINA) CO., LTD. BEIJING OFFICE

Room 1011, Tower W3 Oriental Plaza, No. 1,
East Chang An Avenue,
Dong Cheng District, Beijing, 100738, China
Phone: +86-10-8518-4086 Fax: +86-10-8518-4082

YASKAWA ELECTRIC TAIWAN CORPORATION

12F, No. 207, Section 3, Beishin Road, Shindian District,
New Taipei City 23143, Taiwan
Phone: +886-2-8913-1333
Fax: +886-2-8913-1513 or +886-2-8913-1519
www.yaskawa.com.tw

YASKAWA INDIA PRIVATE LIMITED

#17/A, Electronics City, Hosur Road, Bengaluru,
560 100 (Karnataka), India
Phone: +91-80-4244-1900 Fax: +91-80-4244-1901
www.yaskawaindia.in

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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.

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