

# YASKAWA

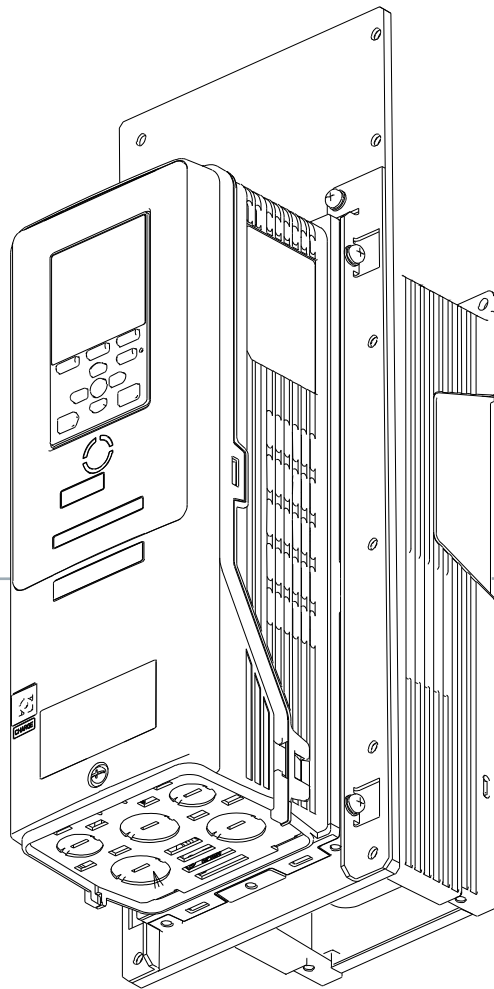
## Z1000 to HV600

### REPLACEMENT ATTACHMENT OPTION INSTALLATION MANUAL

#### EXTERNAL HEATSINK MOUNTING

#### CATALOG CODE:

ZPSx-600-RP-EH1-FRx-x



Simplify Drive Installation  
Get DriveWizard® Mobile



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DOCUMENT NUMBER: TOEPYAIPT10

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# 1 Receiving

## ◆ Applicable Documentation

Document	Description
Yaskawa AC Drive Manuals	Refer to the manual packaged with the drive for basic information about the drive. Refer to the Technical Reference for more information about programming and parameter settings. You can download the Technical Reference from the Yaskawa website shown on the back cover of this manual.

## ◆ Glossary

Terminology Used in this Document	Description
Drive	YASKAWA AC Drive Z1000 YASKAWA AC Drive HV600
Kit Option	YASKAWA AC Drive Z1000 to HV600 Replacement Attachment 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"> <li>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.</li> <li>The figures in this manual are examples only. All figures do not apply to all products included in this manual.</li> <li>Yaskawa can change the products, specifications, and content of the instructions without notice to make the product and/or the instructions better.</li> <li>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.</li> </ul>

**⚠ 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.

**⚠ 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.

**⚠ 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.

**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 manual shows how to install the option on an HV600 drive so that you can use the existing mounting holes from a Z1000 drive installation when you replace an external-heatsink-mounted Z1000 drive with an external-heatsink-mounted HV600 drive.

#### ◆ Compatible Products and Specifications

Table 3.1 240 V Models

Drive		Option Product Code	Part Code			Supplied Hardware	Installation Procedure and Dimensions Reference
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment A	Attachment B	Attachment C		
2x0011 2x0017	2011 2017	ZPSD-600-RP-EH12-FR1-1	USP05528-021	USP05528-021	-	M5 × 12 pan head screw (4)	Procedure 1 7
2x0024 2x0031	2024 2031	ZPSD-600-RP-EH12-FR2-1	USP05529-021	USP05529-021	-	M5 × 12 pan head screw (6)	Procedure 1 7
2x0046 2x0059	2046 2059	ZPSA-600-RP-EH1-FR3-1	USP05548-021	USP05548-021	-	M6 × 12 pan head screw (4)	Procedure 2 10
2x0075 2x0088 2x0114	2075 2088 2114	ZPSA-600-RP-EH1-FR4-1	USP05556-021	USP05557-021	-	M6 × 12 pan head screw (4)	Procedure 2 10
2x0143 2x0169	2143 2169	ZPSA-600-RP-EH1-FR6	USP05564-021	USP05565-021	USP05566-021	M6 nut (2) M6 spring washer (2)	Procedure 5 20
2x0211 2x0273	2211 2273	ZPSA-600-RP-EH1-FR9	-	USP05565-021	USP05569-011	M10 × 20 cross-recessed hexagonal head bolt (2) M6 nut (1) M6 spring washer (1)	Procedure 6 24

Drive		Option Product Code	Part Code			Supplied Hardware	Installation Procedure and Dimensions Reference
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment A	Attachment B	Attachment C		
4x0005 4x0008 4x0011	4005 4008 4011	ZPSD-600-RP-EH12-FR1-1	USP05528-021	USP05528-021	-	M5 × 12 pan head screw (4)	Procedure 1 7
4x0014	4014	ZPSD-600-RP-EH12-FR1-2	USP05530-021	USP05531-021	USP05532-021	M5 × 12 pan head screw (6)	Procedure 3 13
4x0021 4x0027	4021 4027	ZPSD-600-RP-EH12-FR2-1	USP05529-021	USP05529-021	-	M5 × 12 pan head screw (6)	Procedure 1 7
4x0034	4034	ZPSA-600-RP-EH1-FR2-2	USP05537-021	USP05537-021	USP05544-021	M5 × 12 pan head screw (8)	Procedure 3 13
4x0040 4x0052xxB	4040 4052	ZPSA-600-RP-EH1-FR3-1	USP05548-021	USP05548-021	-	M6 × 12 pan head screw (4)	Procedure 2 10
4x0052xxA 4x0065	4052 4065	ZPSA-600-RP-EH1-FR3-2	USP05548-021	USP05549-021	USP05547-021	M6 × 12 pan head screw (6) M5 nut (1) M5 spring washer (1)	Procedure 4 16
4x0077 4x0096	4077 4096	ZPSA-600-RP-EH1-FR4-1	USP05556-021	USP05557-021	-	M6 × 12 pan head screw (4)	Procedure 2 10
4x0124	4124	ZPSA-600-RP-EH1-FR4-2	USP05553-021	USP05558-021	USP05559-011	M6 × 12 pan head screw (4) M6 × 16 pan head screw (2) M6 nut (1) M6 spring washer (1)	Procedure 4 16
4x0156	4156	ZPSA-600-RP-EH1-FR6	USP05564-021	USP05565-021	USP05566-021	M6 nut (2) M6 spring washer (2)	Procedure 5 20

### 3 Overview

Drive		Option Product Code	Part Code			Supplied Hardware	Installation Procedure and Dimensions Reference
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment A	Attachment B	Attachment C		
4x0180 4x0240	4180 4240	ZPSA-600-RP-EH1-FR9	-	USP05565-021	USP05569-011	M10 × 20 cross-recessed hexagonal head bolt (2) M6 nut (1) M6 spring washer (1)	Procedure 6 <a href="#">24</a>
4x0302	4302	ZPSA-600-RP-EH1-FR10	-	USP05572-021	USP05573-021	M12 × 30 cross-recessed hexagonal head bolt (4)	Procedure 7 <a href="#">27</a>

#### ◆ Required Tools

A Phillips screwdriver #2 is necessary to install the attachment.

## 4 Replacement Attachment Installation Procedures

**⚠ 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.*

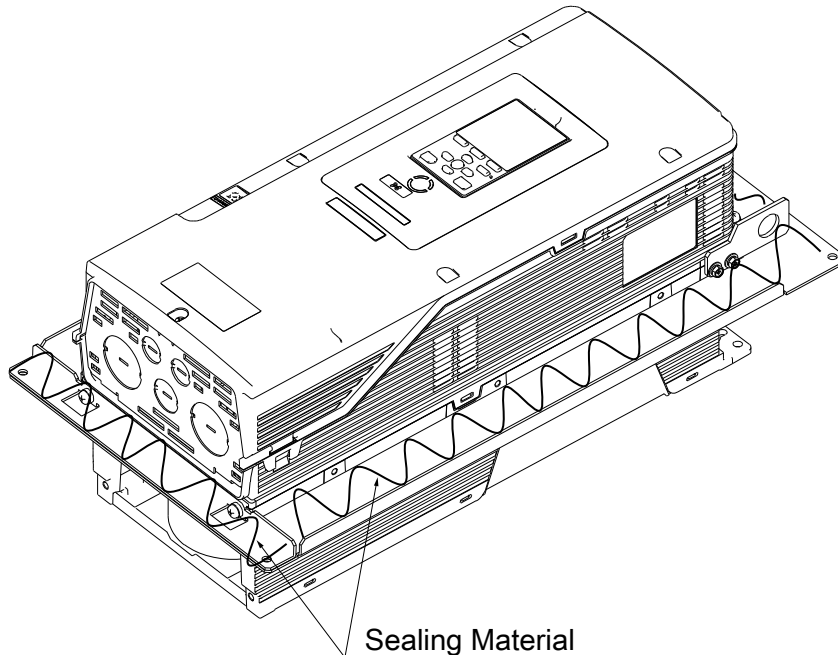
### ◆ Gaskets and Sealing

If there are problems with the clearances between the drive and Attachments A, B, or C, put gaskets on the side panels or apply paste sealing material in a wavy pattern.

Yaskawa recommends 2 mm (0.08 in) thickness and CR or EPDM sponge rubber.

Gasket recommendation: C-4205 from Inoac Corporation (or equivalent)

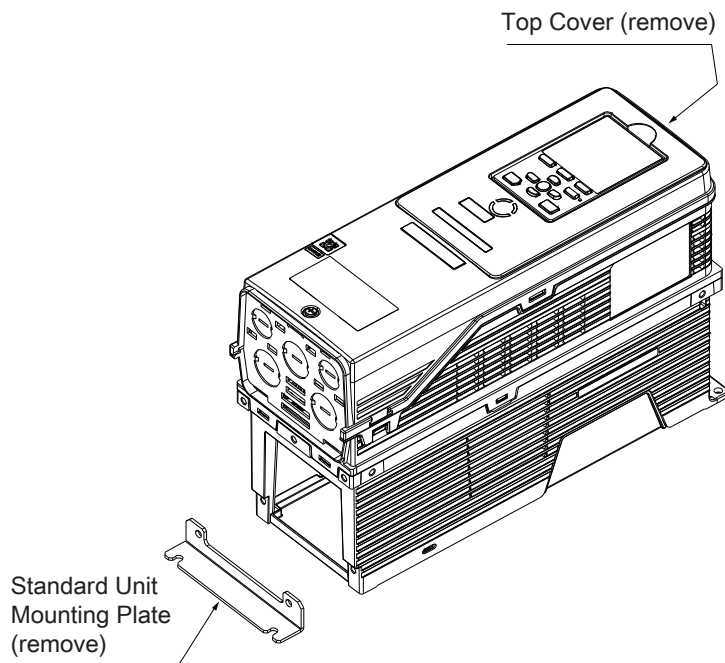
Sealing material recommendation: KE-3494 from Shin-Etsu Silicone (or equivalent)



### ◆ Procedure for HV600 Models 2011 to 2031 and 4005 to 4027

Drive		Option Product Code	Part Code		Supplied Hardware
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment A	Attachment B	
2x0011 2x0017	2011 2017	ZPSD-600-RP-EH12-FR1-1	USP05528-021	USP05528-021	M5 × 12 pan head screw (4)
4x0005 4x0008 4x0011	4005 4008 4011				
2x0024 2x0031	2024 2031				
4x0021 4x0027	4021 4027	ZPSD-600-RP-EH12-FR2-1	USP05529-021	USP05529-021	M5 × 12 pan head screw (6)

1. Remove the Top Cover and the Standard Unit Mounting Plate.

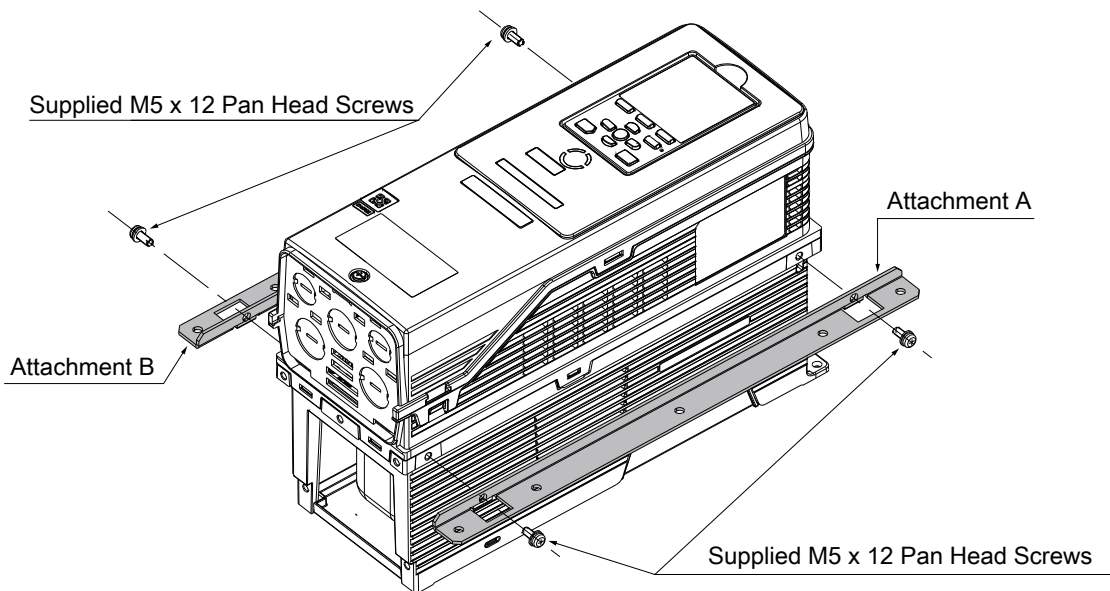


**Figure 4.1 Remove Top Cover and Mounting Plate**

2. Use the supplied hardware to attach Attachments A and B to the sides of the drive.

**Note:**

Attachments A and B are the same part number. You can use either part on either side.



**Figure 4.2 Attach Attachments A and B**



3. Installation is complete. Remove the cable entry plate if necessary.

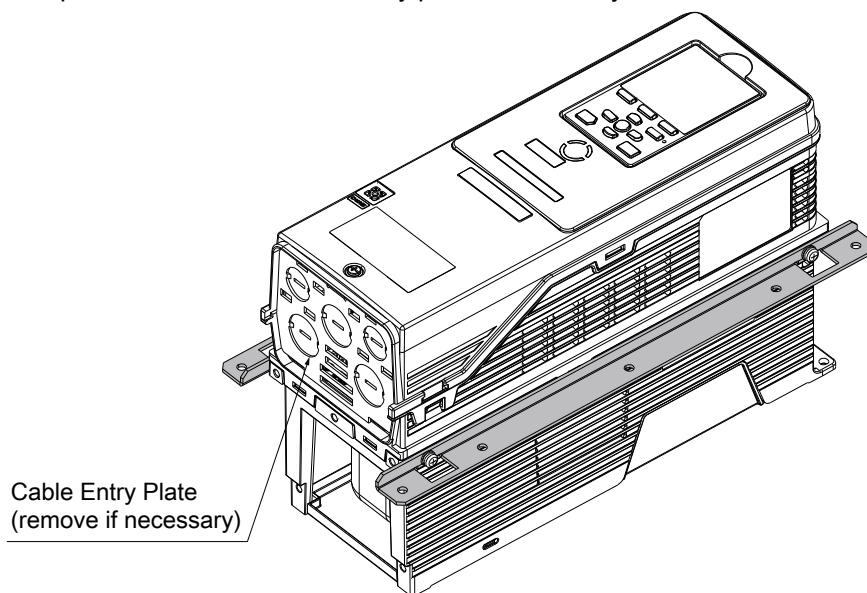


Figure 4.3 Installation Complete

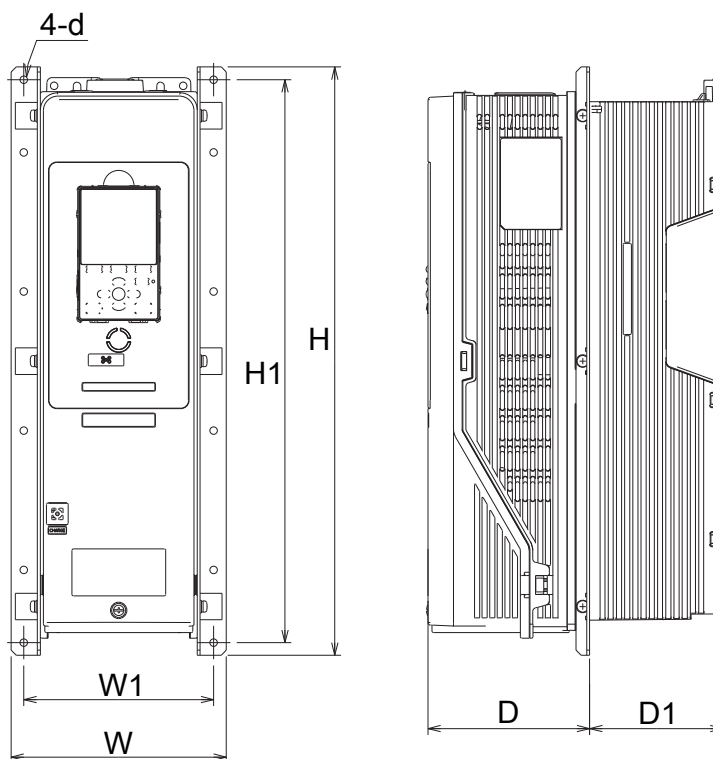


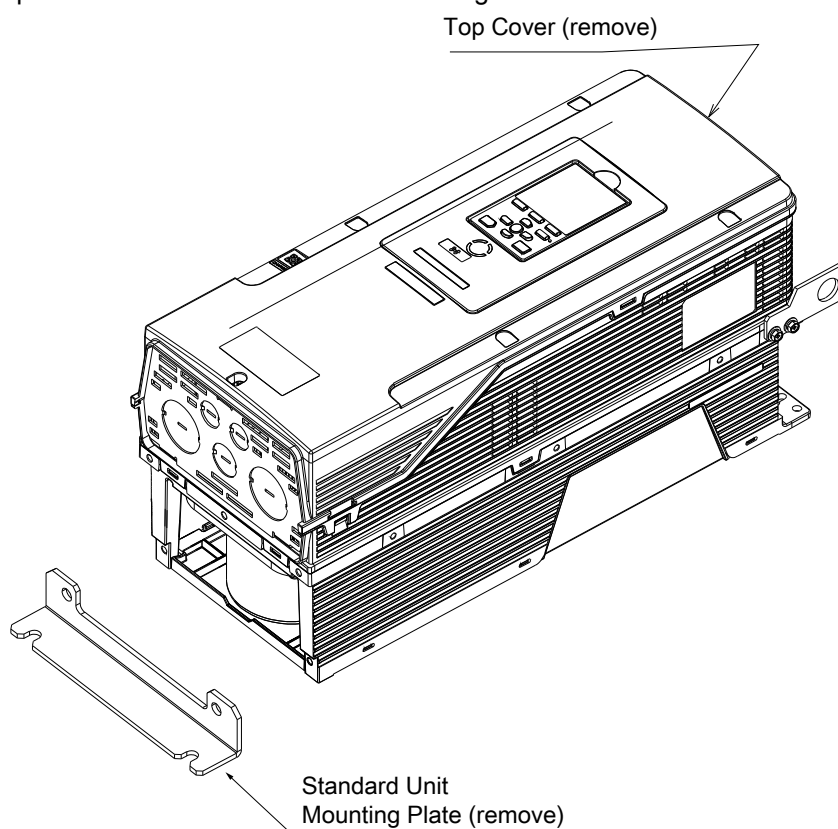
Figure 4.4 Exterior and Mounting Dimensions after Installation

HV600 Catalog Code HV60x		Dimensions mm (in)						
208 V	480 V	W	H	D	W1	H1	D1	d
2011 2017	4005 4008 4011	170 (6.7)	375 (14.8)	112.7 (4.4)	150 (5.9)	355 (14)	105.3 (4.1)	M5
2024 2031	4021 4027	170 (6.7)	465 (18.3)	127.7 (5)	150 (5.9)	445 (17.5)	105.3 (4.1)	M5

# ◆ Procedure for HV600 Models 2046 to 2114 and 4040 to 4096

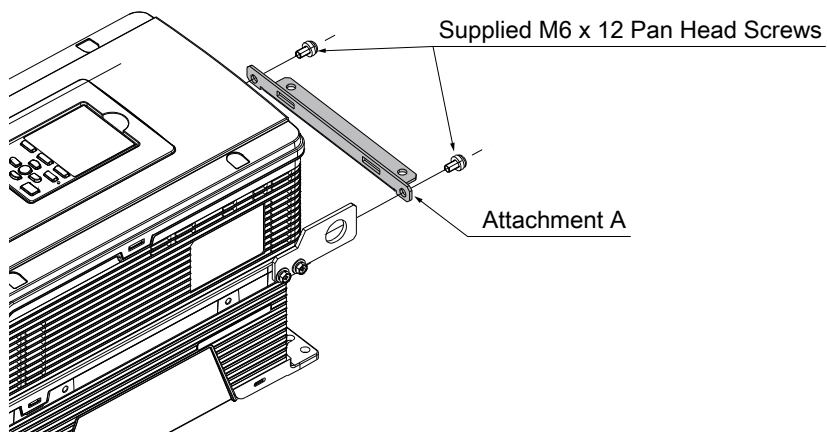
Drive		Option Product Code	Part Code		Supplied Hardware
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment A	Attachment B	
2x0046 2x0059	2046 2059	ZPSA-600-RP-EH1-FR3-1	USP05548-021	USP05548-021	M6 × 12 pan head screw (4)
4x0040 4x0052xxB	4040 4052				
2x0075 2x0088 2x0114	2075 2088 2114	ZPSA-600-RP-EH1-FR4-1	USP05556-021	USP05557-021	M6 × 12 pan head screw (4)
4x0077 4x0096	4077 4096				

1. Remove the Top Cover and the Standard Unit Mounting Plate.



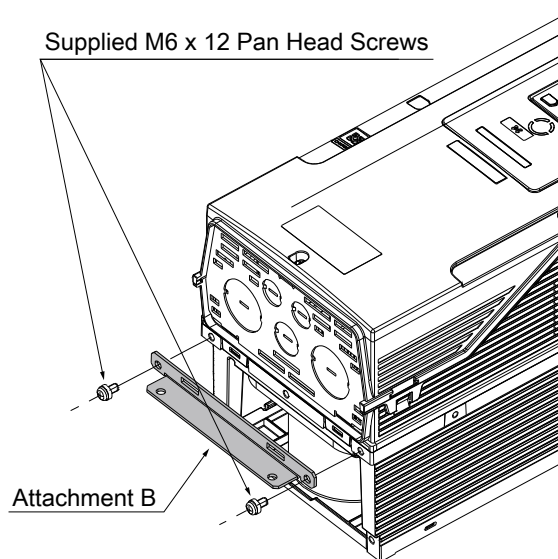
**Figure 4.5 Remove Top Cover and Mounting Plate**

2. Use the supplied hardware to attach Attachment A to the top of the drive.



**Figure 4.6 Attach Attachment A**

3. Use the supplied hardware to attach Attachment B to the bottom of the drive.



**Figure 4.7 Attach Attachment B**

4. Installation is complete. Remove the cable entry plate if necessary.

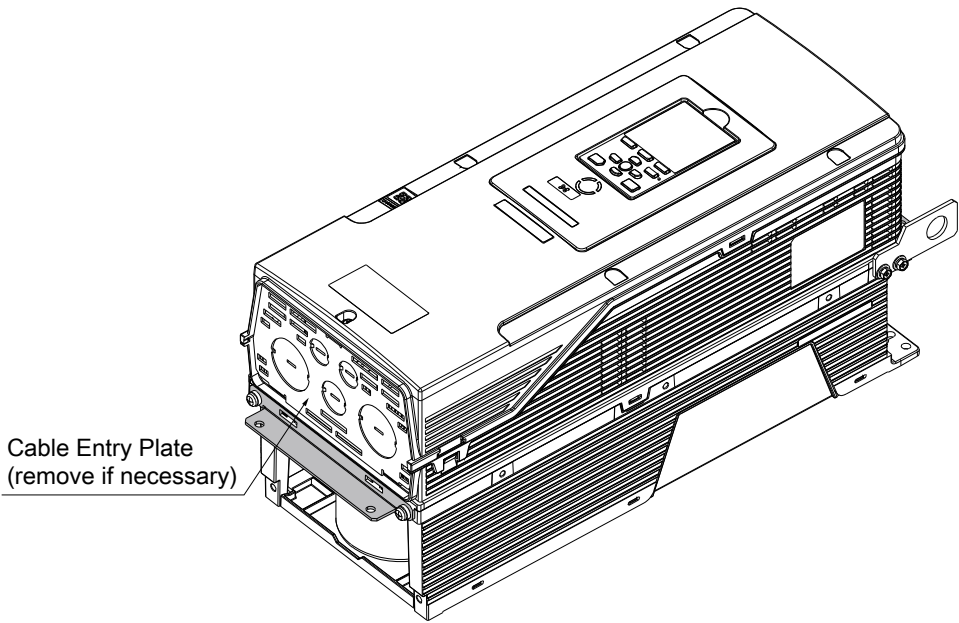


Figure 4.8 Installation Complete

Models 2046, 2059, 4040, 4052

Models 2075, 2088, 2114, 4077, 4096

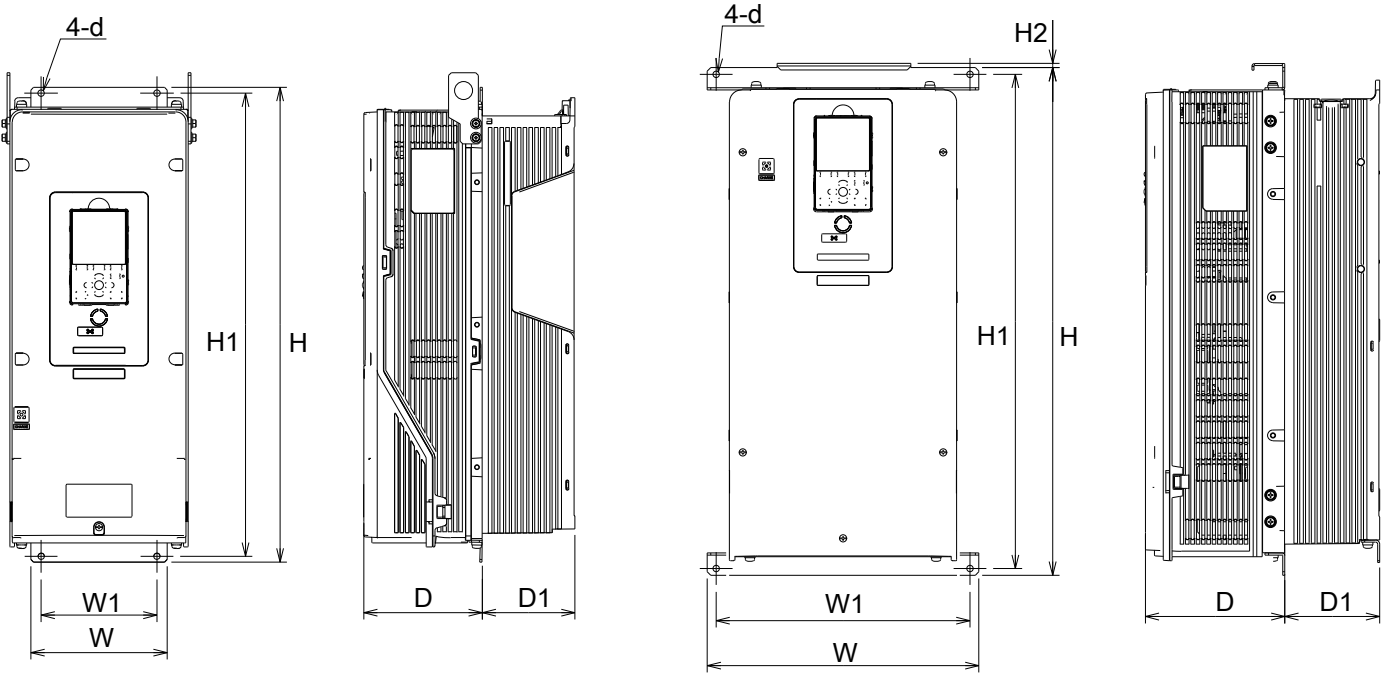


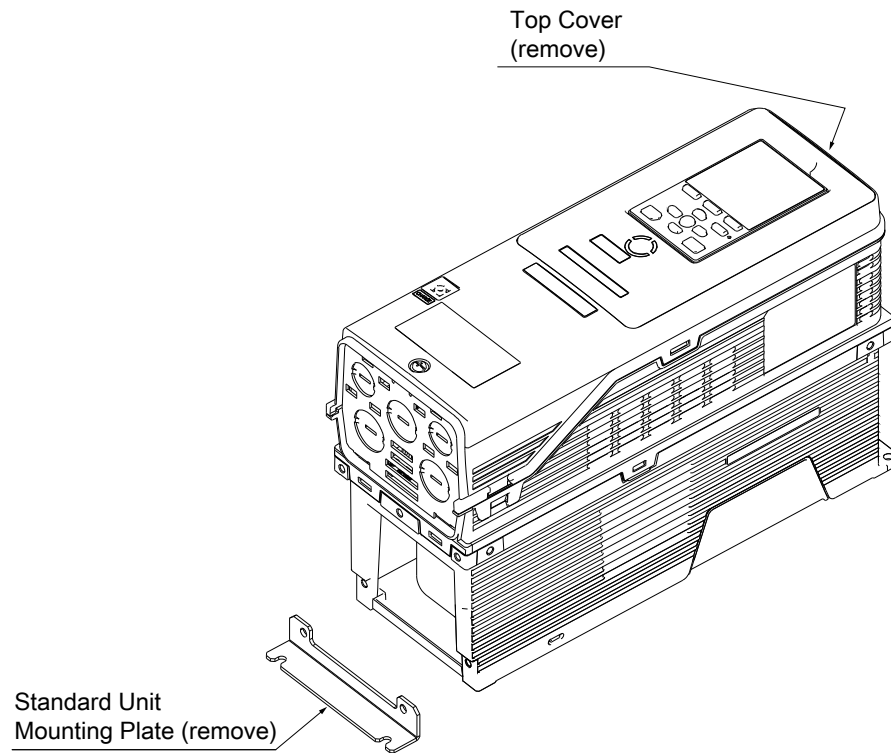
Figure 4.9 Exterior and Mounting Dimensions after Installation

HV600 Catalog Code HV60x		Dimensions mm (in)							
208 V	480 V	W	H	D	W1	H1	H2	D1	d
2046 2059	4040 4052	153 (6)	533 (21)	133 (5.2)	130 (5.1)	520 (20.5)	-	104 (4.1)	M6
2075 2088 2114	4077 4096	305 (12)	570 (22.4)	156.5 (6.2)	285 (11.2)	555 (21.9)	10 (0.39)	106.5 (4.2)	M6

### ◆ Procedure for HV600 Models 4014 and 4034

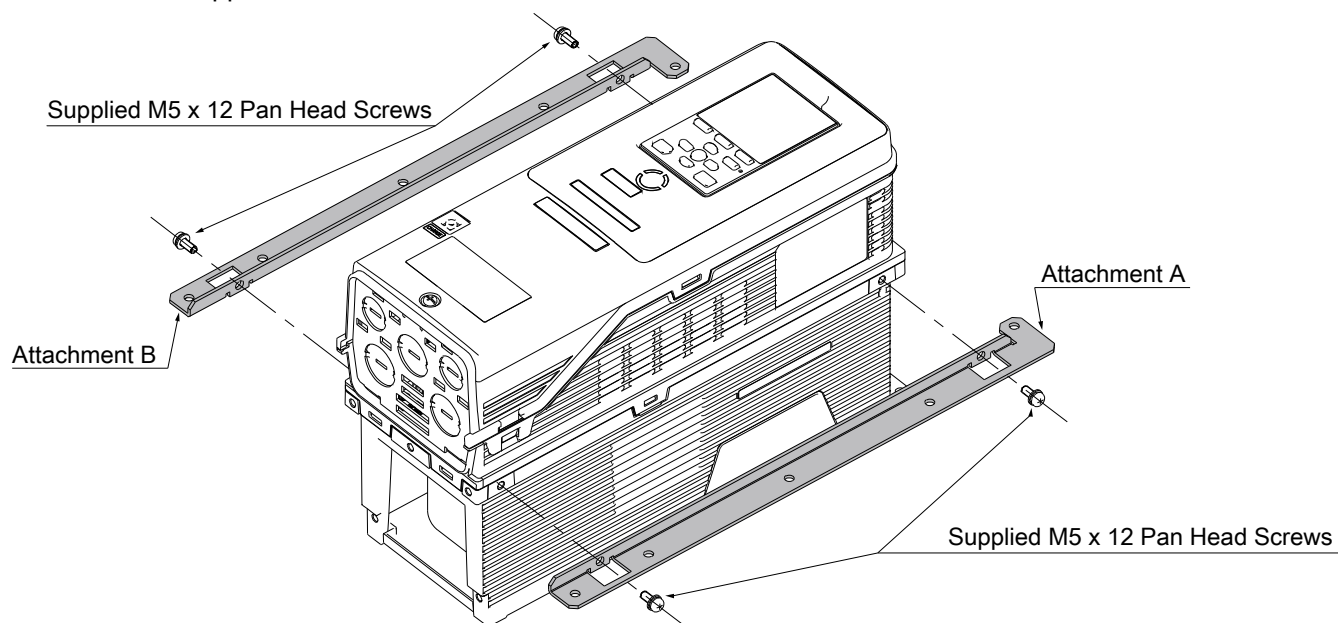
Drive		Product Code	Part Code			Supplied Hardware
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment A	Attachment B	Attachment C	
4x0014	4014	ZPSD-600-RP-EH12-FR1-2	USP05530-021	USP05531-021	USP05532-021	M5 × 12 pan head screw (6)
4x0034	4034	ZPSA-600-RP-EH1-FR2-2	USP05537-021	USP05537-021	USP05544-021	M5 × 12 pan head screw (8)

1. Remove the Top Cover and Standard Unit Mounting Plate.



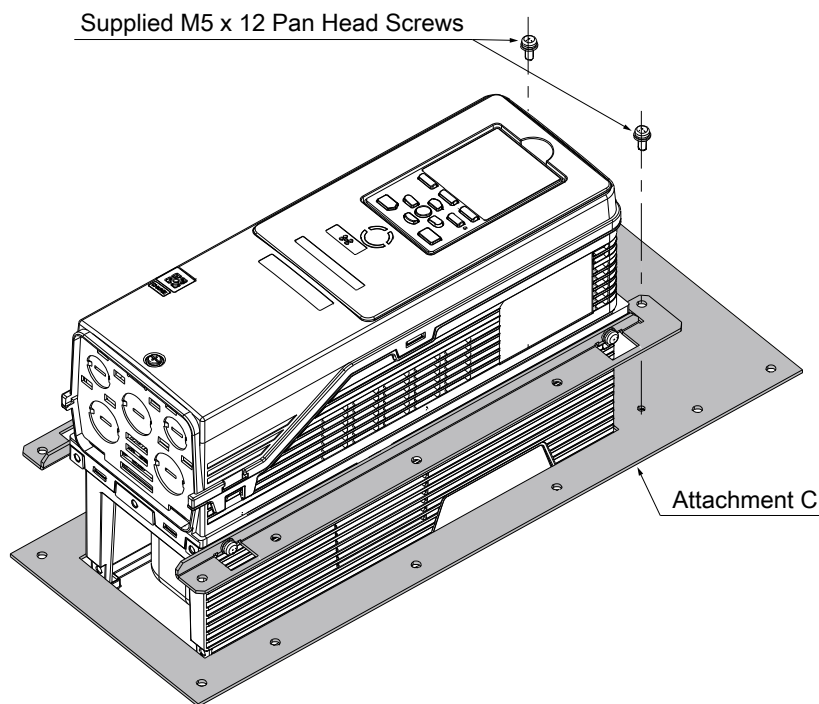
**Figure 4.10 Remove Top Cover and Mounting Plate**

2. Use the supplied hardware to attach Attachments A and B to the sides of the drive.



**Figure 4.11 Attach Attachments A and B**

3. Use the supplied hardware to attach Attachment C to Attachments A and B.



**Figure 4.12 Attach Attachment C**

4. Installation is complete. Remove the cable entry plate if necessary.

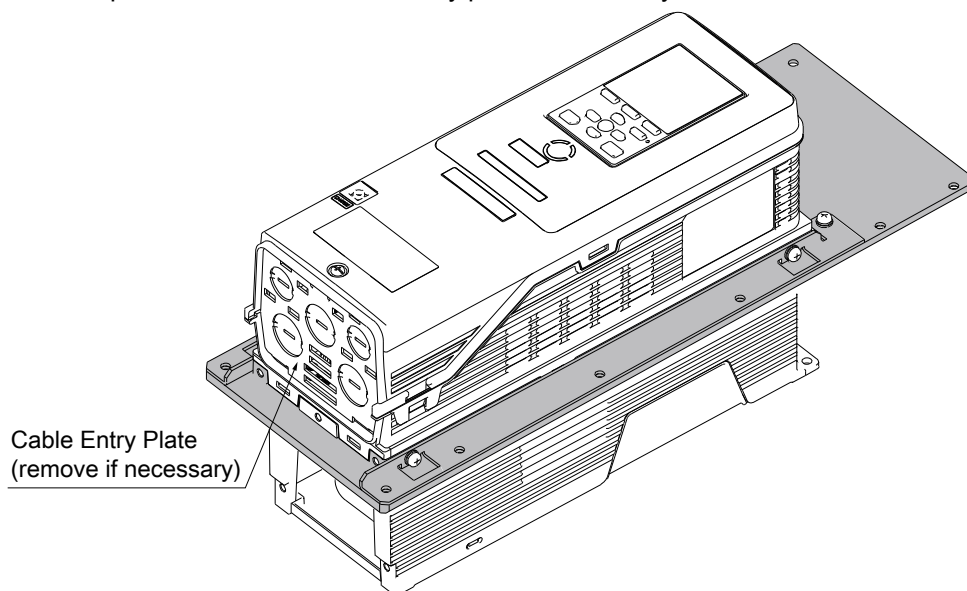


Figure 4.13 Installation Complete

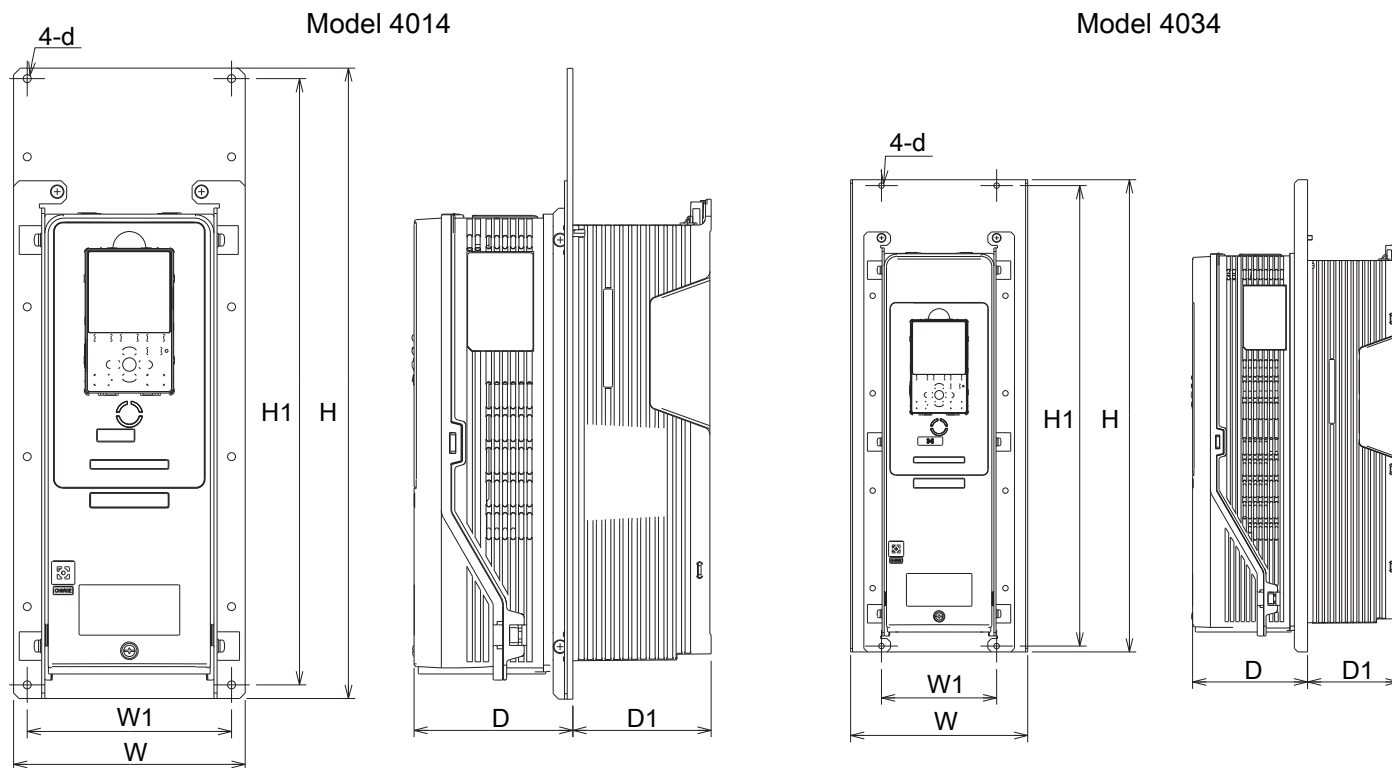


Figure 4.14 Exterior and Mounting Dimensions after Installation

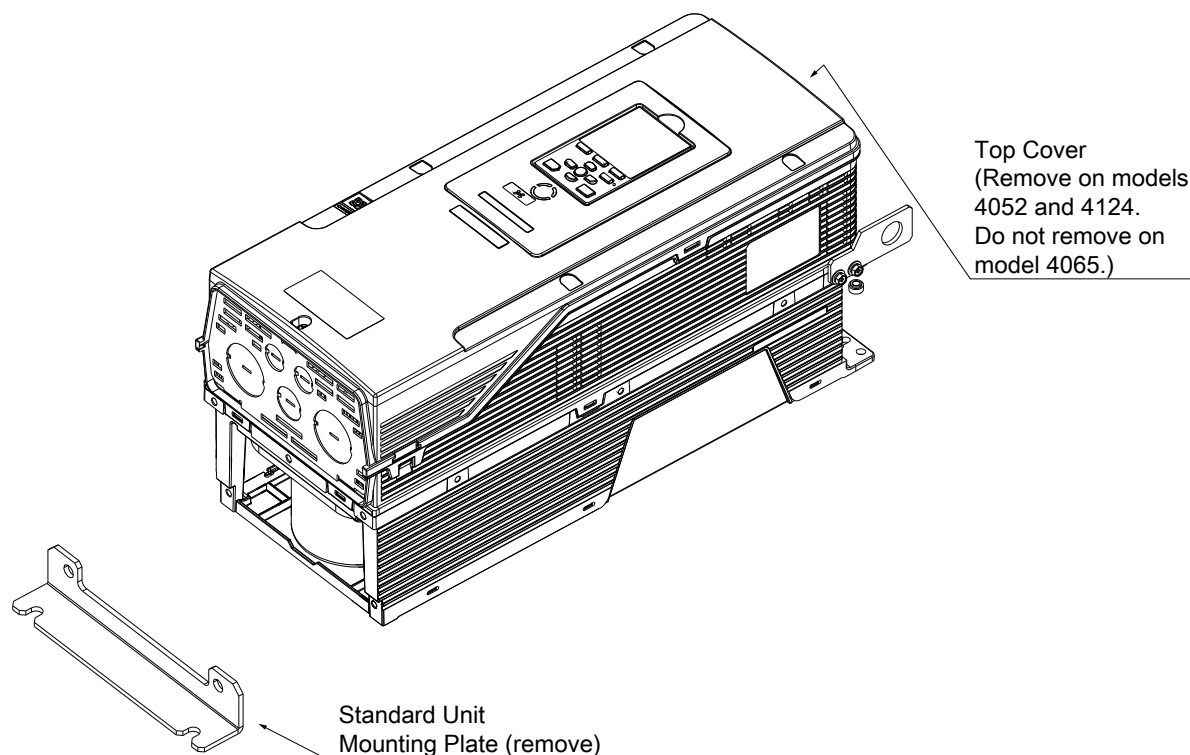
HV600 Catalog Code HV60x	Dimensions mm (in)						
	W	H	D	W1	H1	D1	d
480 V							
4014	170 (6.7)	465 (18.3)	117.2 (4.6)	150 (5.9)	445 (17.5)	100.8 (4)	M5
4034	200 (7.9)	533 (21)	130 (5.1)	130 (5.1)	520 (20.5)	103 (4.1)	M6

# ◆ Procedure for HV600 Models 4052, 4065, and 4124

Drive		Option Product Code	Part Code			Supplied Hardware
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment A	Attachment B	Attachment C	
4x0052xxA 4x0065	4052 4065	ZPSA-600-RP-EH1-FR3-2	USP05548-021	USP05549-021	USP05547-021	M6 × 12 pan head screw (6) M5 nut (1) M5 spring washer (1)
4x0124	4124	ZPSA-600-RP-EH1-FR4-2	USP05553-021	USP05558-021	USP05559-011	M6 × 12 pan head screw (4) M6 × 16 pan head screw (2) M6 nut (1) M6 spring washer (1)

- On models 4052 and 4124, remove the Top Cover and Standard Unit Mounting Plate. On model 4065, remove only the Standard Unit Mounting Plate. Do not remove the Top Cover.

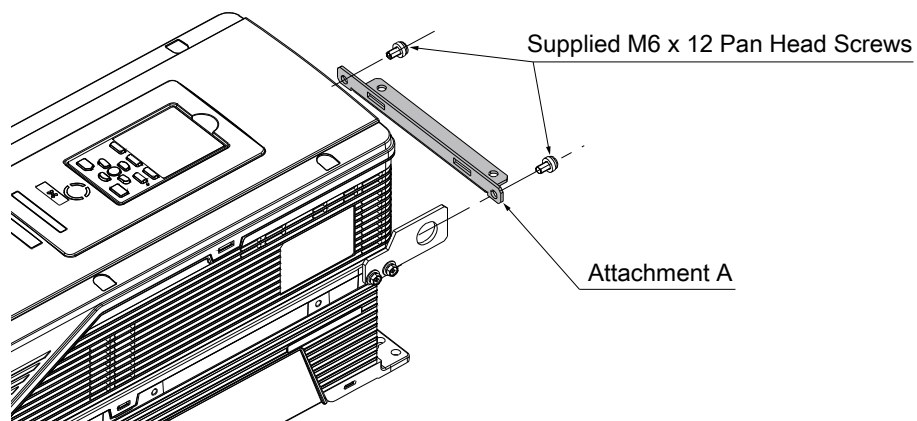
**NOTICE** *Damage to Equipment.. Do not remove the top protective cover of model 4065. If you remove the cover, the drive temperature will increase and it can cause damage to the drive.*



**Figure 4.15 Remove Top Cover and Mounting Plate**

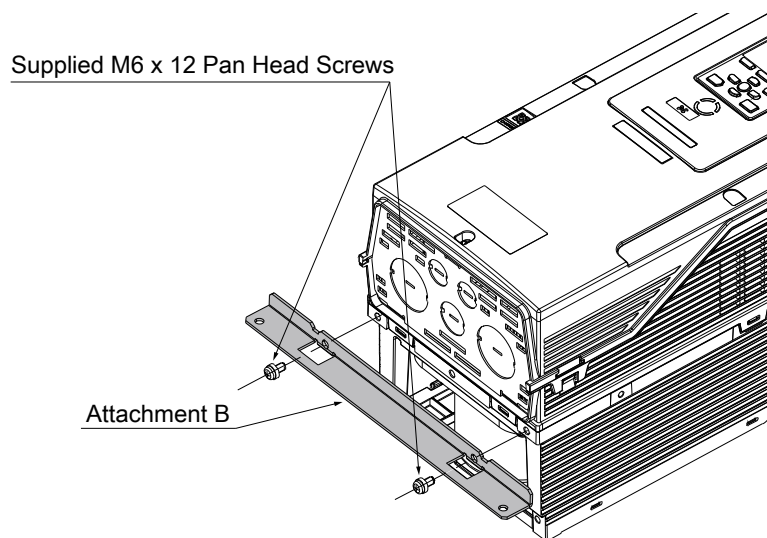


2. Use the supplied hardware to attach Attachment A to the top of the drive.



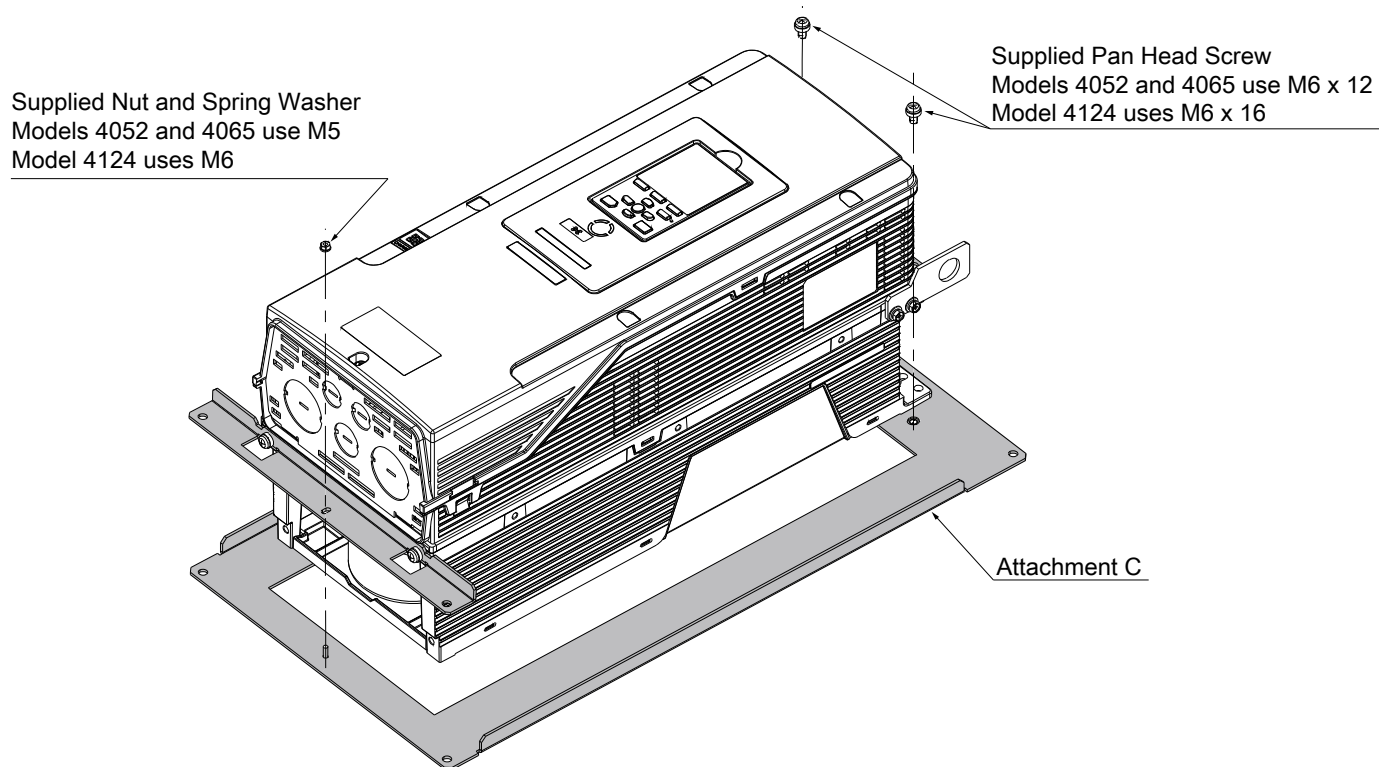
**Figure 4.16 Attach Attachment A**

3. Use the supplied hardware to attach Attachment B to the bottom of the drive.



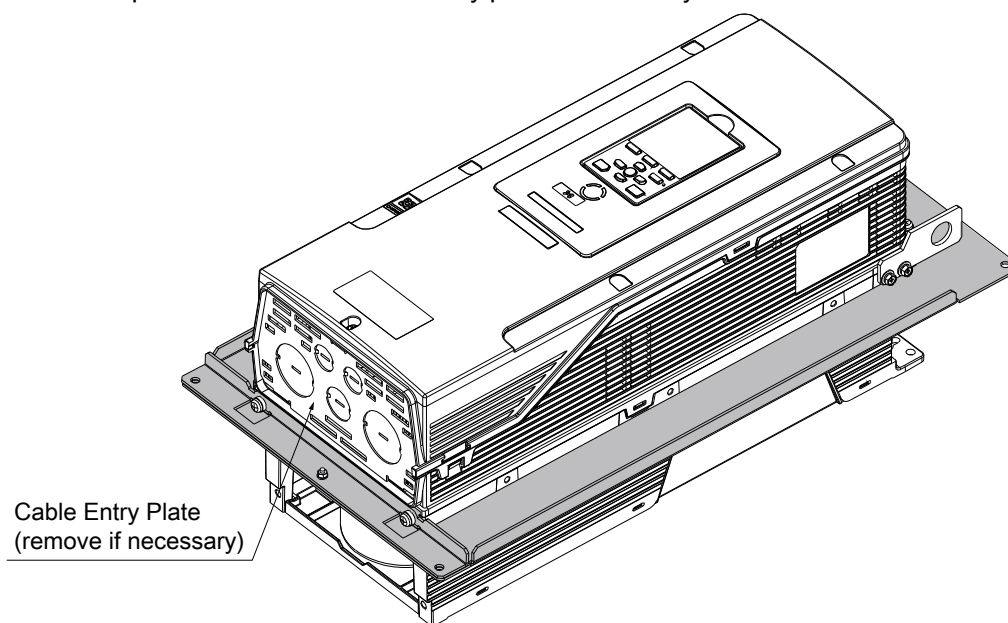
**Figure 4.17 Attach Attachment B**

4. Use the supplied hardware to attach Attachment C to Attachments A and B.

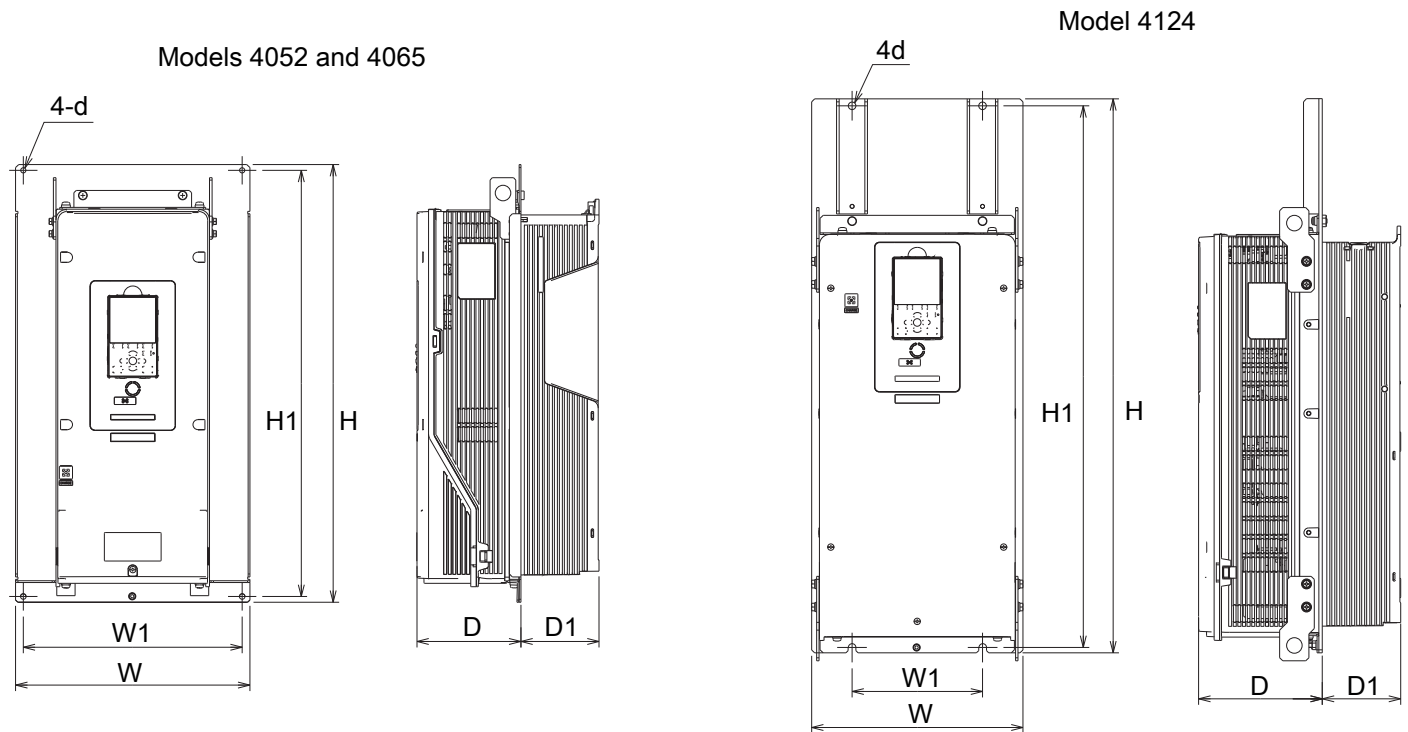


**Figure 4.18 Attach Attachment C**

5. Installation is complete. Remove the cable entry plate if necessary.



**Figure 4.19 Installation Complete**



**Figure 4.20 Exterior and Mounting Dimensions after Installation**

HV600 Catalog Code HV60x	Dimensions mm (in)						
	W	H	D	W1	H1	D1	d
4052	305	570	135.3	285	555	101.7	M6
4065	(12)	(22.4)	(5.3)	(11.2)	(21.9)	(4)	
4124	276	721.4	161	170	705.4	102	M8
	(10.9)	(28.4)	(6.3)	(6.7)	(27.8)	(4)	

◆ Procedure for HV600 Models 2143, 2169, and 4156

Drive		Option Product Code	Part Code			Supplied Hardware
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment A	Attachment B	Attachment C	
2x0143	2143	ZPSA-600-RP-EH1-FR6	USP05564-021	USP05565-021	USP05566-021	M6 nut (2) M6 spring washer (2)
2x0169	2169					
4x0156	4156					

1. Remove the bolts and washers from the top and bottom of the drive. Also remove the Top Cover.

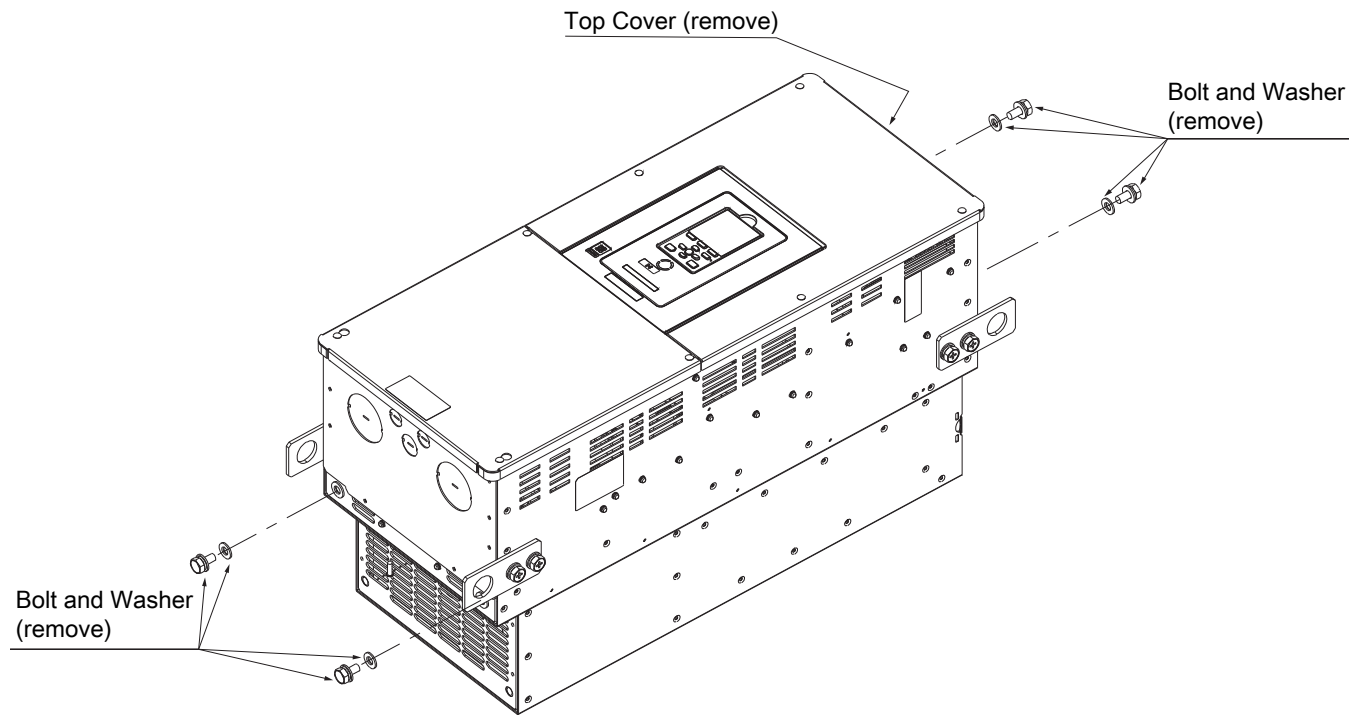
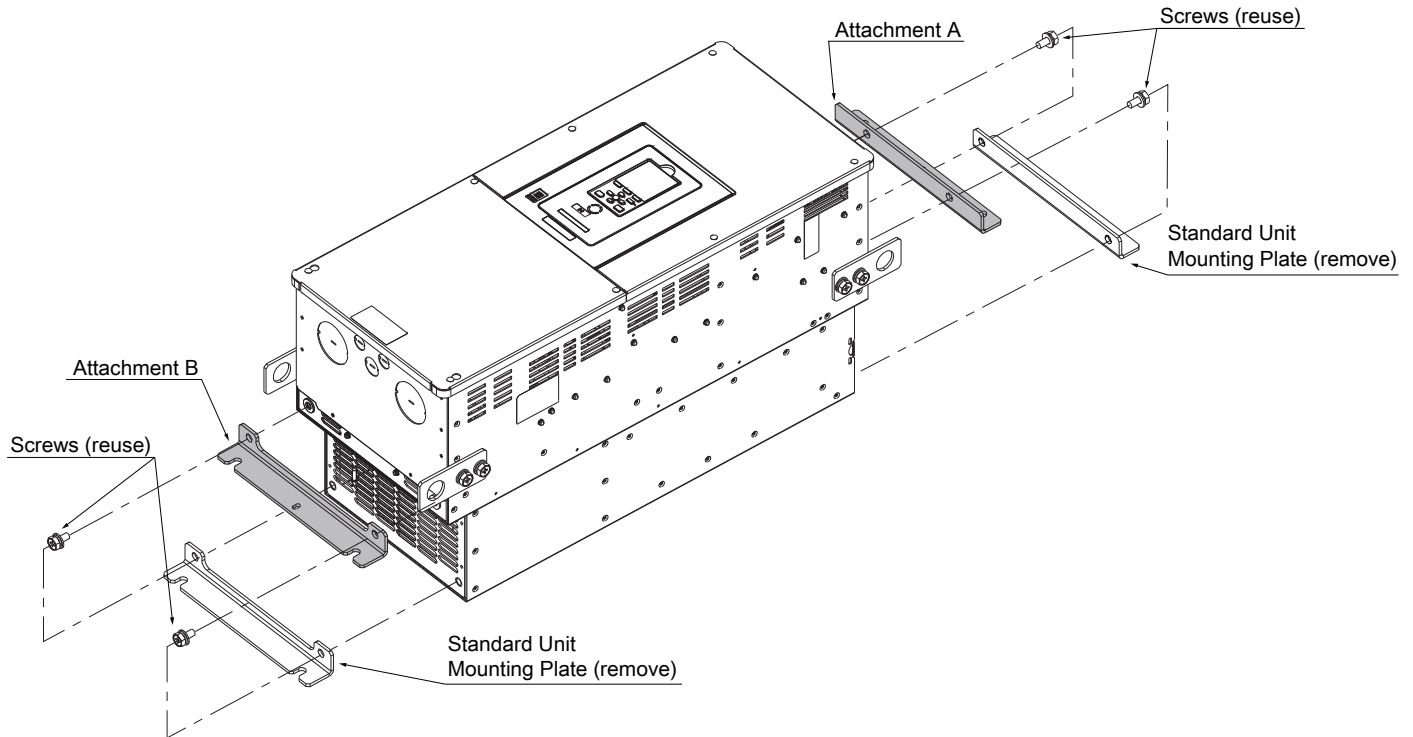


Figure 4.21 Remove Bolts, Washers, and Top Cover

2. Remove the Standard Unit Mounting Plates from the top and bottom of the drive. Reuse the screws and attach Attachment A to the top of the drive and attach Attachment B to the bottom of the drive.

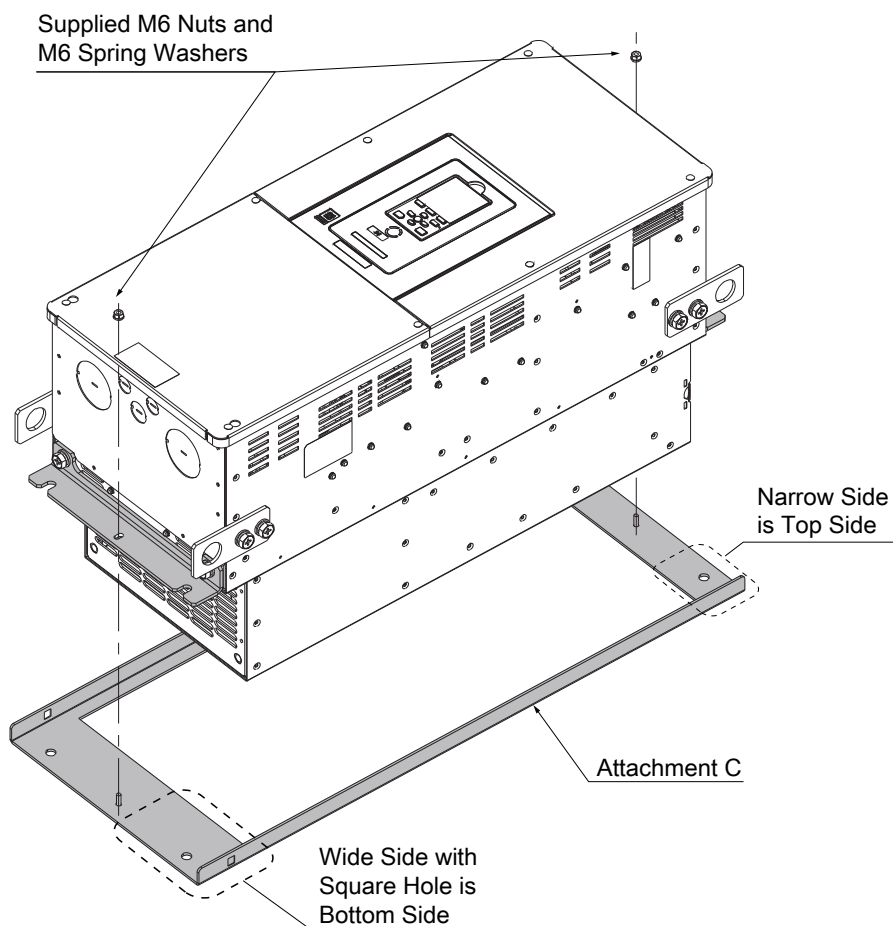


**Figure 4.22 Remove Mounting Plates and Attach Attachments A and B**

3. Use the supplied hardware to attach Attachment C to Attachments A and B.

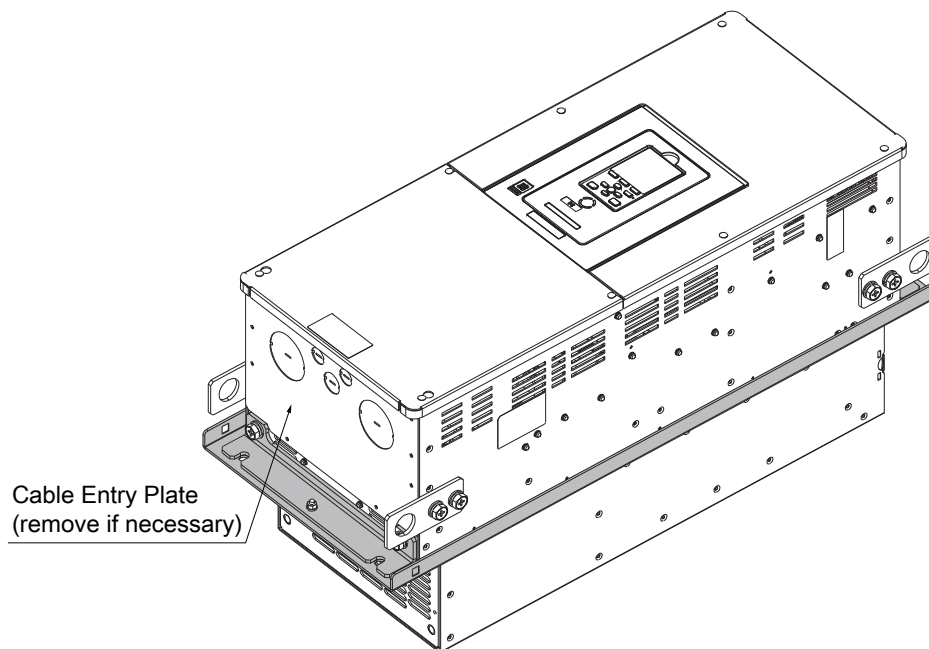
**Note:**

Make sure that you position Attachment C correctly. The narrow side of Attachment C is the top side.



**Figure 4.23 Attach Attachment C**

4. Installation is complete. Remove the cable entry plate if necessary.



**Figure 4.24 Installation Complete**

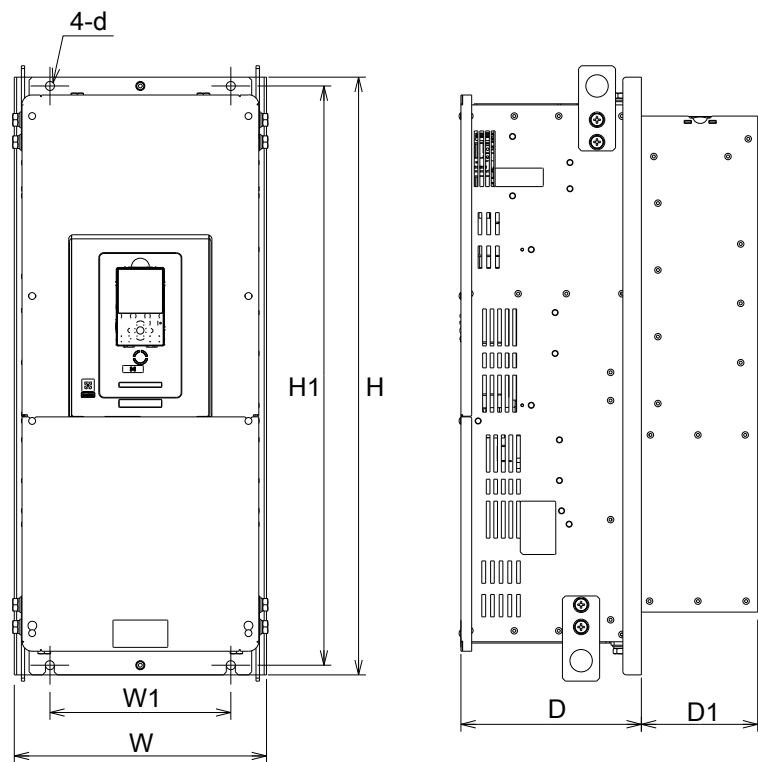


Figure 4.25 Exterior and Mounting Dimensions after Installation

HV600 Catalog Code HV60x		Dimensions mm (in)						
240 V	480 V	W	H	D	W1	H1	D1	d
2143 2169	4156	340 (13.4)	803 (31.6)	243.2 (9.6)	244 (9.6)	781 (30.7)	156.8 (6.2)	M10

◆ Procedure for HV600 Models 2211, 2273, 4180, and 4240

Drive		Option Product Code	Part Code		Supplied Hardware
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment B	Attachment C	
2x0211 2x0273	2211 2273	ZPSA-600-RP-EH1-FR9	USP05565-021	USP05569-011	M10 × 20 cross-recessed hexagonal head bolt (2) M6 nut (1) M6 spring washer (1)
4x0180 4x0240	4180 4240				

1. Remove the Standard Unit Mounting Plate from the top of the drive. Rotate the Standard Unit Mounting Plate and reuse the screws to attach it to the top of the drive in the new position.

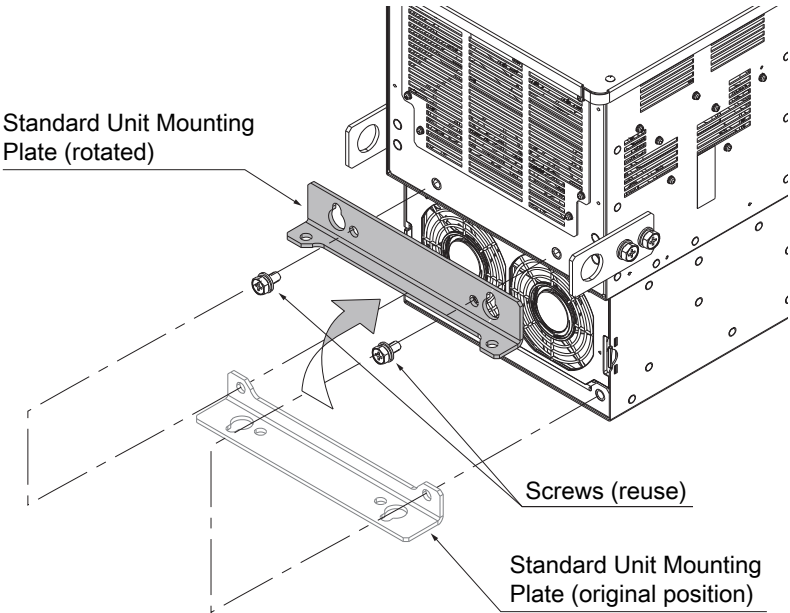
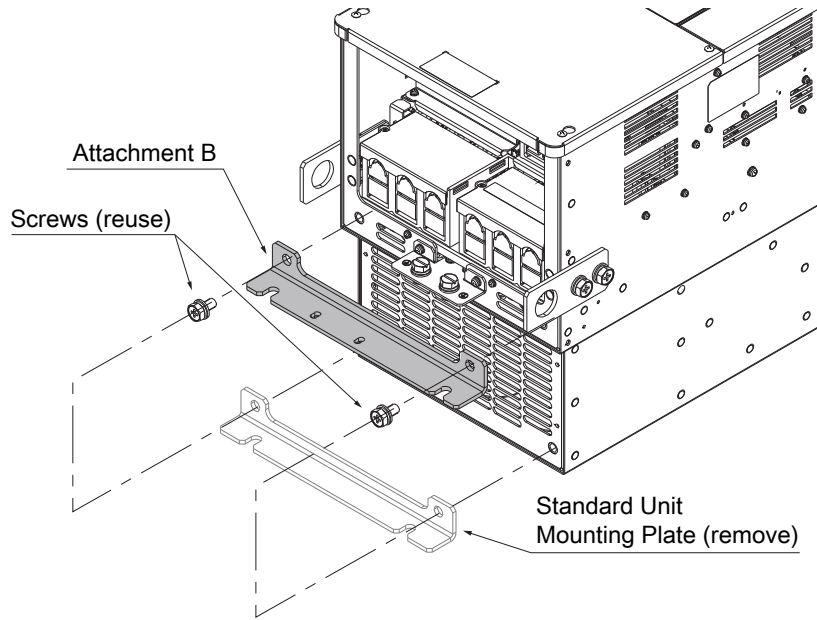


Figure 4.26 Remove Top Mounting Plate and Reattach in New Position

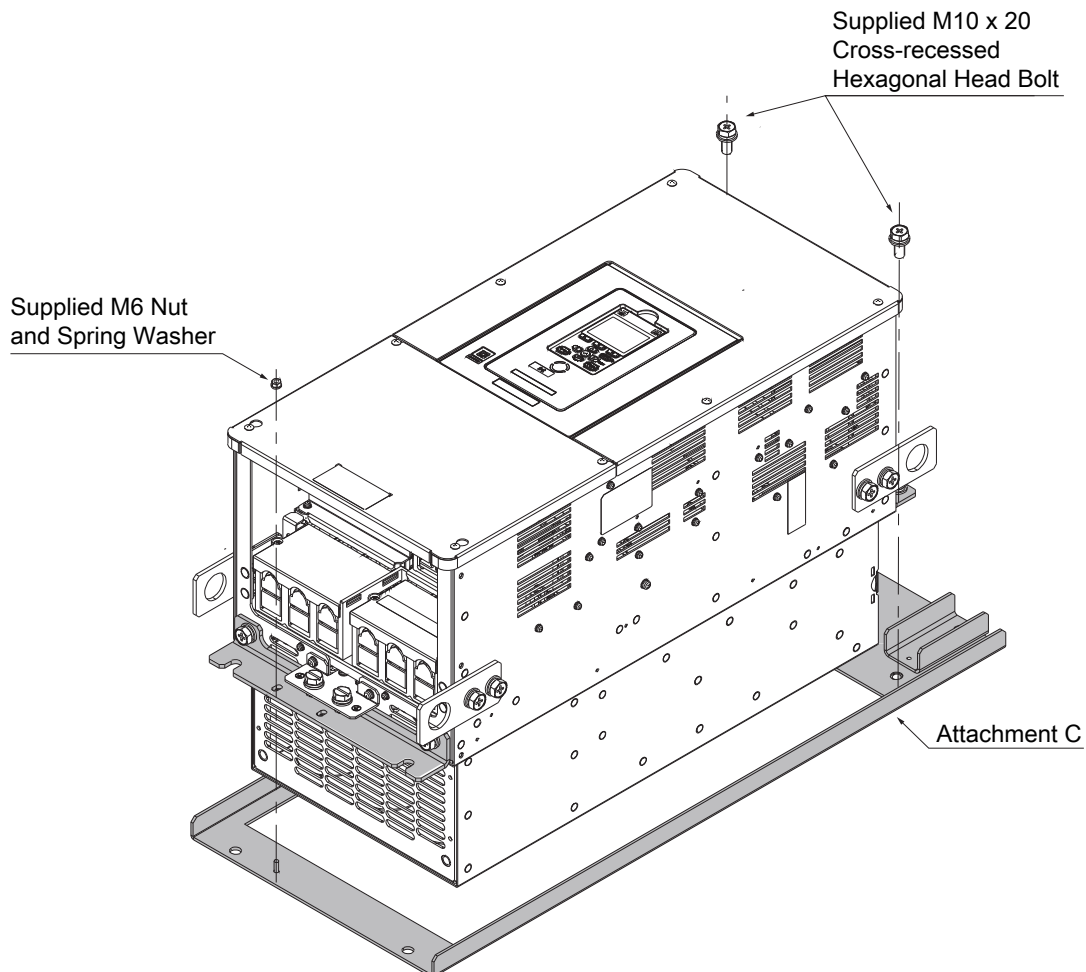


2. Remove the Standard Unit Mounting Plate from the bottom of the drive. Reuse the screws and attach Attachment B to the bottom of the drive.



**Figure 4.27 Remove Bottom Mounting Plate and Attach Attachment B**

3. Use the supplied hardware to attach Attachment C to the Standard Unit Mounting Plate and Attachment B.



**Figure 4.28 Attach Attachment C**

4. Installation is complete.

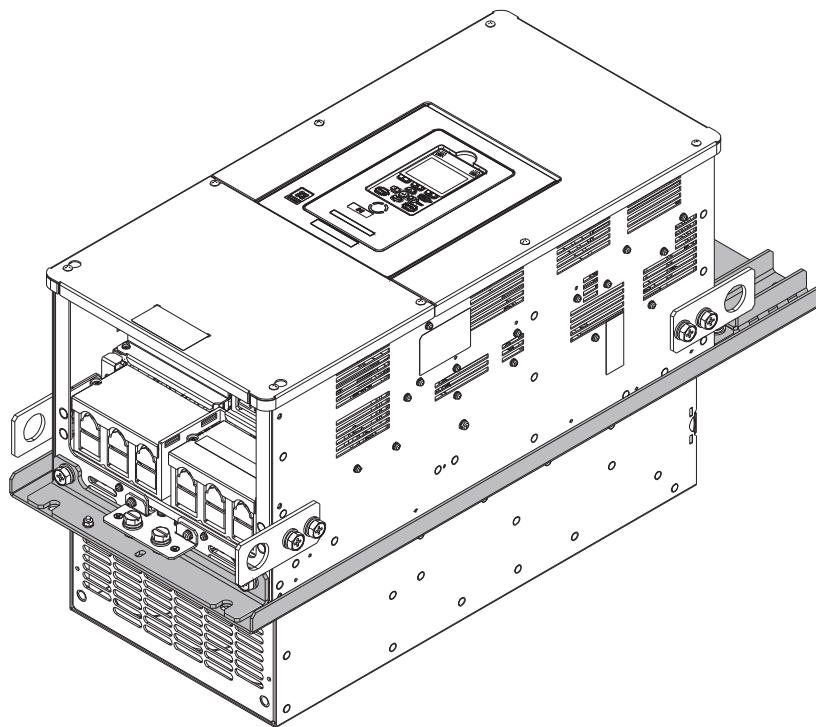


Figure 4.29 Installation Complete

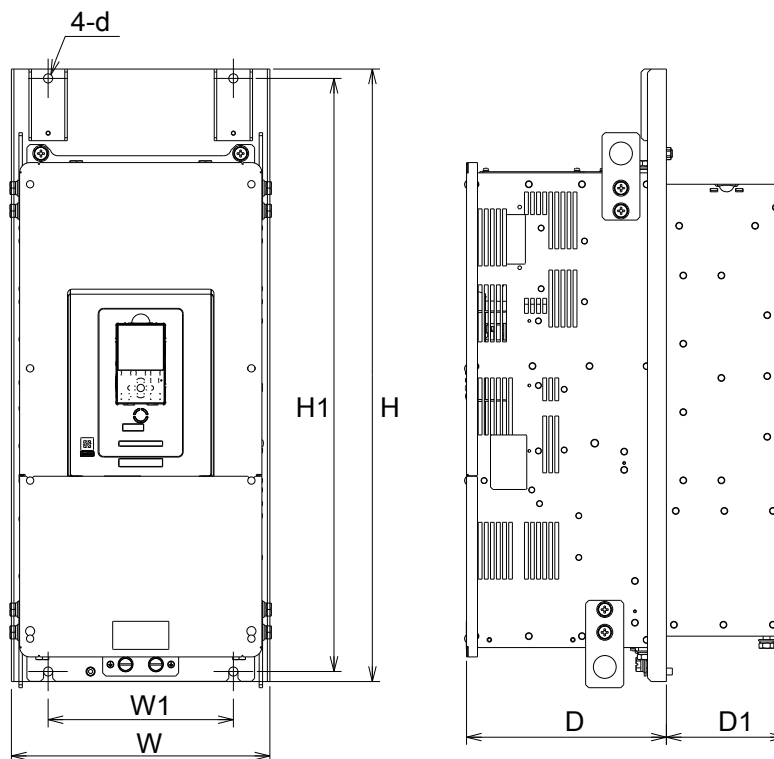


Figure 4.30 Exterior and Mounting Dimensions after Installation

HV600 Catalog Code HV60x		Dimensions mm (in)						
240 V	480 V	W	H	D	W1	H1	D1	d
2211 2273	4180 4240	340 (13.4)	803 (31.6)	263.2 (10.4)	244 (9.6)	781 (30.7)	156.8 (6.2)	M10

### ◆ Procedure for HV600 Model 4302

Drive		Option Product Code	Part Code		Supplied Hardware
Z1000 CIMR-Zx	HV600 Catalog Code HV60x		Attachment B	Attachment C	
4x0302	4302	ZPSA-600-RP-EH1-FR10	USP05572-021	USP05573-021	M12 × 30 cross-recessed hexagonal head bolt (4)

1. Remove the Standard Unit Mounting Plate from the top of the drive. Remove and discard the screws from the new position holes. Rotate the Standard Unit Mounting Plate and reuse the screws to attach it to the top of the drive in the new position.

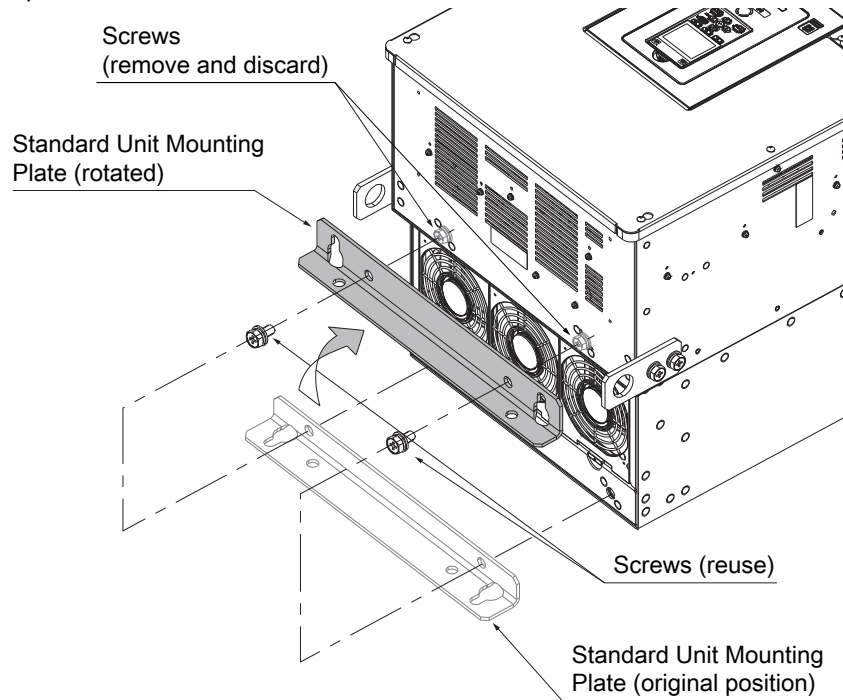
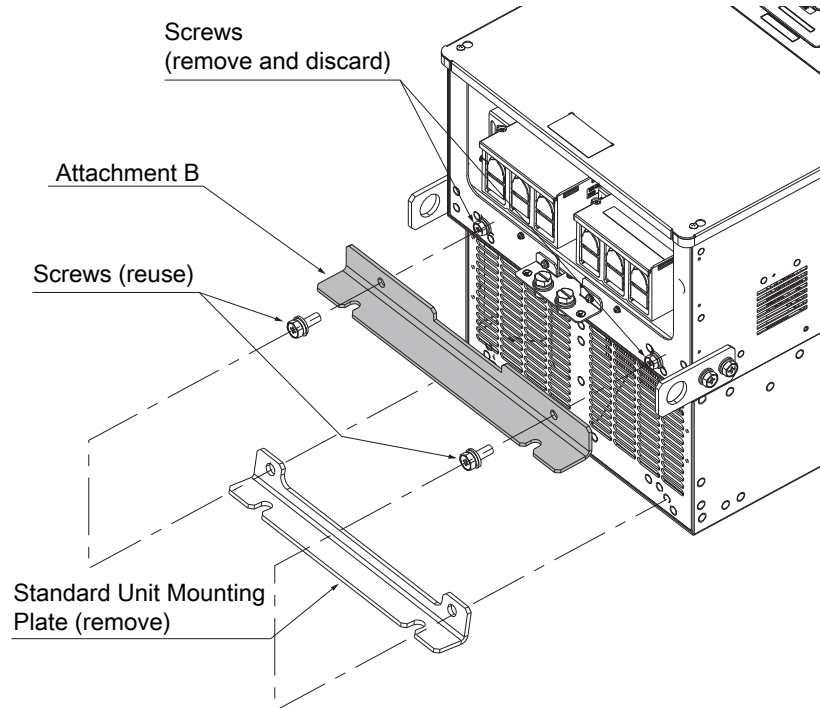


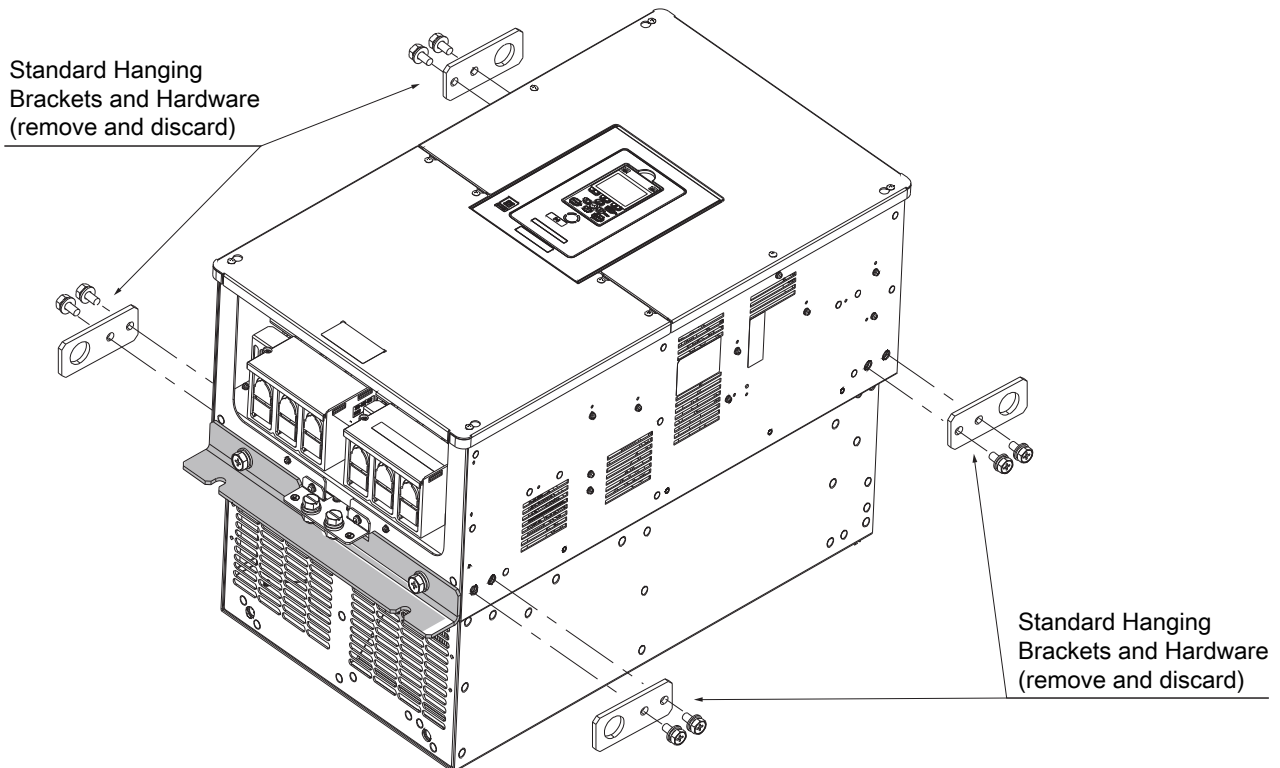
Figure 4.31 Remove Top Mounting Plate and Reattach in New Position

2. Remove the Standard Unit Mounting Plate from the bottom of the drive. Remove and discard the screws from the new position holes. Reuse the screws from the Standard Unit Mounting Plate and attach Attachment B to the bottom of the drive.



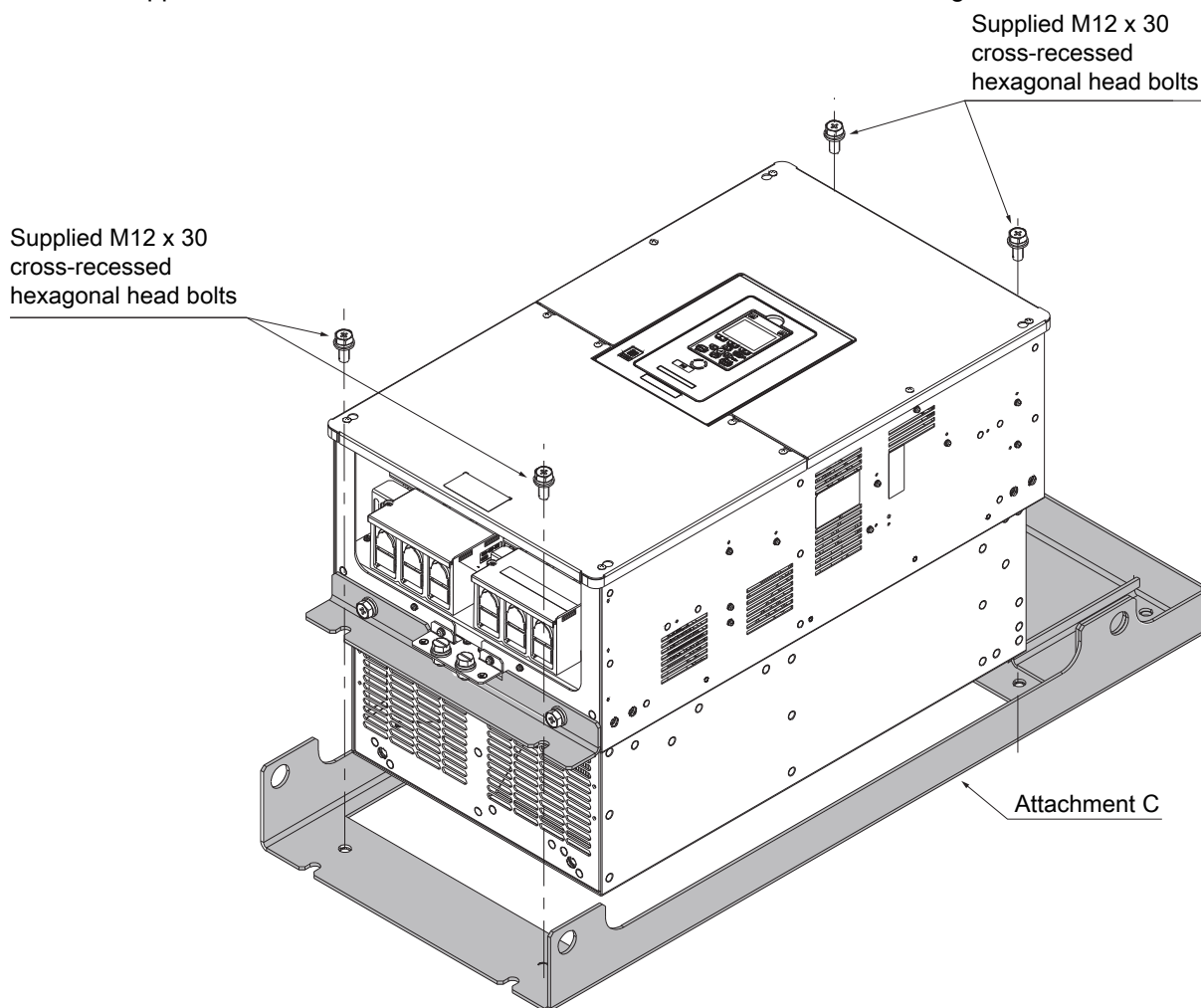
**Figure 4.32 Remove Bottom Mounting Plate and Attach Attachment B**

3. Remove and discard the four Standard Hanging Brackets and hardware from the drive.



**Figure 4.33 Remove Standard Hanging Brackets**

4. Use the supplied hardware to attach Attachment C to the Standard Unit Mounting Plate and Attachment B.



**Figure 4.34 Attach Attachment C**

5. Installation is complete.

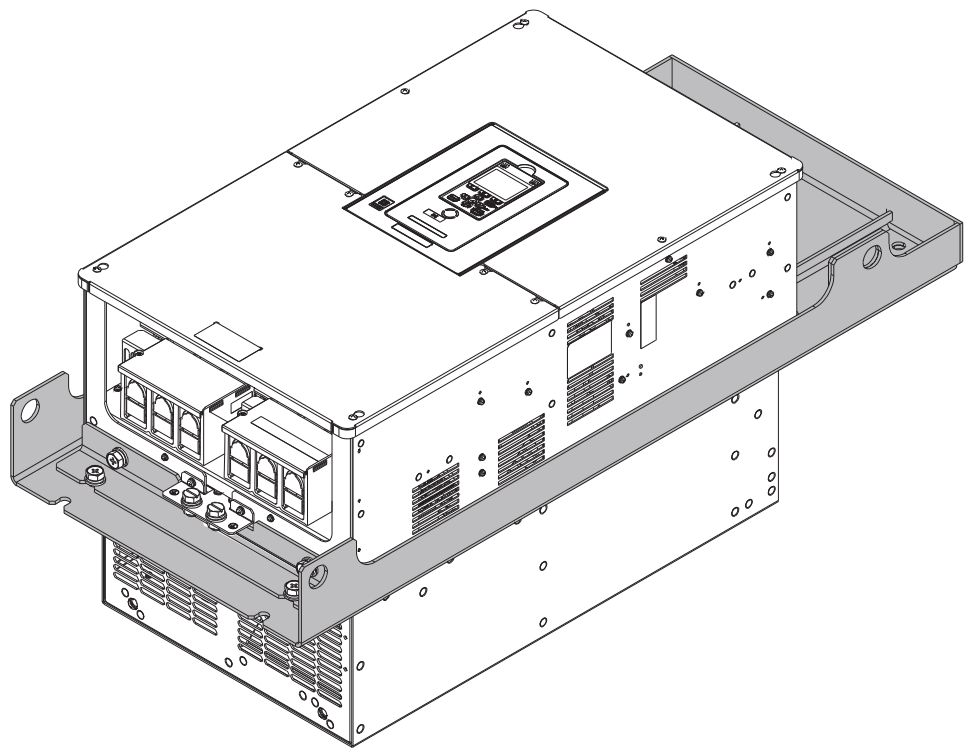


Figure 4.35 Installation Complete

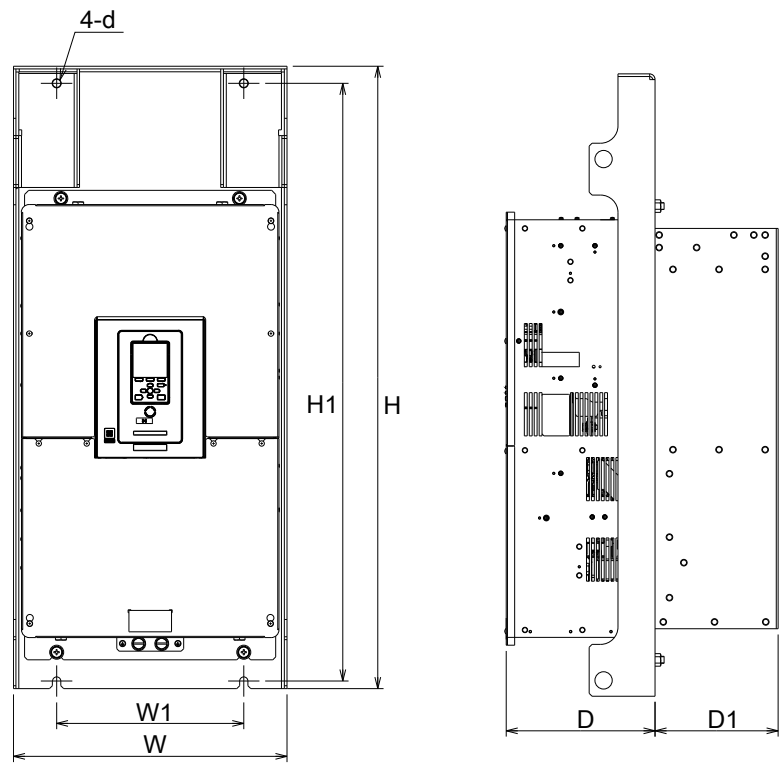


Figure 4.36 Exterior and Mounting Dimensions after Installation

HV600 Catalog Code HV60x	Dimensions mm (in)						
	W	H	D	W1	H1	D1	d
480 V							
4302	475 (18.7)	1080.5 (42.54)	258.5 (10.18)	325 (12.8)	1038 (40.87)	213.5 (8.41)	M12





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## Revision History

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# YASKAWA

## Z1000 to HV600 REPLACEMENT ATTACHMENT OPTION INSTALLATION MANUAL

### YASKAWA AMERICA, INC.

2121, Norman Drive South, Waukegan, IL  
60085, U.S.A.  
+1-800-YASKAWA (927-5292)  
[www.yaskawa.com](http://www.yaskawa.com)

### DRIVE CENTER (INVERTER PLANT)

2-13-1, Nishimiyaichi, Yukuhashi, Fukuoka,  
824-8511, Japan  
Phone: +81-930-25-2548  
[www.yaskawa.co.jp](http://www.yaskawa.co.jp)

### YASKAWA EUROPE GmbH

Hauptstraße 185, 65760 Eschborn, Germany  
Phone: +49-6196-569-300  
E-mail: [support@yaskawa.eu.com](mailto:support@yaskawa.eu.com)  
[www.yaskawa.eu.com](http://www.yaskawa.eu.com)

### YASKAWA ELÉTRICO DO BRASIL LTDA.

777, Avenida Piraporinha, Diadema, São  
Paulo, 09950-000, Brasil  
Phone: +55-11-3585-1100  
[www.yaskawa.com.br](http://www.yaskawa.com.br)

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.

Original instructions.

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