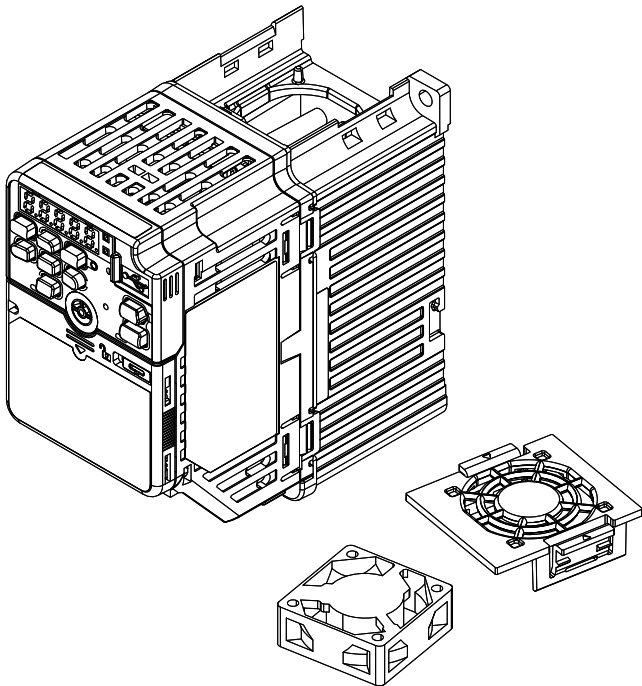


## Yaskawa AC Drive Fan Replacement Procedure

Applicable Drive  
Model

CIPR-GA50xxxxxxxx

To properly use the product, read this manual.



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## Table of Contents

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1.	Overview .....	4
2.	Explanation of Signal Words .....	4
3.	Section Safety .....	4
4.	Drive Models and Number of Fans .....	5
5.	Replace Cooling Fans .....	5
	Replace the Cooling Fan (Procedure A) .....	5
	Remove a Fan .....	6
	Install a Fan .....	6
	Replace the Cooling Fan (Procedure B) .....	9
	Remove a Fan .....	10
	Install the Cooling Fans .....	10
	Revision History .....	13

## 1 Overview

This manual shows you how to replace the cooling fans on Yaskawa drives.

## 2 Explanation of Signal Words

**▲ WARNING** Read and understand this manual before you install, operate, or do maintenance on the drive. Install the drive as specified by this manual and local codes. The symbols in this section identify safety messages in this manual. If you do not obey these safety messages, the hazards can cause serious injury, death, or damage to the products and related equipment and systems.

These identifier words categorize and emphasize important safety precautions in these instructions.

**▲ 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.

## 3 Section Safety

**▲ 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.

**▲ DANGER** **Electrical Shock Hazard.** Disconnect all power to the drive and wait for the time specified on the warning label before you remove covers. Check the drive for dangerous voltages before servicing or repair work. If you do work on the drive when it is energized and there is no cover over the electronic circuits, it will cause serious injury or death from electrical shock. The drive has internal capacitors that stay charged after you de-energize the drive.

**▲ WARNING** **Electrical Shock Hazard.** The motor will run after you de-energize the drive. PM motors can generate induced voltage to the terminal of the motor after you de-energize the drive. If you touch a motor that is moving or energized, it can cause serious injury or death.

**▲ WARNING** **Electrical Shock Hazard.** Do not wear loose clothing or jewelry when you do work on the drive. Tighten loose clothing and remove all metal objects, for example watches or rings. Loose clothing can catch on the drive and jewelry can conduct electricity and cause serious injury or death.

**▲ 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.

**NOTICE** Use the instructions in this manual to replace the cooling fans. When you do maintenance on the fans, replace all the fans to increase product life. If you install the fans incorrectly, it can cause damage to the drive.

## 4 Drive Models and Number of Fans

**Table 4.1 Single-Phase 200 V Class**

CIPR-GA50x	Cooling Fan	Procedure	Ref.
B001 - B006	-	-	-
B010, B012	1	A	5
B018	2	A	5

**Table 4.2 Three-Phase 200 V Class**

CIPR-GA50x	Cooling Fan	Procedure	Ref.
2001 -2004	-	-	-
2006 - 2021	1	A	5
2030	1	B	9
2042	2	B	9
2056 - 2082	2	A	5

**Table 4.3 Three-Phase 400 V Class**

CIPR-GA50x	Cooling Fan	Procedure	Ref.
4001 - 4004	-	-	-
4005 - 4012	1	A	5
4018, 4023	1	B	9
4031 - 4060	2	A	5

## 5 Replace Cooling Fans

**NOTICE** Use the instructions in this manual to replace the cooling fans. When you do maintenance on the fans, replace all the fans to increase product life. If you install the fans incorrectly, it can cause damage to the drive.

To replace a cooling fan, contact Yaskawa or your nearest sales representative.

### ◆ Replace the Cooling Fan (Procedure A)

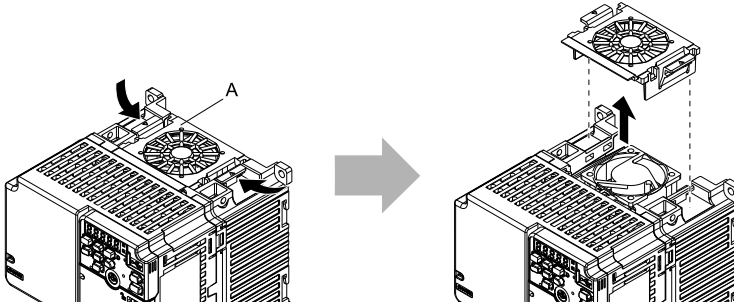
**⚠ DANGER** *Electrical Shock Hazard. Do not examine, connect, or disconnect wiring on an energized drive. Before servicing, disconnect all power to the equipment and wait for the time specified on the warning label at a minimum. The internal capacitor stays charged after the drive is de-energized. The charge indicator LED extinguishes when the DC bus voltage decreases below 50 Vdc. When all indicators are OFF, measure 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.*

**NOTICE** Use the instructions in this manual to replace the cooling fans. When you do maintenance on the fans, replace all the fans to increase product life. If you install the fans incorrectly, it can cause damage to the drive.

■ **Remove a Fan**

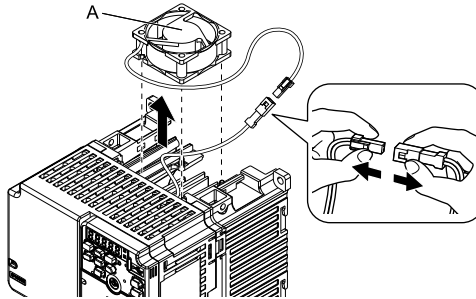
1. To remove the fan finger guard from the drive, push the hooks on the left and right sides of it and pull up.



A - Fan finger guard

**Figure 5.1 Remove the Fan Finger Guard**

2. Pull the cooling fan straight up from the drive. Disconnect the power supply connector and remove the fan from the drive.



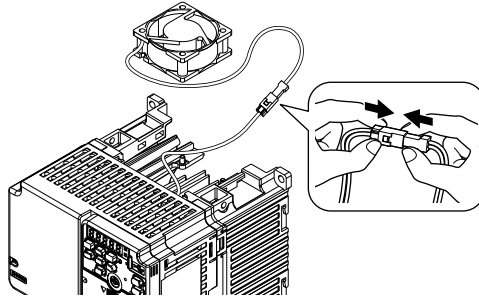
A - Cooling fan

**Figure 5.2 Remove the Cooling Fan**

■ **Install a Fan**

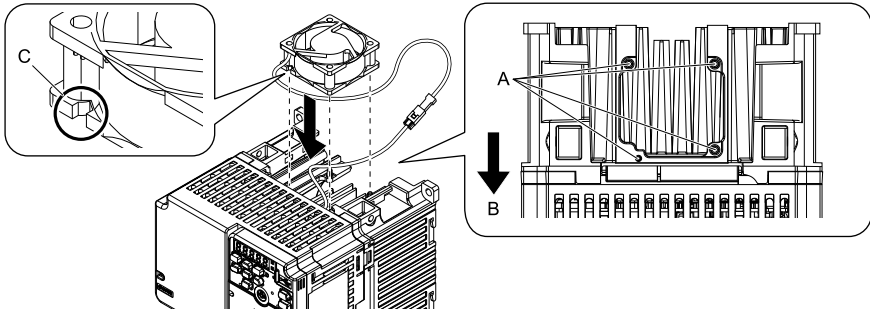
Reverse the removal procedure to install a cooling fan.

1. Connect the power supply connector between the drive and cooling fan.



**Figure 5.3 Connect the Power Supply Connector**

2. Align the notches on the fan with the pins on the drive and install the cooling fans in the drive.



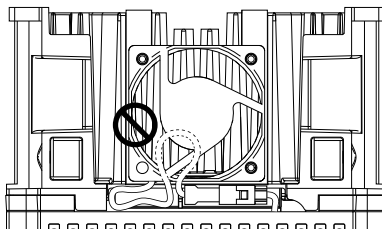
A - Alignment pins on drive  
B - Front of drive

C - Notch on fan

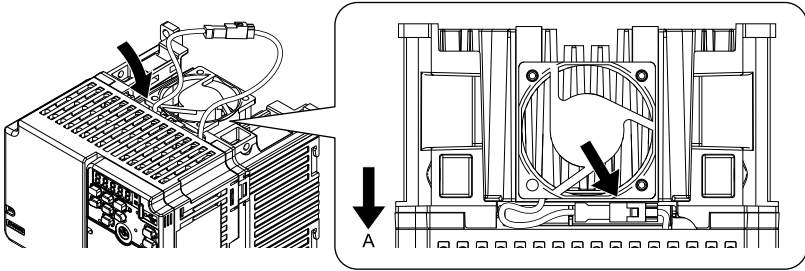
**Figure 5.4 Install the Cooling Fan**

**Note:**

When you install the cooling fan, make sure that you do not pinch cables between the cooling fan and the drive.



3. Put the cable and connector in the recess of the drive.

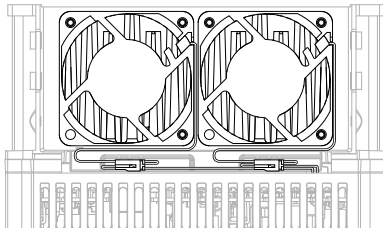


A - Front of drive

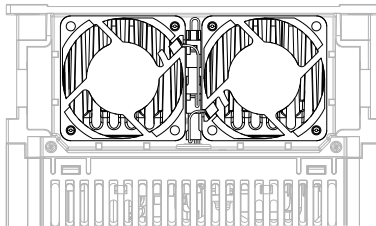
**Figure 5.5 Put the Cable and Connector in the Drive Recess**

**Note:**

The connector installation position is different for different models.

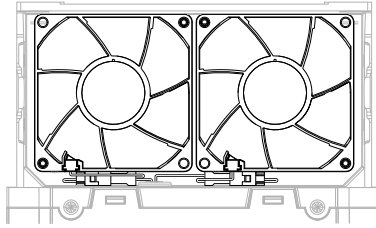


**Figure 5.6 Put the Connector in the Recess**



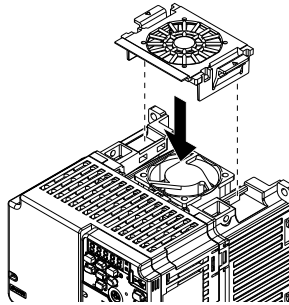
**Figure 5.7 Put the Connector in Between the Fans**





**Figure 5.8 Put the Connector in Between the Drive and Fan**

4. Insert the fan cover straight until the hook clicks into place.



**Figure 5.9 Reattach the Fan Finger Guard**

5. Energize the drive and set  $\alpha 4-03 = 0$  [*Fan Operation Time Setting = 0 h*] to reset the cooling fan operation time.

### ◆ Replace the Cooling Fan (Procedure B)

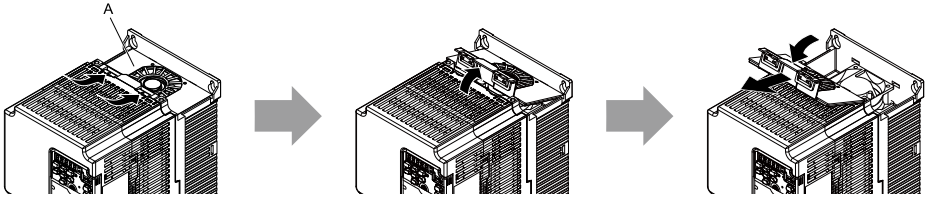
**⚠ DANGER** *Electrical Shock Hazard. Do not examine, connect, or disconnect wiring on an energized drive. Before servicing, disconnect all power to the equipment and wait for the time specified on the warning label at a minimum. The internal capacitor stays charged after the drive is de-energized. The charge indicator LED extinguishes when the DC bus voltage decreases below 50 Vdc. When all indicators are OFF, measure 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.*

**NOTICE** *Use the instructions in this manual to replace the cooling fans. When you do maintenance on the fans, replace all the fans to increase product life. If you install the fans incorrectly, it can cause damage to the drive.*

■ **Remove a Fan**

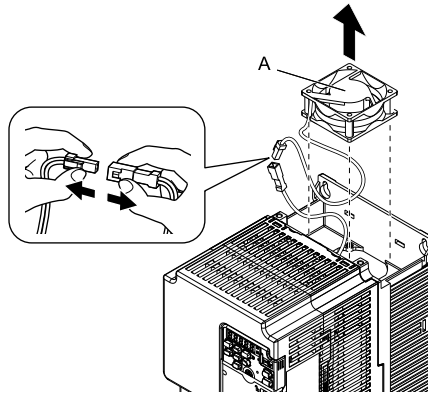
1. Push the tabs toward the back of the drive and pull up to remove the fan finger guard from the drive.



A - Fan finger guard

**Figure 5.10 Remove the Fan Finger Guard**

2. Pull the cooling fan straight up from the drive. Disconnect the power supply connector and remove the fan from the drive.



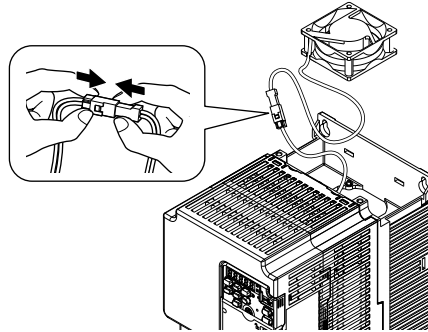
A - Cooling fan

**Figure 5.11 Remove the Cooling Fan**

■ **Install the Cooling Fans**

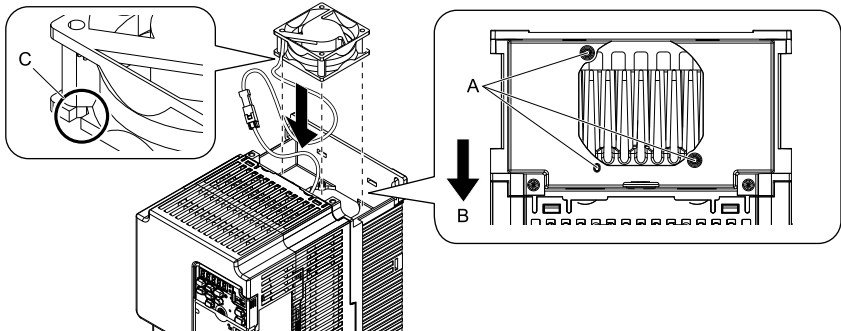
Reverse the removal procedure to install a cooling fan.

1. Connect the power supply connector between the drive and cooling fan.



**Figure 5.12 Connecting the power supply connector**

2. Install the cooling fans so that they align with the pins on the drive.



A - Alignment pins on drive

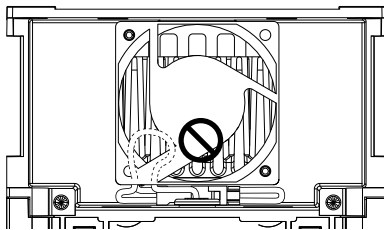
C - Notches

B - Front of drive

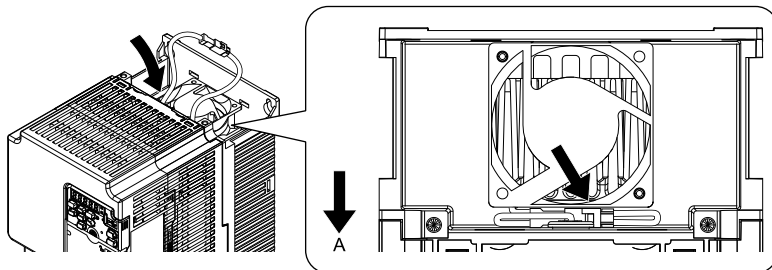
**Figure 5.13 Installing the cooling fans**

**Note:**

When you install the cooling fan, make sure that you do not pinch cables between the cooling fan and the drive.



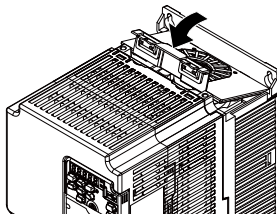
- Put the cable and connector in the recess of the drive.



A - Front of drive

**Figure 5.14 Putting the cable and connector in the recess**

- Insert the tabs of the fan cover into the holes in the drive and press in the fan cover until the hook clicks into place.



**Figure 5.15 Reattach the Fan Finger Guard**

- Energize the drive and set  $o4-03 = 0$  [Fan Operation Time Setting = 0 h] to reset the cooling fan operation time.

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## Revision History

Date of Publication	Revision Number	Section	Revised Content
June 2020	-	-	First Edition

# Yaskawa AC Drive Fan Replacement Procedure

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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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