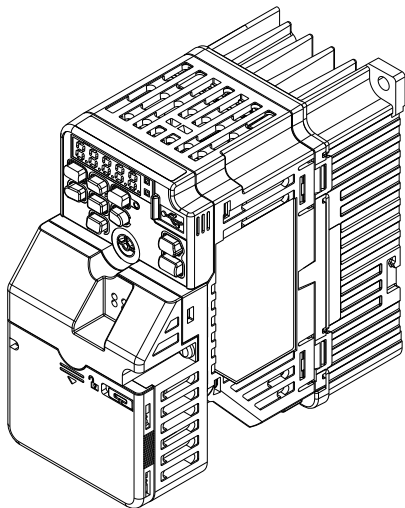


YASKAWA AC Drive Option Option Card Mounting Kit Installation Manual

Model JOHB-GA50

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 Option Card Mounting Kit Installation Manual	Read this manual before you install this option to the drive. This manual gives information about how to install an option card mounting kit.
YASKAWA AC Drive Option Installation Manual	Read this manual before you install this option to the drive. The manual provides information about wiring, setting, functions, and troubleshooting. The manual is packaged together with the product.
YASKAWA AC Drive Manuals	For information about drive settings, refer to the manuals for the drive with which you are using this option. The manuals provide information about basic installation, wiring, operation procedures, functions, troubleshooting, and maintenance. The manuals also include important information about parameter settings and tuning the drive. You can download drive manuals from the Yaskawa product and technical information website shown on the back cover of this manual.

◆ Glossary

Terminology Used in this Document	Description
Drive	YASKAWA AC Drive GA500
Case, Option	YASKAWA AC Drive Option Option Card Mounting 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

- 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, 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.*

⚠ 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

Use this option to install a communication option to a drive.

You can use this option when the installation environment of the drive meets the specifications shown in *Installation Environment on page 7*.

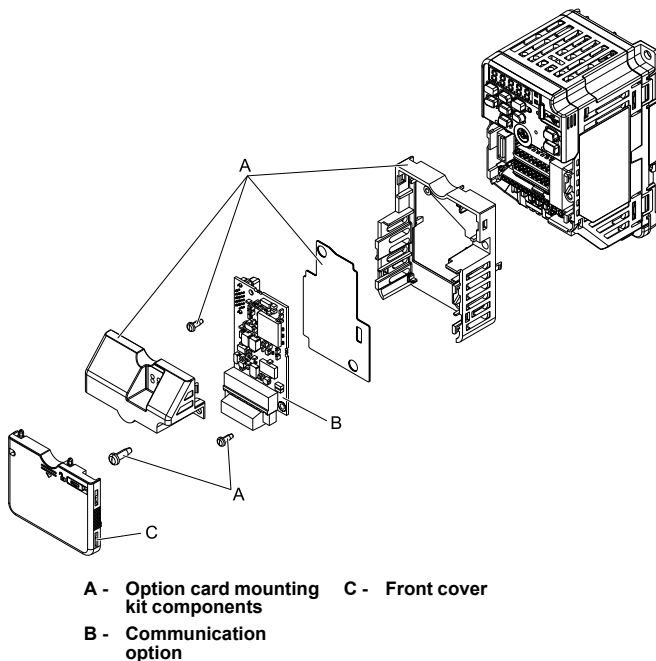


Figure 3.1 Option Card Mounting Kit

◆ Compatible Products

This installation kit is compatible with these drives:

- GA500

◆ Installation Environment

The installation environment is important for the lifespan of the product and to make sure that the drive performance is correct.

3 Overview

Make sure that the installation environment agrees with these specifications.

Environment	Conditions
Area of Use	Indoors
Power Supply	Overvoltage Category III (IEC60664)
Ambient Temperature Setting	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) <ul style="list-style-type: none">• 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.
Humidity	95%RH or less Do not let condensation form on the drive.
Storage Temperature	-20 °C to +70 °C (-4 °F to +158 °F) (short-term temperature during transportation)
Surrounding Area	Pollution degree 2 or less (IEC 60664-1) Install the drive in an area without: <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 Keep wood and other flammable materials away from the drive.
Altitude	1000 m (3281 ft) Maximum Note: 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: <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.

Environment	Conditions
	Contact Yaskawa or your nearest sales representative when not grounding the neutral point.
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: 0.6 G (5.9 m/s², 19.36 ft/s²)
Installation Orientation	Install the drive vertically or horizontally for sufficient airflow to cool the drive. Refer to the drive Technical Manual for more information.

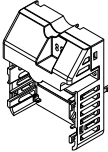



NOTICE *Do not put drive peripheral devices, transformers, or other electronics near the drive. Shield the drive from electrical interference if components must be near the drive. Components near the drive can cause incorrect drive operation from electrical interference.*

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

Option Card Mounting Case	Ground Wire	Mounting Screw	Insulator
 <p>#1</p>	 <p>#4</p>	 <p>A B</p> <p>A - 3 × 8 tapping screw: #2 B - 4 × 12 tapping screw: #1</p>	 <p>#1</p>

Note:

- Use the LED label packaged with the communication option.
- The ground wires and screws included with the communication option are not necessary.

◆ Necessary Tools

To install the attachment, use Phillips screwdriver #2.

5 Installation Procedure

▲ 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.*

◆ Option Dimensions

The installed option adds 27 mm (1.06 in) to the total depth of the drive.

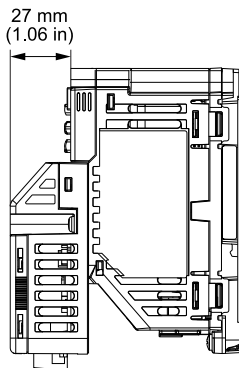


Figure 5.1 Option Dimensions

◆ Installation Methods

The installation procedure is different for different drive protection designs.

Table 5.1 Installation Methods

Type	Procedure	Reference
IP20/UL Open Type	Procedure A	11
IP20/UL Type 1 <i>*1</i>	Procedure B	20

*1 If you install the option on an IP20/UL Type 1 enclosure, it will void the UL Type 1 protection and keep IP20 conformity.

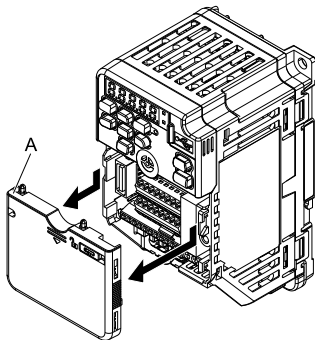
◆ Install the Option Card Mounting Kit (Procedure A)

De-energize the drive before you start the procedure.

⚠ 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.*

1. Unlock the front cover to remove it from the drive.

NOTICE *Observe correct electrostatic discharge (ESD) procedures when touching the option. Failure to obey can cause ESD damage to the option circuitry.*



A - Front cover

Figure 5.2 Remove the Front Cover

2. Connect the ground wire to the drive ground terminal.
Connect the drive side of the ground wire to the drive ground terminal.

Note:

The option package has four different ground wires. The length and the terminal size on the drive side of the ground wire are different for different drives. Use the correct ground wire for your drive.

Refer to [Table 5.2](#) for ground wire selection.

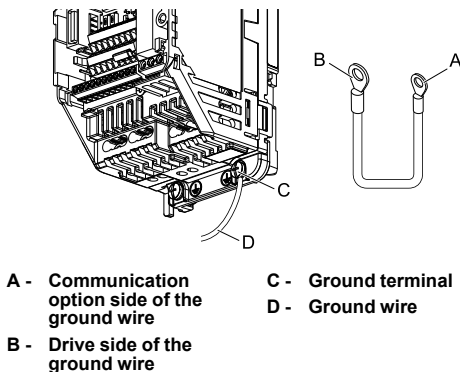
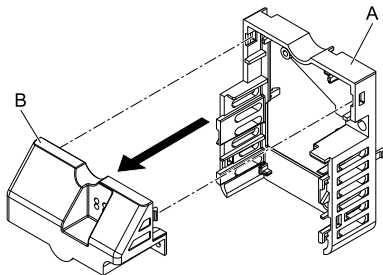


Figure 5.3 Ground wire

Table 5.2 Ground Wire Length

Drive Model			Length mm
Single-Phase 200 V Class	Three-Phase 200 V Class	Three-Phase 400 V Class	
-	-	-	150
B001, B002, B004, B006, B010, B012, B018	2001, 2002, 2004, 2006, 2008, 2010, 2012, 2018, 2021	4001, 4002, 4004, 4005, 4007, 4009, 4012	200
-	2030, 2042	4018, 4023	250
-	2056, 2070, 2082	4031, 4038, 4044, 4060	400

3. Remove the option cover from the base.



A - Base

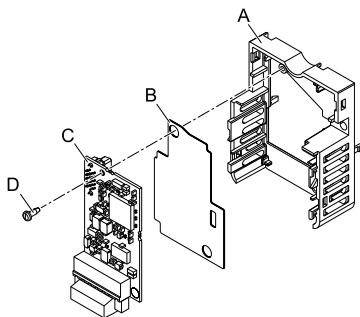
B - Option cover

Figure 5.4 Remove the Option Cover

4. Install a communication option and the insulator to the base.

Tighten the screw to a correct tightening torque:

- 3×8 tapping screw: 0.49 N·m to 0.73 N·m (4.34 in·lb to 6.46 in·lb)

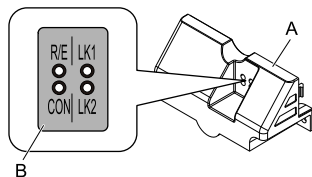


A - Base
B - Insulator

C - Communication option
D - 3 × 8 tapping screw

Figure 5.5 Install the Communication Option

- Put the communication option LED label on the option cover.

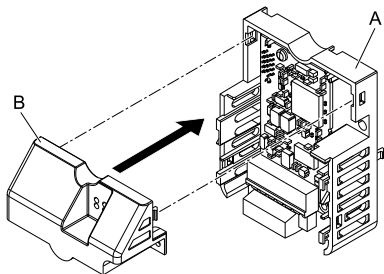


A - Option cover

B - LED label

Figure 5.6 Put the LED Label on the Cover

- Install the option cover to the base.
Push the option cover until the hooks click into place on the base.



A - Base

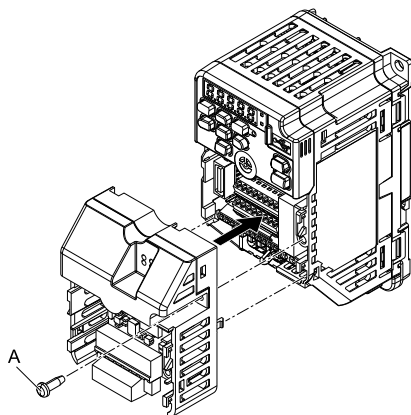
B - Option cover

Figure 5.7 Install the Option Cover

7. Install the case to the drive.

Tighten the screw to a correct tightening torque:

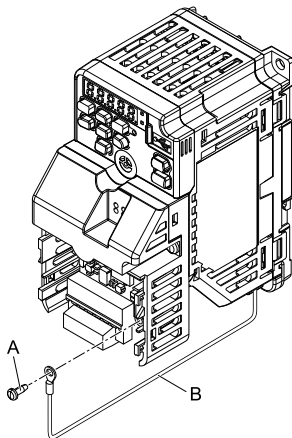
- 4 × 12 tapping screw: 0.69 N·m to 0.73 N·m (6.11 in·lb to 8.67 in·lb)



A - 4 × 12 tapping screw

Figure 5.8 Install the Case

8. Use the supplied screw to connect the option side of the ground wire to the communication option.
Tighten the screw to a correct tightening torque:
 - 3 × 8 tapping screw: 0.49 N·m to 0.73 N·m (4.34 in·lb to 6.46 in·lb)

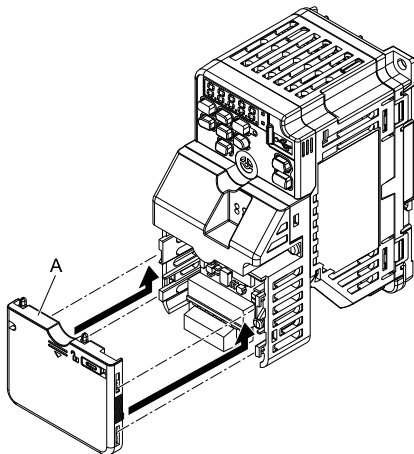


A - 3 × 8 tapping screw B - Ground wire

Figure 5.9 Connect the Ground Wire

9. Connect communication cables to an option connector. Isolate communication cables from main circuit wiring and other electrical lines. Refer to the instruction manual for each communication option for more information.

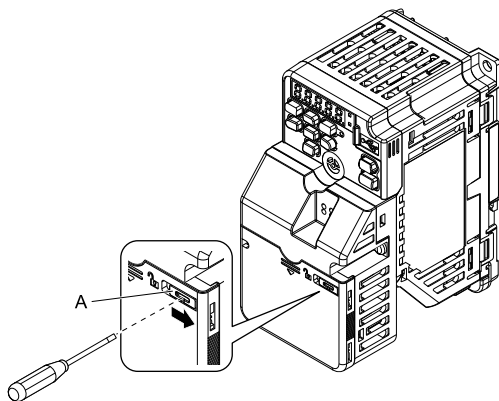
10. Install the front cover.



A - Front cover

Figure 5.10 Install the Front Cover

11. Use a slotted screwdriver to lock the front cover of the drive.



A - Front cover lock

Figure 5.11 Lock the Front Cover

12. Set the drive-related parameters.
Refer to the instruction manual for each communication option for more information.

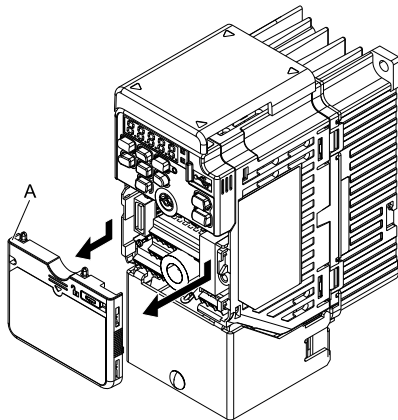
◆ Install the Option Card Mounting Kit (Procedure B)

De-energize the drive before you start the procedure.

⚠ 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.*

1. Unlock the front cover to remove it from the drive.

NOTICE Observe correct electrostatic discharge (ESD) procedures when touching the option. Failure to obey can cause ESD damage to the option circuitry.



A - Front cover

Figure 5.12 Remove the Front Cover

2. Remove the screw that attaches the front cover of the conduit.

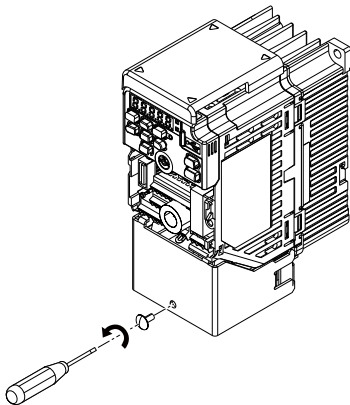
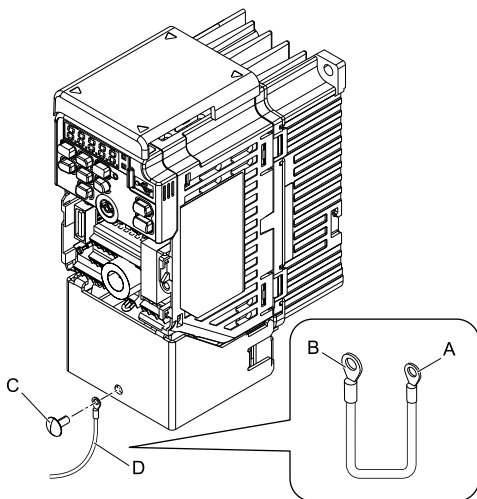


Figure 5.13 Remove the Screw that Attaches the Front Cover of the Conduit.

3. Use the supplied screw to connect the drive side of the ground wire to the front cover of the conduit.
Tighten the screw to a correct tightening torque:
 - M4 × 10 truss head screw: 0.98 N·m to 1.33 N·m (8.67 in·lb to 11.77 in·lb)

Note:

The option package has four different ground wires. The length and the terminal size on the drive side of the ground wire are different for different drives. Use the correct ground wire for your drive.



**A - Communication
option side of the
ground wire**

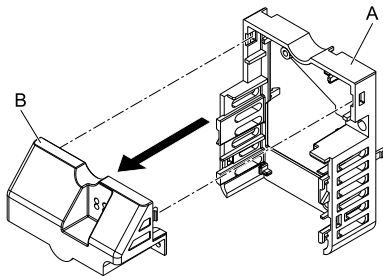
**B - Drive side of the
ground wire**

C - Ground terminal

D - Ground wire

Figure 5.14 Connect the Ground Wire

4. Remove the option cover from the base.



A - Base

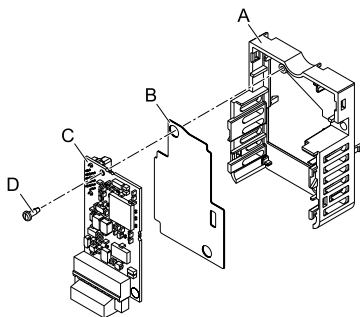
B - Option cover

Figure 5.15 Remove the Option Cover

5. Install a communication option and the insulator to the base.

Tighten the screw to a correct tightening torque:

- 3×8 tapping screw: 0.49 N·m to 0.73 N·m (4.34 in·lb to 6.46 in·lb)

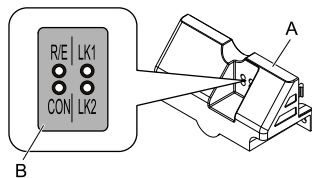


A - Base
B - Insulator

C - Communication option
D - 3 × 8 tapping screw

Figure 5.16 Install the Communication Option

- Put the communication option LED label on the option cover.

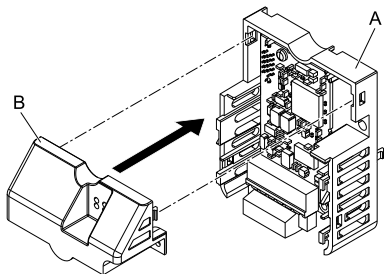


A - Option cover

B - LED label

Figure 5.17 Put the LED Label on the Cover

- Install the option cover to the base.
Push the option cover until the hooks click into place on the base.



A - Base

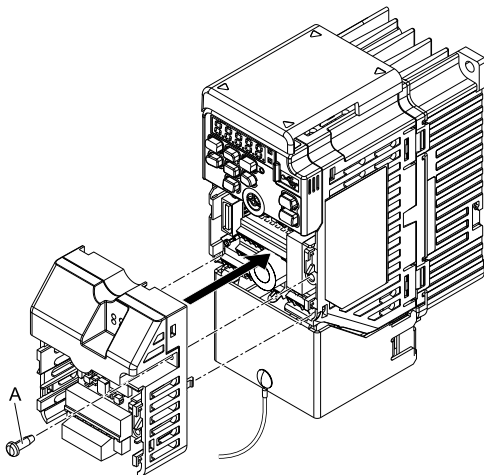
B - Option cover

Figure 5.18 Install the Option Cover

8. Install the case to the drive.

Tighten the screw to a correct tightening torque:

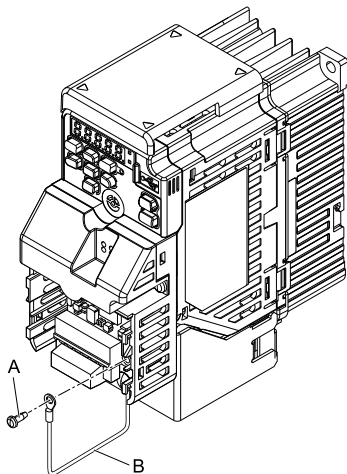
- 4 × 12 tapping screw: 0.69 N·m to 0.73 N·m (6.11 in·lb to 8.67 in·lb)



A - 4 × 12 tapping screw

Figure 5.19 Install the Case

9. Use the supplied screw to connect the option side of the ground wire to the option.
Tighten the screw to a correct tightening torque:
 - 3 × 8 tapping screw: 0.49 N·m to 0.73 N·m (4.34 in·lb to 6.46 in·lb)

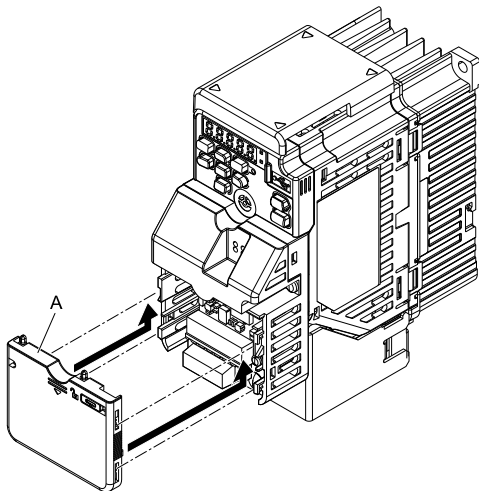


A - 3 × 8 tapping screw B - Ground wire

Figure 5.20 Connect the Ground Wire

10. Connect communication cables to an option connector.
Isolate communication cables from main circuit wiring and other electrical lines. Refer to the instruction manual for each communication option for more information.

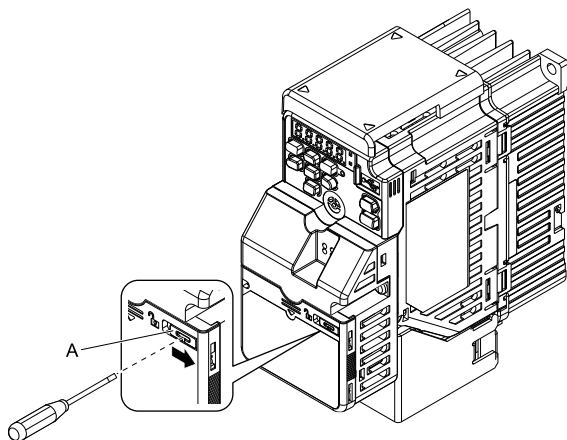
11. Install the front cover.



A - Front cover

Figure 5.21 Install the Front Cover

12. Use a slotted screwdriver to lock the front cover of the drive.



A - Front cover lock

Figure 5.22 Lock the Front Cover

13. Set the drive-related parameters.
Refer to the instruction manual for each communication option for more information.

Revision History

Date of Publication	Revision Number	Section	Revised Content
November 2019	1	All	Revision: Reviewed and corrected entire documentation
		3, 4, 5	Addition: Insulator and corresponding data.
March 2019	-	-	First Edition

YASKAWA AC Drive Option Option Card Mounting 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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