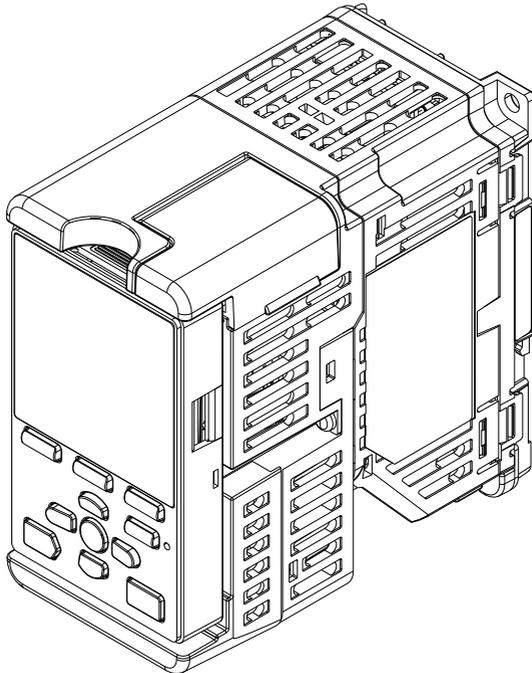


Yaskawa AC Drive Option LCD Keypad Attachment Installation Manual

Model JZSP-GA500

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 LCD Keypad Attachment Installation Manual	Read this manual before you install this option to the drive. This manual gives information about how to install the LCD keypad attachment.
Yaskawa AC Drive Communications Options Installation Manual	The manual provides information about the functions of the option and how to wire, program, and troubleshoot the option. The manual is packaged together with the product.
Yaskawa AC Drive Option LCD Keypad Installation Manual	The manual gives information about how to do a basic installation and wire the product. The manual is packaged together with the product.
Yaskawa AC Drive Installation Manual	For information about drive settings, refer to the manuals for the drive with which you will use 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
Attachment, Option	YASKAWA AC Drive Option LCD Keypad Attachment

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 attach an LCD keypad and a communication option to the drive.

You can use this option when the installation environment of the drive meets the specifications shown in [Installation Environment on page 5](#).

◆ 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. Make sure that the installation environment agrees with these specifications.

Environment	Conditions
Area of Use	Indoors
Power Supply	Overvoltage Category III (IEC60664)

Environment	Conditions
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. 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.

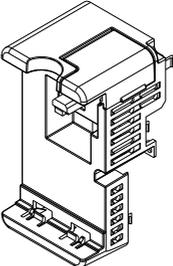
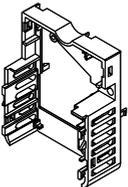
NOTICE Do not put drive peripheral devices, transformers, or other electronics near the drive. Shield the drive from electrical interference if components must be near the drive. Components near the drive can cause incorrect drive operation from electrical interference.

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

- 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.
- 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

Parts	Qty
Bracket	 #1
Base	 #1
Insulator <i>*1</i>	 #1
Ground Wire	 #4
Mounting Screw	 A - 3 × 8 tapping screw B - 4 × 12 tapping screw
Warning Label	 #1

*1 Use the insulator when you install a communication option (sold separately).

Note:

1. When you install a communication option, use the LED label included with the option.
2. 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.*

Drive Model	Enclosure Protection Design	Communication Option	Procedure	Ref.
GA50xxxxxB	IP20/UL Open Type	No	A	10
		Yes	B	13
GA50xxxxxF	IP20/UL Type1	No	A	10
		Yes	C	18

◆ Option Dimensions

The installed option adds 55.5 mm (2.19 in) to the total depth of the drive.

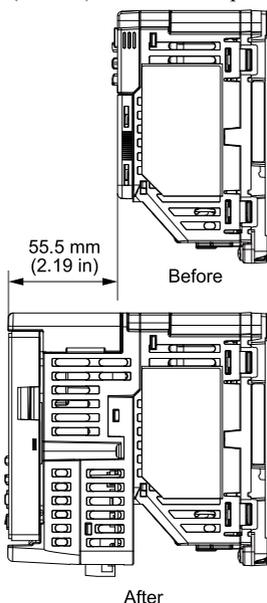
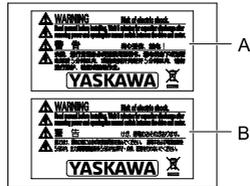


Figure 5.1 Option Dimensions

◆ Put the Warning Label on the Bracket

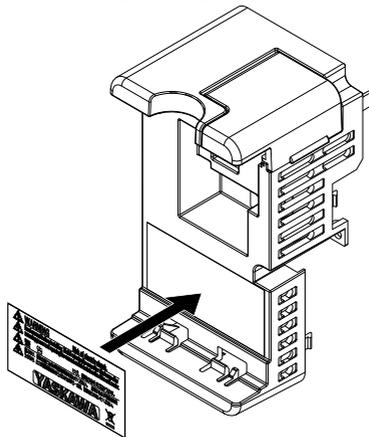
When you use the drive in Japan or China, you must put the correct warning label on the bracket.



A - For China (written in both English and Chinese)

B - For Japan (written in both English and Japanese)

Put the warning label over the existing warning label.



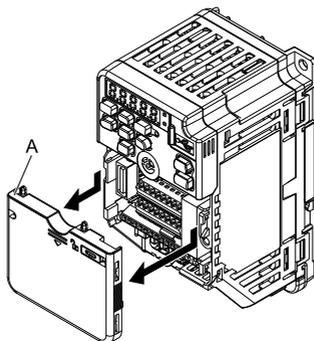
◆ Install the Attachment (Procedure A)

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. Remove the front cover from the drive.

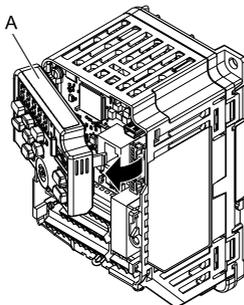
NOTICE *Damage to Equipment. When you touch the option, make sure that you observe correct electrostatic discharge (ESD) procedures. If you do not follow procedures, it can cause ESD damage to the drive circuitry.*



A - Front cover

Figure 5.2 Remove the Front Cover

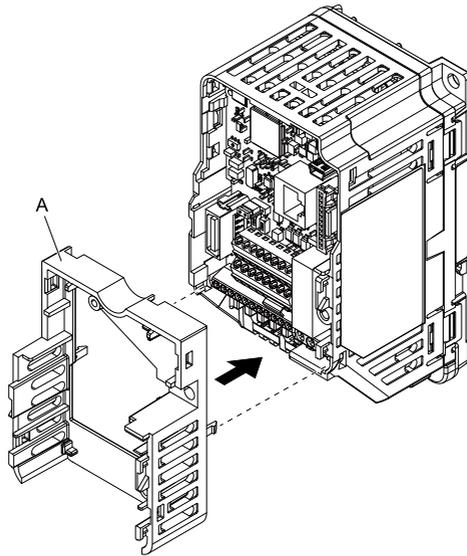
2. Remove the LED keypad.



A - LED Keypad

Figure 5.3 Remove the LED Keypad

3. Install the base to the drive.
Push the base until the hooks click into place on the drive.



A - Base

Figure 5.4 Install the Base

4. Install the bracket to the drive.

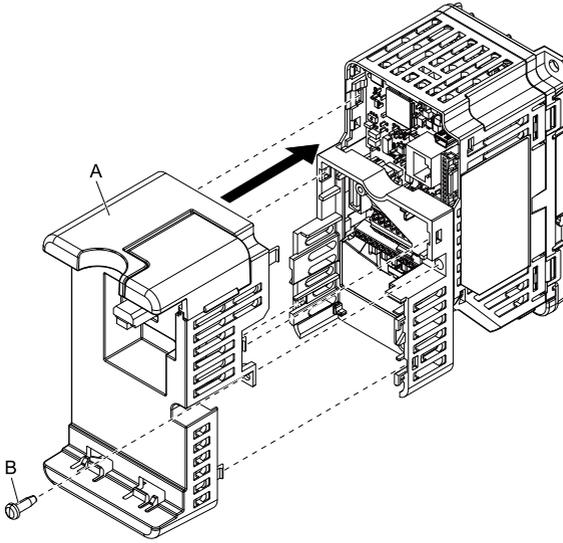
Note:

The insulator is not necessary.

Push the bracket until the hooks click into place on the drive and use the supplied screw B to safety the bracket.

Tighten the screws to a correct tightening torque:

- 4 × 12 tapping screw: 0.69 N·m to 0.73 N·m (6.11 in·lb to 6.46 in·lb)

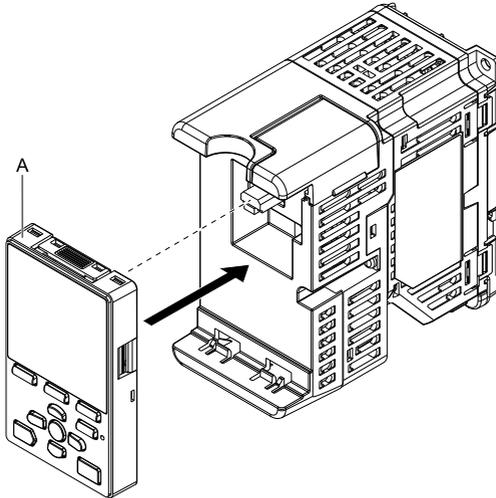


A - Bracket

B - Screw B

Figure 5.5 Install the Bracket

5. Put the keypad into the bracket.



A - Keypad

Figure 5.6 Attach the Keypad

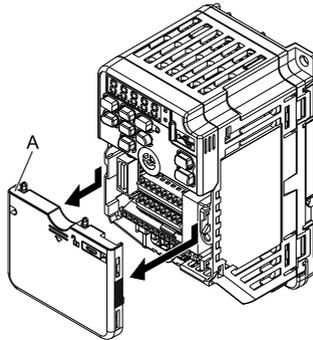
◆ Install the Attachment (Procedure B)

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. Remove the front cover from the drive.

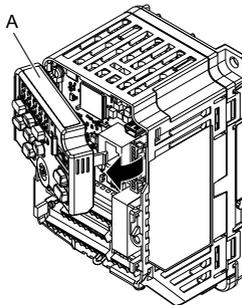
NOTICE *Damage to Equipment. When you touch the option, make sure that you observe correct electrostatic discharge (ESD) procedures. If you do not follow procedures, it can cause ESD damage to the drive circuitry.*



A - Front cover

Figure 5.7 Remove the Front Cover

2. Remove the LED keypad.



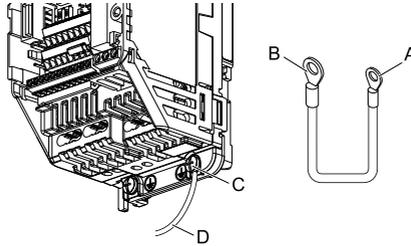
A - LED Keypad

Figure 5.8 Remove the LED Keypad

3. Connect the ground wire included with attachment to the drive ground terminal. Connect the drive side of the ground wire to the drive ground terminal.

Note:

Four different ground wires are packaged with the option. 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 5.1](#) for ground wire selection.



- A - Communication option side of the ground wire
- B - Drive side of the ground wire
- C - Ground terminal
- D - Ground wire

Figure 5.9 Connect the Ground Wire

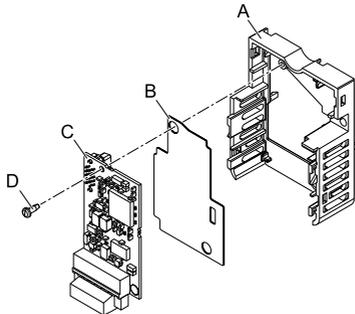
Table 5.1 Ground Wire Length

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

4. Use the supplied screw A to attach a communication option and an Insulator to the base.

Tighten the screws to a correct tightening torque:

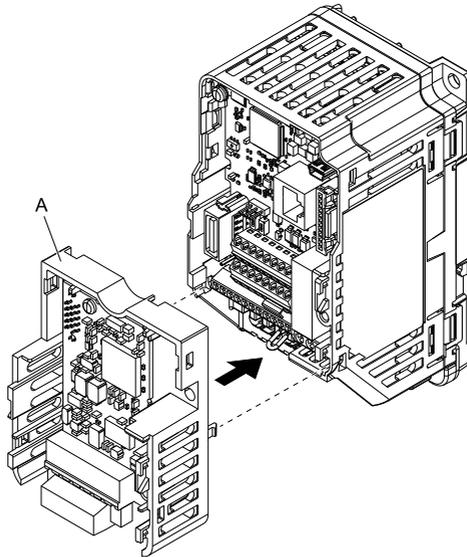
- 3 × 8 tapping screw: 0.49 N·m to 0.73 N·m (4.34 in·lb to 6.46 in·lb)



- A - Base
- B - Insulator
- C - Communication option
- D - Screw A

Figure 5.10 Install the Communication Option

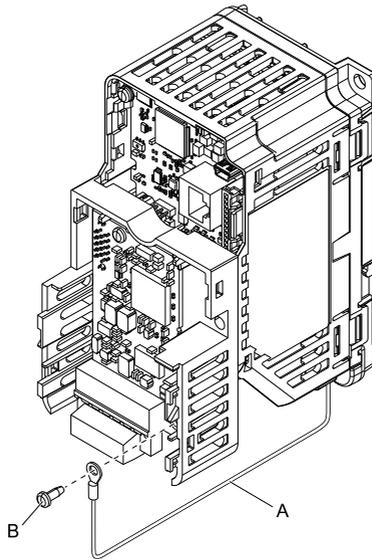
5. Install the base to the drive.
Push the base until the hooks click into place on the drive.



A - Base

Figure 5.11 Install the Base

6. Use the supplied screw A to connect the option side of the ground wire to the communication option.
Tighten the screws 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)

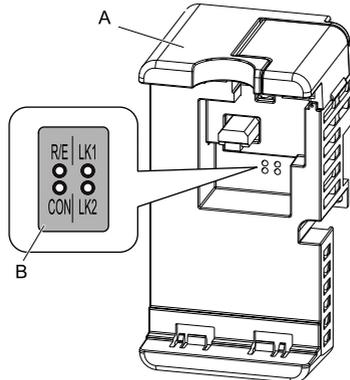


A - Ground wire

B - Screw A

Figure 5.12 Connect the Ground Wire

7. 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.
8. Put the communication option LED label on the bracket.



A - Bracket

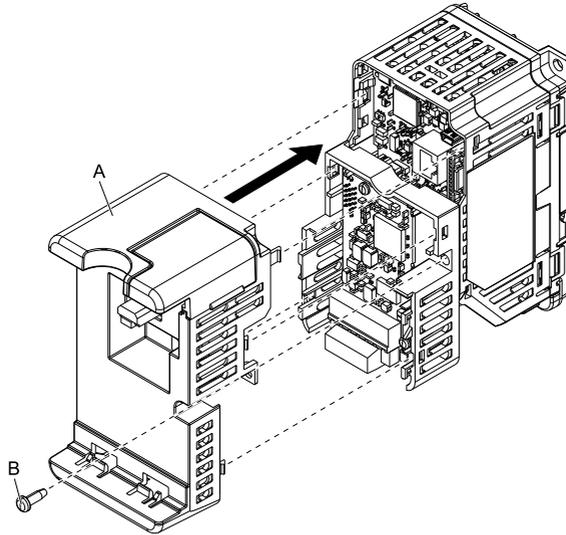
B - LED label

Figure 5.13 Put the LED Label on the Cover

9. Install the bracket to the drive.
Push the bracket until the hooks click into place on the drive and use the supplied screw B to safety the bracket.

Tighten the screws 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)

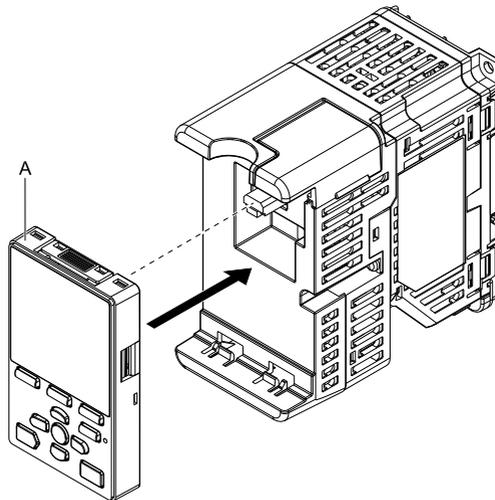


A - Bracket

B - Screw B

Figure 5.14 Install the Bracket

10. Put the keypad into the bracket.



A - Keypad

Figure 5.15 Attach the Keypad

11. Set the drive-related parameters.

Refer to the instruction manual for each communication option for more information.

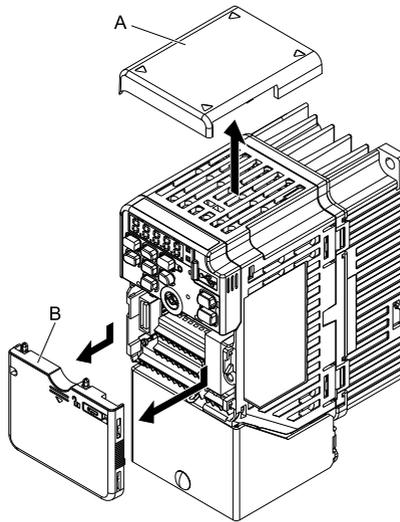
◆ **Install the Kit (Procedure C)**

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. Remove the top protective cover and the front cover from the drive.

NOTICE *Damage to Equipment. When you touch the option, 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.*

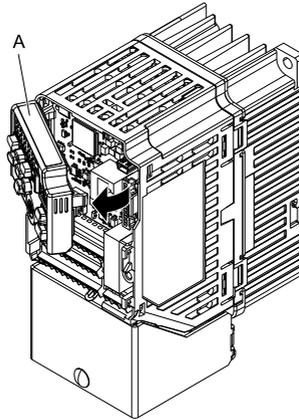


A - Top protective cover

B - Front cover

Figure 5.16 Remove the Top Protective Cove and the Front Cover

2. Remove the LED keypad.



A - LED Keypad

Figure 5.17 Remove the LED Keypad

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

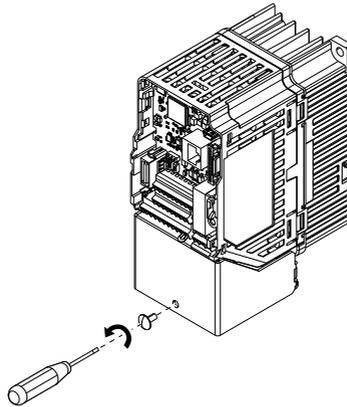


Figure 5.18 Remove the Screw that Attaches the Front Cover of the Conduit.

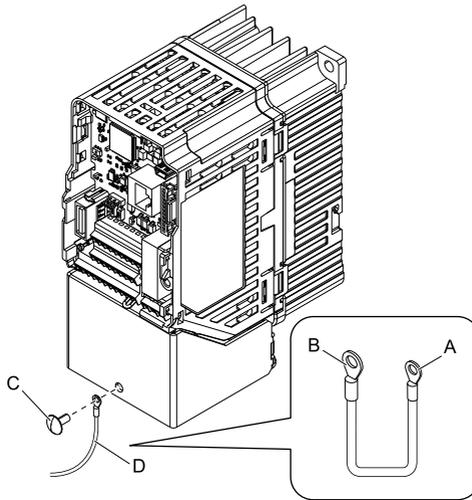
4. Connect the supplied ground wire to the drive conduit bracket.
Use the screw that attaches the conduit bracket to connect the drive side of the ground wire to the drive conduit bracket.

Tighten the screws to a correct tightening torque:

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

Note:

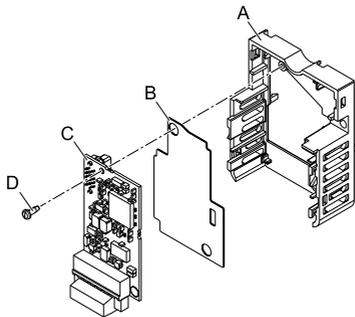
There are four different ground wires in the option package. The length and the terminal size on the drive side of the ground wire are different for different drives. Use the correct ground wire for your drive.



- | | |
|---|----------------------------|
| A - Communication option side of the ground wire | C - Ground terminal |
| B - Drive side of the ground wire | D - Ground wire |

Figure 5.19 Connect the Ground Wire

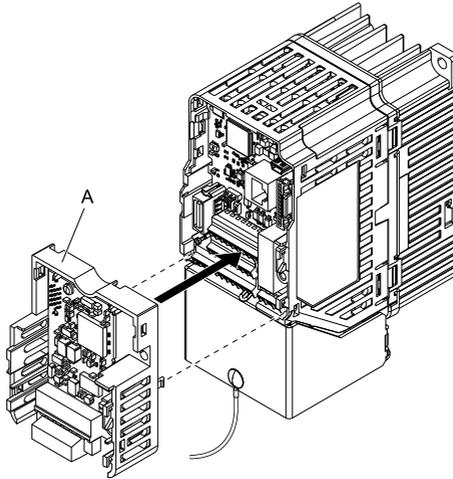
5. Use the supplied screw A to attach a communication option and insulator to the base. Tighten the screws to a correct tightening torque:
 - 3 × 8 tapping screw: 0.49 N·m to 0.73 N·m (4.34 in·lb to 6.46 in·lb)



- | | |
|----------------------|---------------------------------|
| A - Base | C - Communication option |
| B - Insulator | D - Screw A |

Figure 5.20 Install the Communication Option

6. Install the base to the drive. Push the base until the hooks click into place on the drive.



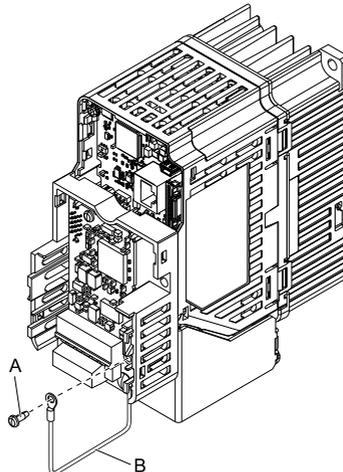
A - Base

Figure 5.21 Install the Base

7. To install a communication option on the drive.
Use the supplied screw A to connect the option side of the ground wire to the communication option.

Tighten the screws 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)

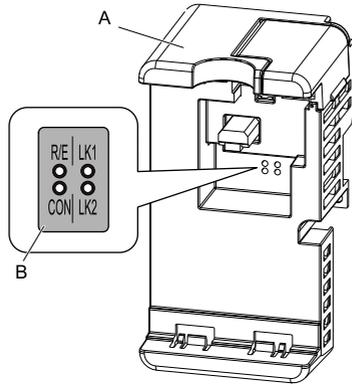


A - Screw A

B - Ground wire

Figure 5.22 Connect the Ground Wire

8. 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.
9. Put the communication option LED label on the bracket.

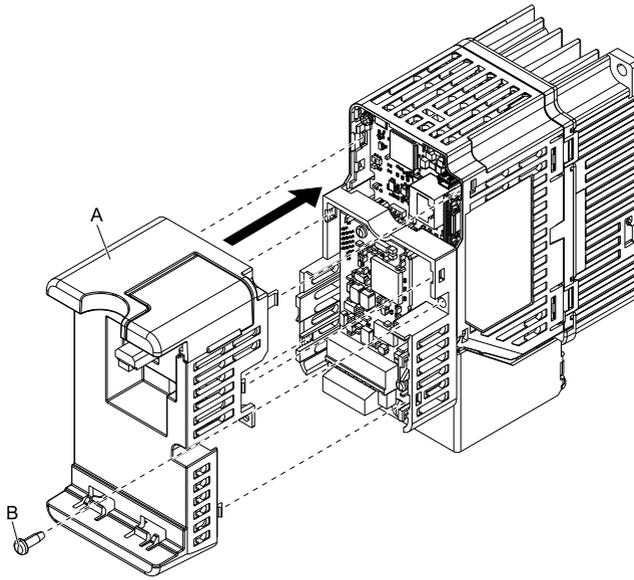


A - Bracket

B - LED label

Figure 5.23 Put the LED Label on the Cover

10. Install the bracket to the drive.
Push the bracket until the hooks click into place on the drive and use the supplied screw B to safety the bracket.
Tighten the screws 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)

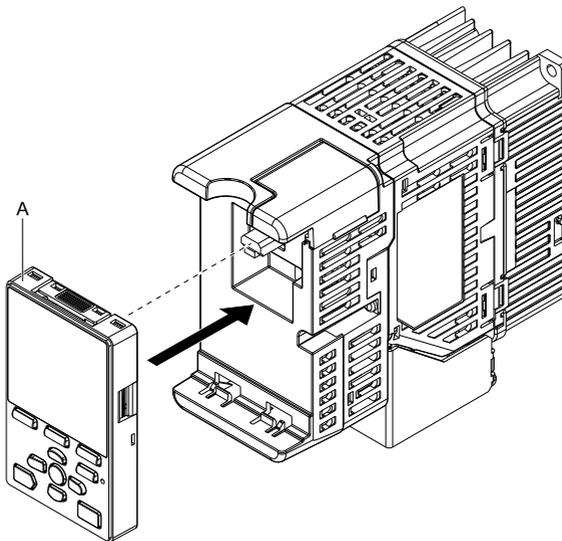


A - Bracket

B - Screw B

Figure 5.24 Install the Bracket

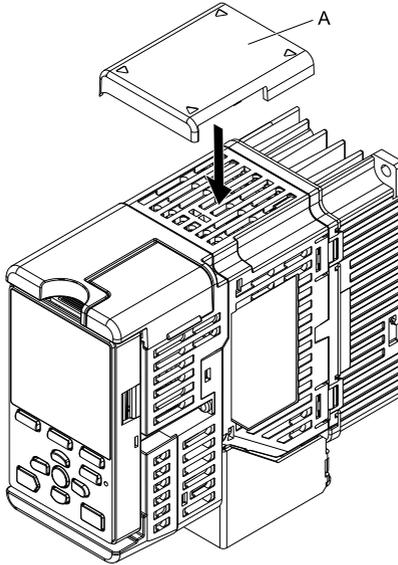
11. Put the keypad into the bracket.



A - Keypad

Figure 5.25 Attach the Keypad

12. Attach the Top Protective Cover



A - Top protective cover

Figure 5.26 Install the Top Protective Cover

13. Set the drive-related parameters.

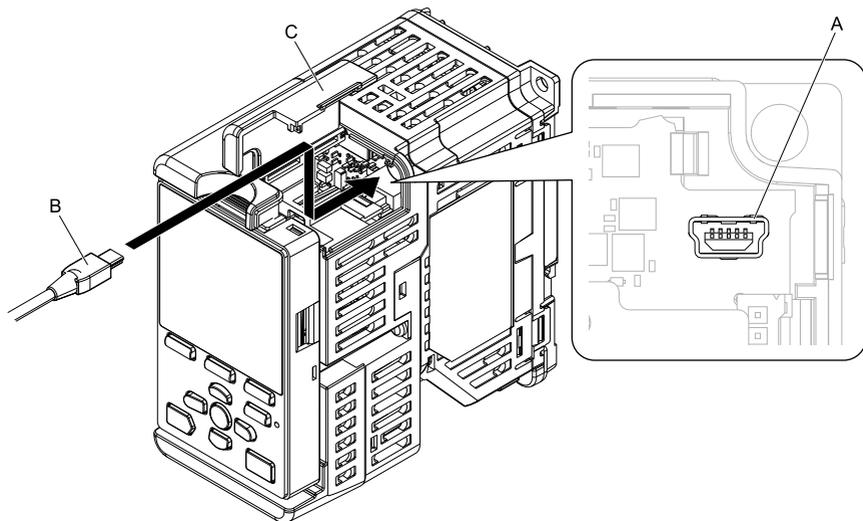
Refer to the instruction manual for each communication option for more information.

◆ **Connect a USB Cable**

Open the USB connector cover to connect the USB cable to the drive USB port.

Note:

If you cannot open the USB connector cover on an installed drive or if it is difficult to connect the USB cable to the drive, remove the keypad, the attachment and the base from the drive, and then connect the USB cable directly to the USB connector.



A - USB port

C - USB connector cover

B - USB cable

Figure 5.27 Connect a USB Cable

6 Disposal

◆ Disposal Instructions

Correctly dispose of the product and packing material as specified by applicable regional, local, and municipal laws and regulations.

◆ WEEE Directive



The wheeled bin symbol on this product, its manual, or its packaging identifies that you must recycle it at the end of its product life.

You must discard the product at an applicable collection point for electrical and electronic equipment (EEE). Do not discard the product with usual waste.

Revision History

Date of Publication	Revision Number	Section	Revised Content
July 2020	1	All	Revision: Reviewed and corrected entire documentation
		4, 5	Addition: Insulator and corresponding data.
October 2019	-	-	First Edition



Yaskawa AC Drive Option LCD Keypad Attachment Installation Manual

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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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