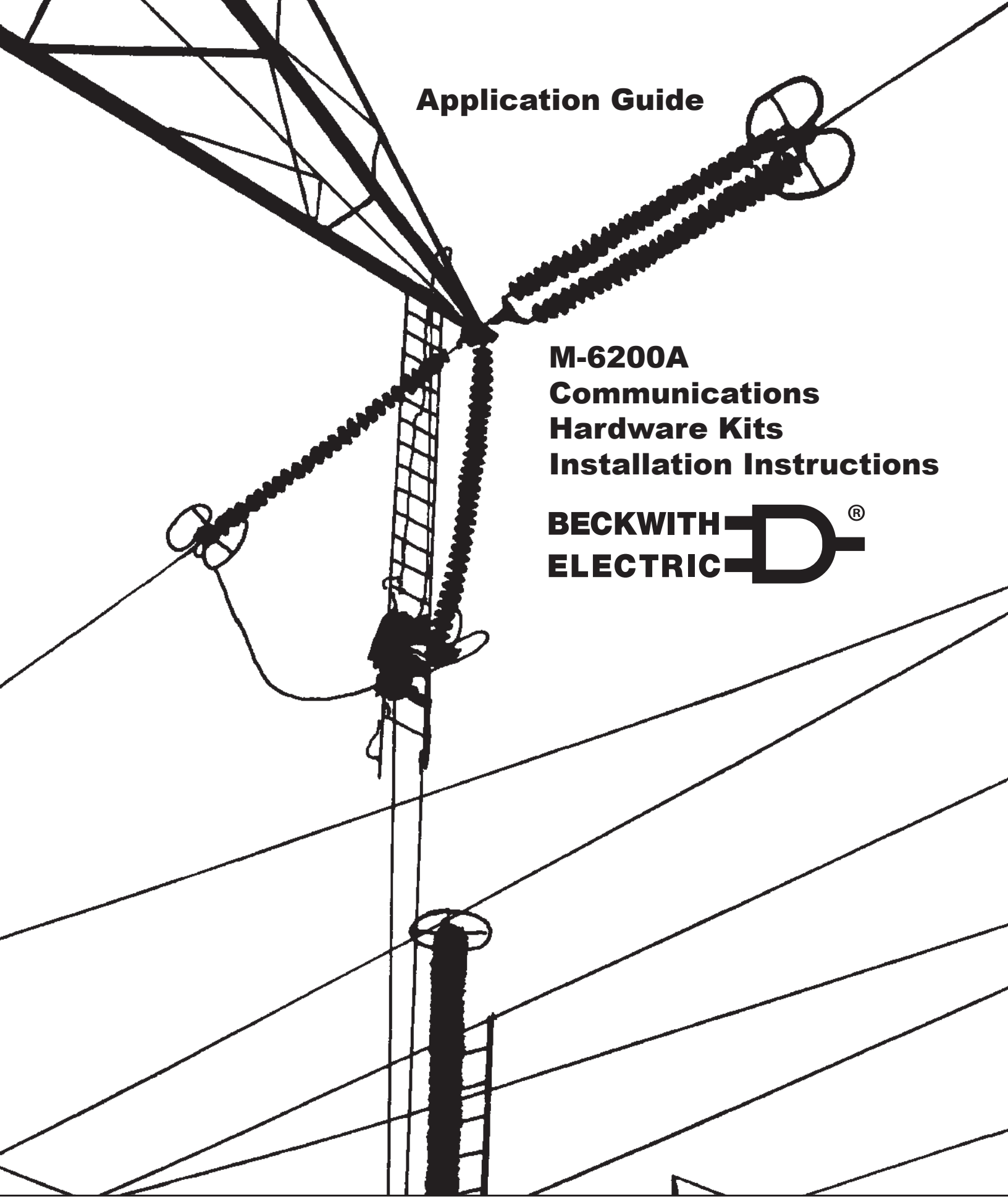
Application Guide

M-6200A Communications Hardware Kits Installation Instructions

BECKWITH ELECTRIC®



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A proud member of the Hubbell family.

TRADEMARKS

WARNING

DANGEROUS VOLTAGES, capable of causing death or serious injury, are present on the external terminals and inside the equipment. Use extreme caution and follow all safety rules when handling, testing or adjusting the equipment. However, these internal voltage levels are no greater than the voltages applied to the external terminals.

DANGER! HIGH VOLTAGE

– This sign warns that the area is connected to a dangerous high voltage, and you must never touch it.

PERSONNEL SAFETY PRECAUTIONS

The following general rules and other specific warnings throughout the manual must be followed during application, test or repair of this equipment. Failure to do so will violate standards for safety in the design, manufacture, and intended use of the product. Qualified personnel should be the only ones who operate and maintain this equipment. Beckwith Electric assumes no liability for the customer's failure to comply with these requirements.

– This sign means that you should refer to the corresponding section of the operation manual for important information before proceeding.

Always Ground the Equipment

To avoid possible shock hazard, the chassis must be connected to an electrical ground. When servicing equipment in a test area, the Protective Earth Terminal must be attached to a separate ground securely by use of a tool, since it is not grounded by external connectors.

Do NOT operate in an explosive environment

Do not operate this equipment in the presence of flammable or explosive gases or fumes. To do so would risk a possible fire or explosion.

Keep away from live circuits

Operating personnel must not remove the cover or expose the printed circuit board while power is applied. In no case may components be replaced with power applied. In some instances, dangerous voltages may exist even when power is disconnected. To avoid electrical shock, always disconnect power and discharge circuits before working on the unit.

Exercise care during installation, operation, & maintenance procedures

The equipment described in this manual contains voltages high enough to cause serious injury or death. Only qualified personnel should install, operate, test, and maintain this equipment. Be sure that all personnel safety procedures are carefully followed. Exercise due care when operating or servicing alone.

Do not modify equipment

Do not perform any unauthorized modifications on this instrument. Return of the unit to a Beckwith Electric repair facility is preferred. If authorized modifications are to be attempted, be sure to follow replacement procedures carefully to assure that safety features are maintained.

PRODUCT CAUTIONS

Before attempting any test, calibration, or maintenance procedure, personnel must be completely familiar with the particular circuitry of this unit, and have an adequate understanding of field effect devices. If a component is found to be defective, always follow replacement procedures carefully to that assure safety features are maintained. Always replace components with those of equal or better quality as shown in the Parts List of the Instruction Book.

Avoid static charge

This unit contains MOS circuitry, which can be damaged by improper test or rework procedures. Care should be taken to avoid static charge on work surfaces and service personnel.

Use caution when measuring resistances

Any attempt to measure resistances between points on the printed circuit board, unless otherwise noted in the Instruction Book, is likely to cause damage to the unit.

WARNING

This equipment contains a certified transmitter found to comply with FCC Part 15.247 rules regarding frequency hopping spread spectrum intentional radiators. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Only the antenna provided is authorized for use with the M-6200 Series Controls. If the antenna is lost or damaged, please contact Beckwith Electric to secure a replacement antenna.

This product generates, uses, and can radiate radio frequency (RF). If it is not installed and used in accordance with the operating instructions, it can cause harmful interference to communications. If this equipment causes harmful interference to radio or television reception, the user should try and correct the interference by:

- Reorienting or relocating the receiving/transmitting antenna
- Increasing the separation between the equipment and the M-6200 Series Controls
- Connecting the equipment into an outlet on a different circuit from the M-6200 Series Controls

If these do not correct the interference, consult an experienced radio/television technician for assistance. Correcting such interference is the responsibility of the user, not the manufacturer.

Changes or modifications not expressly approved by Beckwith Electric may void the user's authority to operate the equipment.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for uncontrolled equipment. This equipment should be installed and operated with a minimum distance of at least 20 cm between the radiator and person's body (excluding extremities) and must not be located or operated with any other antenna or transmitter.

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M-6200A Control Communications Kits
Installation Instructions

4.0 B-6200A-F Single Ethernet Fiber Optic Port Hardware Kit Configuration

5.0 B-6200A-L Dual-Ethernet Fiber Optic Ports Hardware Kit Configuration

6.0 B-6200A-D Dual-Ethernet RJ-45 and Fiber Optic Ports Hardware Kit Configuration

7.0 B-6200A-2 RS-232 Port Hardware Kit Configuration

7.1 Removing an RS-232 Module

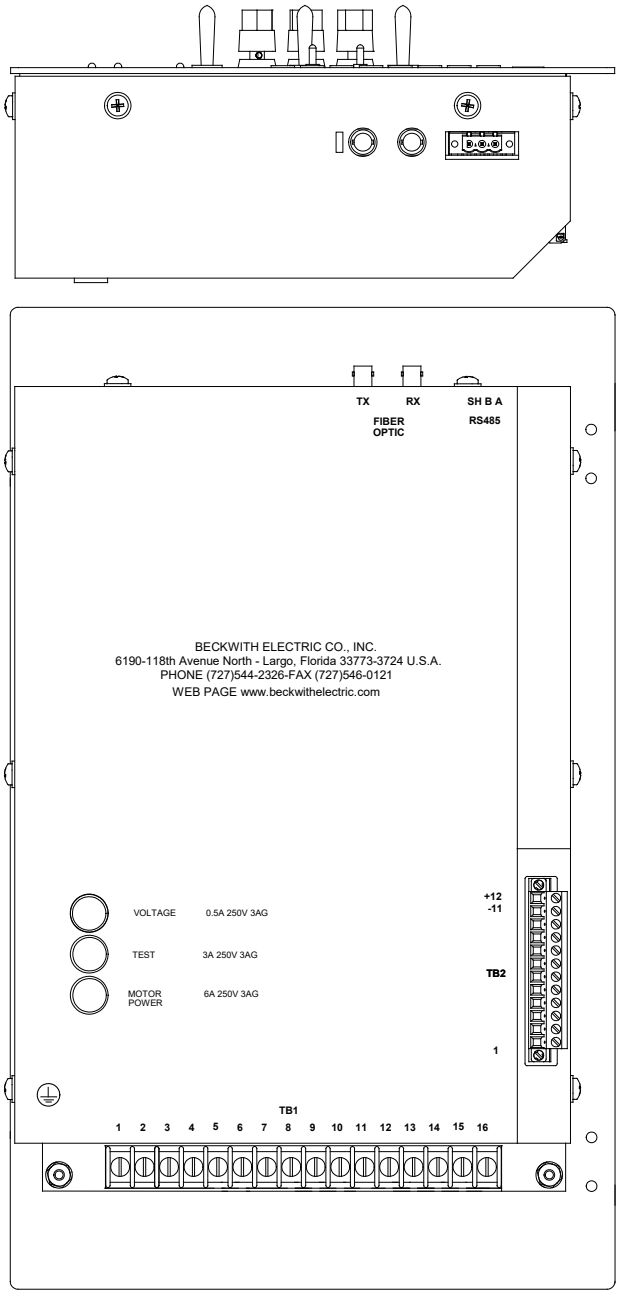
8.0 B-6200A-B Bluetooth Hardware Kit Configuration

8.1 Removing a Bluetooth Wireless Module

1.0 Introduction

This publication includes instructions for field installation of the M-6200A's optional communication ports. These options include Single- and Dual-Ethernet, serial-based fiber optic, RS-232, and Bluetooth Wireless connections. Refer to the Table of Contents to find the section of specific instructions to install the desired communication port.

The procedures described in this Application Guide assume that optional communication is not already installed in the Control. If optional communication will be converted to Dual Ethernet from RS-232 Serial or Bluetooth Wireless, additional steps are required to remove the existing comms board before installation of the Dual Ethernet module (see section 7.1 or 8.1 for appropriate instructions). Contact Beckwith Electric for instructions to convert from any other existing optional communication type.



■**NOTE:** ⚠ See Instruction Book, Section 5.2, Mechanical/Physical Information

Figure 1-1 M-6200A Control Rear Layout

2.0 B-6200A-C Single Ethernet RJ-45 Port Hardware Kit Configuration

GATHER TOOLS AND VERIFY PARTS

1. This procedure requires the use of the following hand tools:
   - #2 Phillips head screw driver
   - 1/4 inch nut driver or equivalent
   - Straight blade screw driver adequate to remove Phoenix style connectors
   - Needle Nose Pliers
   - Diagonal Cutter
2. Verify the contents of the B-6200A-C Ethernet RJ-45 Hardware Kit includes the items in Table 2-1:

Qty	Description	Beco Part #
1	ASSY, PCB, Ethernet, RJ-45	B-1243
1	Standoff, F/M, SS, 4-40 X 0.625	440-00972
1	Screw, PHMS, #4-40 X 1/4, SEM	470-00691
2	Lock nut, #4-40, SS	480-00890

■**NOTE:** Contact Beckwith Electric to ensure that the proper communication plate is provided to complete installation in the target control.

Table 2-1 B-6200A-C Ethernet RJ-45 Hardware Kit

SAFETY NOTES

⬢**WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.**

⬢**WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.**

⬢**WARNING: In no case should the line current circuit be interrupted with the regulator or transformer energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.**

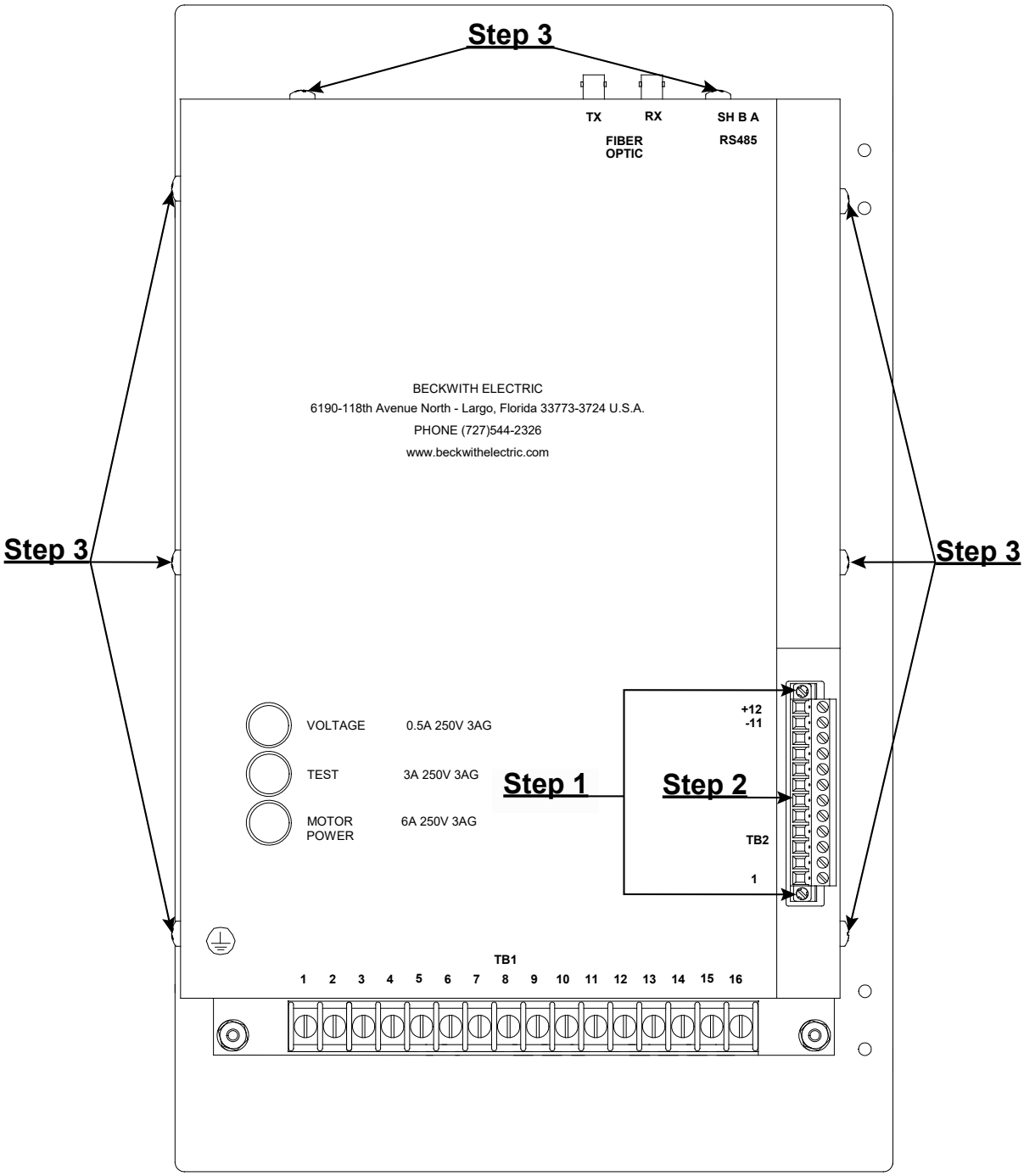
▲**CAUTION:** Personnel performing this procedure should be trained in Electrostatic Discharge prevention to prevent damage to ESD sensitive components.

Verify that all regulator control wiring and existing communications wiring has been disconnected to allow the safe removal of the control's rear cover.

- The control wiring is de-energized and isolated from any potential safety hazards.
- All local Safety Tagging rules have been applied as necessary.

REMOVE THE REAR COVER

1. Loosen the two screws (captured) that secure the upper half of the TB2 connector (Figure 2-1).
2. Disconnect (unplug) the upper half of the TB2 connector (Figure 2-1).
3. Remove the screws (8) that retain the rear cover (Figure 2-1).



■**NOTE:** ⚠ See Instruction Book, Section 5.2, Mechanical/Physical Information

Figure 2-1 M-6200A Control Rear Layout

4. Lift the rear cover upward to clear the fiber optic connectors and off the control, exposing the main Printed Circuit Board (PCB).

INSTALL THE ETHERNET BOARD

▲CAUTION: Before and during installation of the Ethernet module, observe Electrostatic Discharge prevention techniques to prevent damage to ESD sensitive components.

1. Locate the Ethernet connector pins and threaded mounting stud (Figure 2-2) on the upper left hand corner of the main PCB.
2. Install the standoff onto the threaded mounting stud.

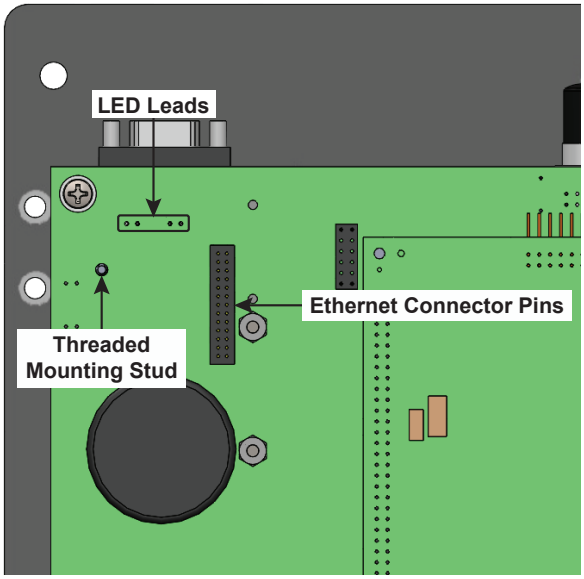


Figure 2-2 Main PCB, Upper-Left Corner

3. Observing the orientation of the connector slots (Figure 2-3) on the Ethernet RJ-45 board, mount the RJ-45 board onto the Ethernet connector pins (Figure 2-2) of the main PCB.

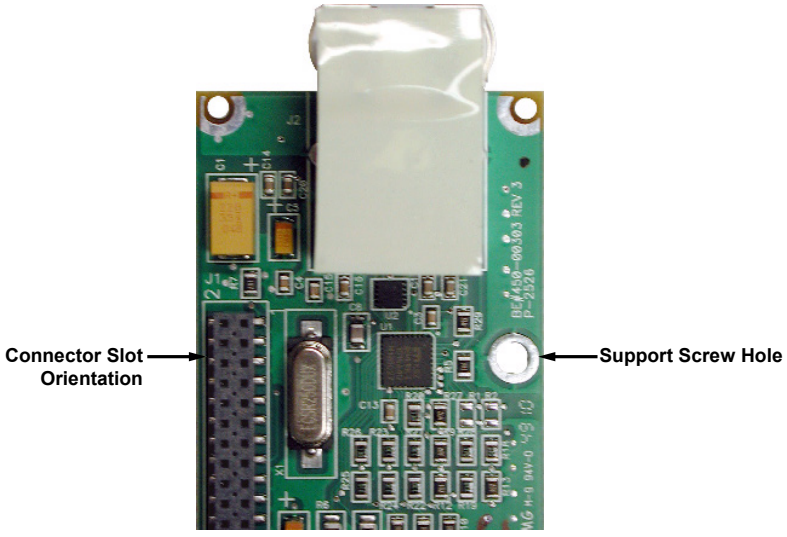


Figure 2-3 Bottom of Ethernet RJ-45 Board, Connector Orientation

■NOTE: Verify that the RJ-45 connector on the Ethernet board does not contact the LED leads (Figure 2-2) protruding from the main PCB. If the LED leads contact the RJ-45 connector, perform the following:

a. Remove the Ethernet board from the main PCB.
b. Trim the LED leads as necessary to provide adequate clearance.
c. Go to the beginning of this step (#3).

4. Install one 4-40 x 1/4 screw into the standoff through the Ethernet board support screw hole (Figure 2-3). Figure 2-4 shows the Ethernet board properly mounted.

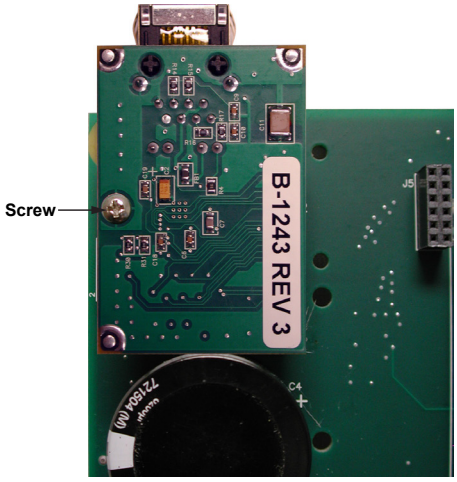


Figure 2-4 Main PCB, Ethernet RJ-45 Board Installed

INSTALL THE COMMUNICATION PLATE

1. Remove and discard the two lock nuts (Figure 2-5) from the inside of the rear cover; then remove the communication plate.
2. Insert the appropriate communication plate onto the top panel of the rear cover, ensuring that the index hole (Figure 2-5) is exposed.
3. Install the kit's lock nuts onto the communication plate's captive screws to secure the rear cover (Figure 2-5).

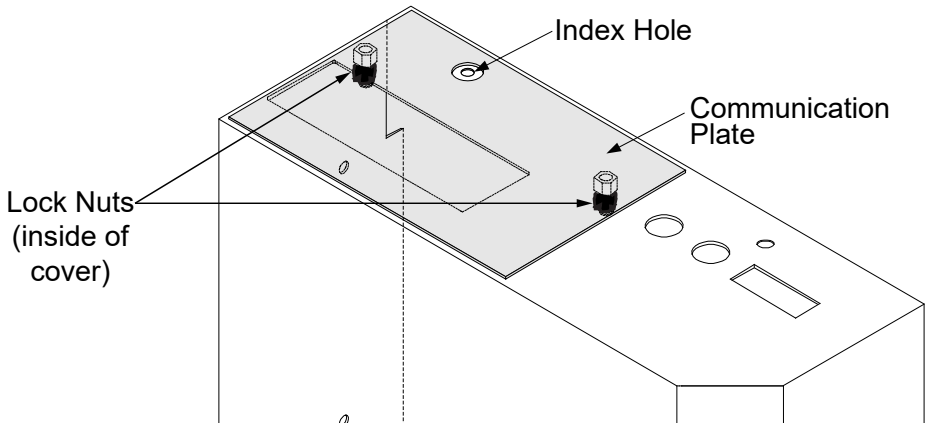


Figure 2-5 M-6200A Control Rear Cover, Communication Plate Orientation

REINSTALL THE REAR COVER

1. Install the rear cover over the fiber optic connectors; then install the screws (8) that retain the rear cover.
2. Connect (plug in) the upper half of the TB2 connector (Figure 2-1).
3. Tighten the two screws (captured) that secure the upper half of the TB2 connector (Figure 2-1).

RE-APPLY POWER

1. Reapply power and potential inputs to the control.
2. See the applicable Instruction Book section for information regarding Ethernet port connections and operation.

3.0 B-6200A-R Dual-Ethernet RJ-45 Ports Hardware Kit Configuration

GATHER TOOLS AND VERIFY PARTS

1. This procedure requires the use of the following hand tools:
   - #2 Phillips head screw driver
   - 1/4 inch nut driver or equivalent
   - Straight blade screw driver adequate to remove Phoenix style connectors
   - Needle Nose Pliers
   - Diagonal Cutter
2. Verify the contents of the B-6200A-R Dual-Ethernet RJ-45 Hardware Kit includes the items in Table 3-1:

Qty	Description	Beco Part #
1	ASSY, Dual Ethernet, Copper	B-2202
1	Standoff 4-40 X 0.625 F SS HEX SS	440-00972
1	Screw, PHMS, 4-40 x ¼, SEMS	470-00691
2	Lock nut, #4-40, SS	480-00890

■**NOTE:** Contact Beckwith Electric to ensure that the proper communication plate is provided to complete installation in the target control.

Table 3-1 B-6200A-R Dual-Ethernet RJ-45 Hardware Kit

SAFETY NOTES

⬢WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.

⬢WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.

⬢WARNING: In no case should the line current circuit be interrupted with the regulator or transformer energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.

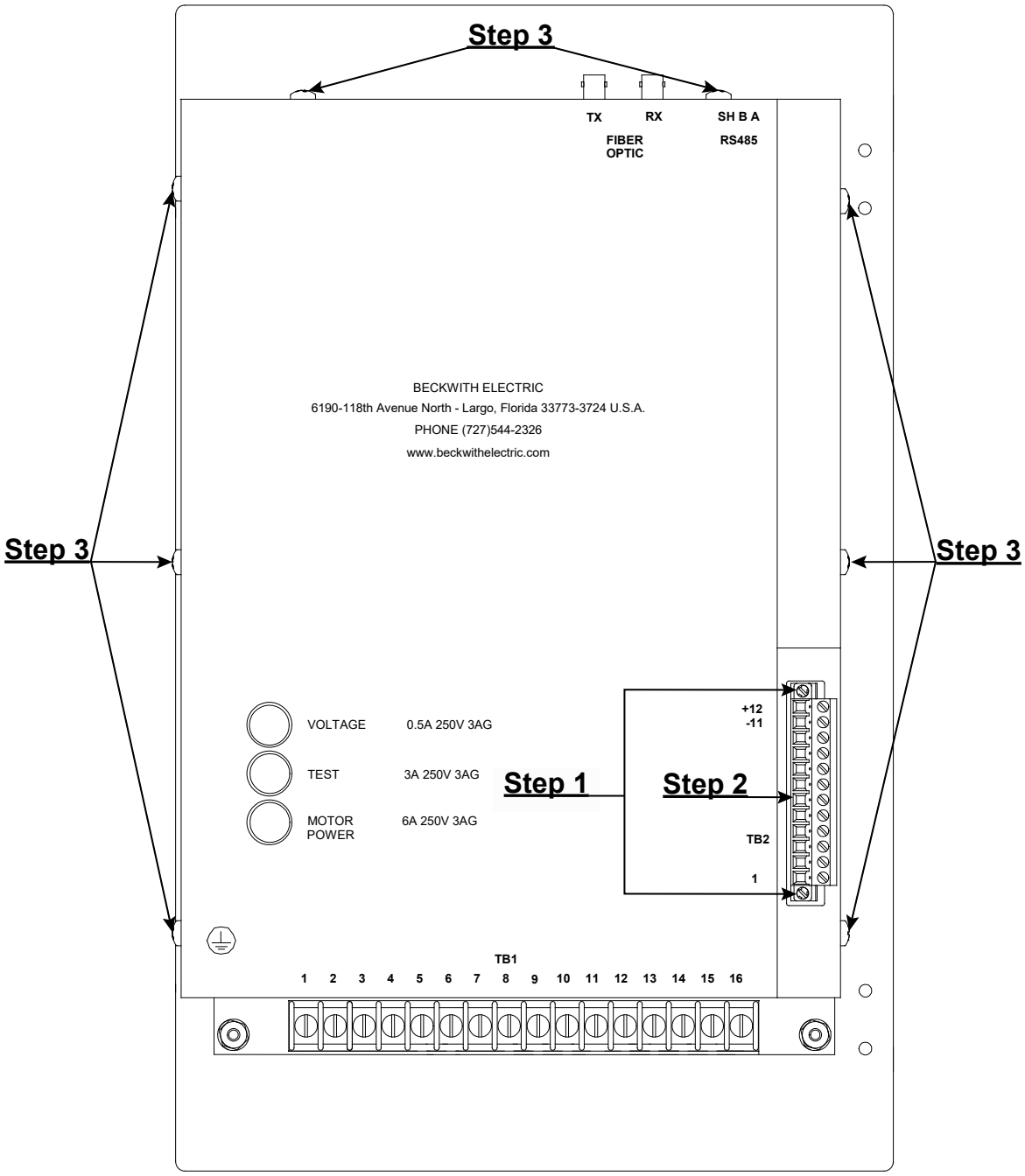
▲CAUTION: Personnel performing this procedure should be trained in Electrostatic Discharge prevention to prevent damage to ESD sensitive components.

Verify that all regulator control wiring and existing communications wiring has been disconnected to allow the safe removal of the control's rear cover.

- The control wiring is de-energized and isolated from any potential safety hazards.
- All local Safety Tagging rules have been applied as necessary.

REMOVE THE REAR COVER

1. Loosen the two screws (captured) that secure the upper half of the TB2 connector (Figure 3-1).
2. Disconnect (unplug) the upper half of the TB2 connector (Figure 3-1).
3. Remove the screws (8) that retain the rear cover (Figure 3-1).



■**NOTE:** ⚠ See Instruction Book, Section 5.2, Mechanical/Physical Information

Figure 3-1 M-6200A Control Rear Layout

4. Lift the rear cover upward to clear the fiber optic connectors and off the control, exposing the main Printed Circuit Board (PCB).

INSTALL THE ETHERNET BOARD

■**NOTE:** If an RS-232 or Bluetooth Wireless module is already present on the main PCB (Figure 7-4 or Figure 8-4 respectively), it must be removed before the Dual Ethernet board can be installed. Refer to **Section 7.1** or **Section 8.1** of this Application Guide for instructions to uninstall the appropriate module.

▲**CAUTION:** Before and during installation of the Dual-Ethernet module, observe Electrostatic Discharge prevention techniques to prevent damage to ESD sensitive components.

1. Locate the Ethernet connector pins and threaded mounting stud (Figure 3-2) on the upper left-hand corner of the main PCB.
2. Install the standoff onto the threaded mounting stud.

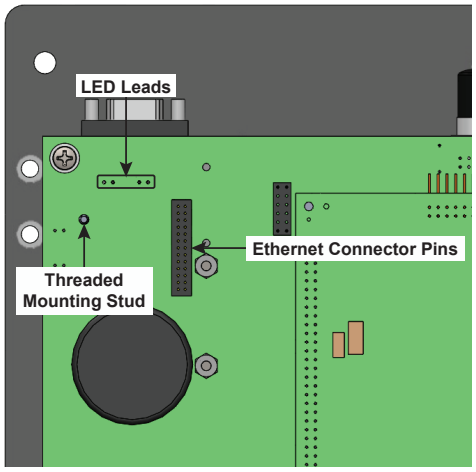


Figure 3-2 Main PCB, Upper-Left Corner

3. Observing the orientation of the connector slots (Figure 3-3) on the Ethernet board, mount the RJ-45 board onto the Ethernet connector pins (Figure 3-2) of the main PCB.

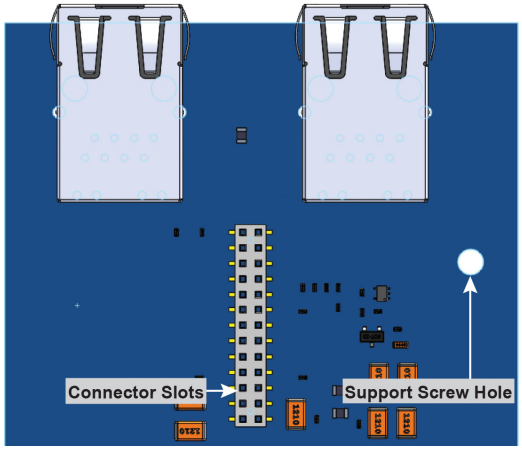


Figure 3-3 Bottom of Dual-Ethernet RJ-45 Board, Connector Orientation

■**NOTE:** Verify that the RJ-45 connector on the Ethernet board does not contact the LED leads (Figure 3-2) protruding from the main PCB. If the LED leads contact the RJ-45 connector, perform the following:

a. Remove the Ethernet board from the main PCB.
b. Trim the LED leads as necessary to provide adequate clearance.
c. Go to the beginning of this step (#3).

4. Install one 4-40 x 1/4 screw into the standoff through the Ethernet board support screw hole (Figure 3-3). Figure 3-4 shows the Ethernet board properly mounted.

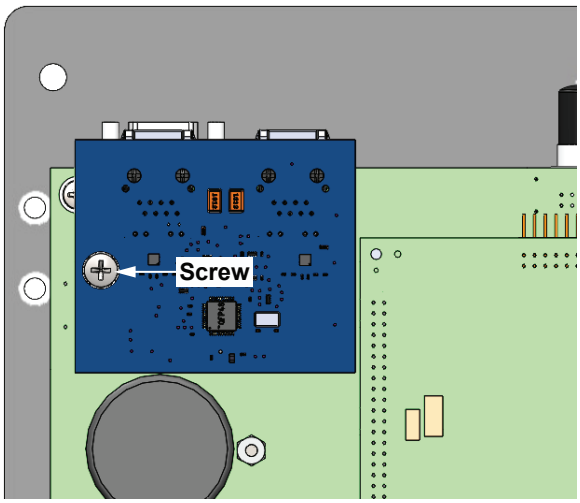


Figure 3-4 Main PCB, Dual-Ethernet RJ-45 Board Installed

INSTALL THE COMMUNICATION PLATE

1. Remove and discard the two lock nuts (Figure 3-5) from the inside of the rear cover; then remove the communication plate.
2. Insert the appropriate communication plate onto the top panel of the rear cover, ensuring that the index hole (Figure 3-5) is exposed.
3. Install the kit's lock nuts onto the communication plate's captive screws to secure the rear cover (Figure 3-5).

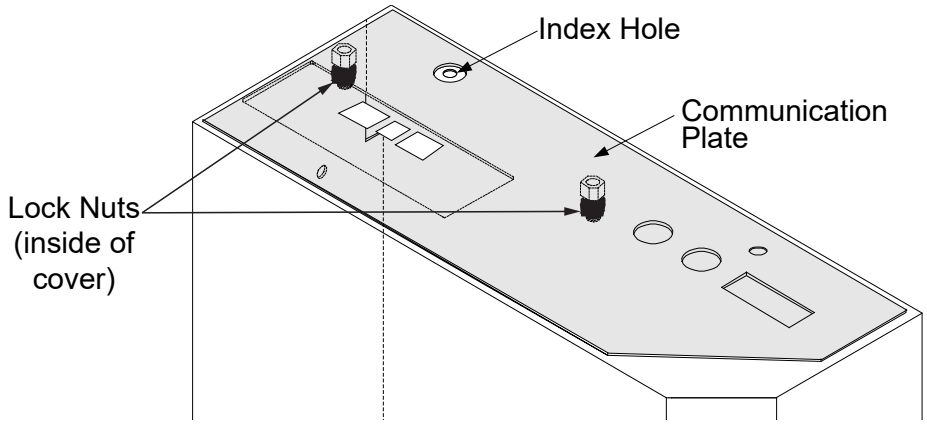


Figure 3-5 M-6200A Control Rear Cover, Communication Plate Orientation

REINSTALL THE REAR COVER

1. Install the rear cover over the fiber optic connectors; then install the screws (8) that retain the rear cover.
2. Connect (plug in) the upper half of the TB2 connector (Figure 3-1).
3. Tighten the two screws (captured) that secure the upper half of the TB2 connector (Figure 3-1).

RE-APPLY POWER

1. Reapply power and potential inputs to the control.
2. See the applicable Instruction Book section for information regarding Ethernet port connections and operation.

4.0 B-6200A-F Single Ethernet Fiber Optic Port Hardware Kit Configuration

GATHER TOOLS AND VERIFY PARTS

1. This procedure requires the use of the following hand tools:
   - #2 Phillips head screw driver
   - 1/4 inch nut driver or equivalent
   - Straight blade screw driver adequate to remove Phoenix style connectors
   - Needle Nose Pliers
2. Verify the contents of the B-6200A-F Ethernet Fiber Optic Hardware Kit includes the items in Table 4-1:

Qty	Description	Beco Part #
1	PCB, Assy Ethernet F/O	B-1362
1	Standoff, F/F, SS, 4-40 X 0.625	440-00972
4	Screw, PHMS, 4-40 x 1/4, SEMS	470-00691
2	Lock nut, #4-40, S/S	480-00890

■**NOTE:** Contact Beckwith Electric to ensure that the proper communication plate is provided to complete installation in the target control.

Table 4-1 B-6200A-F Ethernet Fiber Optic Hardware Kit

SAFETY NOTES

⬢**WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.**

⬢**WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.**

⬢**WARNING: In no case should the line current circuit be interrupted with the regulator or transformer energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.**

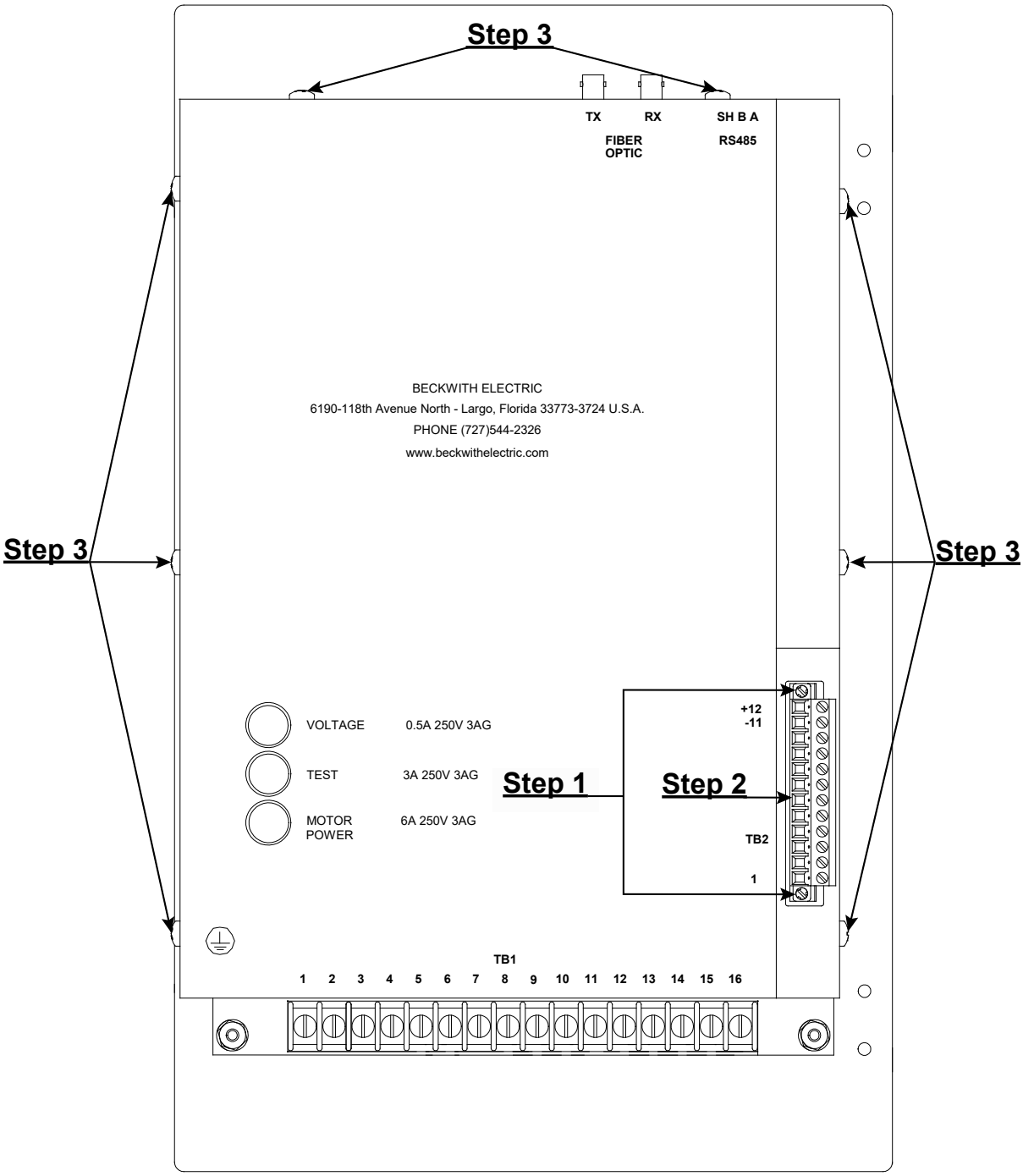
▲**CAUTION:** Personnel performing this procedure should be trained in Electrostatic Discharge prevention to prevent damage to ESD sensitive components.

Verify that all regulator control wiring and existing communications wiring has been disconnected to allow the safe removal of the control's rear cover.

- The control wiring is de-energized and isolated from any potential safety hazards.
- All local Safety Tagging rules have been applied as necessary.

REMOVE THE REAR COVER

1. Loosen the two screws (captured) that secure the upper half of the TB2 connector (Figure 4-1).
2. Disconnect (unplug) the upper half of the TB2 connector (Figure 4-1).
3. Remove the screws (8) that retain the rear cover (Figure 4-1).



■**NOTE:** ⚠ See Instruction Book, Section 5.2, Mechanical/Physical Information

Figure 4-1 M-6200A Control Rear Layout

4. Lift the rear cover in the upward direction to clear the fiber optic connectors and off the control exposing the main Printed Circuit Board (PCB).

INSTALL THE ETHERNET BOARD

▲ CAUTION: Before and during installation of the Ethernet module, observe Electrostatic Discharge prevention techniques to prevent damage to ESD sensitive components.

1. Locate the Ethernet connector pins and threaded mounting stud (Figure 4-2) on the upper left hand corner of the main PCB.
2. Install the standoff onto the threaded mounting stud.

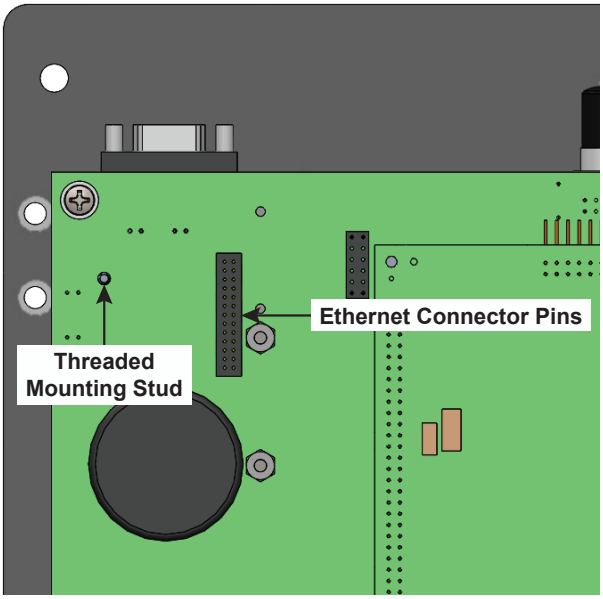


Figure 4-2 Main PCB, Upper-Left Corner

3. Observing the orientation of the connector slots (Figure 4-3) on the Ethernet board, mount the fiber optic Ethernet board onto the Ethernet connector pins (Figure 4-2) on the main PCB.

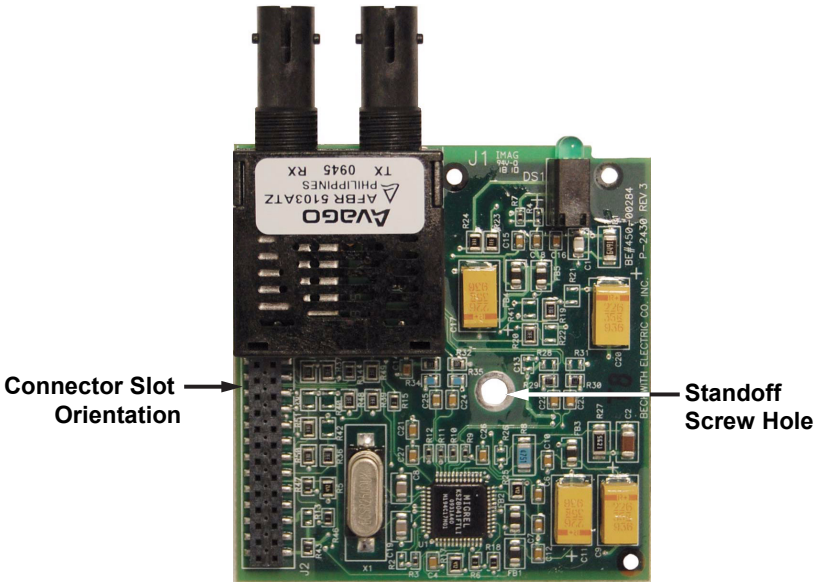


Figure 4-3 Bottom of Ethernet Fiber Optic Board, Connector Orientation

4. Install one 4-40 x 1/4 screw into the standoff through the Ethernet board standoff screw hole (Figure 4-3). Figure 4-4 illustrates the correct mounting of the Ethernet board.

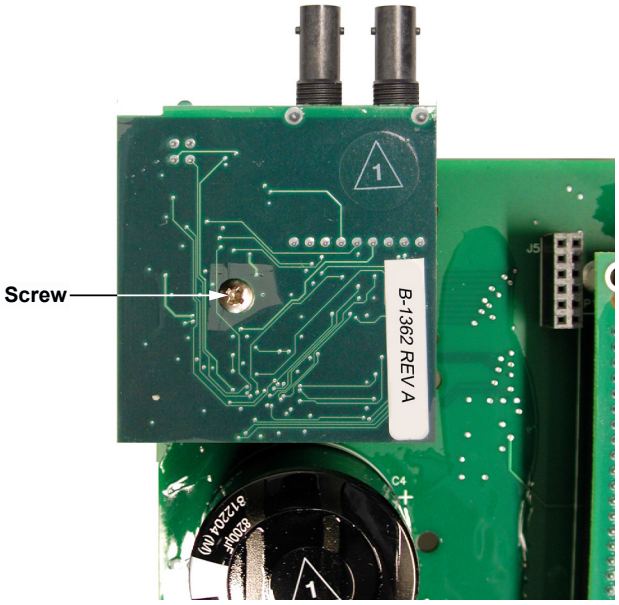


Figure 4-4 Main PCB, Ethernet Fiber Optic Board Installed

INSTALL THE COMMUNICATION PLATE

1. Remove and discard the two lock nuts (Figure 4-5) from the inside of the rear cover; then remove the communication plate.
2. Insert the appropriate communication plate onto the top panel of the rear cover, ensuring that the index hole (Figure 4-5) is exposed.
3. Install the kit's lock nuts onto the communication plate's captive screws to secure the rear cover (Figure 4-5).

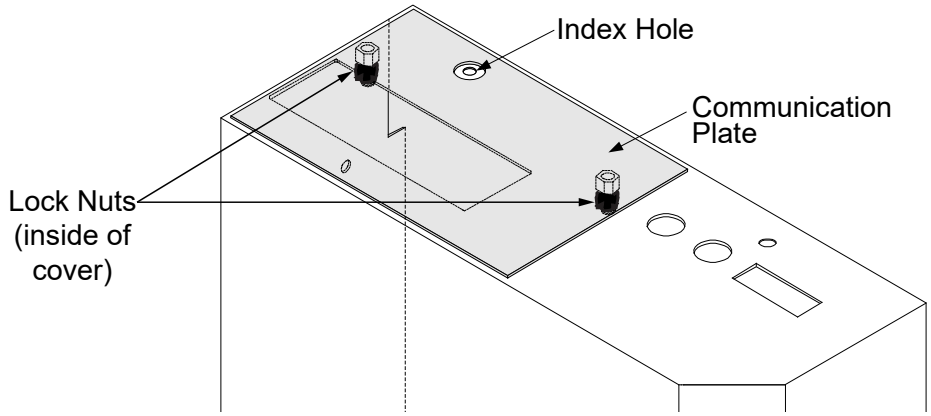


Figure 4-5 M-6200A Control Rear Cover, Communication Plate Orientation

REINSTALL THE REAR COVER

1. Install the rear cover over the fiber optic connectors, then install the screws (8) that retain the rear cover.
2. Connect (plug in) the upper TB2 connector half (Figure 4-1).
3. Tighten the two screws (captured) that secure the TB2 upper connector half (Figure 4-1).

RE-APPLY POWER

1. Reapply power and potential inputs to the control.
2. See the applicable Instruction Book section for information regarding Ethernet port setup and operation.

5.0 B-6200A-L Dual-Ethernet Fiber Optic Ports Hardware Kit Configuration

GATHER TOOLS AND VERIFY PARTS

1. This procedure requires the use of the following hand tools:
   - #2 Phillips head screw driver
   - 1/4 inch nut driver or equivalent
   - Straight blade screw driver adequate to remove Phoenix style connectors
   - Needle Nose Pliers
   - Diagonal Cutter
2. Verify the contents of the B-6200A-L Dual Ethernet Fiber Optic Hardware Kit includes the items in Table 5-1:

Qty	Description	Beco Part #
1	ASSY, Dual Ethernet, Fiber	B-2205
1	Standoff 4-40 x 0.625F SS HEX SS	440-00972
1	Screw, PHMS, 4-40 x ¼, SEMS	470-00691
2	Lock nut, #4-40, SS	480-00890

■**NOTE:** Contact Beckwith Electric to ensure that the proper communication plate is provided to complete installation in the target control.

Table 5-1 B-6200A-L Dual-Ethernet Fiber Optic Hardware Kit

SAFETY NOTES

⬢**WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.**

⬢**WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.**

⬢**WARNING: In no case should the line current circuit be interrupted with the regulator or transformer energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.**

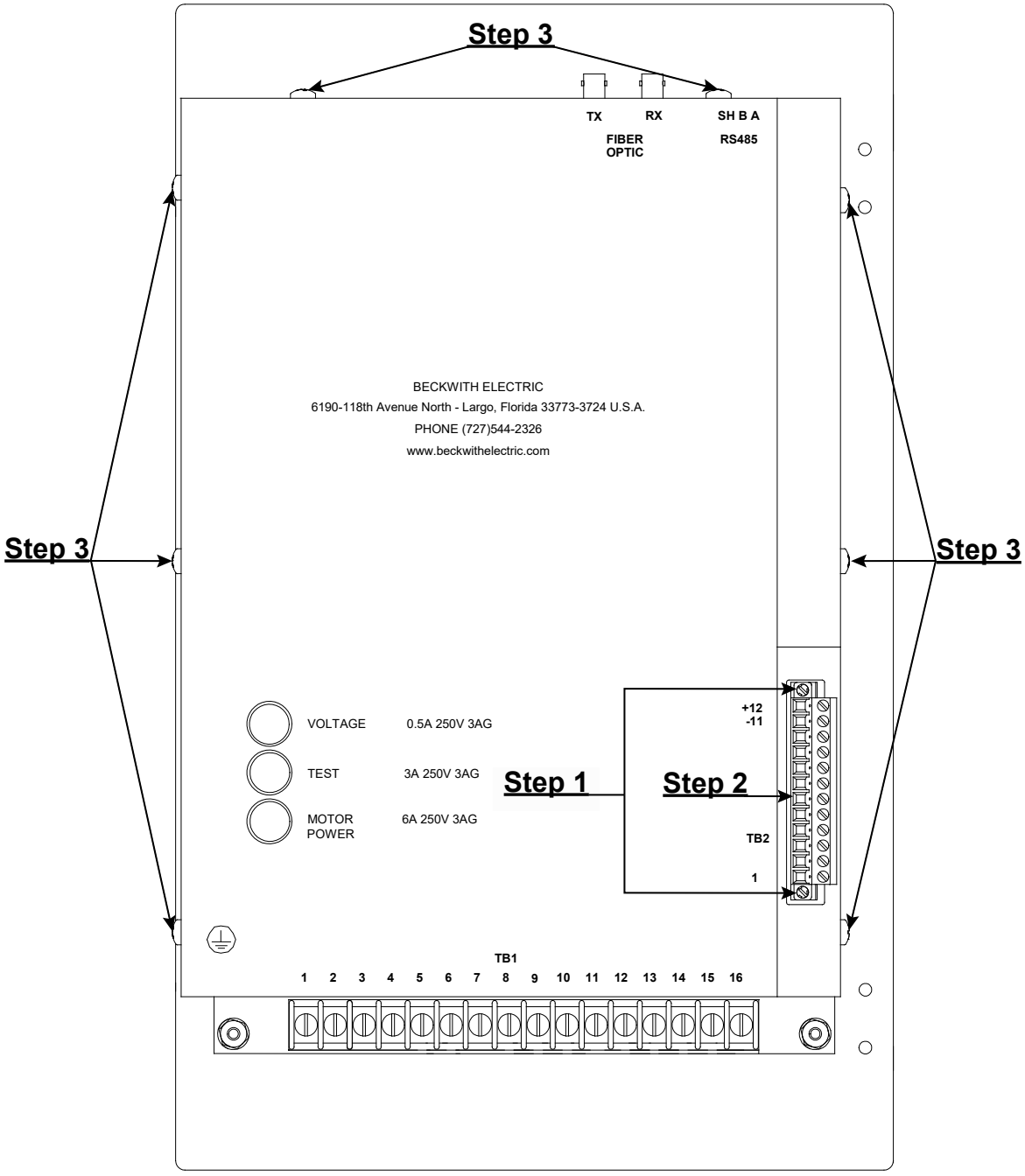
▲**CAUTION:** Personnel performing this procedure should be trained in Electrostatic Discharge prevention to prevent damage to ESD sensitive components.

Verify that all regulator control wiring and existing communications wiring has been disconnected to allow the safe removal of the control's rear cover.

- The control wiring is de-energized and isolated from any potential safety hazards.
- All local Safety Tagging rules have been applied as necessary.

REMOVE THE REAR COVER

1. Loosen the two screws (captured) that secure the upper half of the TB2 connector (Figure 5-1).
2. Disconnect (unplug) the upper half of the TB2 connector (Figure 5-1).
3. Remove the screws (8) that retain the rear cover (Figure 5-1).



■**NOTE:** ⚠ See Instruction Book, Section 5.2, Mechanical/Physical Information

Figure 5-1 M-6200A Control Rear Layout

4. Lift the rear cover upward to clear the fiber optic connectors and off the control, exposing the main Printed Circuit Board (PCB).

INSTALL THE ETHERNET BOARD

▲**CAUTION:** If an RS-232 or Bluetooth Wireless module is already present on the main PCB (Figure 7-4 or Figure 8-4 respectively), it must be removed before the Dual Ethernet board can be installed. Refer to **Section 7.1** or **Section 8.1** of this Application Guide for instructions to uninstall the appropriate module.

▲**CAUTION:** Before and during installation of the Dual-Ethernet module, observe Electrostatic Discharge prevention techniques to prevent damage to ESD sensitive components.

1. Locate the Ethernet connector pins and threaded mounting stud (Figure 5-2) on the upper left-hand corner of the main PCB.
2. Install the standoff onto the threaded mounting stud.

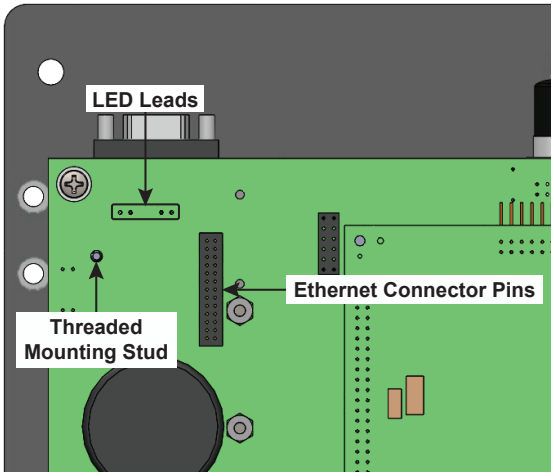


Figure 5-2 Main PCB, Upper-Left Corner

3. Observing the orientation of the connector slots (Figure 5-3) on the Dual Ethernet board, mount the fiber board onto the Ethernet connector pins (Figure 5-2) of the main PCB.

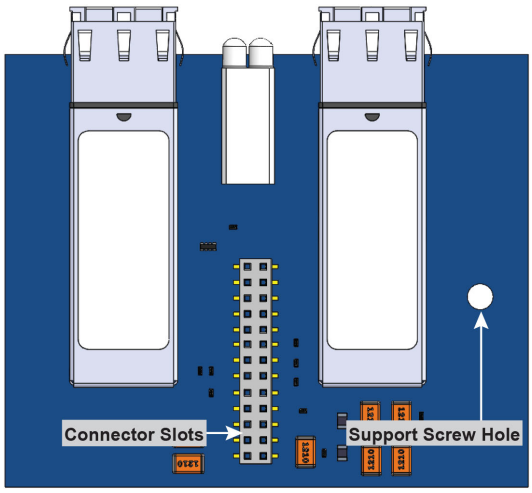


Figure 5-3 Bottom of Dual-Ethernet Fiber Optic Board, Connector Orientation

■**NOTE:** Verify that the fiber connector on the Ethernet board does not contact the LED leads (Figure 5-2) protruding from the main PCB. If the LED leads contact the connector, perform the following:

a. Remove the Ethernet board from the main PCB.
b. Trim the LED leads as necessary to provide adequate clearance.
c. Go to the beginning of this step (#3).

4. Install one 4-40 x 1/4 screw into the standoff through the Ethernet board support screw hole (Figure 5-3). Figure 5-4 shows the Ethernet board properly mounted.

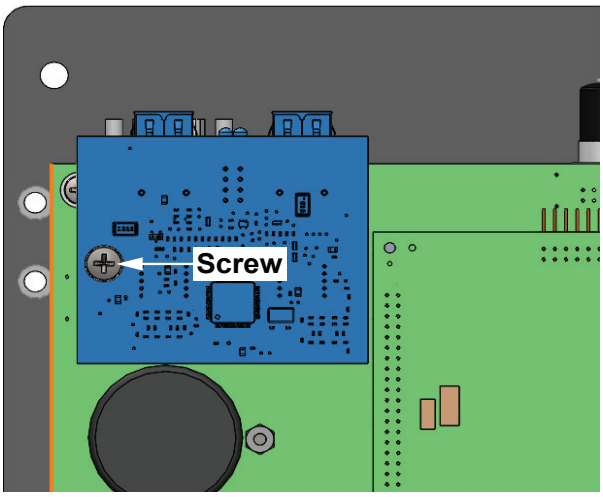


Figure 5-4 Main PCB, Dual-Ethernet Fiber Optic Board Installed

INSTALL THE COMMUNICATION PLATE

1. Remove and discard the two lock nuts (Figure 5-5) from the inside of the rear cover; then remove the communication plate.
2. Insert the appropriate communication plate onto the top panel of the rear cover, ensuring that the index hole (Figure 5-5) is exposed.
3. Install the kit's lock nuts onto the communication plate's captive screws to secure the rear cover (Figure 5-5).

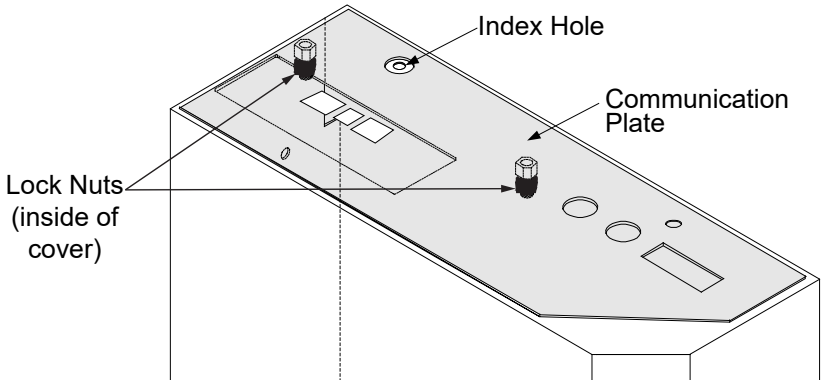


Figure 5-5 M-6200A Control Rear Cover, Communication Plate Orientation

REINSTALL THE REAR COVER

1. Install the rear cover over the fiber optic connectors; then install the screws (8) that retain the rear cover.
2. Connect (plug in) the upper half of the TB2 connector (Figure 5-1).
3. Tighten the two screws (captured) that secure the upper half of the TB2 connector (Figure 5-1).

RE-APPLY POWER

1. Reapply power and potential inputs to the control.
2. See the applicable Instruction Book section for information regarding Ethernet port setup and operation.

6.0 B-6200A-D Dual-Ethernet RJ-45 and Fiber Optic Ports Hardware Kit Configuration

GATHER TOOLS AND VERIFY PARTS

1. This procedure requires the use of the following hand tools:
   - #2 Phillips head screw driver
   - 1/4 inch nut driver or equivalent
   - Straight blade screw driver adequate to remove Phoenix style connectors
   - Needle Nose Pliers
   - Diagonal Cutter
2. Verify the contents of the B-6200A-D Dual Ethernet RJ-45 and Fiber Optic Hardware Kit includes the items in Table 6-1:

Qty	Description	Beco Part #
1	ASSY, Dual Ethernet, Fiber/Copper	B-2204
1	Standoff 4-40 X 0.625F SS HEX SS	440-00972
1	Screw, PHMS, 4-40 x ¼, SEMS	470-00691
2	Lock nut, #4-40, SS	480-00890

■**NOTE:** Contact Beckwith Electric to ensure that the proper communication plate is provided to complete installation in the target control.

Table 6-1 B-6200A-D Dual-Ethernet RJ-45 and Fiber Optic Hardware Kit

SAFETY NOTES

⬢**WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.**

⬢**WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.**

⬢**WARNING: In no case should the line current circuit be interrupted with the regulator or transformer energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.**

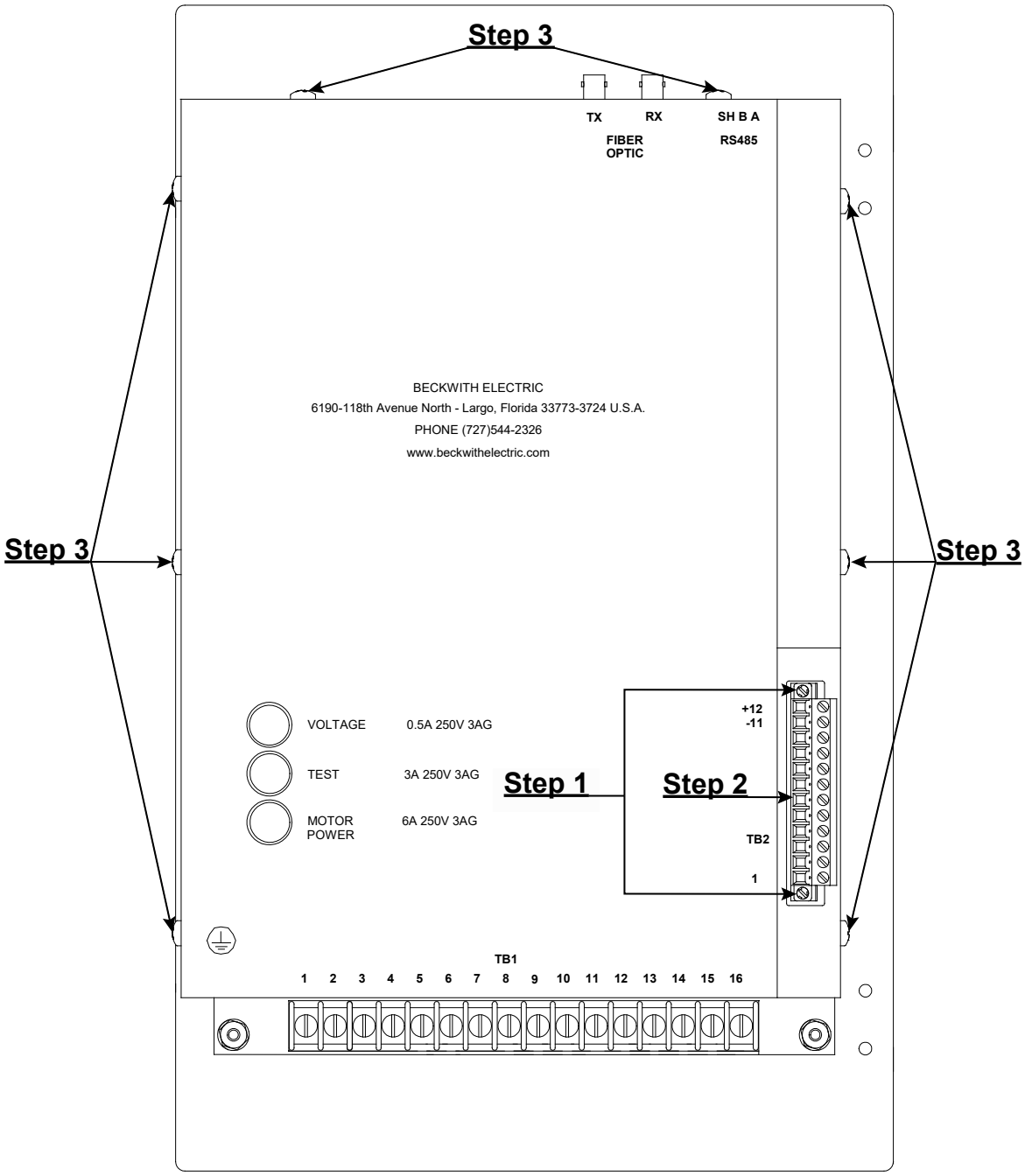
▲**CAUTION:** Personnel performing this procedure should be trained in Electrostatic Discharge prevention to prevent damage to ESD sensitive components.

Verify that all regulator control wiring and existing communications wiring has been disconnected to allow the safe removal of the control's rear cover.

- The control wiring is de-energized and isolated from any potential safety hazards.
- All local Safety Tagging rules have been applied as necessary.

REMOVE THE REAR COVER

1. Loosen the two screws (captured) that secure the upper half of the TB2 connector (Figure 6-1).
2. Disconnect (unplug) the upper half of the TB2 connector (Figure 6-1).
3. Remove the screws (8) that retain the rear cover (Figure 6-1).



■**NOTE:** ⚠ See Instruction Book, Section 5.2, Mechanical/Physical Information

Figure 6-1 M-6200A Control Rear Layout

4. Lift the rear cover upward to clear the fiber optic connectors and off the control, exposing the main Printed Circuit Board (PCB).

INSTALL THE ETHERNET BOARD

■**NOTE:** If an RS-232 or Bluetooth Wireless module is already present on the main PCB (Figure 7-4 or Figure 8-4 respectively), it must be removed before the Dual Ethernet board can be installed. Refer to **Section 7.1** or **Section 8.1** of this Application Guide for instructions to uninstall the appropriate module.

▲**CAUTION:** Before and during installation of the Dual-Ethernet module, observe Electrostatic Discharge prevention techniques to prevent damage to ESD sensitive components.

1. Locate the Ethernet connector pins and threaded mounting stud (Figure 6-2) on the upper left-hand corner of the main PCB.
2. Install the standoff onto the threaded mounting stud.

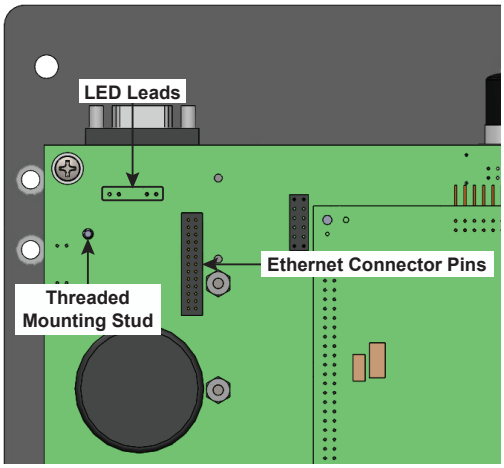


Figure 6-2 Main PCB, Upper-Left Corner

3. Observing the orientation of the connector slots (Figure 6-3) on the Ethernet board, mount the Dual Ethernet board onto the Ethernet connector pins (Figure 6-2) of the main PCB.

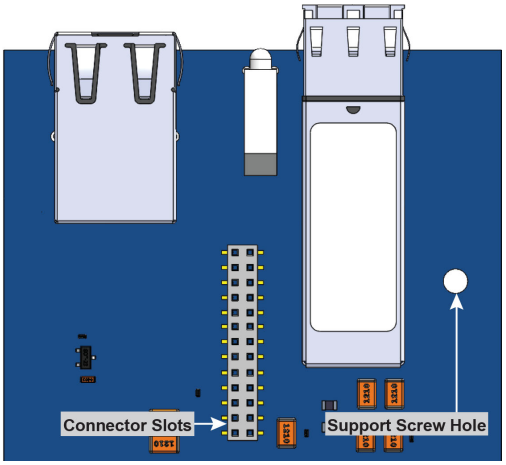


Figure 6-3 Bottom of Dual-Ethernet RJ-45 and Fiber Optic Board, Connector Orientation

■**NOTE:** Verify that the fiber connector on the Ethernet board does not contact the LED leads (Figure 6-2) protruding from the main PCB. If the LED leads contact the connector, perform the following:

a. Remove the Ethernet board from the main PCB.
b. Trim the LED leads as necessary to provide adequate clearance.
c. Go to the beginning of this step (#3).

4. Install one 4-40 x 1/4 screw into the standoff through the Ethernet board support screw hole (Figure 6-3). Figure 6-4 shows the Ethernet board properly mounted.

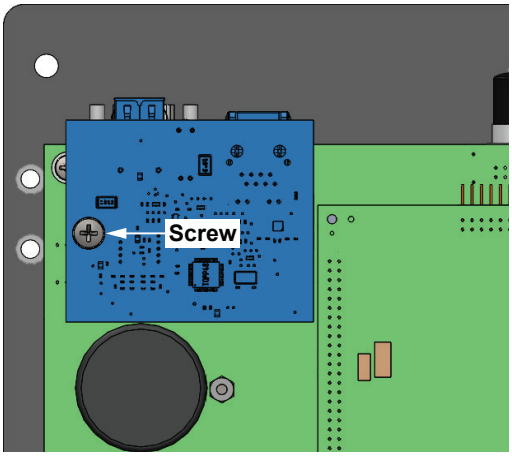


Figure 6-4 Main PCB, Dual-Ethernet Fiber Optic Board Installed

INSTALL THE COMMUNICATION PLATE

1. Remove and discard the two lock nuts (Figure 6-5) from the inside of the rear cover; then remove the communication plate.
2. Insert the appropriate communication plate onto the top panel of the rear cover, ensuring that the index hole (Figure 6-5) is exposed.
3. Install the kit's lock nuts onto the communication plate's captive screws to secure the rear cover (Figure 6-5).

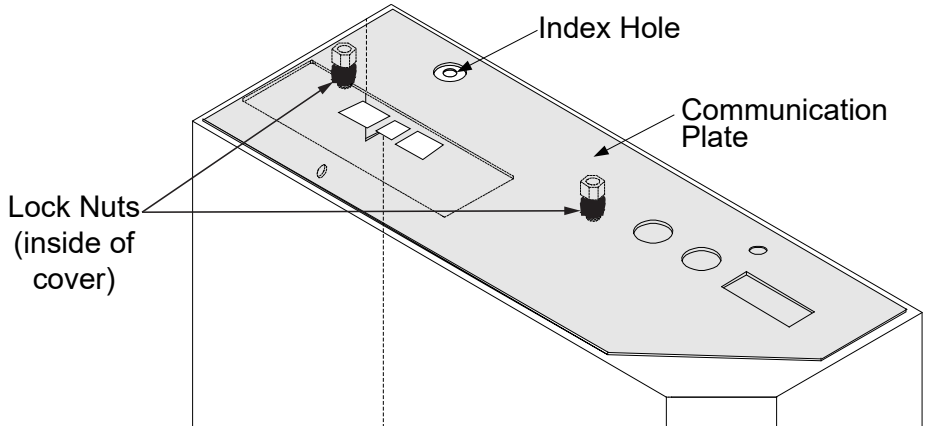


Figure 6-5 M-6200A Control Rear Cover, Communication Plate Orientation

REINSTALL THE REAR COVER

1. Install the rear cover over the fiber optic connectors; then install the screws (8) that retain the rear cover.
2. Connect (plug in) the upper half of the TB2 connector (Figure 6-1).
3. Tighten the two screws (captured) that secure the upper half of the TB2 connector (Figure 6-1).

RE-APPLY POWER

1. Reapply power and potential inputs to the control.
2. See the applicable Instruction Book section for information regarding Ethernet port setup and operation.

7.0 B-6200A-2 RS-232 Port Hardware Kit Configuration

GATHER TOOLS AND VERIFY PARTS

1. This procedure requires the use of the following hand tools:
   - #2 Phillips head screw driver
   - 1/4 inch nut driver or equivalent
   - Straight blade screw driver adequate to remove Phoenix style connectors
   - Needle Nose pliers
2. Verify the contents of the B-6200A-2, RS-232 Hardware Kit includes the items in Table 7-1:

Qty	Description	Beco Part #
1	PCB ASSY, RS-232 M-6200	B-1149
2	Hex Standoff, Threaded #2-54 Nylon 0.438”	440-01954
4	Screw, PHMS, 2-56 x 1/4	470-00601
2	Lock nut, #4-40, SS	480-00890
4	Washer, Lock, #2	480-00103

■**NOTE:** Contact Beckwith Electric to ensure that the proper communication plate is provided to complete installation in the target control.

Table 7-1 B-6200A-2 RS-232 Hardware Kit

SAFETY NOTES

⬢**WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.**

⬢**WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.**

⬢**WARNING: In no case should the line current circuit be interrupted when this device is energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.**

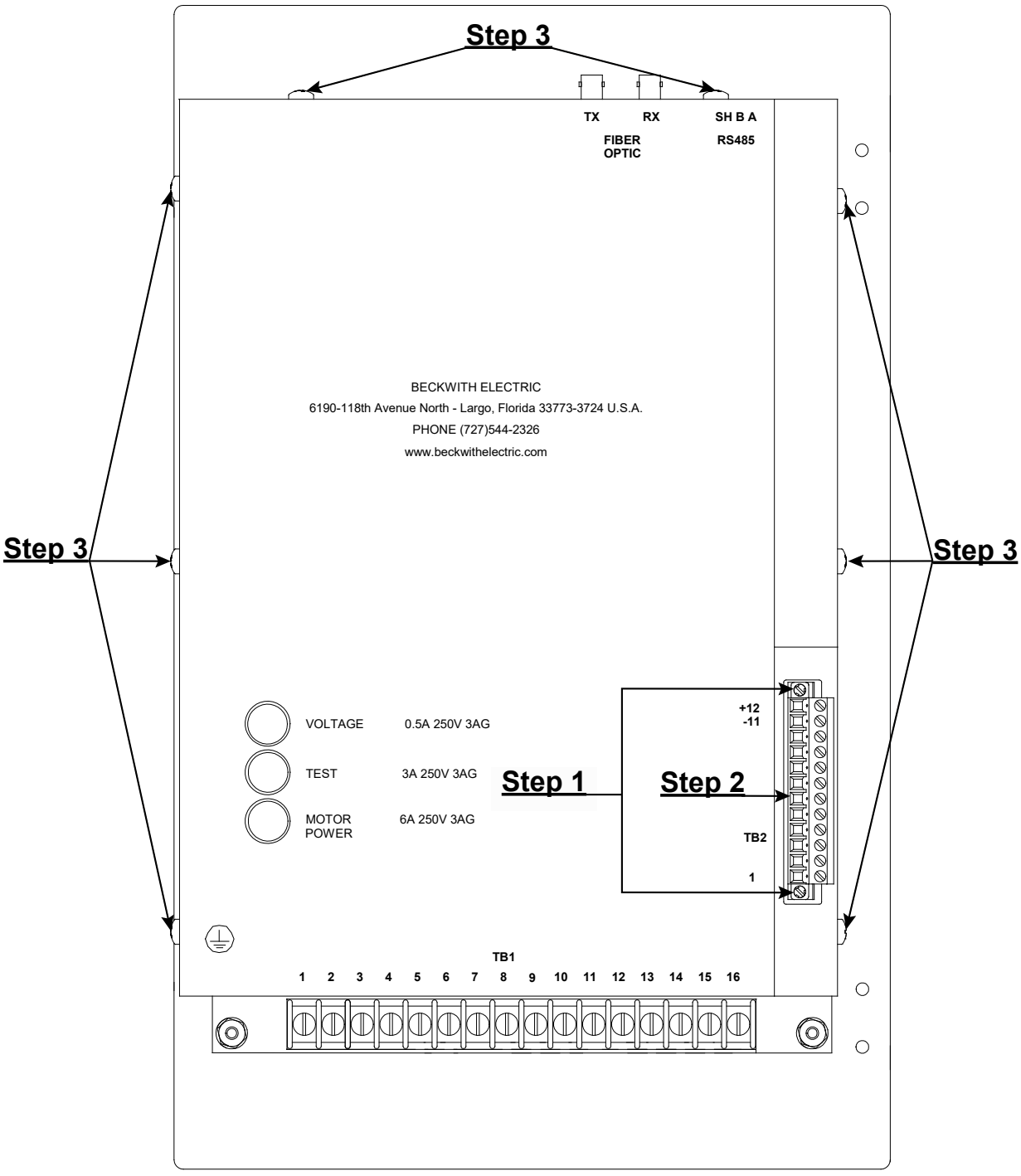
▲**CAUTION:** Personnel performing this procedure should be trained in Electrostatic Discharge prevention to prevent damage to ESD sensitive components.

Verify that all regulator control wiring and existing communications wiring has been disconnected to allow the safe removal of the control’s rear cover.

- The control wiring is de-energized and isolated from any potential safety hazards.
- All local Safety Tagging rules have been applied as necessary.

REMOVE THE REAR COVER

1. Loosen the two screws (captured) that secure the TB2 upper connector half (Figure 7-1).
2. Disconnect (unplug) the upper TB2 connector half (Figure 7-1).
3. Remove the screws (8) that retain the rear cover (Figure 7-1).



■**NOTE:** ⚠ See Instruction Book, Section 5.2, Mechanical/Physical Information

Figure 7-1 M-6200A Control Rear Layout

4. Lift the rear cover in the upward direction to clear the fiber optic connectors and off the control exposing the main Printed Circuit Board (PCB).

INSTALL THE RS-232 BOARD

▲CAUTION: Before and during installation of the RS-232 module, observe Electrostatic Discharge prevention techniques to prevent damage to ESD sensitive components.

1. Locate RS-232 connector (female socket) and standoff screw holes (Figure 7-2) on the upper left hand corner of the main PCB.
2. Determine if the RS-232 standoff screw holes (Figure 7-2) located on the upper left corner of the main PCB are empty holes or have threaded mounting studs protruding from them.
   a. If empty holes are present, utilize two 2-56 x 1/4 screws and lock washers inserted from the underside of the main PCB to install the standoffs onto the newly installed screws.
   b. If threaded mounting studs are present, install the standoffs onto them.

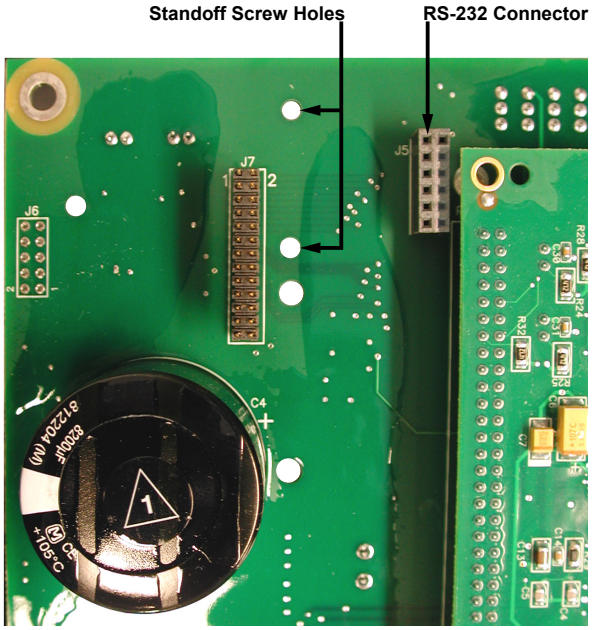


Figure 7-2 Main PCB, RS-232 Connector Orientation

3. Observing the orientation of the connector pins (Figure 7-3) on the RS-232 board, mount the RS-232 board onto the RS-232 connector (Figure 7-2) on the main PCB.

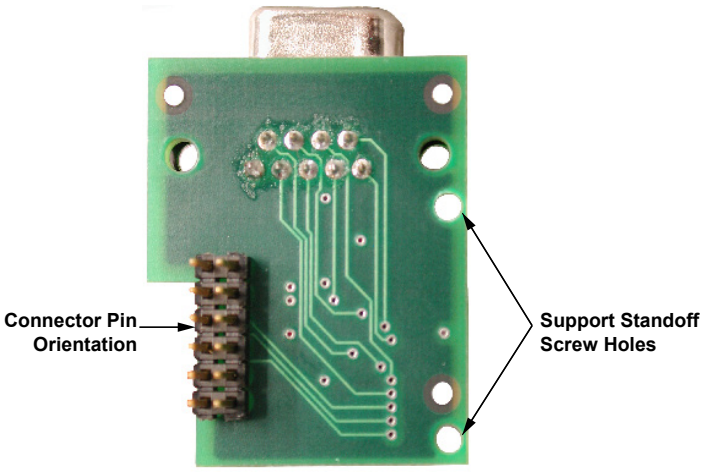


Figure 7-3 Bottom of RS-232 Board, Connector Orientation

4. Install two 2-56 x 1/4 screws and lock washers into the standoffs through the RS-232 board support standoff screw holes (Figure 7-3). Figure 7-4 illustrates the correct mounting of the RS-232 board.

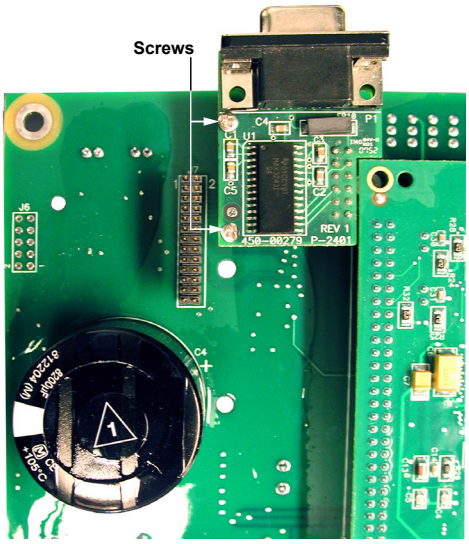


Figure 7-4 Main PCB, RS-232 Board Installed

INSTALL THE COMMUNICATION PLATE

1. Remove and discard the two lock nuts (Figure 7-5) from the inside of the rear cover; then remove the communication plate.
2. Insert the appropriate communication plate onto the top panel of the rear cover, ensuring that the index hole (Figure 7-5) is exposed.
3. Install the two lock nuts onto the communication plate's captive screws to secure the rear cover (Figure 7-5).

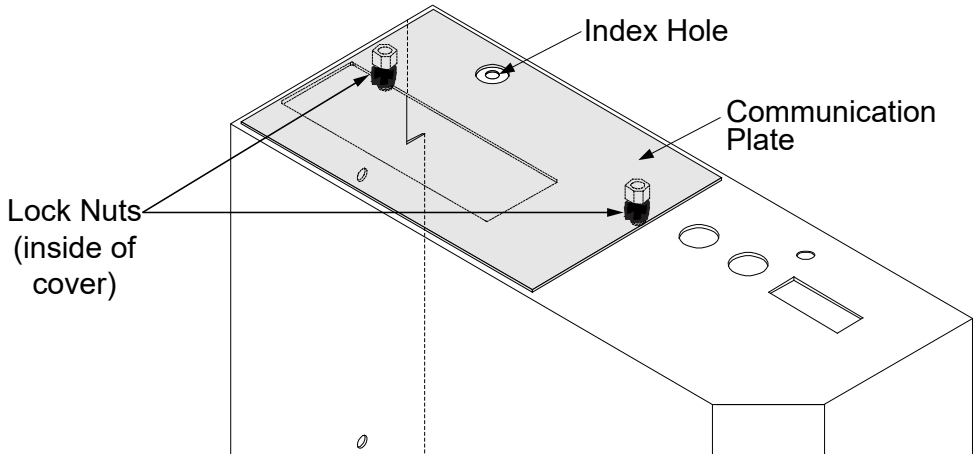


Figure 7-5 M-6200A Control Rear Cover, Communication Plate Orientation

REINSTALL THE REAR COVER

1. Install the rear cover over the fiber optic connectors, then install the screws (8) that retain the rear cover.
2. Connect (plug in) the upper half of the TB2 connector (Figure 7-1).
3. Tighten the two screws (captured) that secure the upper half of the TB2 connector (Figure 7-1).

RE-APPLY POWER

1. Reapply power and potential inputs to the control.
2. See the applicable Instruction Book section for detailed information regarding RS-232 port setup and operation.

7.1 Removing an RS-232 Module

The following steps must be completed if the target control's optional communication method is converted to Dual Ethernet from RS-232 serial.

■**NOTE:** The steps described here begin after the rear cover of the M-6200A has been removed, as noted in the subsection "Install the Ethernet Board" of **Section 3.0**, **Section 5.0**, or **Section 6.0**. Observe the safety measures described below before proceeding.

⬢WARNING: Verify that all regulator and control wiring is in a safe condition so that the following procedures can be conducted without the possibility of injury or harm. Ensure that the control and control wiring is de-energized and isolated from any potential safety hazards. Confirm that all local Safety Tagging rules have been applied as necessary.

⬢WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.

⬢WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.

⬢WARNING: In no case should the line current circuit be interrupted with the regulator or transformer energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.

REMOVE THE MODULE

1. Unscrew the two 2-56 x 1/4 screws and lock washers from the standoffs connected through the RS-232 board support standoff screw holes (Figure 7.1-1).

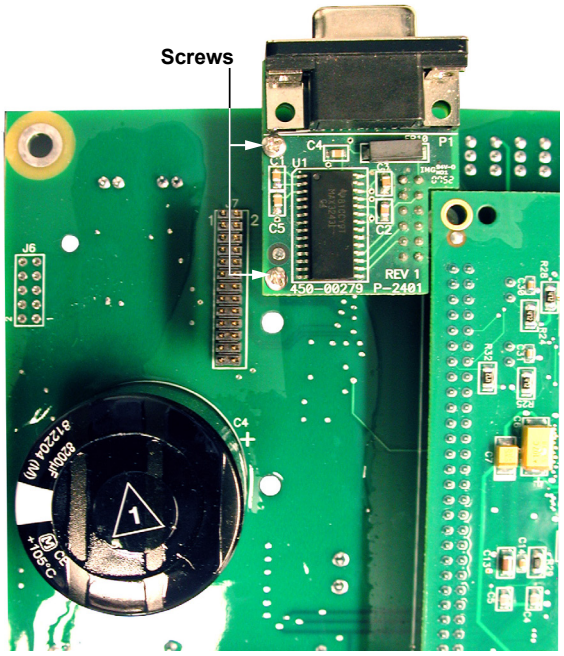


Figure 7.1-1 Main PCB, Installed RS-232 Module

2. Lift the RS-232 module from the RS-232 connector on the main PCB.
3. Remove the standoffs from the threaded mounting studs/screws on the main PCB. If screws were initially added to the standoff screw holes to hold the standoffs in place, remove them from the underside of the main PCB.

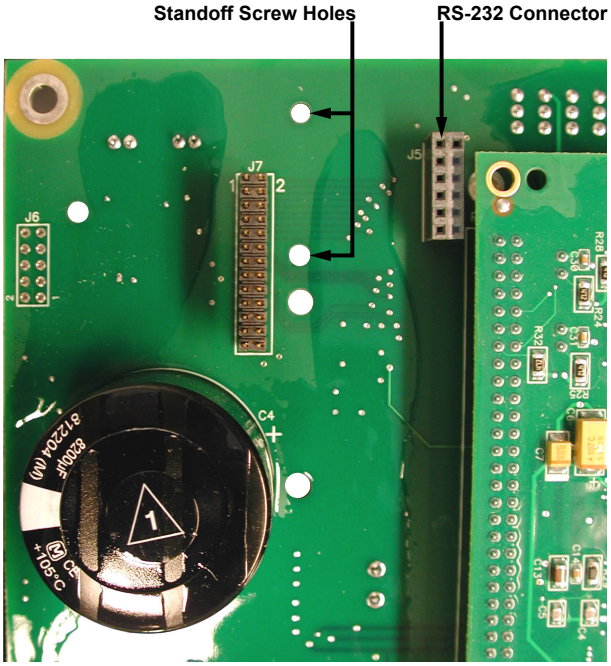


Figure 7.1-2 Main PCB, RS-232 Module Removed

REVIEW THE MAIN PCB

1. Ensure the upper left hand corner of the main PCB is free and clear of debris or loose materials before proceeding with any installation.
2. To proceed with installation of the Dual Ethernet board, return to the subsection titled “Install the Ethernet Board” in the appropriate section (**Section 3.0**, **Section 5.0**, or **Section 6.0**) of this Application Guide.

8.0 B-6200A-B Bluetooth Hardware Kit Configuration

GATHER TOOLS AND VERIFY PARTS

1. This procedure requires the use of the following hand tools:
   - #2 Phillips head screw driver
   - 1/4 inch nut driver or equivalent
   - Straight blade screw driver adequate to remove Phoenix style connectors
   - Needle Nose Pliers
2. Verify the contents of the B-6200A-B Bluetooth Hardware Kit includes the items in Table 8-1:

Qty	Description	Beco Part #
1	Blutooth Serial Module	500-00062
1	Standoff, F/F, 2-56 x 0.875	440-00980
3	Screw, PHMS, 2-56 x 1/4	470-00601
2	Lock nut, #4-40, SS	480-00890
2	Washer, #2 , Int. Tooth	480-00103
1	Socket Spacer, 2 x 6 Pins	030-00423
2	Washer, Flat #2-56	480-00544

■**NOTE:** Contact Beckwith Electric to ensure that the proper communication plate is provided to complete installation in the target control.

Table 8-1 B-6200A-B Bluetooth Hardware Kit

SAFETY NOTES

⬢**WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.**

⬢**WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.**

⬢**WARNING: In no case should the line current circuit be interrupted with the regulator or transformer energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.**

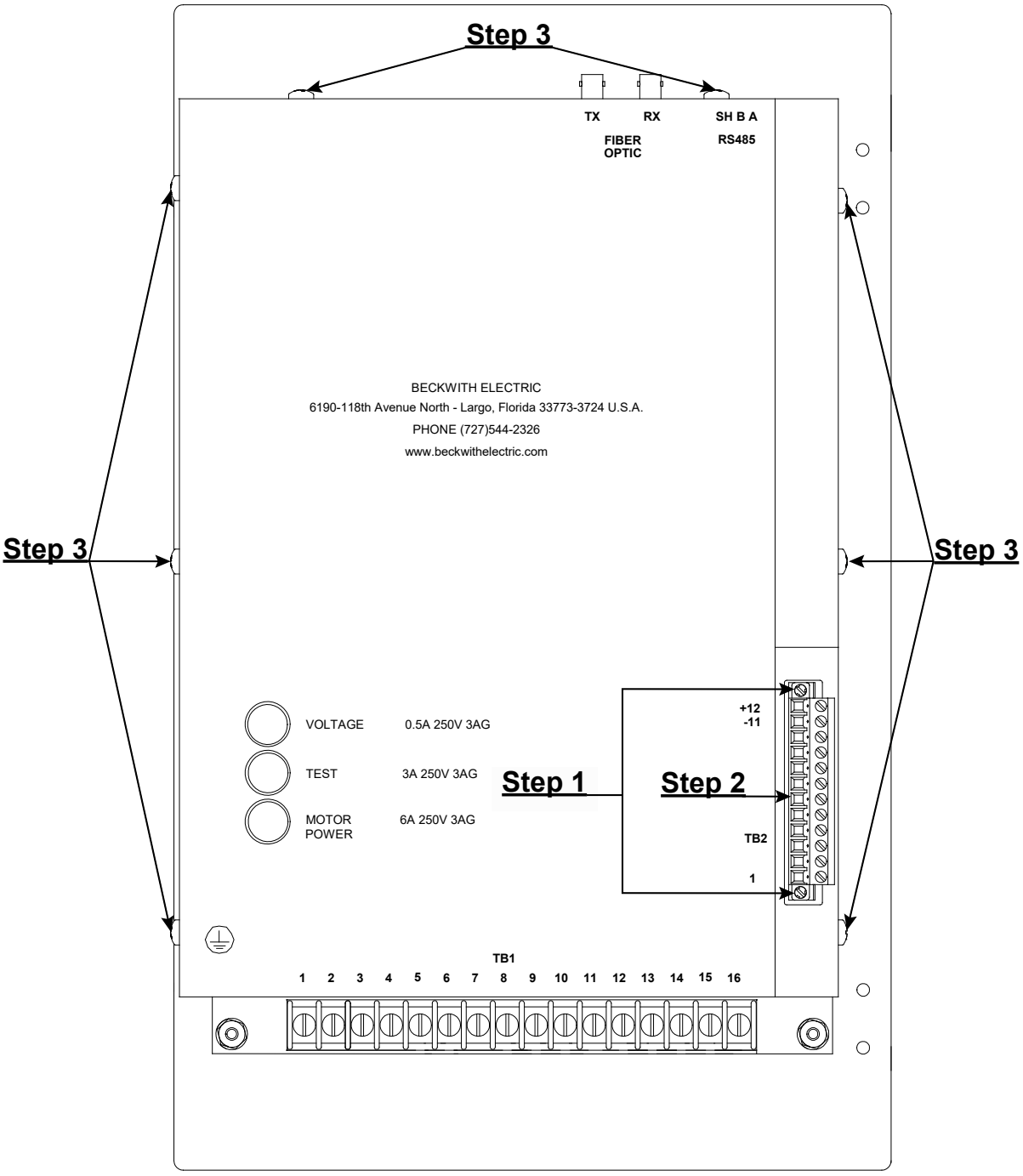
▲**CAUTION:** Personnel performing this procedure should be trained in Electrostatic Discharge prevention to prevent damage to ESD sensitive components.

Verify that all regulator control wiring and existing communications wiring has been disconnected to allow the safe removal of the control's rear cover.

- The control wiring is de-energized and isolated from any potential safety hazards.
- All local Safety Tagging rules have been applied as necessary.

REMOVE THE REAR COVER

1. Loosen the two screws (captured) that secure the upper half of the TB2 connector (Figure 8-1).
2. Disconnect (unplug) the upper half of the TB2 connector (Figure 8-1).
3. Remove the screws (8) that retain the rear cover (Figure 8-1).



■**NOTE:** ⚠ See Instruction Book, Section 5.2, Mechanical/Physical Information

Figure 8-1 M-6200A Control Rear Layout

4. Lift the rear cover in the upward direction to clear the fiber optic connectors and off the control exposing the main Printed Circuit Board (PCB).

INSTALL THE BLUETOOTH BOARD

▲CAUTION: Before and during installation of the Bluetooth module, observe Electrostatic Discharge prevention techniques to prevent damage to ESD sensitive components.

1. Locate the Bluetooth connector slots and threaded mounting stud (Figure 8-2) on the upper-left corner of the main PCB.
2. Thread the standoff onto the threaded mounting stud protruding through the main PCB.
3. Install one flat washer on top of the standoff.
4. Install the socket spacer onto the Bluetooth connector slots on the main PCB (Figure 8-5).

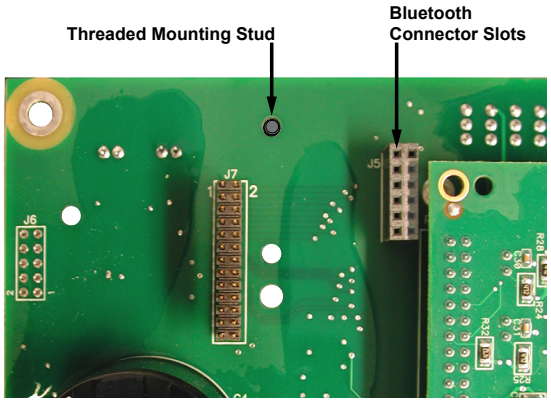


Figure 8-2 Main PCB, Bluetooth Serial Module Connector Orientation

5. Observing the orientation of the connector pins (Figure 8-3) on the Bluetooth Serial Module, mount the Bluetooth module into the connector slots (Figure 8-2) of the socket spacer.

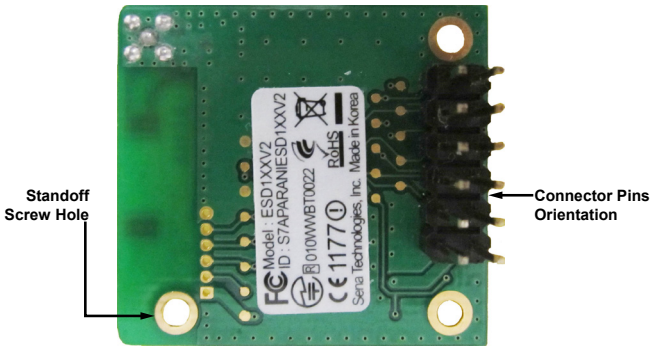


Figure 8-3 Bottom of Bluetooth Serial Module, Connector Orientation

6. Install a flat washer and 2-56 x 1/4 screw onto the standoff through the Bluetooth module's standoff screw hole (Figure 8-3). Figure 8-4 illustrates the correct mounting of the Bluetooth Serial Module.

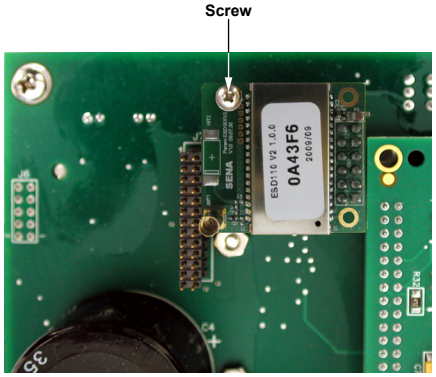


Figure 8-4 Main PCB, Bluetooth Serial Module Installed

7. Insert the antenna wire connector end into the antenna mounting flange and route the wire to the Bluetooth Serial Module (Figure 8-5). Plug the antenna connector into the module's connector.
8. Secure the antenna with two 2-56 x 1/4 screws and lock washers into the captured fasteners (Figure 8-5).

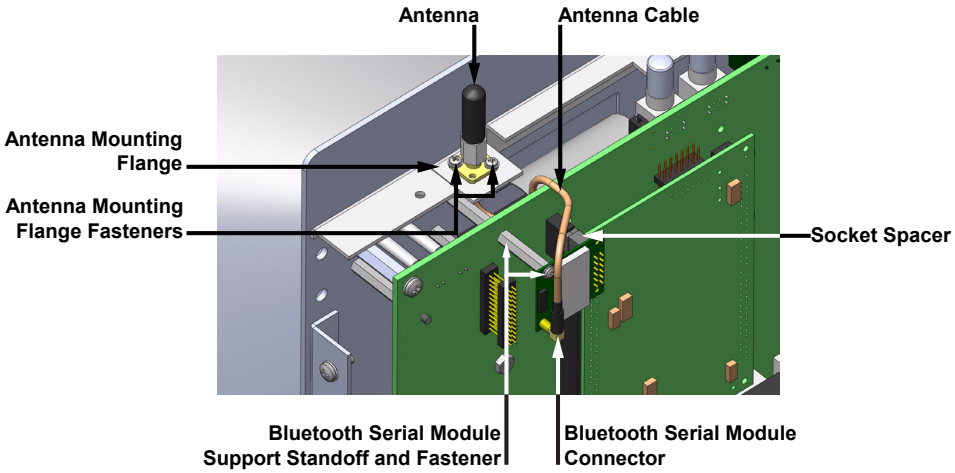


Figure 8-5 Bluetooth Module and Antenna Orientation

INSTALL THE COMMUNICATION PLATE

1. Remove and discard the two lock nuts (Figure 8-6) from the inside of the rear cover; then remove the communication plate.
2. Install the appropriate communication plate onto the top panel of the rear cover, ensuring that the index hole (Figure 8-6) is exposed.
3. Install the kit's lock nuts onto the communication plate's captive screws to secure the rear cover (Figure 8-6).

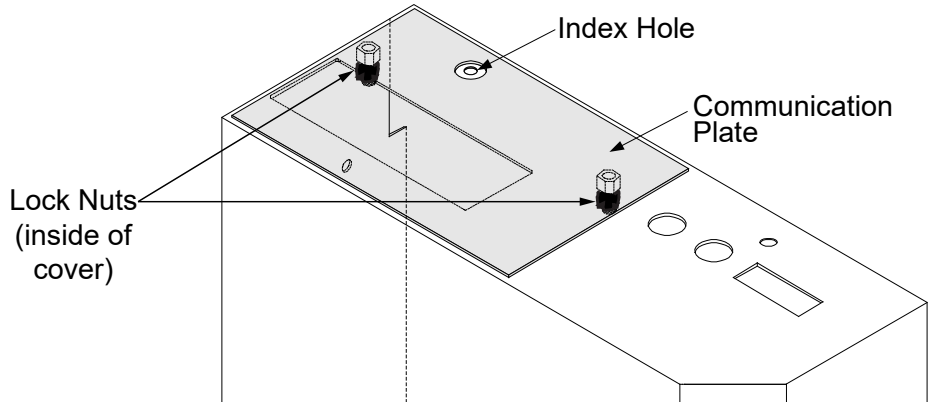


Figure 8-6 M-6200A Control Rear Cover, Communication Plate Orientation

REINSTALL THE REAR COVER

1. Install the rear cover over the fiber optic connectors; then install the screws (8) that retain the rear cover.
2. Connect (plug in) the upper half of the TB2 connector (Figure 8-1).
3. Tighten the two screws (captured) that secure the upper half of the TB2 connector (Figure 8-1).

RE-APPLY POWER

1. Reapply power and potential inputs to the control.
2. See the applicable Instruction Book section for detailed information regarding Bluetooth setup and operation.

8.1 Removing a Bluetooth Wireless Module

The following steps must be completed if the target control's optional communication method is converted to Dual Ethernet from Bluetooth wireless.

■**NOTE:** The steps described here begin after the rear cover of the M-6200A has been removed, as noted in the subsection "Install the Ethernet Board" of **Section 3.0**, **Section 5.0**, or **Section 6.0**. Observe the safety measures described below before proceeding.

WARNING: Verify that all regulator and control wiring is in a safe condition so that the following procedures can be conducted without the possibility of injury or harm. Ensure that the control and control wiring is de-energized and isolated from any potential safety hazards. Confirm that all local Safety Tagging rules have been applied as necessary.

WARNING: Operating personnel must not remove the cover or expose the printed circuit board while power is applied.

WARNING: Dangerous voltages may exist even when power is disconnected! Power must be removed, and circuits discharged, before working on the unit.

WARNING: In no case should the line current circuit be interrupted with the regulator or transformer energized. Do not remove auxiliary current transformers without shorting the current inputs. Death or severe electrical shock can occur.

DISCONNECT THE ANTENNA

1. Remove the antenna by unscrewing the two 2-56 x 1/4 screws and lock washers from the captured fasteners (Figure 8.1-1).
2. Disconnect the antenna cable from the Bluetooth module's connector. Unscrew the end of the antenna wire connector from the antenna mounting flange (Figure 8.1-1).

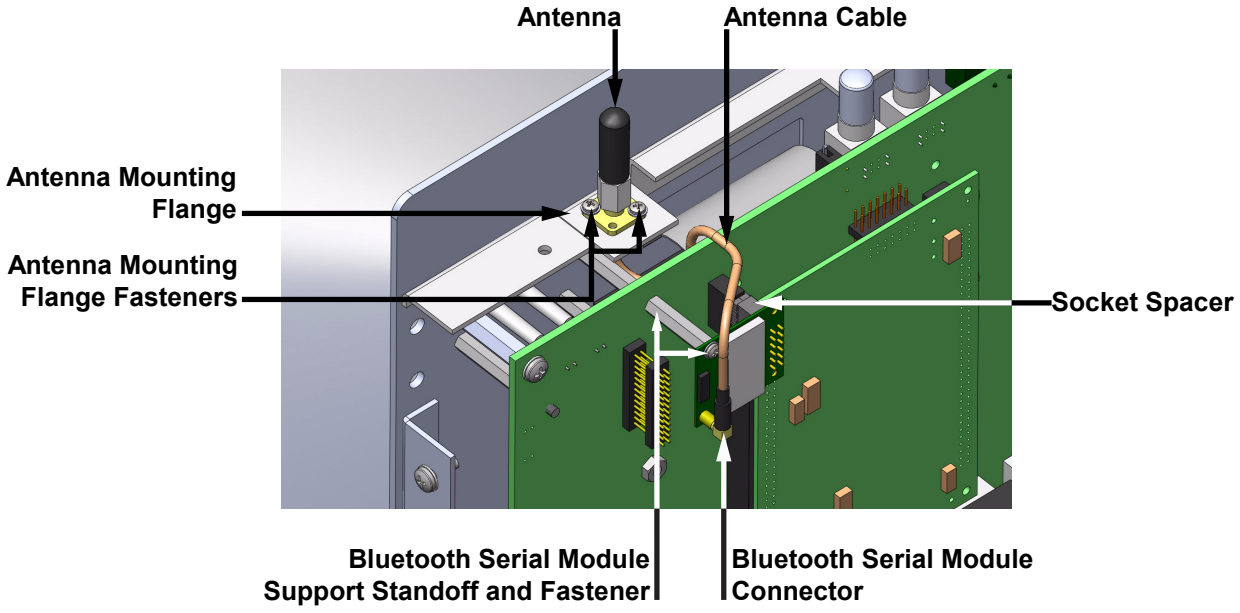


Figure 8.1-1 Bluetooth Module and Antenna Orientation

REMOVE THE MODULE

1. Unscrew the 2-56 x 1/4 screw in the standoff screw hole. Set aside the flat washer underneath the screw (Figure 8.1-2).

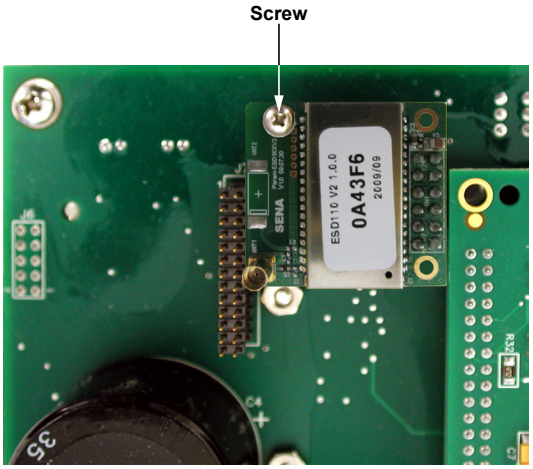


Figure 8.1-2 Main PCB, Installed Bluetooth Module

2. Lift the Bluetooth Serial module from the connector slots of the socket spacer.
3. Remove the socket spacer from the main PCB's Bluetooth connector slots (Figure 8.1-3).
4. Remove the flat washer from the standoff; then unscrew the standoff from the threaded mounting stud (Figure 8.1-3).

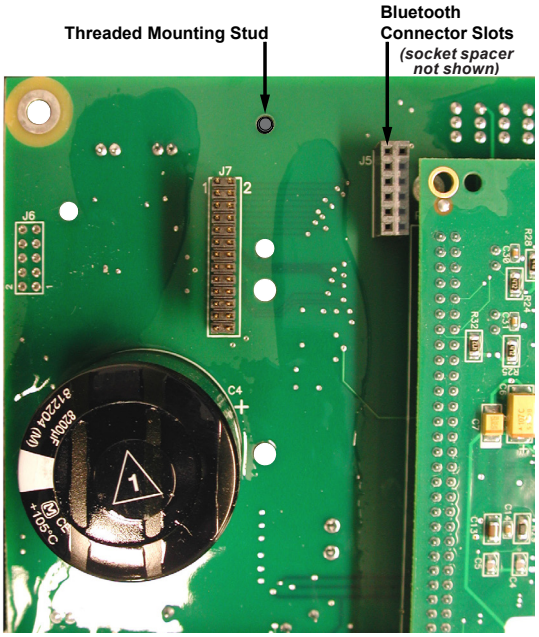


Figure 8.1-3 Bluetooth Module Removed from Main PCB

REVIEW THE MAIN PCB

1. Ensure the upper left hand corner of the main PCB is free and clear of debris or loose materials before proceeding.
2. To proceed with installation of the Dual Ethernet board, return to the subsection titled "Install the Ethernet Board" in the appropriate section (**Section 3.0**, **Section 5.0**, or **Section 6.0**) of this Application Guide.

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