



## Main Control Board for PowerFlex<sup>®</sup> 700S Drive



**ATTENTION:** To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged before performing any work on the drive. Measure the DC bus voltage at the +DC & -DC terminals of the Power Terminal Block (DC+ & DC- in high power drives). The voltage must be zero.



**ATTENTION:** HOT surfaces can cause severe burns. **Do not** touch the heatsink surface during operation of the drive. After disconnecting power allow time for cooling.



**ATTENTION:** This drive contains **ESD** (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference A-B publication 8000-4.5.2, “Guarding Against Electrostatic Damage” or any other applicable ESD protection handbook.

### What This Kit Contains

Verify that your kit contains the items listed in the following table. If your kit does not contain the correct items, contact your Allen-Bradley sales representative.

| Quantity: | Description                             |
|-----------|-----------------------------------------|
| 1         | Main control circuit board              |
| 1         | Disposable Static Discharge Wrist-strap |

### Tools That You Need

- Phillips<sup>®</sup> screwdriver for M3 screws
- Pozidrive<sup>®</sup> screwdriver for M4 screws (for high power drives only)
- Nut driver or wrench for M3 hex nut
- Nut driver or wrench for M5 hex nut

Phillips<sup>®</sup> is a registered trademark of Phillips Screw Company

Pozidrive<sup>®</sup> is a registered trademark of Phillips Screw Company

## What You Need to Do

To remove the main control board from the PowerFlex 700S drive:

- Step 1: Remove cover(s) from the drive / control assembly
- Step 2: Disconnect the main control board
- Step 3: Remove the control assembly from drive (if necessary)
- Step 4: Remove the feedback option card (if present)
- Step 5: Remove the DriveLogix controller (if present)
- Step 6: Remove the main control board

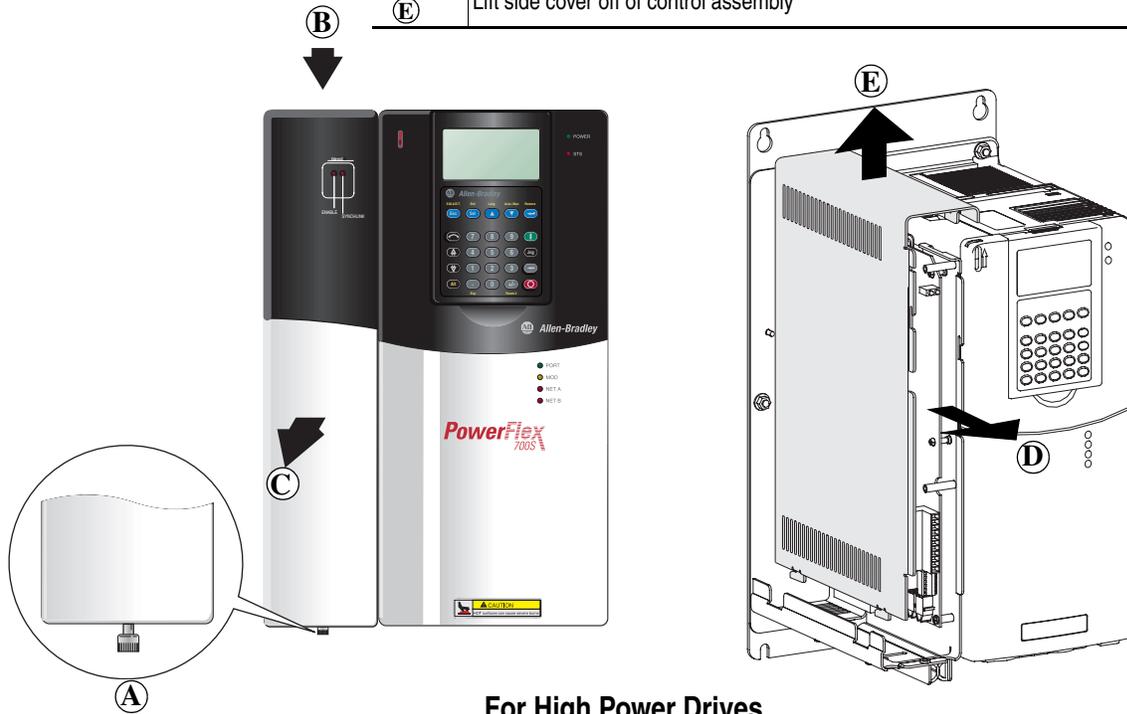
To install the new main control board on the PowerFlex 700S drive:

- Step 7: Configure dip switches and jumpers
- Step 8: Install the main control board on the control assembly
- Step 9: Install the stacker connectors on the DriveLogix controller (if removed in step 4)
- Step 10: Install the DriveLogix controller
- Step 11: Install the feedback option card (if removed in step 3)
- Step 12: Install the control assembly on the drive (if removed in step 2)
- Step 13: Connect the main control board
- Step 14: Install the cover(s) on the drive / control assembly

To return replaced main control board, use packing material from the new main control board.

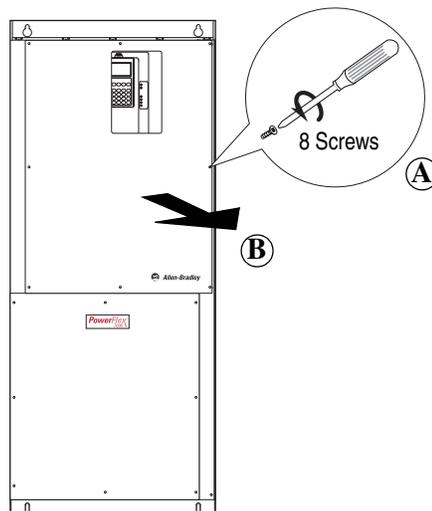
### Step 1: Removing Cover(s)

| Task | Description                             |
|------|-----------------------------------------|
| (A)  | Loosen captive screw                    |
| (B)  | Push down on front cover                |
| (C)  | Pull front cover away from assembly     |
| (D)  | Pull side cover forward                 |
| (E)  | Lift side cover off of control assembly |



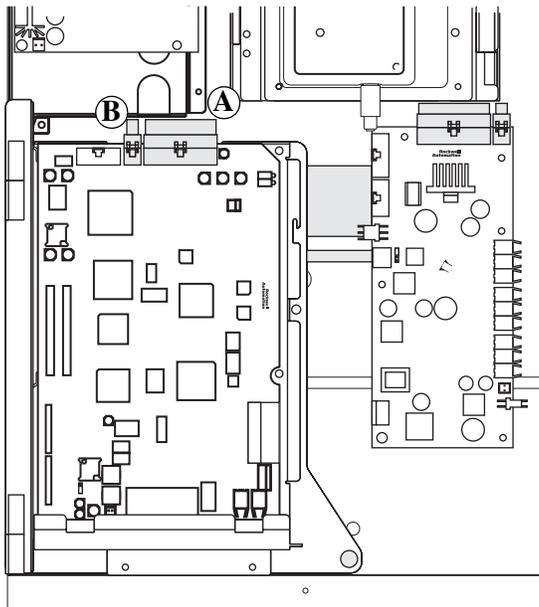
### For High Power Drives

| Task | Description                                        |
|------|----------------------------------------------------|
| (A)  | Remove eight (8) screws with Pozidrive screwdriver |
| (B)  | Remove power cover (top cover)                     |

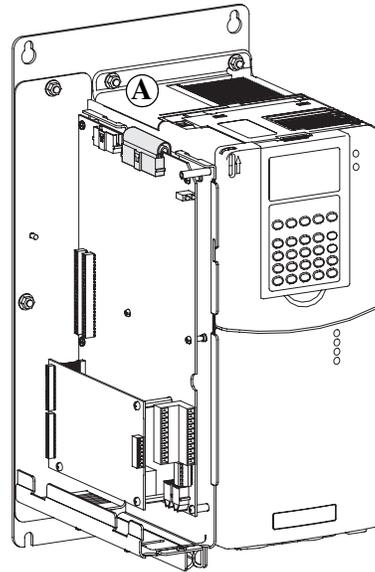


## Step 2: Disconnecting the Main Control Board

| Task | Description                                                 |
|------|-------------------------------------------------------------|
| Ⓐ    | Disconnect ribbon cable from J2                             |
| Ⓑ    | Disconnect ribbon cable from J7 (only in high power drives) |



Frames 9 and 10  
(Frame 9 shown)

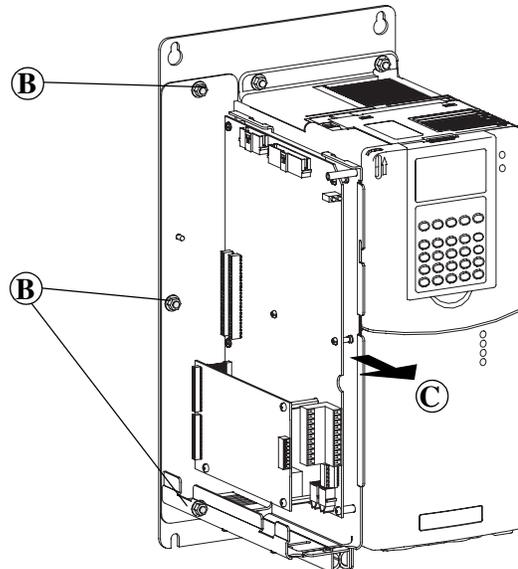


Frames 1-6  
(Frame 1 shown)

### Step 3: Removing the Control Assembly (if necessary)

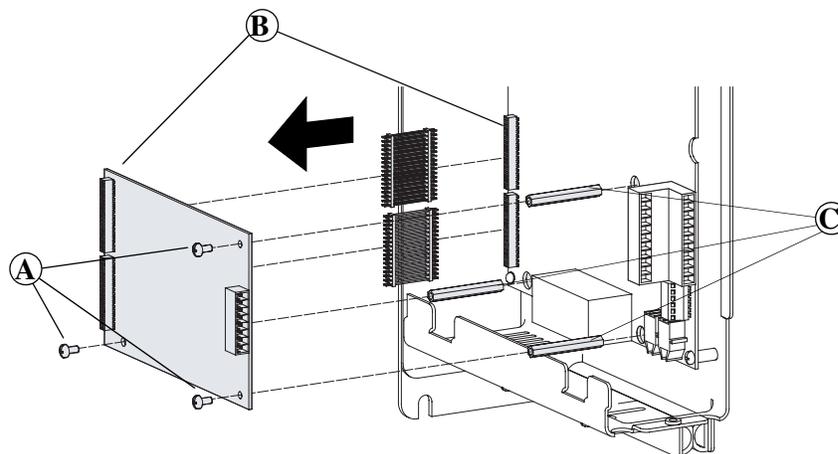
This step is necessary only when another drive or panel component blocks access to the control assembly. Avoid removing it if possible.

| Task | Description                                                                                                                                                                               |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ⓐ    | Unplug I/O and SynchLink cables from the main control board, unplug feedback wiring from feedback option feedback option card, and unplug communication cables from DriveLogix controller |
| Ⓑ    | Remove M5 nuts                                                                                                                                                                            |
| Ⓒ    | Remove control assembly                                                                                                                                                                   |



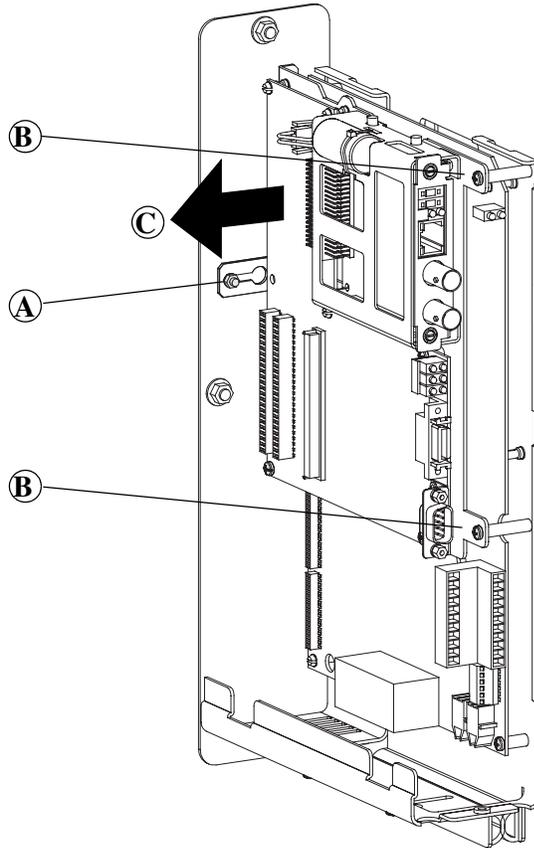
### Step 4: Removing the Feedback Option Card (if present)

| Task | Description                                                                           |
|------|---------------------------------------------------------------------------------------|
| Ⓐ    | Remove M3 screws with Phillips screwdriver                                            |
| Ⓑ    | Remove feedback option board and through-board pin connectors from main control board |
| Ⓒ    | Remove standoffs from main control board                                              |



## Step 5: Removing the DriveLogix Controller (if present)

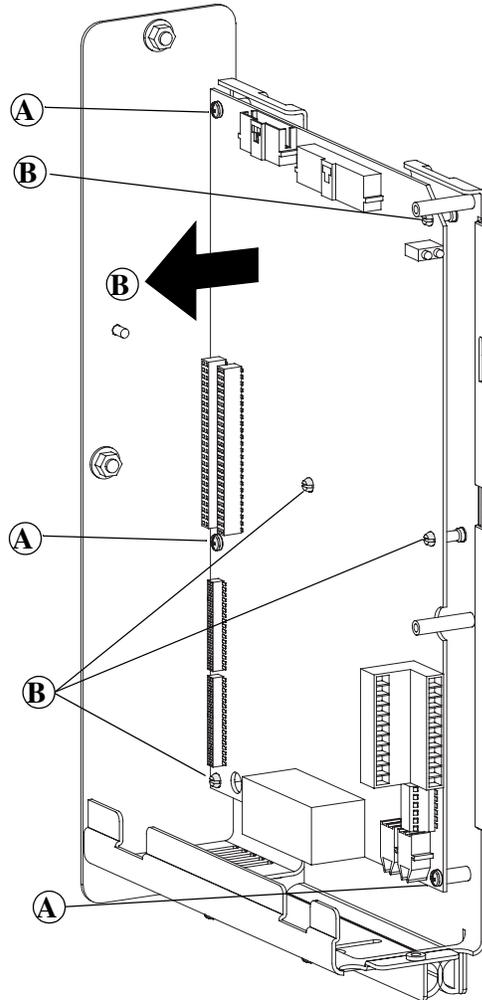
| Task | Description                                                                                    |
|------|------------------------------------------------------------------------------------------------|
| Ⓐ    | Loosen M3 hex-nut with nut driver or wrench                                                    |
| Ⓑ    | Remove M3 screws with Phillips screwdriver                                                     |
| Ⓒ    | Remove DriveLogix Controller Assembly and through-board pin connectors from main control board |



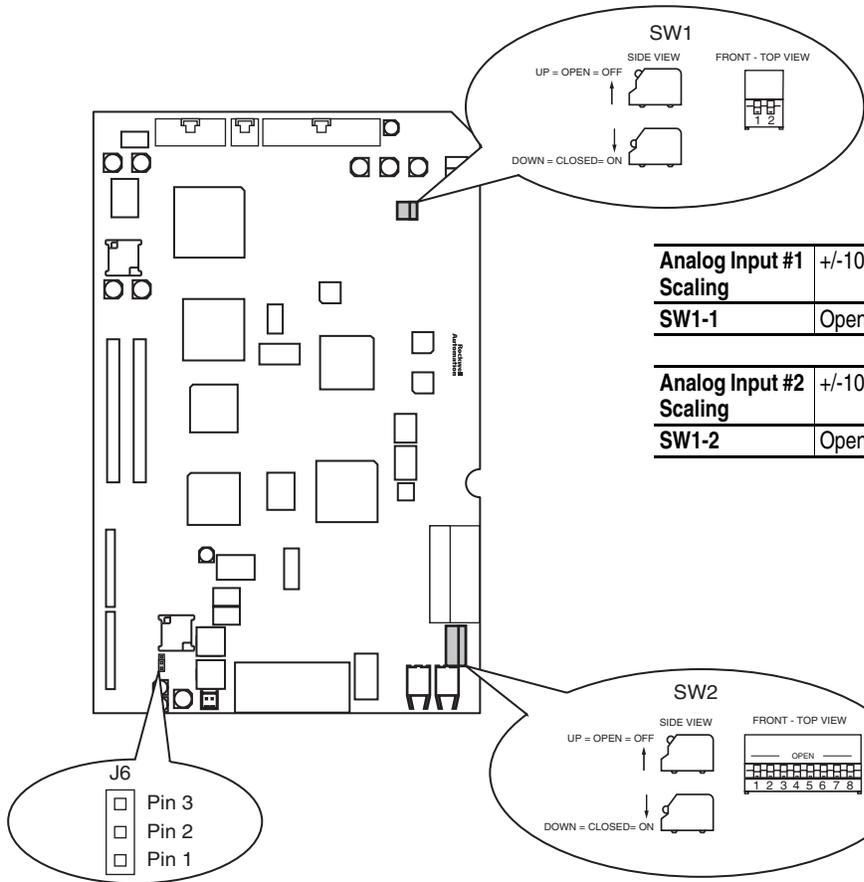
## Step 6: Removing the Main Control Board

| Task | Description                                                         |
|------|---------------------------------------------------------------------|
| Ⓐ    | Remove M3 screws with Phillips screwdriver                          |
| Ⓑ    | Remove main control board while pushing on the Snap-Top® stand-offs |

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### Step 7: Configuring Dip Switches and Jumpers



|                        |             |            |
|------------------------|-------------|------------|
| <b>Analog Input #1</b> | +/-10.0V dc | +/-1.0V dc |
| <b>Scaling</b>         |             |            |
| <b>SW1-1</b>           | Open        | Closed     |

|                        |             |            |
|------------------------|-------------|------------|
| <b>Analog Input #2</b> | +/-10.0V dc | +/-1.0V dc |
| <b>Scaling</b>         |             |            |
| <b>SW1-2</b>           | Open        | Closed     |

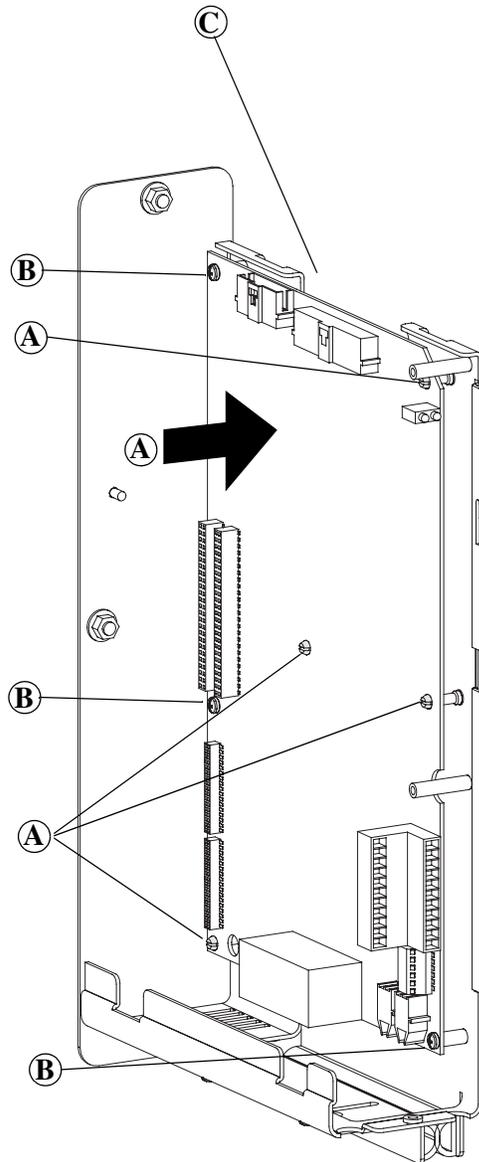
|                                     |                        |
|-------------------------------------|------------------------|
| <b>Encoder Power Supply Voltage</b> | <b>Jumper Position</b> |
| 5V dc                               | 2-3                    |
| 12V dc                              | 1-2                    |

|                        |              |              |              |
|------------------------|--------------|--------------|--------------|
| <b>Primary Encoder</b> | <b>SW2-2</b> | <b>SW2-4</b> | <b>SW2-6</b> |
| 5V dc Operation        | Closed       | Closed       | Closed       |
| 12V dc Operation       | Open         | Open         | Open         |

|                          |              |              |              |
|--------------------------|--------------|--------------|--------------|
| <b>Secondary Encoder</b> | <b>SW2-1</b> | <b>SW2-3</b> | <b>SW2-5</b> |
| 5V dc Operation          | Closed       | Closed       | Closed       |
| 12V dc Operation         | Open         | Open         | Open         |

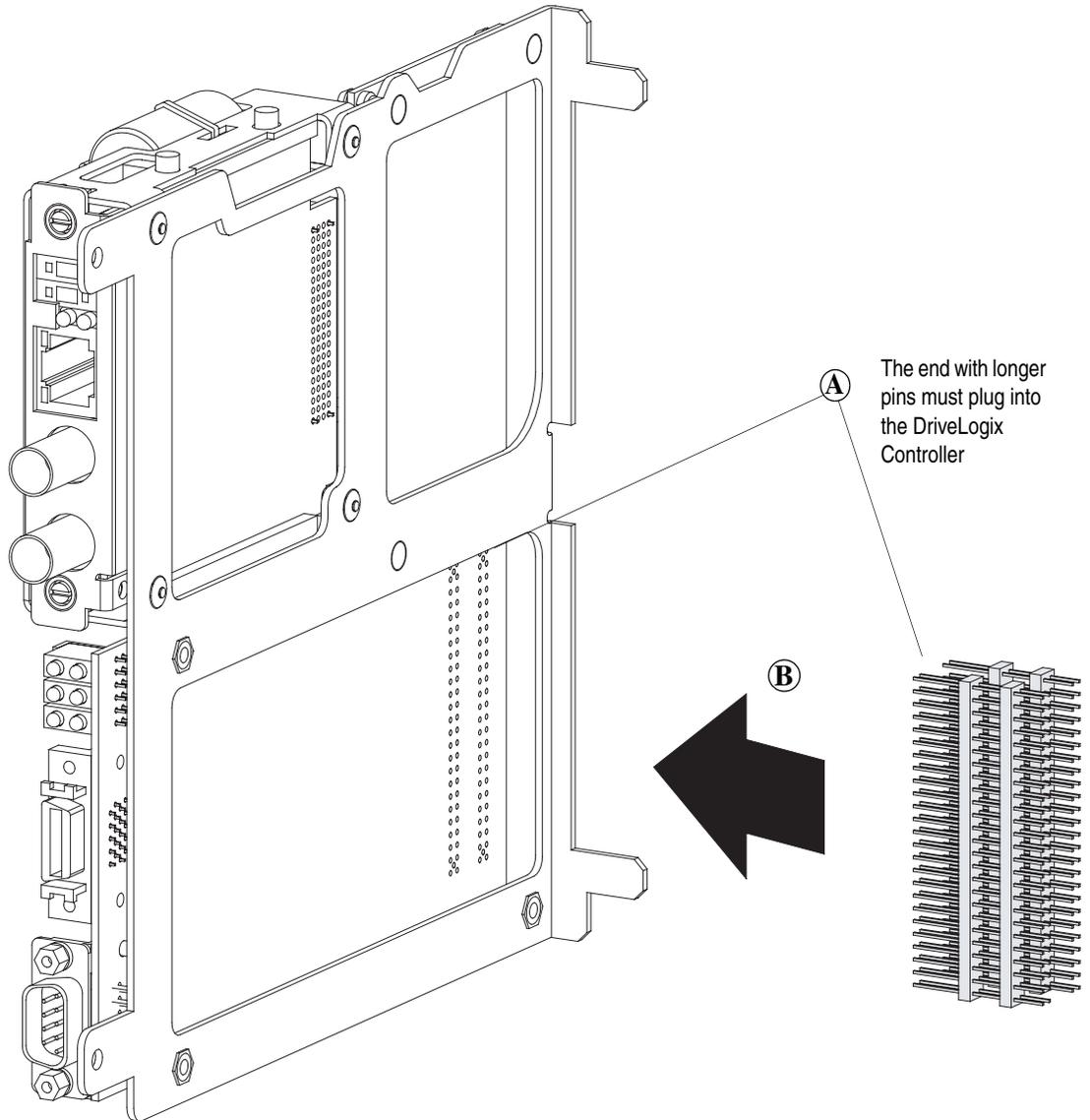
## Step 8: Installing the Main Control Board

| Task | Description                                                                                        |
|------|----------------------------------------------------------------------------------------------------|
| Ⓐ    | Install main control board while pushing on the main control board around the Snap-Top® stand-offs |
| Ⓑ    | Install and Tighten M3 screws with Phillips screwdriver (min/max 6 in-lb / 8 in-lb)                |



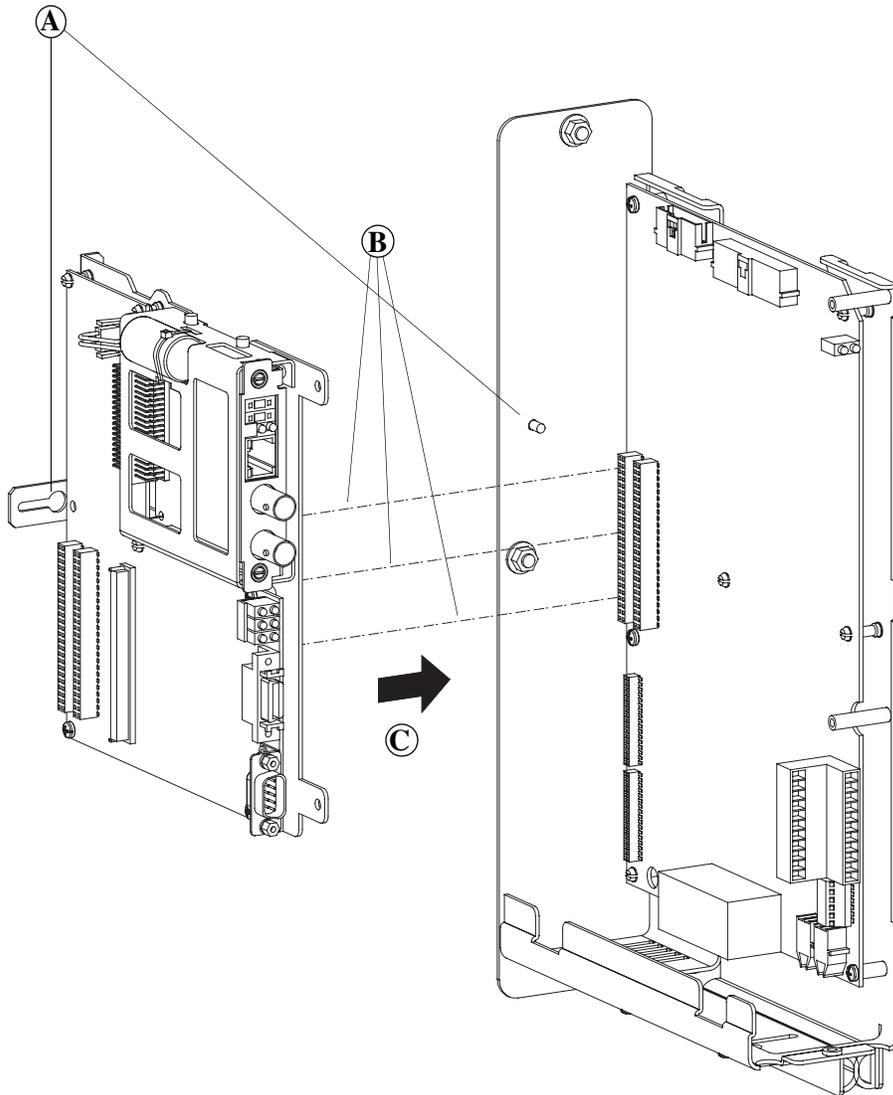
## Step 9: Installing the Stacker Connectors on the DriveLogix Controller (if removed in step 5)

| Task | Description                                                                                        |
|------|----------------------------------------------------------------------------------------------------|
| Ⓐ    | Align Stacker Connectors with through-holes                                                        |
| Ⓑ    | Insert Stacker Connectors<br>The end with the longer pins must plug into the DriveLogix Controller |



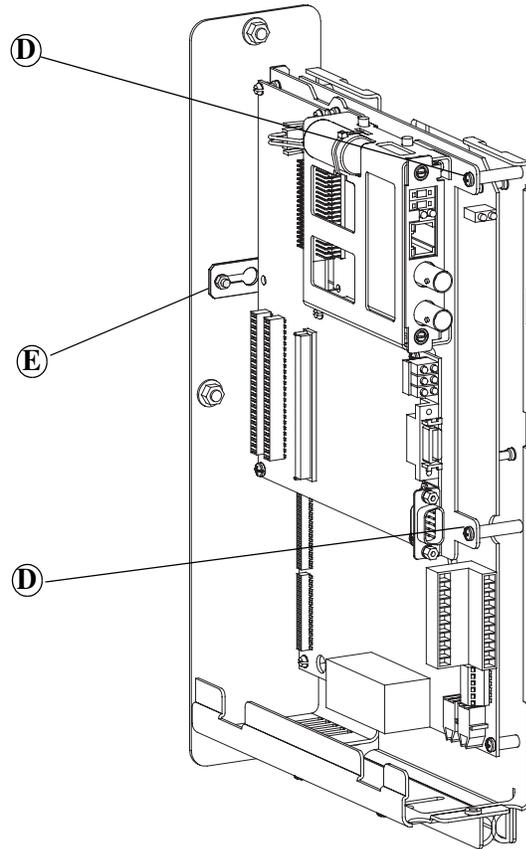
## Step 10: Installing the DriveLogix Controller Assembly

| Task | Description                                                              |
|------|--------------------------------------------------------------------------|
| Ⓐ    | Align slotted hole in mounting tab with stud on back of Control Assembly |
| Ⓑ    | Align Stacker Connectors with mating connectors                          |
| Ⓒ    | Install DriveLogix Controller Assembly on drive                          |



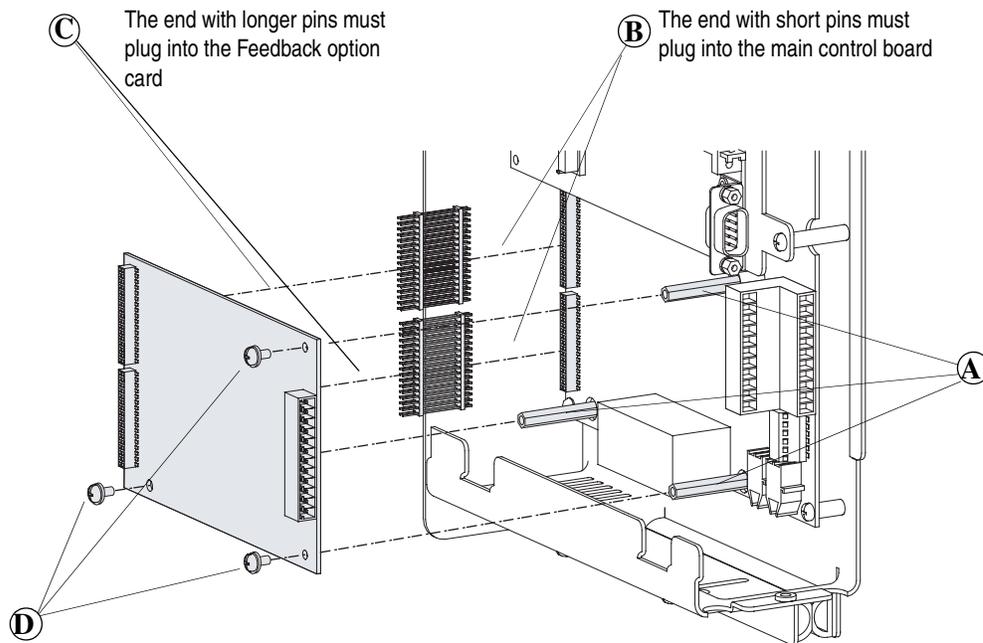
## Step 10: Installing the DriveLogix Controller Assembly (continued)

| Task | Description                                                                          |
|------|--------------------------------------------------------------------------------------|
| Ⓓ    | Install and tighten M3 screws with Phillips screwdriver (min/max 7 in-lb / 10 in-lb) |
| Ⓔ    | Tighten M3 hex-nut with nut driver or wrench (min/max 7 in-lb / 10 in-lb)            |
| Ⓕ    | Plug communication cables into DriveLogix controller                                 |



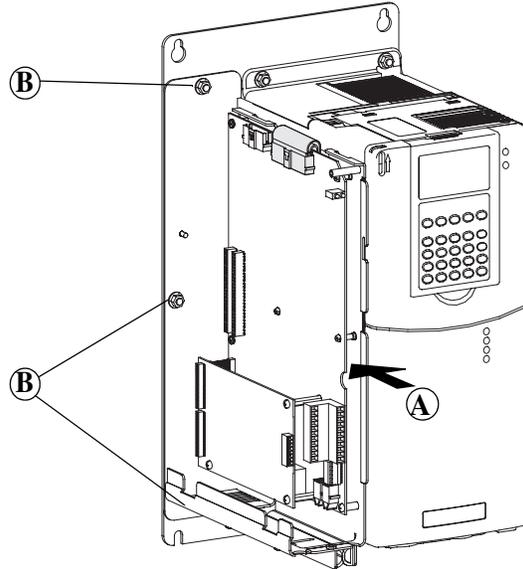
## Step 11: Installing the Feedback Option Card (if removed in step 4)

| Task | Description                                                                                                                                                         |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ⓐ    | Install and tighten stand-offs (min/max 7 in-lb / 10 in-lb)                                                                                                         |
| Ⓑ    | Insert short pins of through-board pin connectors into mating connectors on the main control board<br>The end with short pins must plug into the main control board |
| Ⓒ    | Plug card onto the through-board pin connectors and the main control board<br>The end with longer pins must plug into the Feedback option card                      |
| Ⓓ    | Secure card to stand-offs, using screws with captive lock washers, tighten screws with Phillips screwdriver (min/max 6 in-lb / 8 in-lb)                             |



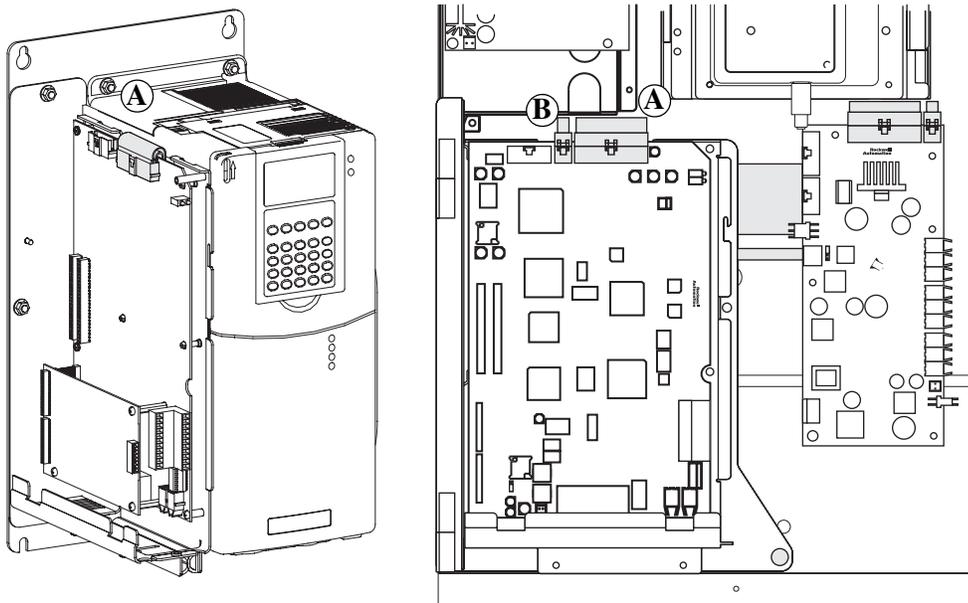
**Step 12: Installing the Control Assembly (if removed in step 2)**

| Task | Description                                                                                                                                                                        |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ⓐ    | Install control assembly                                                                                                                                                           |
| Ⓑ    | Install and tighten M5 nuts (torque 18 in-lb)                                                                                                                                      |
| Ⓒ    | Connect I/O and SynchLink cables to the main control board, connect feedback wiring to feedback option feedback option card, connect communication cables to DriveLogix controller |



**Step 13: Connecting the Main Control Board**

| Task | Description                                            |
|------|--------------------------------------------------------|
| Ⓐ    | Connect ribbon cable to J2                             |
| Ⓑ    | Connect ribbon cable to J7 (only in high power drives) |



## Step 14: Installing Cover(s)

| Task | Description                                     |
|------|-------------------------------------------------|
| Ⓐ    | Align tabs on side cover with slots on drive    |
| Ⓑ    | Push side cover down onto control assembly      |
| Ⓒ    | Push side cover back onto control assembly      |
| Ⓓ    | Locate tabs on inside of front cover            |
| Ⓔ    | Align tabs on front cover with slots on flanges |
| Ⓕ    | Push front cover onto drive                     |
| Ⓖ    | Push front cover up into slots                  |
| Ⓗ    | Tighten captive screw                           |

