

# ACH550- BxR & VxR

## Bypass control unit replacement instructions

### Purpose or Scope

The following set of instructions will guide the technician with the proper replacement of the Bypass Control Unit (RBCU, part number 3AUA0000034480). Proper installation will require both hardware and software changes.

### Equipment required:

- No. 1 slotted screwdriver
- No. T15 torx head screwdriver or bit

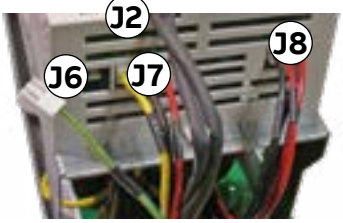
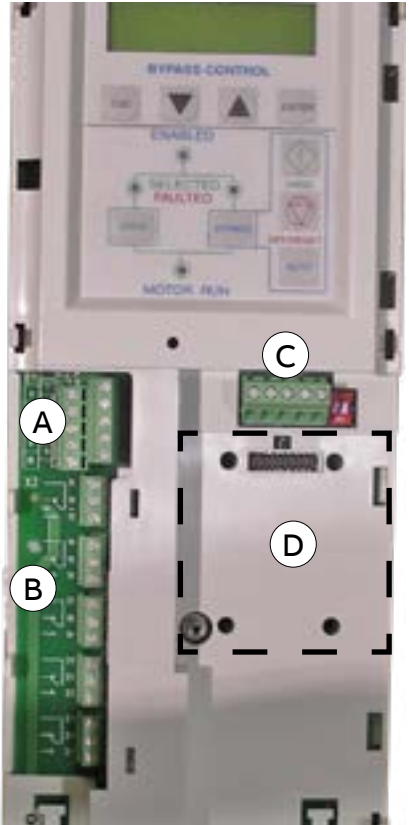
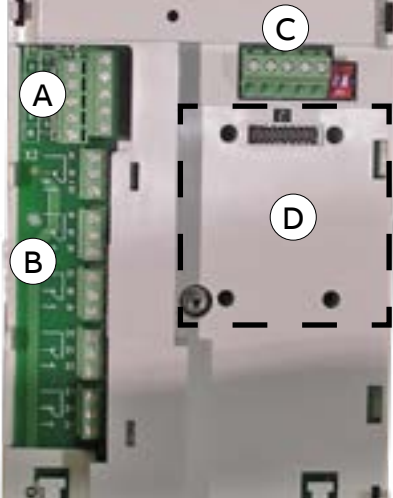
### Notes and cautions

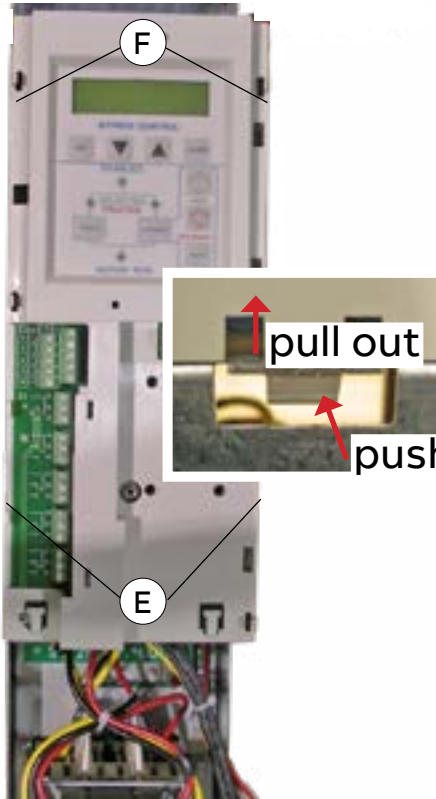
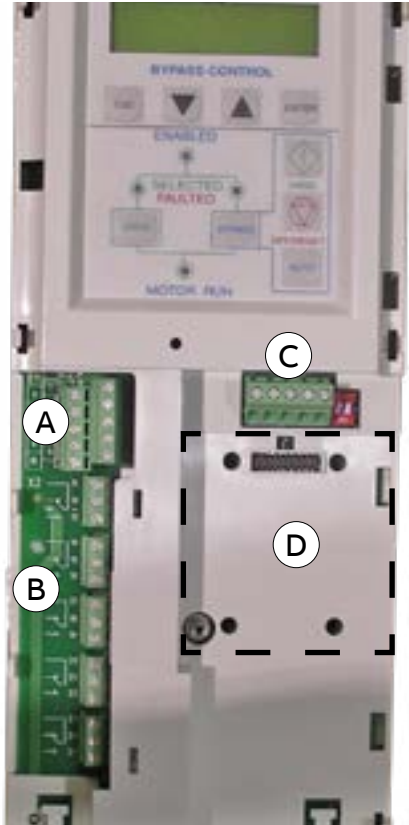


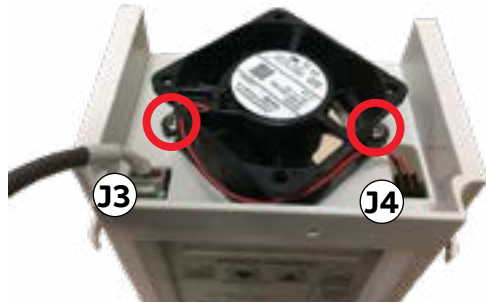
**WARNING!** The incoming power to the ACH550 adjustable speed AC drive with E-Clipse Bypass should be disconnected and locked out before changing the Bypass Control Unit (RBCU).

**WARNING!** Ensure proper PPE is worn and that the proper safety precautions are followed at all times during this installation. Follow local Lock Out Tag Out (LOTO) procedures to ensure equipment cannot be placed into a dangerous state while work is being conducted.

| Step | Instruction                                                                                                                                                                                                                                                                                                | Diagram                                                                               |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1    | If possible, document changes in existing Bypass Control Unit by viewing the Changed Parameter section via the bypass keyboard. In addition, note parameter values in groups 50, 51, 53, and 54 by hand. Any modifications made in these parameter groups are not logged in the Changed Parameter section. |                                                                                       |
| 2    | Move the circuit breaker or disconnect handle to the “OFF” position to remove incoming supply voltage from Bypass Unit.                                                                                                                                                                                    |    |
| 3    | Unplug the RS-485 connection by squeezing and gently pulling upward on from the J3 plug located on the top of RBCU.                                                                                                                                                                                        |                                                                                       |
| 4    | Remove Fan, if installed, by removing the two torx screws located on either side of the fan as shown in the photo to the right. Unplug the power connection by squeezing and gently pulling upward on the J4 plug located on the top of RBCU.                                                              |  |

| Step | Instruction                                                                                                                                                                                                                                                                                                                                    | Diagram                                                                              |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 5    | <p>Unplug the following four (4) connections from the bottom of the RBCU by squeezing and gently pulling upward:</p> <ul style="list-style-type: none"><li>- J7 power plug, 3 phase AC line</li><li>- J6 cable, chassis ground</li><li>- J2 plug, CT harness from the current transducer</li><li>- J8 plug, cable to contactor coils</li></ul> |   |
| 6    | <p>Remove digital input (A) and output wires (B) from front of RBCU making sure wires are properly identified for re-installation.</p>                                                                                                                                                                                                         |  |
| 7    | <p>Remove communication cables (C) from front of RBCU making sure wires are properly identified for re-installation. If optional communication module (D) is used, remove module by loosening screw that is held by the communication module standoff.</p>                                                                                     |  |

| Step | Instruction                                                                                                                                                                                                      | Diagram                                                                                                                                                                                                                                                                                                                                                                    |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8    | Push in the lower tabs (E) and pull out from the bottom of the RBCU.                                                                                                                                             |  A photograph of the RBCU unit. A label 'F' points to the top edge. A label 'E' points to the bottom edge. An inset image shows a close-up of a tab being pulled out, with a red arrow pointing up and the text 'pull out', and another red arrow pointing down and the text 'push in'. |
| 9    | Push in the upper tabs (F) and pull out from the top of the RBCU.                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                            |
| 10   | Snap new RBCU into mounting holes.                                                                                                                                                                               |  A photograph of the RBCU unit. A label 'C' points to the top edge. A label 'A' points to the left side. A label 'B' points to the bottom edge. A label 'D' points to the right side. A dashed box indicates the area where the new RBCU is being snapped into the mounting holes.    |
| 11   | Reconnect the wires for the Input (A), Output (B) and Communication cables (C) removed in step 6 and 7. If applicable, reinstall communication module (D). Terminals should be tightened to 3.6 lb-in. (0.4 Nm). |                                                                                                                                                                                                                                                                                                                                                                            |

| Step | Instruction                                                                                                                                                                                                                                                                                                                          | Diagram                                                                                                                                                                                          |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12   | Reinstall RS-485 connector (J3) and fan connection (J4), if installed; that were removed from RBCU in steps 3 and 4. Tighten fan screw to 8.8 lb-in (1 Nm).                                                                                                                                                                          |                                                                                                               |
| 13   | Reapply power to the Bypass Unit.                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                  |
| 14   | <p>Drive and motor parameters automatically transfer from the drive to the new RBCU via the RS-485 link.</p> <p>Refer to Appendix C if the bypass keypad shows either of the following diagnostic messages:</p> <ul style="list-style-type: none"> <li>Alarm 4013: Drive Link Error</li> <li>Fault 3019: Drive Link Fault</li> </ul> |                                                                                                                |
| 15   | From the operating screen of the bypass, press “enter” on the bypass keypad. Use the Up (▲) or Down (▼) arrow key to navigate the menu until *PARAMETER LIST is displayed. Press “ENTER”.                                                                                                                                            | <br>BYPASS CONTROL                                                                                           |
| 16   | Press “ENTER” to access the *01 ACTUAL DATA parameter group.                                                                                                                                                                                                                                                                         | <br>BYPASS CONTROL                                                                                          |
| 17   | Access to Parameter group 105 is gained by pressing and holding the “ESC”, “Up” and “Down” arrow keys at the same time for several seconds until the screen goes momentarily blank. At this time, stop pressing the three keys.                                                                                                      | <br><br>BYPASS CONTROL |
| 18   | When the screen display returns, press “ESC” key once, then press the “Up” arrow key six (6) times until *105 is displayed and press “ENTER”.                                                                                                                                                                                        | <br>BYPASS CONTROL                                                                                          |

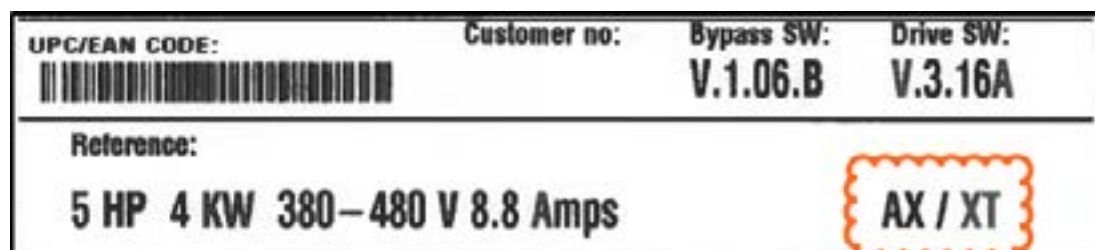
| Step | Instruction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Diagram                                                                             |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 19   | <p>If the value in 10509 is not “0”, verify the setting in Appendix A, Tables A1, A2, or A3 to ensure it match the drive size and contactor type. If it matches, press “ENTER” or “ESC”.</p> <p>If the value in 10509 is “0” or does not match the value in Appendix A, then program this parameter to match the drive size and contactor type based on Appendix A, Tables A1, A2, or A3 and press “ENTER”.</p> <p>If “0” is the only available option in 10509, refer to Appendix B before continuing.</p> |  |
| 20   | <p>Scroll to 10511, press “Enter”, value should show “0” and be flashing, press the up arrow to change value to “3” and press “Enter” to save the value. The parameter value reverts to “0” after it is saved.</p>                                                                                                                                                                                                                                                                                          |                                                                                     |
| 21   | <p>Cycle power on the Bypass and the unit should be ready to operate. Consult the corresponding user’s manual if either bypass or drive are displaying alarms or faults other than those listed in step 14.</p>                                                                                                                                                                                                                                                                                             |                                                                                     |

# Appendix A. Drive Rating Selection Tables.

## NOTE:

The correct selection for parameter 10509 is determined by the type of contactors installed in the E-Cclipse bypass. After July of 2018, “A” series contactors were no longer available. They are replaced by the “AX” series. The main label for units shipped with AX contactors includes the letters AX as shown in Figure 1. If the package was built with an Input Circuit Breaker, the letters “XT” are also included. Another method to identify that the unit contains AX contactors is that the Bypass SW is version 1.05B or greater.

**Figure A1: Product Label**



**Table A1: 200 Volt Rating Codes**

| 200 Volt Rating Table |         |       | Parameter 10509 |                    |                    |
|-----------------------|---------|-------|-----------------|--------------------|--------------------|
| HP                    | Current | Frame | A Contactors    | BXR: AX Contactors | VXR: AX Contactors |
| 1.0                   | 04A6-2  | R1    | 14826           | 46151              | 4758               |
| 1.5                   | 06A6-2  | R1    | 14826           | 46151              | 4758               |
| 2                     | 07A5-2  | R1    | 14826           | 46151              | 4758               |
| 3                     | 012A-2  | R1    | 14826           | 46151              | 4758               |
| 5                     | 017A-2  | R1    | 14829           | 2426               | 46111              |
| 7.5                   | 024A-2  | R2    | 14829           | 2426               | 46111              |
| 10                    | 031A-2  | R2    | 14830           | 46722              | 46722              |
| 15                    | 046A-2  | R3    | 14831           | 18653              | 18653              |
| 20                    | 059A-2  | R3    | 14831           | 18653              | 18653              |
| 25                    | 075A-2  | R4    | 14831           | 18653              | 18653              |
| 30                    | 088A-2  | R4    | 15635           | 39323              | N/A                |
| 40                    | 114A-2  | R4    | 15637           | 39330              | N/A                |
| 50                    | 143A-2  | R6    | 15638           | 39347              | N/A                |
| 60                    | 178A-2  | R6    | 15639           | 39354              | N/A                |
| 75                    | 221A-2  | R6    | 15640           | 39361              | N/A                |
| 100                   | 248A-2  | R6    | 15641           | 39378              | N/A                |

**Table A2: 400 Volt Rating Codes**

| 400 Volt Rating Table |         |       | Parameter 10509 |                    |                    |
|-----------------------|---------|-------|-----------------|--------------------|--------------------|
| HP                    | Current | Frame | A Contactors    | BXR: AX Contactors | VXR: AX Contactors |
| 1.5                   | 03A3-4  | R1    | 14826           | 46151              | 4758               |
| 2.0                   | 04A1-4  | R1    | 14826           | 46151              | 4758               |
| 3.0                   | 06A9-4  | R1    | 14826           | 46151              | 4758               |
| 5.0                   | 08A8-4  | R1    | 14826           | 46151              | 4758               |
| 7.5                   | 012A-4  | R1    | 14826           | 46151              | 4758               |
| 10                    | 015A-4  | R2    | 14829           | 2426               | 46111              |
| 15                    | 023A-4  | R2    | 14829           | 2426               | 46111              |
| 20                    | 031A-4  | R3    | 14830           | 46722              | 46722              |
| 25                    | 038A-4  | R3    | 14830           | 46722              | 46722              |
| 30                    | 045A-4  | R3    | 14830           | 46722              | 46722              |
| 40                    | 059A-4  | R4    | 14831           | 18653              | 18653              |
| 50                    | 072A-4  | R4    | 14831           | 18653              | 18653              |
| 60                    | 078A-4  | R4    | 14831           | 18653              | 18653              |
| 75                    | 097A-4  | R4    | 15636           | 39323              | N/A                |
| 100                   | 125A-4  | R5    | 15637           | 39330              | N/A                |
| 125                   | 157A-4  | R6    | 15638           | 39354              | N/A                |
| 150                   | 180A-4  | R6    | 15639           | 39354              | N/A                |
| 200                   | 246A-4  | R6    | 15641           | 39361              | N/A                |
| 250                   | 316A-4  | R8    | 15642           | 15642              | N/A                |
| 300                   | 368A-4  | R8    | 15642           | 15642              | N/A                |
| 350                   | 414A-4  | R8    | 15642           | 15642              | N/A                |
| 400                   | 486A-4  | R8    | 15642           | 15642              | N/A                |

**Table A3: 600 Volt Rating Codes**

| 600 Volt Rating Table |         |       | Parameter 10509 |                    |                    |
|-----------------------|---------|-------|-----------------|--------------------|--------------------|
| HP                    | Current | Frame | A Contactors    | BXR: AX Contactors | VXR: AX Contactors |
| 2.0                   | 02A7-6  | R2    | 14829           | 46151              | 2426               |
| 3.0                   | 03A9-6  | R2    | 14829           | 46151              | 2426               |
| 5.0                   | 06A1-6  | R2    | 14829           | 46151              | 2426               |
| 7.5                   | 09A0-6  | R2    | 14829           | 46151              | 2426               |
| 10                    | 011A-6  | R2    | 14829           | 46151              | 2426               |
| 15                    | 017A-6  | R2    | 14829           | 46111              | 2426               |
| 20                    | 022A-6  | R3    | 14830           | 46722              | 46722              |
| 25                    | 027A-6  | R3    | 14830           | 46722              | 46722              |
| 30                    | 032A-6  | R4    | 14831           | 46722              | 46722              |
| 40                    | 041A-6  | R4    | 14831           | 46722              | 46722              |
| 50                    | 052A-6  | R4    | 14831           | 18653              | 18653              |
| 60                    | 062A-6  | R4    | 14831           | 18653              | 18653              |
| 75                    | 077A-6  | R6    | 15635           | 39323              | N/A                |
| 100                   | 099A-6  | R6    | 15636           | 39323              | N/A                |
| 125                   | 125A-6  | R6    | 15637           | 39330              | N/A                |
| 150                   | 144A-6  | R6    | 15638           | 39347              | N/A                |

## Appendix B. Manual Drive Data Entry

| Step                 | Instruction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Diagram                                                                                                            |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------|-------------------|--------|-------------------|------|-------------|-------------------|------|---------|-------------------|------|------------------------------------------------------------------------------------------------------------------|
| <b>B1</b>            | From inside parameter group 105, press the “ESC” key once and press the Down arrow key five (5) times until parameter group *112 is displayed and press “ENTER”.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  <p><b>BYPASS CONTROL</b></p>   |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |
| <b>B2</b>            | <p>Navigate to parameter 11201 and press “Enter”. Change the value to XXXY where:</p> <p>XXX is the current rating of the drive.<br/> Y is the voltage rating of the drive; 2 for 208V – 240V, 4 for 380V – 480V, or 6 for 500V – 600V. Table x shows examples for how to program 10512 depending on the current rating of the drive. Press “Enter” once the correct value is shown.</p> <p><b>Table B1: Parameter 11201 entry examples</b></p> <table border="1"> <thead> <tr> <th>Drive Current Rating</th><th>Example</th><th>10512 programming</th></tr> </thead> <tbody> <tr> <td>&lt; 10 A</td><td>ACH550-XxR-08A8-4</td><td>8A84</td></tr> <tr> <td>10 A – 99 A</td><td>ACH550-XxR-031A-2</td><td>0312</td></tr> <tr> <td>≥ 100 A</td><td>ACH550-XxR-125A-6</td><td>1256</td></tr> </tbody> </table> | Drive Current Rating                                                                                               | Example | 10512 programming | < 10 A | ACH550-XxR-08A8-4 | 8A84 | 10 A – 99 A | ACH550-XxR-031A-2 | 0312 | ≥ 100 A | ACH550-XxR-125A-6 | 1256 |  <p><b>BYPASS CONTROL</b></p> |
| Drive Current Rating | Example                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10512 programming                                                                                                  |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |
| < 10 A               | ACH550-XxR-08A8-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 8A84                                                                                                               |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |
| 10 A – 99 A          | ACH550-XxR-031A-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0312                                                                                                               |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |
| ≥ 100 A              | ACH550-XxR-125A-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1256                                                                                                               |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |
| <b>B3</b>            | Press the “ESC” key once, then the Down arrow once to display *11203 and press “ENTER”. Program the motor nominal voltage, and press “Enter”. Navigate to parameter 11203, program the motor nominal current, and press “Enter”. Navigate to parameter 11204, program the motor nominal horsepower, and press “Enter”.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  <p><b>BYPASS CONTROL</b></p> |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |
| <b>B4</b>            | Press the “ESC” key once, press the Up arrow five (5) times until *105 is displayed and press “ENTER”.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                    |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |
| <b>B5</b>            | Navigate to parameter 10511. Change the value to “3” and press “Enter”. The parameter value reverts to “0” after it is saved. Cycle power to the bypass. Return to step 16.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  <p><b>BYPASS CONTROL</b></p> |         |                   |        |                   |      |             |                   |      |         |                   |      |                                                                                                                  |

# Appendix C. Manual Drive Data Entry

| Step      | Instruction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Diagram |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <b>C1</b> | <p>On the ACH550 drive module, make the following changes to the parameters:</p> <ul style="list-style-type: none"> <li>Parameter 9802 must be set to “STD MODBUS”</li> <li>Parameter 1001 must be set to “Comm”</li> <li>Parameter 1002 must be set to “Comm”</li> <li>Parameter 1601 must be set to “Comm”</li> <li>Parameter 1608 must be set to “Comm”</li> <li>Parameter 5303 must be set to “76.8 kb/s”</li> <li>Parameter 5304 must be set to “8 EVEN 1”</li> <li>Parameter 5305 must be set to “DCU PROFILE”</li> <li>Parameter 5310 must be set to “103”</li> <li>Parameter 5311 must be set to “104”</li> </ul> |         |
| <b>C2</b> | <p>Remove power from both drive and bypass. Ensure power has been removed until the drive module screen and RBCU goes completely dark for one (1) minute. Restore power to both drive and bypass.</p>                                                                                                                                                                                                                                                                                                                                                                                                                     |         |

