



# 1336 PLUS, PLUSII, IMPACT, and FORCE C-Frame Front End Conversion Kit

## About This Publication

This publication will guide you through installation of the C-Frame Conversion Kit for the following drives:

Drive	Kit Catalog Part Number
1336S, F, E or T -BX040	1336-CONVCF-SP1A
1336S, F, E or T -B040	1336-CONVCF-SP1A
1336S, F, E or T -B050	1336-CONVCF-SP1A
1336S, F, E or T -BX060	1336-CONVCF-SP1A <sup>(1)</sup>
1336S, F, E or T -C025	1336-CONVCF-SP2A
1336S, F, E or T -C030	1336-CONVCF-SP2A
1336S, F, E or T -C040	1336-CONVCF-SP2A
1336S, F, E or T -C050	1336-CONVCF-SP2A
1336S, F, E or T -CX060	1336-CONVCF-SP2A <sup>(2)</sup>

**Important:** This Front-End Conversion Kit is used to service C-frame drives that require replacement of 1336-SN-SP1A, 1336-SN-SP1B, or 1336-SN-SP2A Snubber Boards **and/or** 1336-BR-SP5A or 1336-BR-SP6A Bridge Rectifiers which are **all** obsolete.

**Important:** The Snubber Board in this Conversion Kit: 1336-SN-SP1C (460V) or 1336-SN-SP2B (575V) **and** the Bridge Rectifier in this Conversion Kit: 1336-BR-SP10A (460V and 575V) are **not** backwards-compatible with the components listed in the above paragraph.

Each Conversion Kit consists of the following components:

- Complete C-Frame drive, less the components listed below.
- Bus Inductor and bus fuse for either BX060<sup>(1)</sup> or CX060<sup>(2)</sup>.
- 1/4 turn screws (qty 2) for the Snubber Board.
- IGBT shorting devices (qty 2) for the J7 and J8 connectors.
- A label to mount next to the nameplate of the converted drive.

The Conversion Kit **does not** include the following:

- Main Control Board, mounting plate, or option cards.
- Gate Driver Board.
- Precharge Board and mounting brackets.
- Drive enclosure and mounting hardware, etc.

<sup>(1)</sup> The Bus Inductor and bus fuse supplied in the CONVCF-SP1A Kit can be used on all C-frame drives (460V).

<sup>(2)</sup> The Bus Inductor and bus fuse supplied in the CONVCF-SP2A Kit can be used on all C-frame drives (575V).



**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 publication 8000-4.5.2, “Guarding Against Electrostatic Damage” or any other applicable ESD protection handbook.



**ATTENTION:** To avoid a shock hazard, assure that all power to the drive has been removed before proceeding. In addition, verify that the DC bus has discharged by measuring across the “+DC” and “-DC” terminals of TB1 with a voltmeter. The voltage should be 0.0VDC.



**ATTENTION:** Wear a wrist-type grounding strap when servicing/handling all 1336-family drive printed circuit boards. Failure to protect drive components against ESD may damage internal drive components. Refer to Electrostatics Discharge Precautions at the beginning of Chapter 3 in the C-Frame Troubleshooting Guide.

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## Tools

You need the following tools to disassemble and assemble the drive

- C-frame Troubleshooting Guide 1336 PLUS-6.2, 1336 FORCE-6.2, or 1336 IMPACT-6.2.
- Pliers.
- Phillips screwdriver.
- Standard screwdriver.
- Torque wrench, metered in lb-in. or N-m.

## Fastener Torque Specifications

Fastener Torque Specifications are listed in [Table A](#).

**Table A Fastener Torque Specifications**

Component	Fastener Application	Torque lb-in.	Torque N-m
Main Control Board Mounting Plate		8 – 10	0.9 – 1.1
Gate Driver Board Mounting Plate		8 – 10	0.9 – 1.1
Precharge Board Mounting Plate		8 – 10	0.9 – 1.1
Bus Capacitor Bank	Bank to chassis	25 – 31	2.8 – 3.5
DC Bus Inductor	Wires to bus bars	25 – 31	2.8 – 3.5
DC Bus Inductor	TB1 mounting plate to chassis	25 – 31	2.8 – 3.5
Snubber Board	Bus bars to capacitor bank	25 – 31	2.8 – 3.5
Snubber Board	Board to SCR1	25 – 31	2.8 – 3.5
Snubber Board	Board to PM1 – PM3	30 – 39	3.4 – 4.4
Power Modules PM1 – PM3	Module to heat sink	25 – 31	2.8 – 3.5
Input Rectifier	Rectifier to heat sink	25 – 31	2.8 – 3.5
Bus Fuse F1	Fuse to chassis	200 – 220	22.6 – 24.8
Thermistor	Thermistor to heat sink	Hand tighten only	
TB1	Wires to terminals	25 – 31	2.8 – 3.5
TB2	Wires to terminals	8	0.9
TB3	Wires to terminals	8	0.9
Ground Sense CT	Bracket to chassis	25 – 31	2.8 – 3.5
Ground Sense CT	Positive bus bar junction	25 – 31	2.8 – 3.5
Ground Sense CT	Bus bars to capacitor bank	25 – 31	2.8 – 3.5

## Instructions

- Back-up the programming of the drive being converted before proceeding:
  - Store the programming of the drive in the HIM (if applicable to your HIM) or
  - Use Drive Tools, Drive Explorer, or Drive Explorer Light to back-up the programming of the drive.
- Remove and lock out the line power from the existing C-frame drive that will be converted.
- For disassembly instructions, refer to Chapter 3 in the Troubleshooting Guide. The 1336-CONVCF-SPxA Kit is shown in [Figure 1 on page 5](#).
- An illustration of the CONVCF Kit with numbered cables and wires is shown in [Figure 2 on page 6](#). The cables have the destination connector number on them.



**ATTENTION:** Make sure the two shorting devices shown in [Figure 3 on page 6](#) are removed before connecting into J7 and J8 of the Gate Driver Board.

- For assembly instructions refer to Chapter 3 in the Troubleshooting Guide.
- Re-connect the power and control wiring. Torque specs are listed in [Table A](#).

7. Install the CONVCF label on the Main Control Board Mounting Plate as shown in [Figure 1 on page 5](#). This indicates the conversion has been done on your drive.
8. Refer to the Plus/PlusII/Impact/Force **User Manual** for Start-Up instructions.
9. Reinstall the Main Control Board, Gate Driver Board and Precharge Board from the old drive. Refer to [Figure 1 on page 5](#). No programming of the converted drive will be necessary.
10. Re-install the shorting devices into the same cable connectors on the old drive. This will prevent any damage to the IGBT's from static electricity while handling and shipping the old drive.
11. Return the old drive core to Allen-Bradley if the drive is in warranty.

Figure 1 Drive Components for 1336-CONVCF Kit

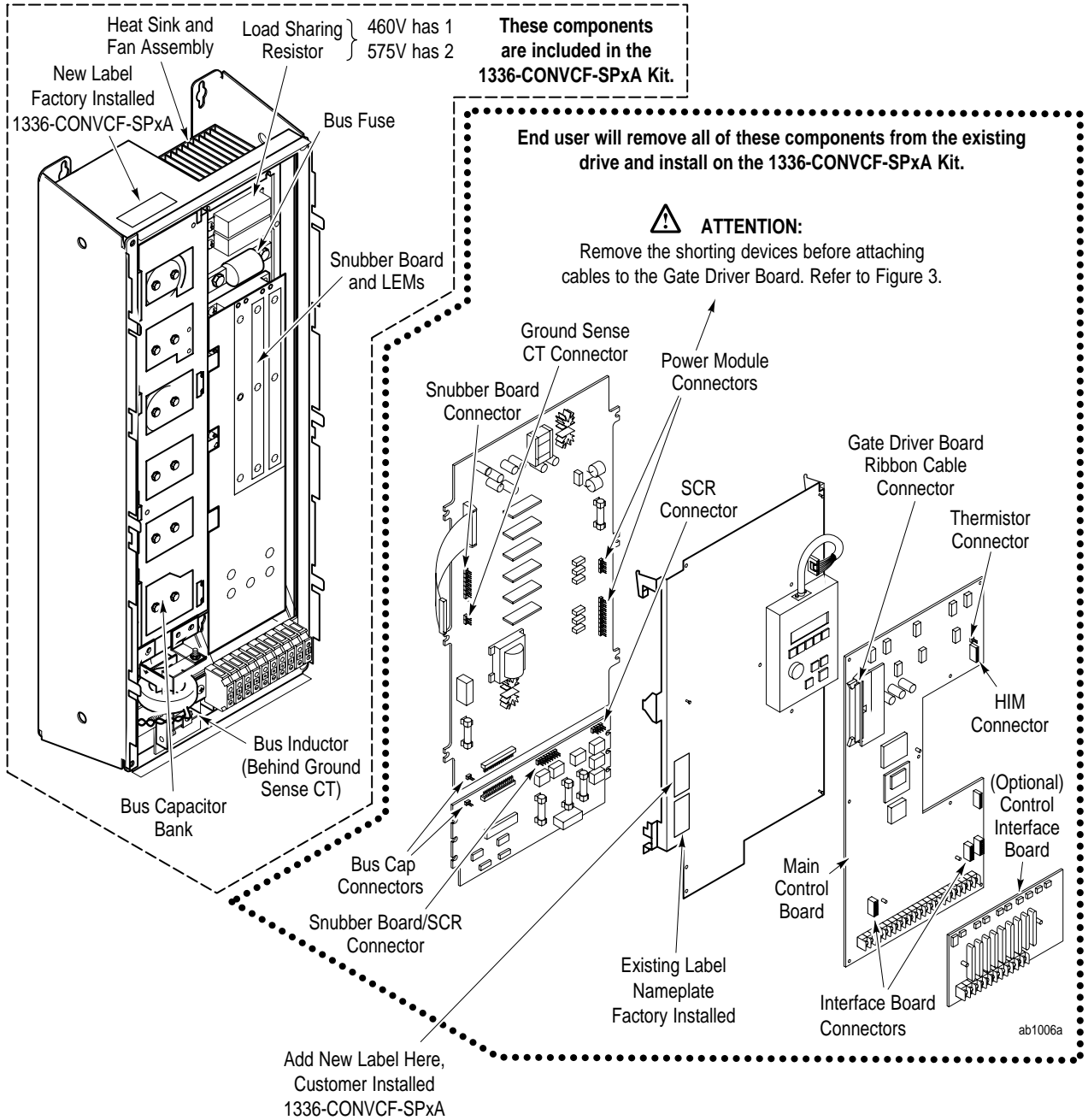


Figure 2 1336-CONVCF-SPxA Conversion Kit.

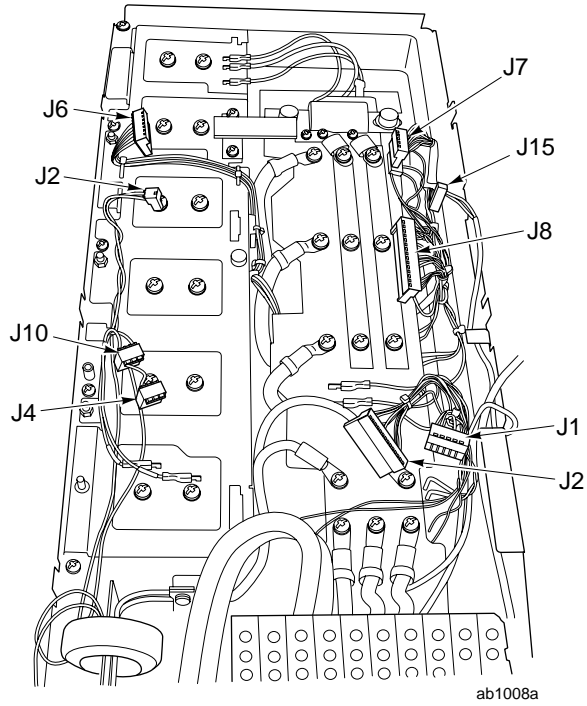
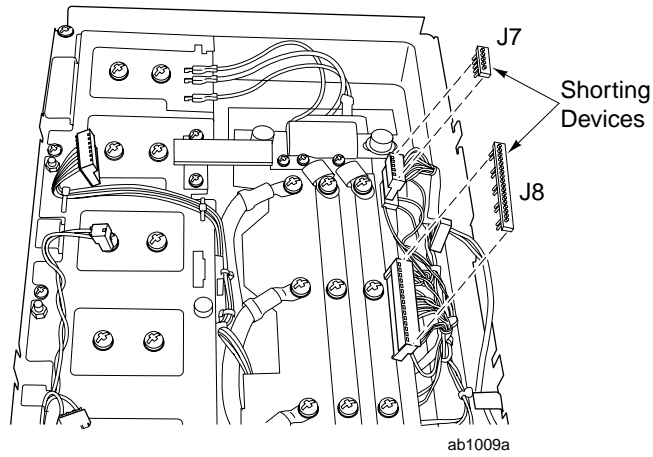


Figure 3 1336-CONVCF-SPxA Conversion Kit showing the shorting devices.



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