



DRIVE COMPOSER SERVICE PACK LOAD

This document explains how to download the latest version of Drive Composer Entry or Drive Composer Pro to a PC and how to install a drive service pack.

Drive composer setup and connection

Drive composer version 2.3.1 or higher is required to download ACS880 Service packs. Find the Drive Composer Entry software and Drive Composer Pro upgrades at <https://new.abb.com/drives/software-tools/drive-composer>



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Drive composer



Drive composer is a start-up and maintenance tool for ABB's common architecture drives. The tool is used to view and set drive parameters, and to monitor and tune process performance.



The entry version of Drive composer provides basic functionality for setting parameters, basic monitoring, taking local control of the drive from the PC, and event logger handling.

The entry version is available for free, and can be downloaded from the link below. Simple registration is required.

Drive composer pro includes all the features that entry has and in addition, includes control diagrams, fast monitoring, working with multiple drives on the PC tool network, macro script editing for parameters and much more. Order Drive composer pro through ABB sales channels.

Downloads

Register and download

Drive composer entry

Register and download it free of charge

How to video

Service pack installation with Drive composer

Drive Composer Entry - version 2.3.1 is free of charge from ABB and can be found on the website listed above. A USB cable (USB A to USB mini B) that is used to connect the PC to the Control Panel is not provided and must be purchased separately. These are available at your local electronics store or through ABB (PN 3AUA0000118107).

Drive Composer Pro – version 2.3.1 can be purchased from your local ABB representative. A single user version of Drive Composer Pro (DCPT-01) is available along with multi user licenses for 10 or 20 seats. Free Software Upgrades can be found on the site listed above. The Drive Composer Pro kit contains a CD, license key, manual and one USB cable. A photo of components is provided below.

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PC hardware requirements for Drive Composer are:



■ Computer hardware requirements

Hardware	Specification
Computer	IBM compatible PC
Processor	Intel i3 or equivalent AMD processor
Memory	1GB RAM
Display	1024 x 600 display resolution with 256 colors
Hard disk	At least 150 MB free hard disk space
Storage	CD drive
Communication port	One free USB port or Ethernet port

■ Software requirements

Software	Specification
Operating system	Windows 7, Windows 8.1 or Windows 10 (32- or 64-bit)
Framework	.Net framework 4.6.2 or higher

Download Drive Composer Entry from the above site or load the CD for Drive Composer Pro to your PC. If using Drive Composer Pro, after the CD installation is complete check the above site for upgrades. **Install the latest upgrade prior to registering the software.**

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Your PC must be plugged into a power source during the entire Service pack installation process. Once the installation process begins, it must continue uninterrupted through completion.



Make sure the ACS880 is powered from the AC line or that the Control unit (ZCU or BCU) is powered with an external 24 VDC power source (via the (XPOW) connection) during the Service pack update process.

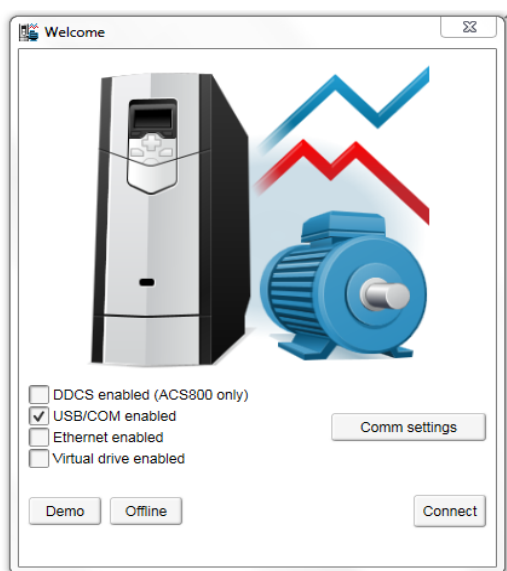
Connect the drive Control Panel (ACS-AP-I or ACS-AP-W) to the PC using a USB cable (USB A to USB mini B).



Note: A Service pack cannot be installed over a networked connection (Ethernet). A USB connection from the drive Control Panel to the PC is required!

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After all connections are made, launch Drive composer. Select “USB/COM enabled” as shown below and press “Connect”.



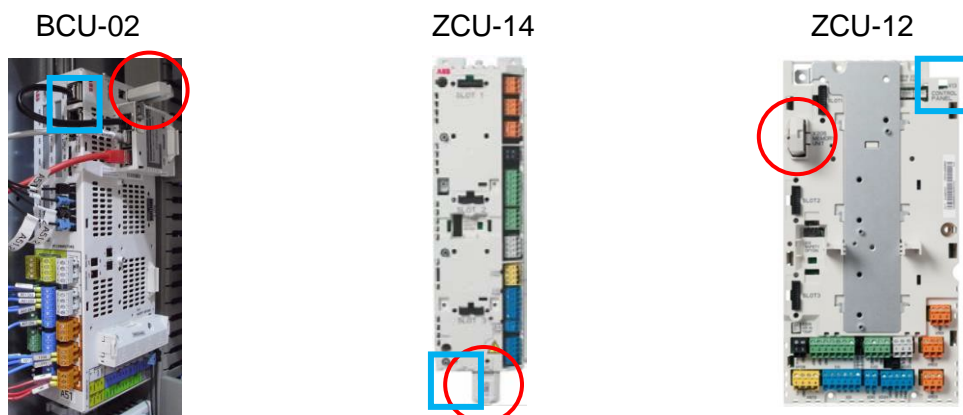
Service pack download process

The ACS880 -01, -04, -M04, -11, -14, -31, -34, -04XT, and smaller -07 / -17 / -37 cabinet drives will have one control unit and one Control Panel. Larger -07 / -17 / -37 cabinet drives will have multiple control units and sometimes multiple Control Panels. Some drives may not have a Control Panel. (Note: A drive shipped without a Control Panel will require a Control Panel and ethernet patch cable to install the service pack).

Control unit identification

Depending on the drive design, one or more control unit types will be present. Each control unit will have a corresponding ZMU memory module circled in the pictures below. RJ45 connections are also identified with squares. If a Control Panel holder is available on the drive module an RJ45 connection is located in the holder. There will be an Ethernet patch cable from this holder to the ZMU connector identified below.

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Refer to the table below to determine which control unit is provided with each drive and drive section.

Drive Type	ZCU-12	ZCU-14	BCU-x2*
ACS880-01	x		
ACS880-11 & 31	x ¹		
ACS880-04 & -04F		x	
ACS880-04XT			x
ACS880-14 & 34	x	x ¹	
ACS880-07 R6-R9	x		
ACS880-07 R10 & R11		x	
ACS880-07/17/37 >R11			x (2)
Multidrive R1i-R4i		x	
Multidrive R5i	x		
Multidrive R6i-R7i		x	
Multidrive R8i			x
Multidrive RRU, DDC, ISU			x
Multidrive DSU (DxD)		x	
Multidrive DSU (DxT)			x
Multidrive DBU (3-phase)			x

*x-0/1/2 and indicates the # of fiber optic connections (0=2, 1=7, 2=12)

No service pack is required for these products

Multidrive line-ups (system drives with a common DC bus configuration) can have multiple control units and multiple Control Panels. Control units will be present on both the line side and motor side sections. With multi-motor configurations, one control unit is required for each inverter / motor combination. One Control Panel may be dedicated to each control unit / motor or multiple INUs (Inverter Units) can be connected to one Control Panel through panel bus. LC (liquid cooled) drives have a control unit in the liquid cooling units.

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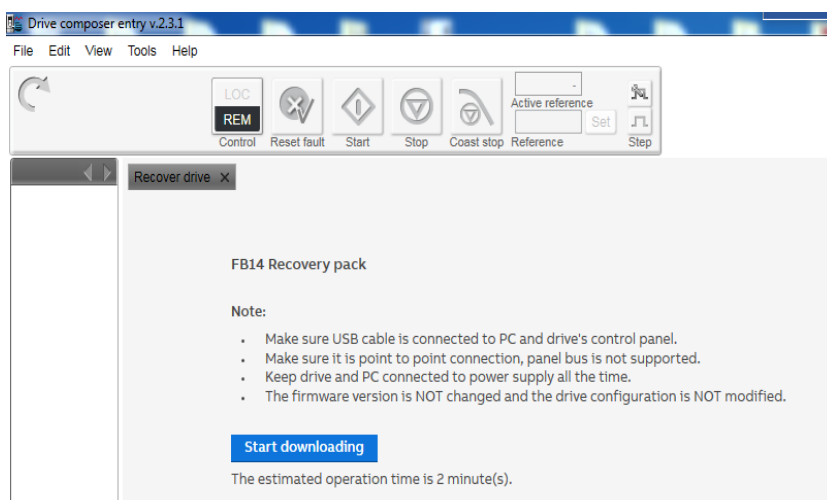
Drives with single and multiple control units

This section will describe how to download a service pack to the ACS880 drive that implements a single control unit. On page 10 how to download a service pack to a drive with multiple control units will be explained.

Drives with a single control unit

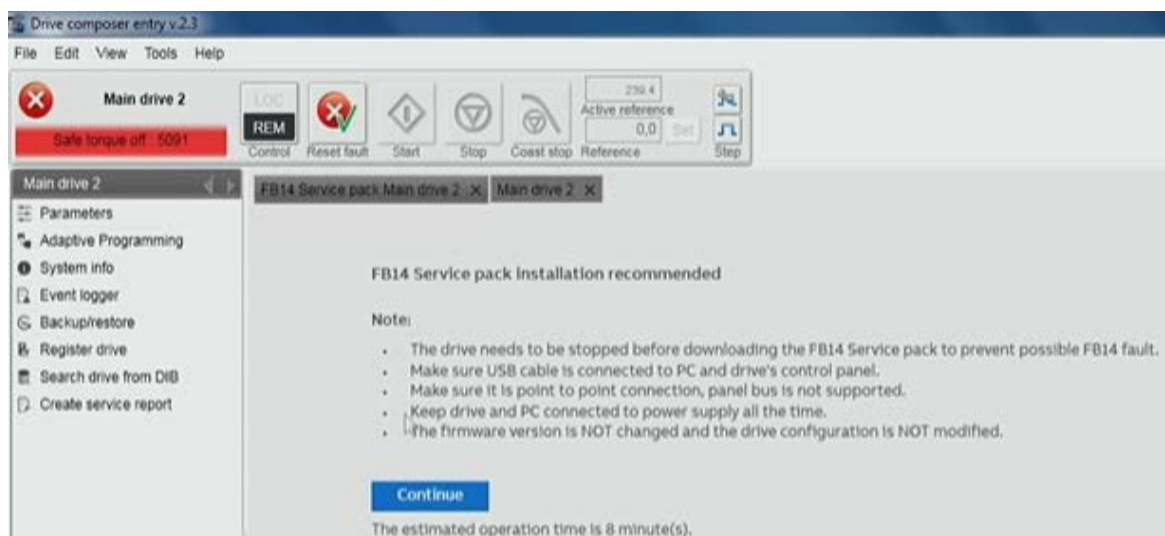
Note: The ACS880 Service pack can only be installed when the drive is not running a motor.

There are times when a technician will try to download a Service pack and another fault will need to be resolved prior to commencing the Service pack download. If this is the case as is shown below, follow the on-screen prompts to remedy the situation and eventually the Service pack download instructions should be available. In the example below, there is an active non-resettable fault that appears as Drive composer tries to communicate with the drive. The user will immediately be asked if the Fault Recovery pack should be downloaded to the affected ACS880 drive. Press the “Start downloading” button to recover the drive.

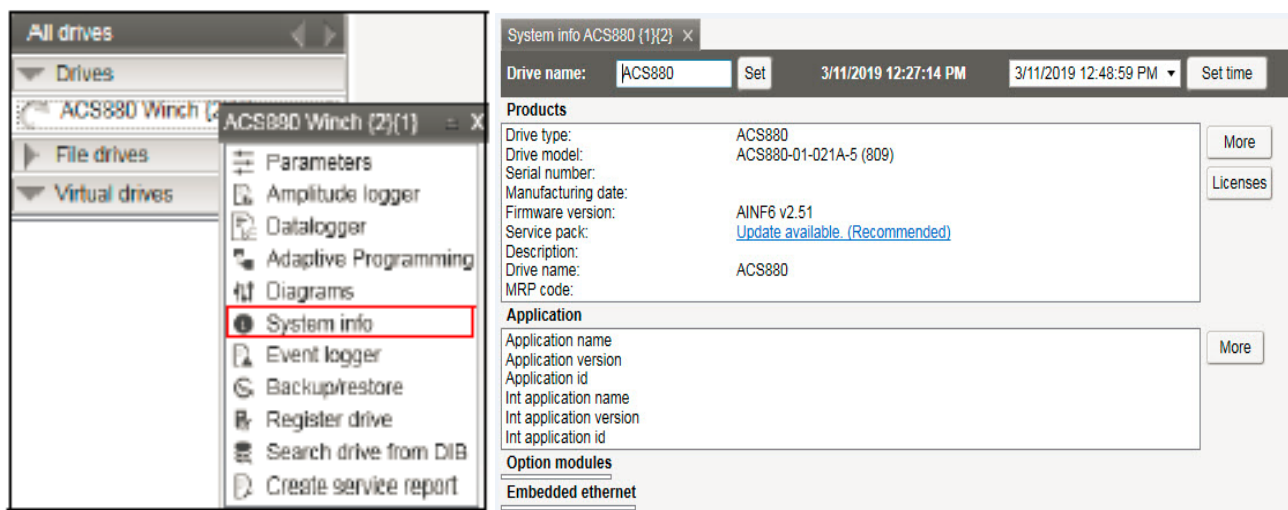


Once the Recovery pack is loaded you have essentially reset the fault and are able to download the Service pack. A screen image like the one below will appear. In this case, initiate the Service pack installation process by pressing “Continue”.

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Most often Drive composer will let you know if a service pack installation is required. If Drive composer does not indicate a Service pack needs to be installed, but you believe otherwise, go into “System info” to double-check if the installation is recommended.



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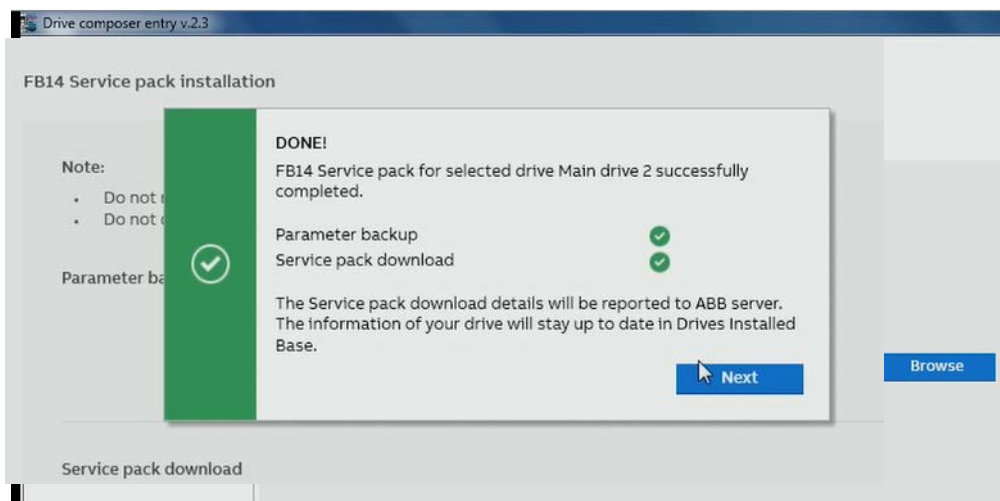
Review Status adjacent to “Service pack” text. Choices and description are shown below.

Status	Description
Update Available (Recommended)	Indicates that the drive requires Service pack Installation. ABB recommends to install the Service pack to prevent any possible fault in the future. To install, 1. Click on the status. Note: Make sure that the drive is powered on and USB cable is connected between drive control panel and PC. 2. Follow the instructions on how to proceed with installation. See, FB14 Service pack , step 7 onwards.
Updated	Indicates that Service pack is installed in the drive, and no further action is required.
Not Required	Indicates that the drive firmware includes the FB14 fault remedy and drive does not require Service pack installation.

If the description next to “Service pack” is “Update Available”, download the service pack by selecting the highlighted “[Update Available \(Recommended\)](#)” text.

At the onset of the Service pack installation you will be asked to back-up the drive parameters. It is recommended that you check the “Parameter backup” box. You may also select a different storage location if desired. Press “Start” to begin the process of backup and Service pack installation.

When complete you should see a green “DONE!” box (below).

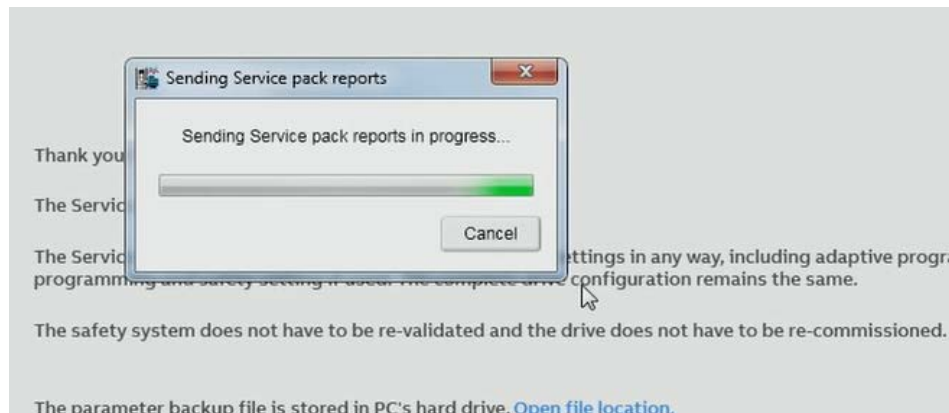


At this point Drive composer will request to update the ABB drive database (Drive Installed Base). This will help keep the drive’s history up-to-date for future reference. It is highly recommended that you allow Drive Installed Base to update. Doing so will allow Technical

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Support to provide accurate advice if future issues surface with that specific drive. Select “Next” and wait for the update to complete.

You can monitor the Drive Installed Base upload progress as shown below.



If connected to the internet via WIFI, Drive composer will send the updated service report information to Drive Installed Base.

If WIFI isn't available, Drive composer will store the updated service report on the local PC hard drive. The next time the PC is connected to the internet and Drive composer is opened, Drive composer will attempt to resend the report. The number of updated service reports that can be stored on the PC is limited only by the amount of available hard drive space. It may take a couple of days for Drive Installed Base to reflect the changes.

When the Service pack installation process is complete go into “System info” and verify the service pack update status.



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Note the “Updated” status for Service pack. The drive update is finished. No parameters or other configurations have been changed. The drive is ready to run and can be put back into service.

Drives with multiple control units

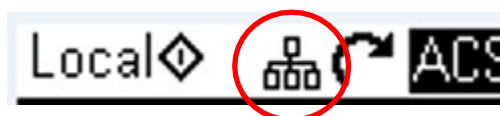
Until now we have been discussing single drives that typically have only one control unit. Multiple control units present different challenges when downloading a Service pack. We will now discuss drives having more than one control unit. Note that the procedure for downloading the service pack in drives with multiple control units is very similar to a single drive / single control unit. The major difference is how one connects to the control unit.

NOTE: All control units in a drive must have the Service pack individually installed. If you are in doubt or have questions regarding any of this information, please reach out to your local ABB representative for clarification.

Panel bus

Panel bus is a proprietary ABB protocol used to daisy-chain a set of drives or modules together using Ethernet patch cables. The patch cables are connected to RJ45 jacks built into the drive’s Control Panel cradle and control units. Panel bus allows one Control Panel to access multiple control units and will also allow Drive composer to access each control unit.

The Panel bus link status can be checked on the Control Panel’s top display line. The Panel bus icon looks like an “org chart” symbol (circled below). If Panel bus is active, the symbol will be present. If Panel bus is not active, the symbol will be missing and a point to point connection is present.



On larger horsepower six pulse cabinet drives, Panel bus is used to connect the line side Diode Supply Unit’s (DSU) control unit to the motor side Inverter Unit’s (INU) control unit. Panel bus allows the use of a single Control Panel (or using Drive composer) to access both the line and motor side control units. An active rectifier drive (either 4Q Regen or ULH) uses the same Panel bus method to connect the line side IGBT Supply Unit’s (ISU) control unit to the motor side INU control unit.

To install a Service pack, the Panel bus link must be broken. Individual access is required to each control unit. When installing the Service pack, a single Control Panel can be

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utilized with Drive composer, but the Control Panel must be connected to only one control unit at a time.

Note: If the Service pack update is not carried out using a point to point connection, the control units and ZMUs connected on the panel bus system could be damaged.

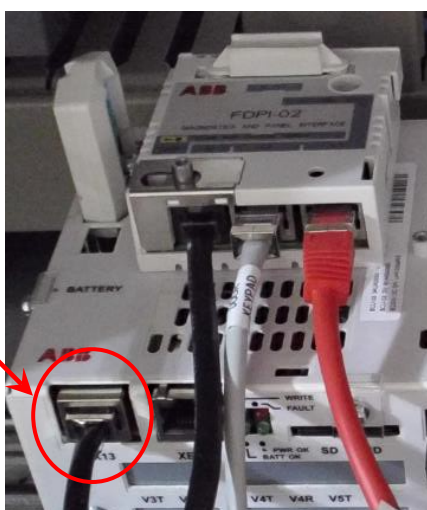
For stand-alone drives and drive modules: To break the Panel bus link, disconnect any cable connection that might exist between the RJ45 jacks located at points C and D. Connect the Control Panel to point A and to the RJ45 jack at point B below. Do NOT connect the Control Panel to the RJ45 jack at location C. Drive composer may now be used to load a Service pack.



For large drives (over 700 HP), Regen, ULH and Multidrive that utilize a BCU-02: On the line side control unit, disconnect the Panel bus connection at the RJ45 jumper between X13 on the BCU-02 and on the FDPI-02 module (black cable in the picture). Connect the Control Panel directly to the BCU-02 X13 connector using an Ethernet patch cable. On the motor side control unit, disconnect the Ethernet patch cable going into the BCU as explained above. Connect the Control Panel directly to the control unit on the X13 connector (same location as the line side BCU) with an Ethernet patch cable.

Note: Panel bus is NOT the optical fiber connection between the two control units.

Connect to BCU here



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Connect the PC to the Control Panel via a Mini USB cable. To install the Service pack on an INU, ensure that the drive is not modulating the motor and that it cannot be started. Ensure power to the drive is uninterrupted or power the control unit with an external 24 VDC power supply using the XPOW terminal block connections. For a DSU /ISU /RRU do not allow the line side to be connected to the utility grid. Usually this can be accomplished by turning off the drive's main input disconnect switch. Activating the auxiliary disconnect switch will allow the control units to be powered from an internal 24 VDC power source.

Note: Dangerous voltage levels still exist within the drive. Appropriate arc flash protection must be used, and this procedure should be carried out only by qualified individuals.

Service pack installation with Drive composer is performed with a direct connection between the Control Panel and control unit. Connect the PC to the drive Control Panel via the USB cable. Open Drive composer 2.3.1 or greater and proceed as directed in the single control unit drive section on page 6.

In Closing:

This document is meant to assist with installing an ACS880 Service pack using Drive composer. If you still are unsure about anything herein, please direct your inquiries to your local ABB Channel Partner/Service Provider, ABB Regional Application Engineer, Regional Sales Engineer, ABB's Technical Support or Application Engineering Group.

Some points to note:

1. Service pack installation requires drives be temporarily taken out of service. The expected time to complete a Service pack installation is 10-15 minutes per control unit which includes creating an optional parameter backup, the Service pack install and generating a Drive Installed Base service report.
2. Only connect to one control unit at a time. You cannot use panel bus during this process or damage could occur to the drive control unit and to the ZMU memory unit.
3. The drive's inverter section cannot be spinning a motor at the time of the install. A drive start command must be disabled during the install. Modulation on any line side supply unit must also be stopped to download the Service Pack.

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4. The drive must be powered from the line supply or have 24 VDC supplied to the XPOW connections on the BCU or ZCU. A power supply capable of delivering $24\text{VDC} \geq 2\text{ A}$ is required.
5. Use the PC's external AC power source to prevent shutdown during the install (do not rely on the battery).
6. If firmware prior to version 2.71 (primary control program) is loaded into the drive, the Service pack will most likely be overwritten and no longer effective. Re-load the service pack prior to putting the drive into service. Contact your ABB representative for more information.
7. An INU with firmware versions 2.31 cannot be recovered nor can they have a service pack loaded using Drive composer. It is likely some other method to install the service pack and update the drive will be required such as replacing the ZMU with a ZMU-03. Please contact your ABB representative for more information.
8. Supply units (ISU /DSU /RRU /DBU /DDC) with firmware versions before 2.41 cannot be recovered nor can the service pack be loaded using Drive Composer. It is likely some other method to install the service pack and update the drive will be required such as replacing the ZMU with a ZMU-03. Please contact your ABB representative for more information.

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