

The Application Note is pertinent to the Unidrive Classic Family

## Unidrive Data Replacement Instructions using UniSoft

### Introduction

Unidrives contain approximately 500-600 parameters that help machine manufacturers achieve the desired functionality for a certain machine requirement. Some applications may require 20-30 or more parameters to be changed from the drives factory default settings. Should drive replacement become necessary, one must have a complete/accurate list of these parameters so that the original functionality can be restored. If you do not have a list of the required parameters, one could copy down these parameters manually ( assuming that the drive still works enough to light the display )although it would be very tedious, time consuming and error prone.

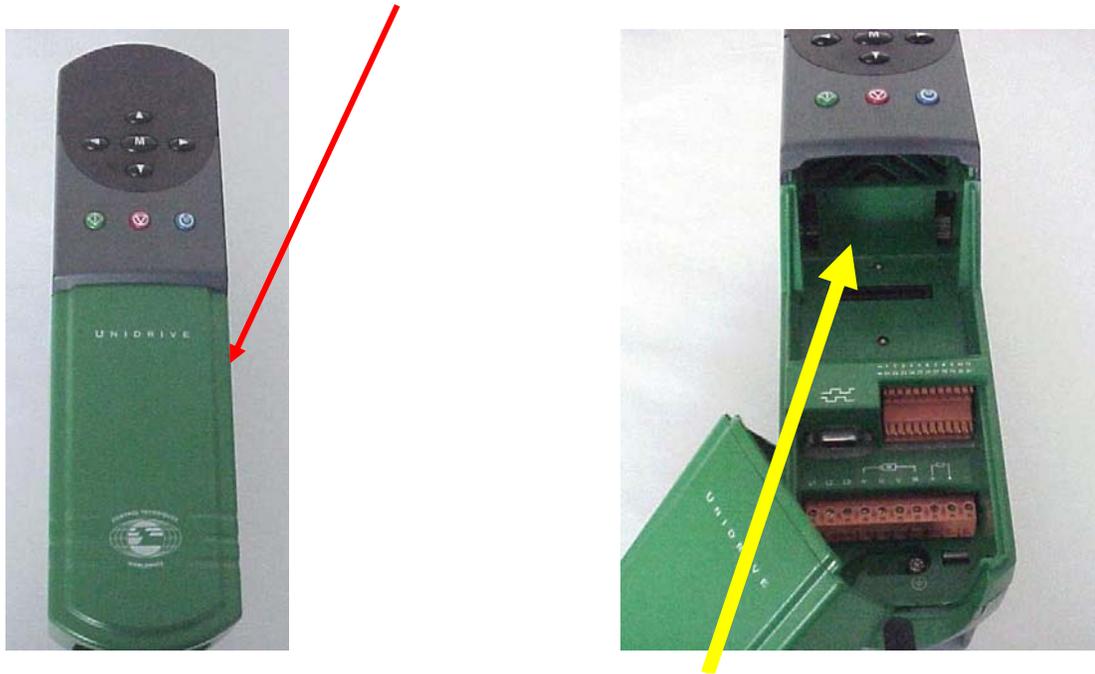
If your drive was part of a system or supplied by a machine manufacturer OEM, they should have provided you with a disk of drive setup data for your machine. Regardless, they should have this information on file should you request it of them.

If you do not have a list of the required parameters, the easiest way to program a replacement drive is to first extract the parameters out of the malfunctioning unit ( assuming that it still works enough to light the display ) or better yet, it would be best to extract all drive data while the drives are working correctly. Then should drive replacement become necessary, one would only need to program the replacement drive with this data using one of our software tools.

In order to use our Software tools, you must determine if the drive contain a Communication module.

## Where are these modules and how do I identify them ?

The Unidrive Classic could support up to 2 option modules – 1 Large and 1 Small located under the front cover of the drive.



No option modules  
in this drive !

In order to extract and save the original drive data one must insert a UD71 Communications module into the malfunctioning unit ( assuming it still functions enough to allow this ) which is to be done with power off. Then using a laptop, the program UniSoft , a Windows program available free from our website at [www.emersonct.com/download\\_usa/software/Usoft343.exe](http://www.emersonct.com/download_usa/software/Usoft343.exe) can upload the original data. You would then Save the Data to Disk which could later be downloaded into the replacement drive in a similar manner.

Click here to obtain UniSoft

**UniSoft**

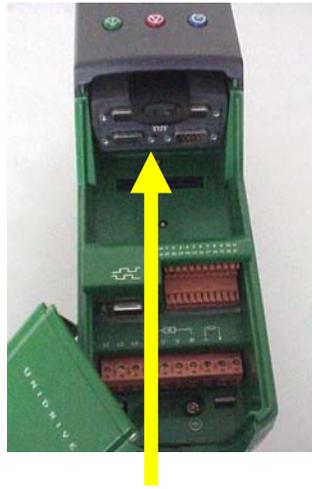
**Select Run if you wish to install UniSoft on this PC or  
Save if you wish to transfer and install on another PC**

If your drive did not contain any Large Option module or you have a UD71 module, you can proceed to page 6

## Unidrive Classic with Option Modules



With Small Option Module



With Large Option Module



With a Large & Small Option Module



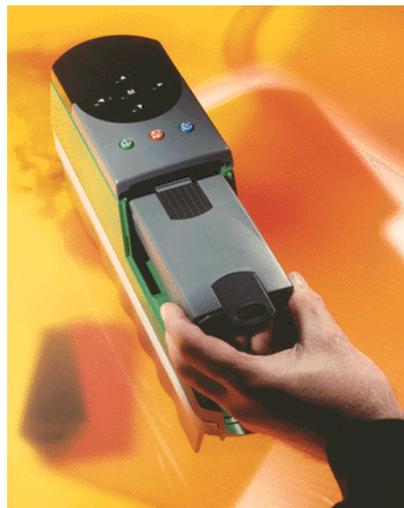
### **\* Warning \***



**Never insert or remove the Option modules while power is applied**  
**Doing so can cause damage to the module or the drive.**

Never insert or extract modules from the Unidrive while power is applied !

Control Techniques recommends letting the drive fully discharge before inserting/extracting an Option Module. Safe discharge time is 10 minutes.



If the Unidrive Classic contains a module, we will need to know which type.



It would be useful to record the **Firmware version** and module **Serial Number**

If your Unidrive Classic contains a Large option module UD7x ( UD70, 73-77 ) co-processor module ( other than UD71), you need to determine if these modules contain an Active Application program. If the machine was manufactured in Europe, there is a good chance these modules also contain an Application program.

**A quick indicator to determine if the UD7x module contains an active Application Program would be to examine parameters #17.12 thru #17.18. If any of these are set for other than 0 ( specifically #17.13 =1 ) this tends to indicate that a Customer Application Program exists in this UD7x module !**

To investigate this further, to confirm the co-processor module does indeed contain an Application program or not, click on the following link or key [CTAN219](#) into GOOGLE.

**To obtain the program discussed in App Note CTAN219 click [HERE](#) or Go to [www.emersonct.com](http://www.emersonct.com) Support/Downloads , Application Notes, Miscellaneous and look under CTAN219.**

If an Active Application Program exists, you will not be able to copy all the necessary data manually as you will not be able to access this data from the keypad/display of the drive. In addition, UniSoft will not be able to access this data either. In these cases, one would need to utilize a newer tool call **CTSoft**.

If your Unidrive Classic already contains a UD7x ( UD70, 73-77 ) co-processor module ( other than UD71), we would recommend using a newer program called CTSoft. There are some definite advantages in using **CTSoft** to extract the data vs UniSoft.

1. All Application Co-Processor parameters including the very important ( Menu 70,71) co-processors parameters are recordable and restorable using CTSoft
2. No special cable is required- only a simple straight-thru 9pin D RS-232 cable is needed or our cable P/N **CTD-PC-232-006 or -010**

**In order to obtain CTSoft and obtain instructions on how to use it to extract all Drive and Co-Processor Data consult CTAN310 ( type that into Google) or click the blue link [CTAN310](#).**

**If your Unidrive Classic already contains a UD7x ( UD70, 73-77 ) co-processor module AND you confirm the co-processor module does NOT contain an Application program, then you can use the simpler UniSoft tool to extract all the drive data as is described starting on page 8.**

**( It would also be possible to record manually but be very tedious, time consuming and error prone however. )**

## Extracting Data from Faulty Unit

### **IMPORTANT**

It is important that all the option modules are inserted that are supposed to be present for your drive application at the time that the data is extracted or restored. Do not remove options modules to record or load data.

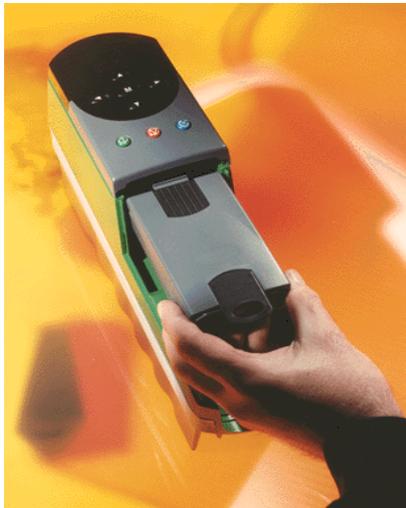
Examine the internal area under the control cover. If the large option module location is empty, you will need a UD71 Communication option module and a common straight-thru 9pin D RS-232 cable (or our cable P/N CTD-PC-232-006 or -010 ) to extract or re-load drive data. UD71 modules are quite inexpensive.

**Contact Parts at 1-800-367-8067**

Insert the UD71 into the top bay of the Unidrive with power off as shown. If this top bay is already populated with a large option module, you will need extract that module to examine the part number sticker located on the rear of the module.

If the module is not a UD71 you will need a special cable with  
**P/N CTD-PC-485-010**

**Contact Parts at 1-800-367-8067**

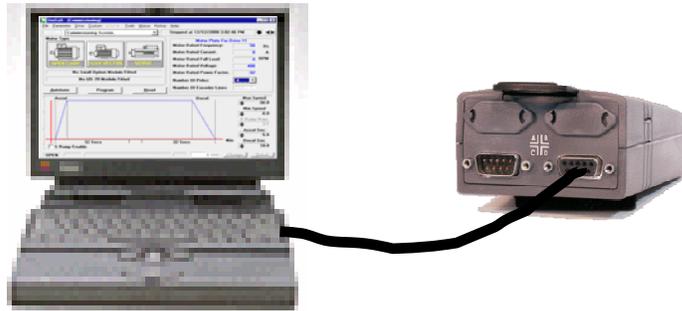


Never insert or extract modules from the Unidrive while power is applied !

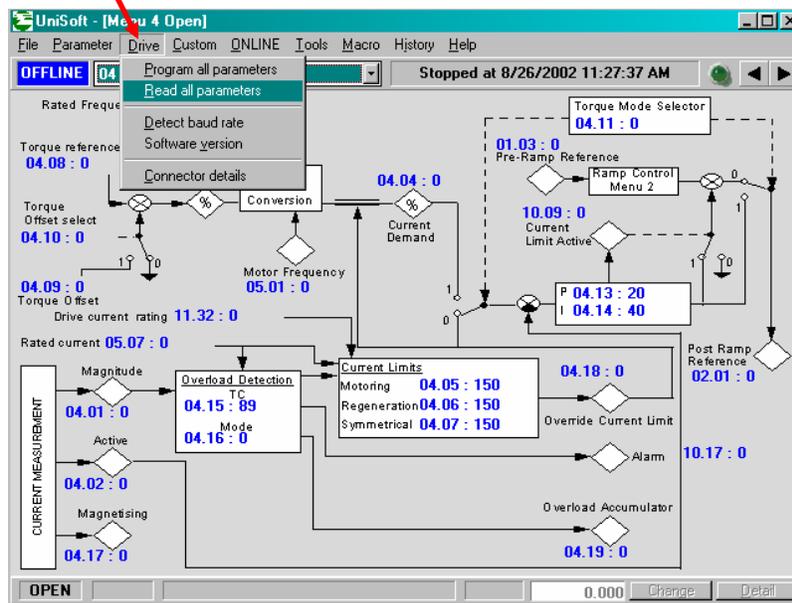
Control Techniques recommends letting the drive fully discharge before inserting/extracting an Option Module. Safe discharge time is 10 minutes.

## STEP A

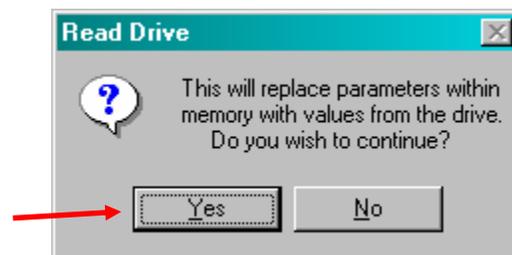
Plug a straight through RS-232 cable PN CTD-PC-232-006 or -010 into your PC then into port D of the UD71 module. ( If a UD7X coprocessor module is used, you must use a cable P/N CTD-PC-485-010 also via port D – see next page ).



Apply power to the drive and extract the data using UniSoft. Go to **DRIVE** , select **Read All Parameters** .



UniSoft will respond with:



Click on YES and the program should commence uploading data from the Drive into UniSoft. Go on to page 5.

**If you experience communication problems go to page 13**

## Skip this page if you are using a UD71 module.

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### Extracting data using a UD7x Coprocessor

If a drive contains a UD7x variant which can be:

UD70	Co-Processor without a Fieldbus
UD73	Co-Processor with Profibus
UD74	Co-Processor with InterBus S
UD75	Co-Processor with CT Net
UD76	Co-Processor with Modbus Plus
UD77	Co-Processor with DeviceNet

This implies that you will using the 9 pin male connector on the lower tier- port D and the special cable P/N **CTD-PC-485-010**.

If you check #17.05, #17.06 and #17.07 and they are different from the previous page, you may need to change these to permit communication with this module. However, this could mean that this port was being used for some active communication purposes on a drive application. This would mean that you will need to record these values and they will need to be restored after you've completed your communication work with UniSoft.

If you change #17.05, #17.06 and #17.07 to the values on the previous page in order to gain communications, you will need to go to parameter #0.00 and enter 1070 followed by the **RED** button. This causes the CoProcessor to re-read these setup parameters and begin using these communication settings.

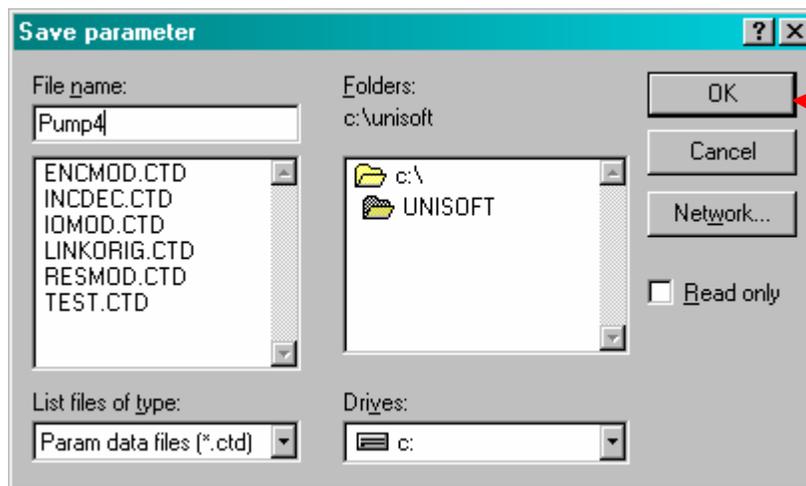
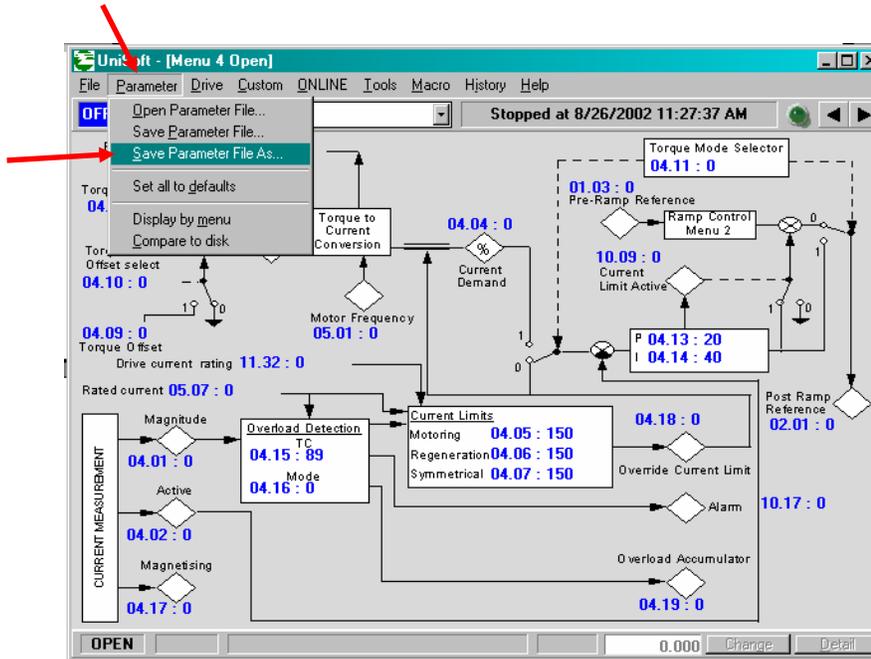
### Menu 20 Parameters

Menu 20 parameters are typically used for fieldbus communications purposes. They typically represent the pointers for input and output communication words to/from a Fieldbus Communication master. UniSoft will upload Menu 20 parameters when you are connected to the co-processor. These values can then be printed out and be hand entered if need be should a UD7x coprocessor be replaced. If these values are re-entered by hand they will need to be stored. Storing Menu 20 parameters is accomplished by setting #17.19=1 then depressing the **RED** button.

**Note:** A standard drive parameter store does not store Unidrive menu 20.

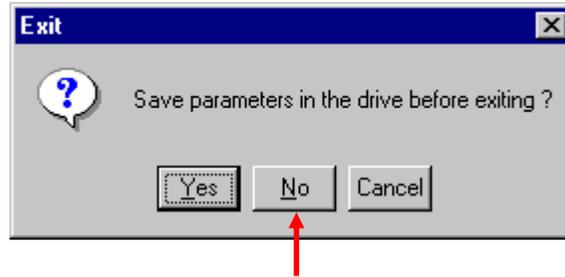
## Saving Parameters to Disk

Once you have uploaded the data from the original drive, you should save it to disk so that it is recorded on your PC. To do this go to **PARAMETER**, **Save Parameter File As** and in the simply type in a name for the drive data file that makes sense – but use 8 characters or less and the first character cannot be a number ie Pump4 would be a good name. Don't worry about the extension .ctd. UniSoft will take care of that detail. Then click on OK.



After your data is saved to disk, remove power from the Drive, wait until it goes dark and fans stop. You may remove the UD71 Communication Module at this time if you wish.

Whenever you exit UniSoft it will respond with :



At this point, you would answer NO since you merely finished uploading data from the drive.

## Getting Data into Replacement Drive

This is accomplished by first running UniSoft and under **PARAMETER**, **Open Parameter file**- open the parameter file that you previously saved or that was left on the job site after the original Field start-up.



## Skip this page if you are using a UD71 module.

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### **IMPORTANT**

It is important that all the option modules are inserted that are supposed to be present for your drive application at the time that the data is extracted or restored. Do not remove options modules to record or load data.

If a drive contains a UD7x variant which can be:

UD70	Co-Processor without a Fieldbus
UD73	Co-Processor with Profibus
UD74	Co-Processor with InterBus S
UD75	Co-Processor with CT Net
UD76	Co-Processor with Modbus Plus
UD77	Co-Processor with DeviceNet



**UD70**  
Co Processor  
(Male conn)

This implies that you will using the 9 pin male connector on the lower tier- port D and the special cable P/N **CTD-PC-485-010**.

### **Menu 20 Parameters**

Menu 20 parameters are typically used for fieldbus communications purposes. They typically represent the pointers for input and output communication words to/from a Fieldbus Communication master. UniSoft can restore values to the Menu 20 parameters when you are connected to the co-processor. However, a standard drive parameter store **does not** store Unidrive menu 20.

After performing a normal drive Save you must also perform the Menu 20 Save if Menu 20 is being used. If you are not sure, it would not hurt to perform it anyway.

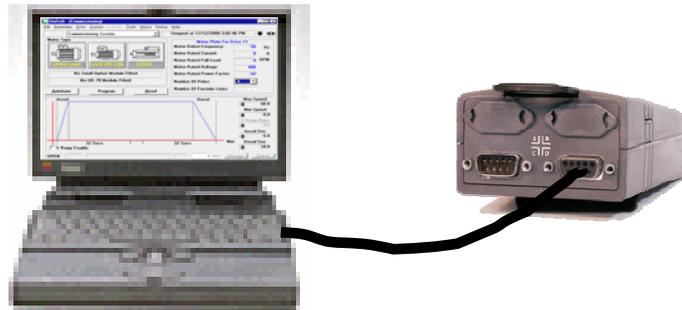
### **Menu 20 Store :**

Storing Menu 20 parameters is accomplished by setting #17.19=1 then depressing the **RED** reset button.

**Note:** A standard drive parameter store **does not** store Unidrive menu 20.

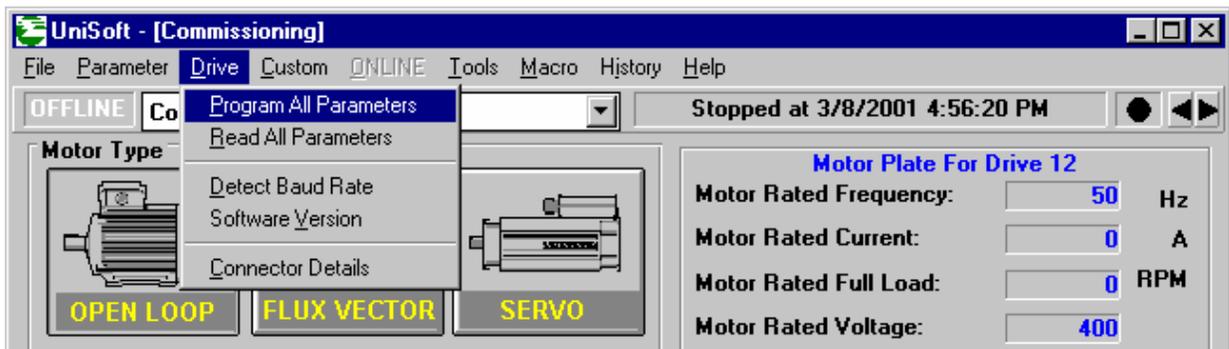
To finalize these communication settings you will need to go to #0.00 and enter 1070 then depress the **RED** reset button.

This data can be programmed into the Unidrive through the UD71 Communication Module RS-232 port D as shown below using a straight through RS-232 cable having P/N CTD-PC-232-006 coupled to your PC.



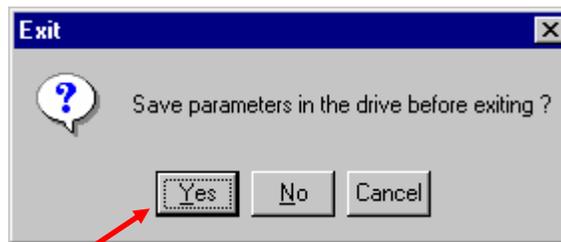
**Note:** If the original drive contained a Small Option Module, that same module or module type must present in the drive during parameter restoration. Otherwise, those parameters governing that module will not be restored !!

Then under **DRIVE**, selecting **Program All Parameters** will load the Drive data.



Following the Download click on the **X** in the upper right corner. This will bring up the following screen:

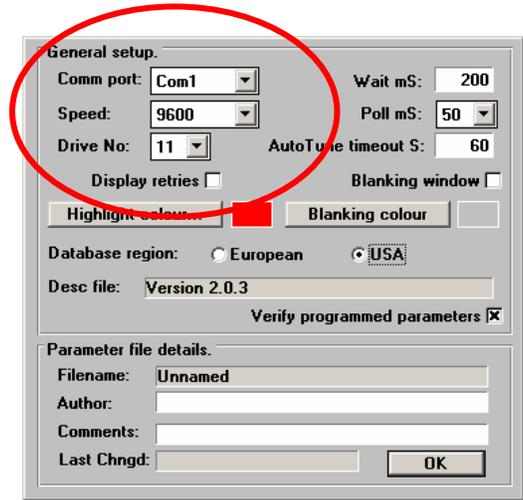
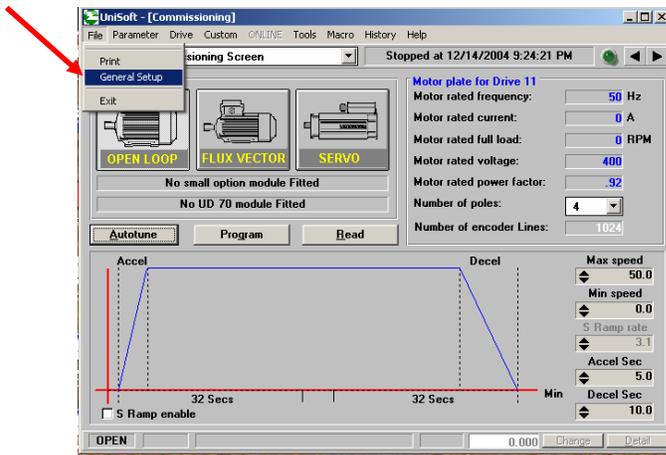
Answer **YES**



After clicking **YES**, your original setup data should be restored and saved within your replacement unit.

# Failure to Establish Communication

- If a message appears saying the Comm port is being used by another device ensure some other program like RS Logix, RS Linx or Palm pilot sync programs are not active in the Start Menu tray. If they are – close them or shut them down. These programs assume the serial port and prevent UniSoft access.
- Check parameters in the drive for communications are set to match UniSoft ( under File/General Setup )



## If UD71 is being used

#11.23 = 1.1 or 11  
 #11.24 = ANSI  
 #11.25 = 1

Drive address  
 Comm Mode ( ANSI )  
 Default baud rate 4800

## If UD7X is being used

#17.05  
 #17.06 (Mode 1 ANSI )  
 #17.07

- Cable is CTD-PC-232-xxx

Cable is CTD-PC-485-010



**UD71 Module**  
 RS-232 Port  
 (Female conn )



**UD70**  
 Co Processor  
 (Male conn)

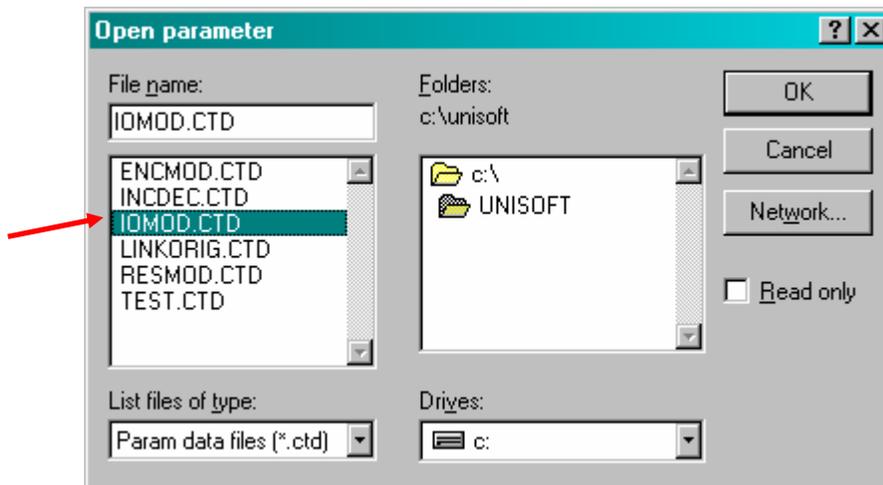
## Parameters Different than Factory Default

Should you wish, UniSoft can prepare a list of parameter differences from those in a factory unit that can be printed out for manual entry or future reference. If your file has just been uploaded from the drive then you could skip to the next page. Otherwise you would need to open the file you wish to examine.

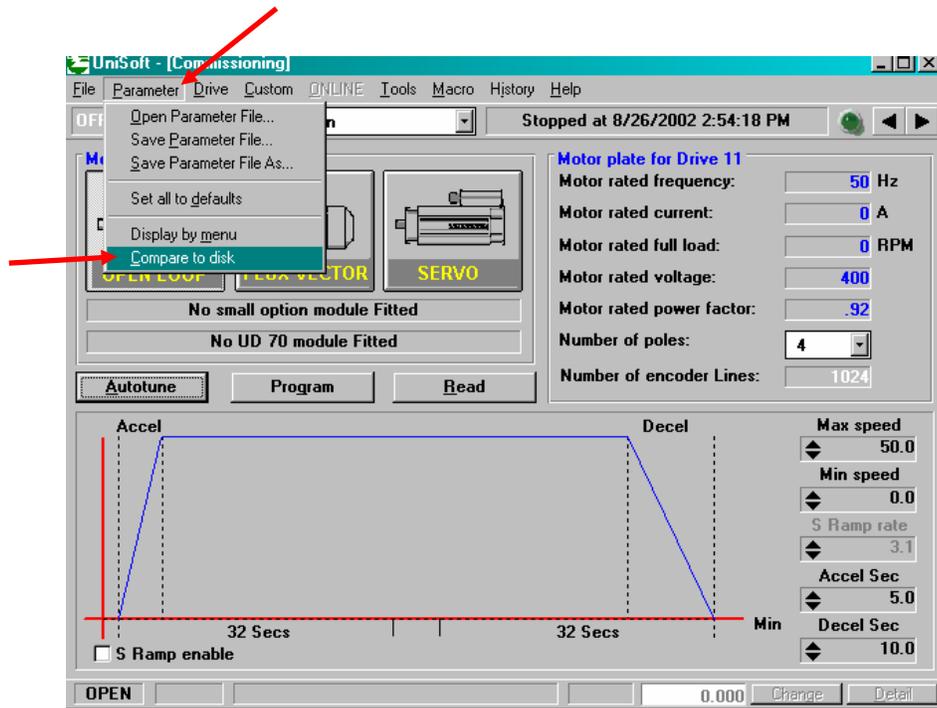
This is accomplished by first running UniSoft and under **PARAMETER** , **Open Parameter File**- open the parameter file that you previously saved or that was left on the job site after the original Field start-up.



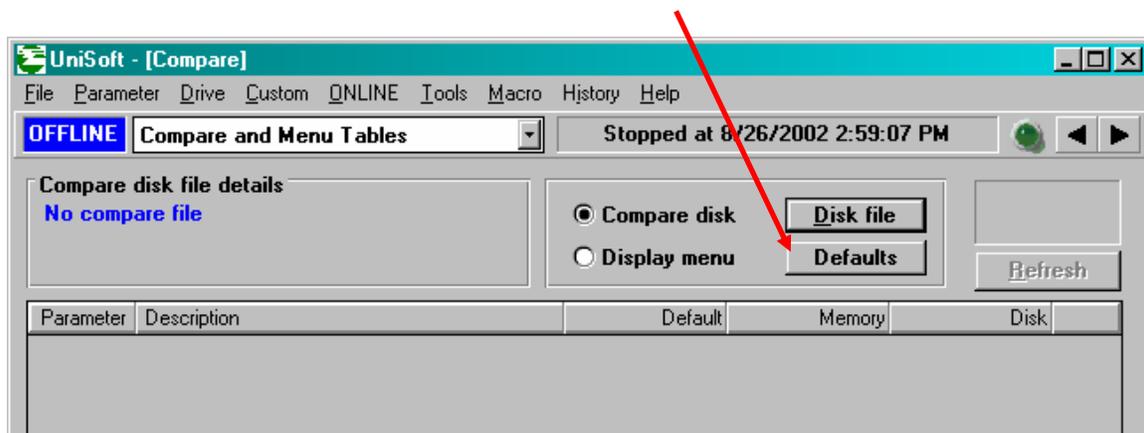
Select the data file of interest.



To create this list one would go to **Parameter- Compare to Disk**.



Which will bring up the Compare Window. Click on **Defaults**



This will compare this Unidrive setup against defaults and list differences.

A list will be created similar to that as shown below:

The number of differences

UniSoft - [Compare]

File Parameter Drive Custom ONLINE Tools Macro History Help

OFFLINE Compare and Menu Tables Stopped at 8/26/2002 2:59:07 PM

Compare disk file details  
C:\UNISOFT\IOMOD.ctd  
Last modified 11/28/2001 10:36:58 AM

Compare disk  Display menu

Disk file Defaults

Differences 51 Refresh

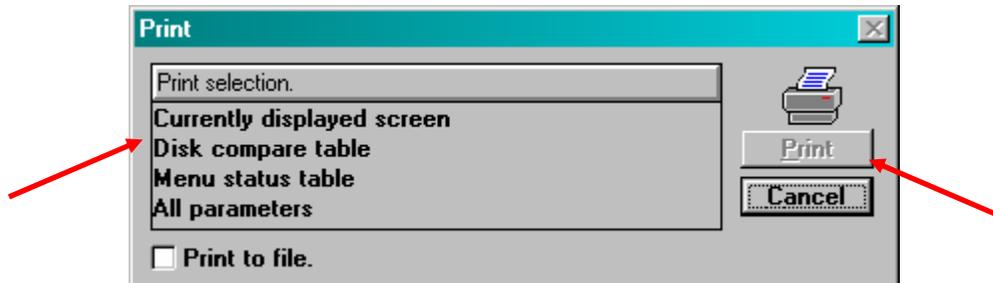
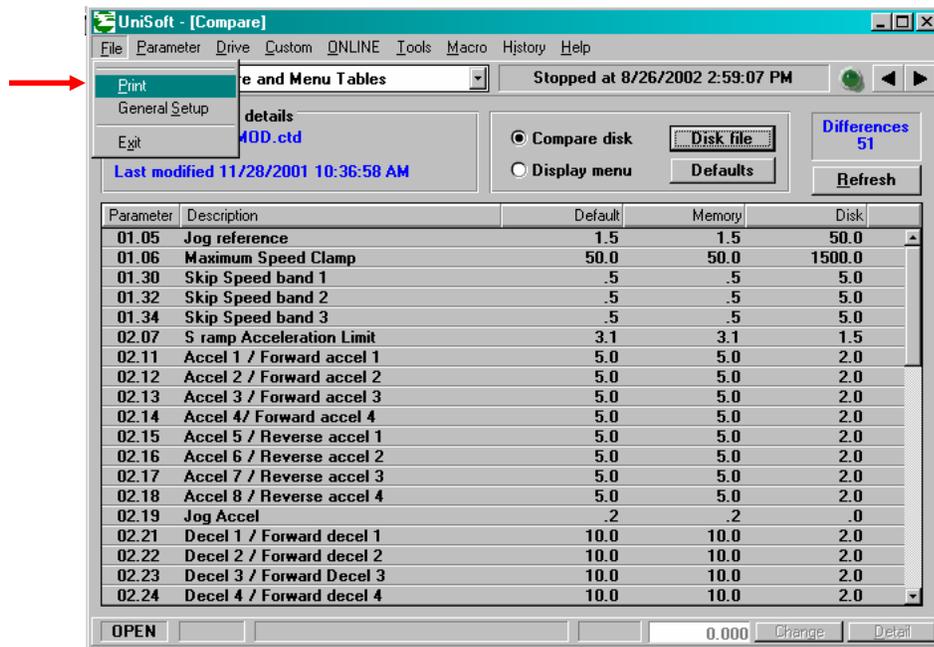
Parameter	Description	Default	Memory	Disk
01.05	Jog reference	1.5	1.5	50.0
01.06	Maximum Speed Clamp	50.0	50.0	1500.0
01.30	Skip Speed band 1	.5	.5	5.0
01.32	Skip Speed band 2	.5	.5	5.0
01.34	Skip Speed band 3	.5	.5	5.0
02.07	S ramp Acceleration Limit	3.1	3.1	1.5
02.11	Accel 1 / Forward accel 1	5.0	5.0	2.0
02.12	Accel 2 / Forward accel 2	5.0	5.0	2.0
02.13	Accel 3 / Forward accel 3	5.0	5.0	2.0
02.14	Accel 4 / Forward accel 4	5.0	5.0	2.0
02.15	Accel 5 / Reverse accel 1	5.0	5.0	2.0
02.16	Accel 6 / Reverse accel 2	5.0	5.0	2.0
02.17	Accel 7 / Reverse accel 3	5.0	5.0	2.0
02.18	Accel 8 / Reverse accel 4	5.0	5.0	2.0
02.19	Jog Accel	.2	.2	.0
02.21	Decel 1 / Forward decel 1	10.0	10.0	2.0
02.22	Decel 2 / Forward decel 2	10.0	10.0	2.0
02.23	Decel 3 / Forward Decel 3	10.0	10.0	2.0
02.24	Decel 4 / Forward decel 4	10.0	10.0	2.0

OPEN 0.000 Change Detail

The values of the parameters that are different

# Printing out the Differences

This list could be printed out if desired by selecting **File-Print**



## Select Disk Compare Table

The differences can be printed or saved to a print file. Put one copy in a file folder and perhaps another under the drive cover for quick reference.

This list is better than nothing but **if you would really like** to see how we would recommend one to document the Drives parameters setting click on the link below or search for **CTAN258** using Google.

## CTAN258

Questions ?? Ask the Author:

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(716)-774-0093

**e-mail :** [ray.mcgranor@emersonct.com](mailto:ray.mcgranor@emersonct.com)