EMERSON
Industrial Automation

Application Note CTAN #258

The Application Note is pertinent our Mentor II/Quantum III DC Drive Family and our Commander SE and Unidrive Classic AC Drive Families

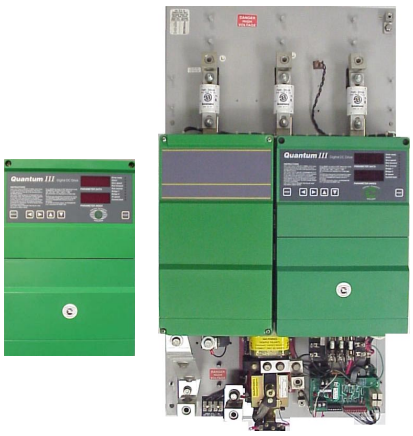
Creating a Nice Looking and Descriptive List of Drive Setup Parameters

Our Digital Drives contain many adjustment parameters that offer Integrators and Machine Builders a wide range of application flexibility. For instance Unidrives contain approximately 500-600 parameters (depending on option modules used etc) that help machine manufacturers achieve the desired functionality for a certain machine requirement. Fortunately most of the parameters are optional and usually are left set at default factory settings. Some applications may require 20-30 or more parameters to be changed from the drives factory default settings however. The key to a successful replacement is having an accurate list of those required settings for a certain application.

Should drive replacement become necessary, one **must have at the very least** a list of the parameters that are different from factory defaults so that the original functionality can be restored. Parameter restoration can be done quite effectively using manual entry although it is rather tedious. Obviously the easiest way to restore (or clone) a drives setup is to record those internal settings to a data file and program another drive with that setup file information.

If you do not have a list of the required parameters, the easiest way to program a replacement drive is to extract the parameters out of the malfunctioning unit (assuming that it still works enough to light the display) and program the replacement drive with this data.

The software that runs on your laptop PC is free and the procedure to extract and create a "***Difference File***" printout is described in detail in the following documents:



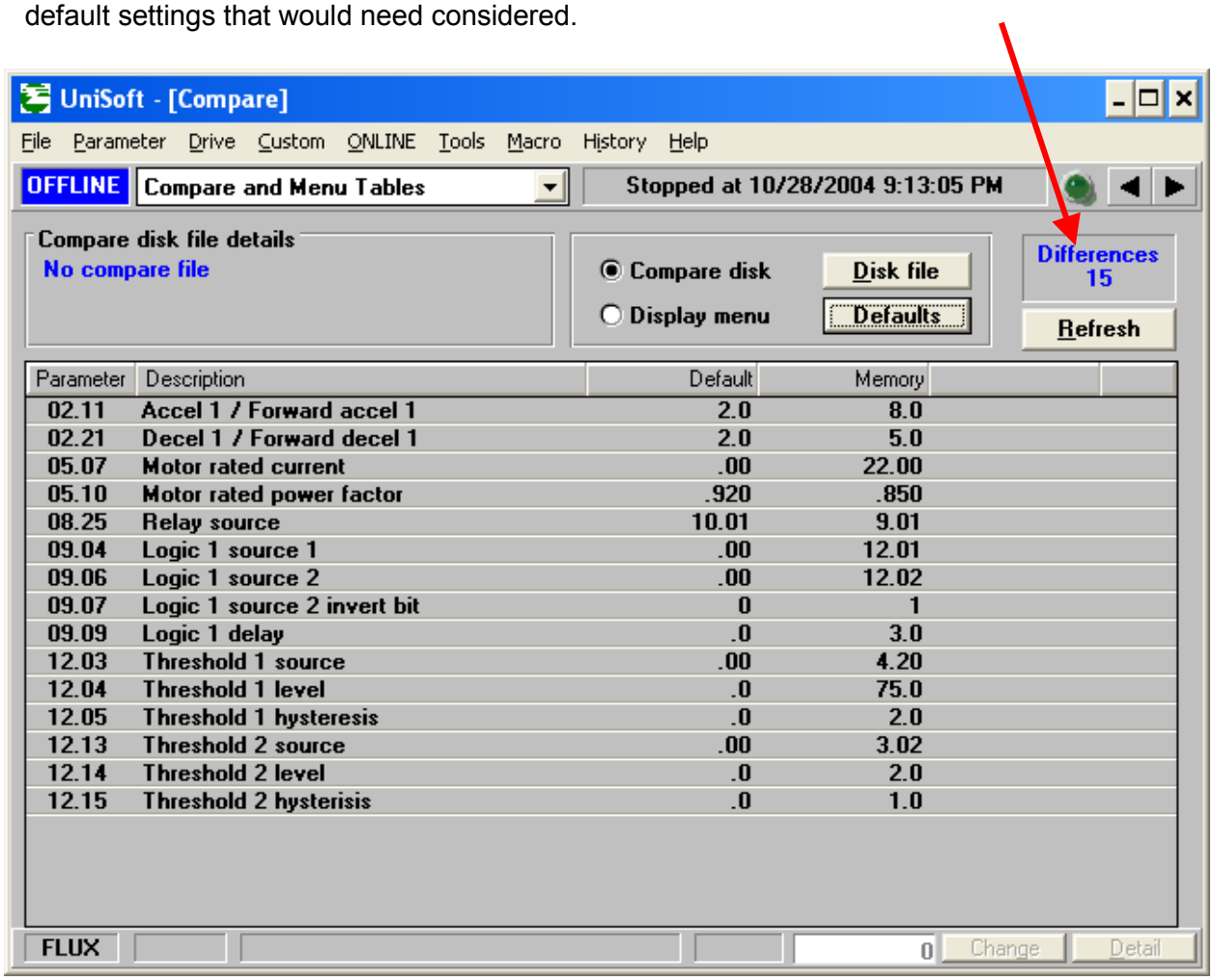
For Quantum III or Mentor II
CTAN193

For Commander SE
CTAN236

For Unidrive
CTAN182

Click on the CTAN of interest

If you were to follow the procedure to create a difference file for your drive, it may end up looking something as shown below. In this drive, there were 15 differences from factory default settings that would need considered.

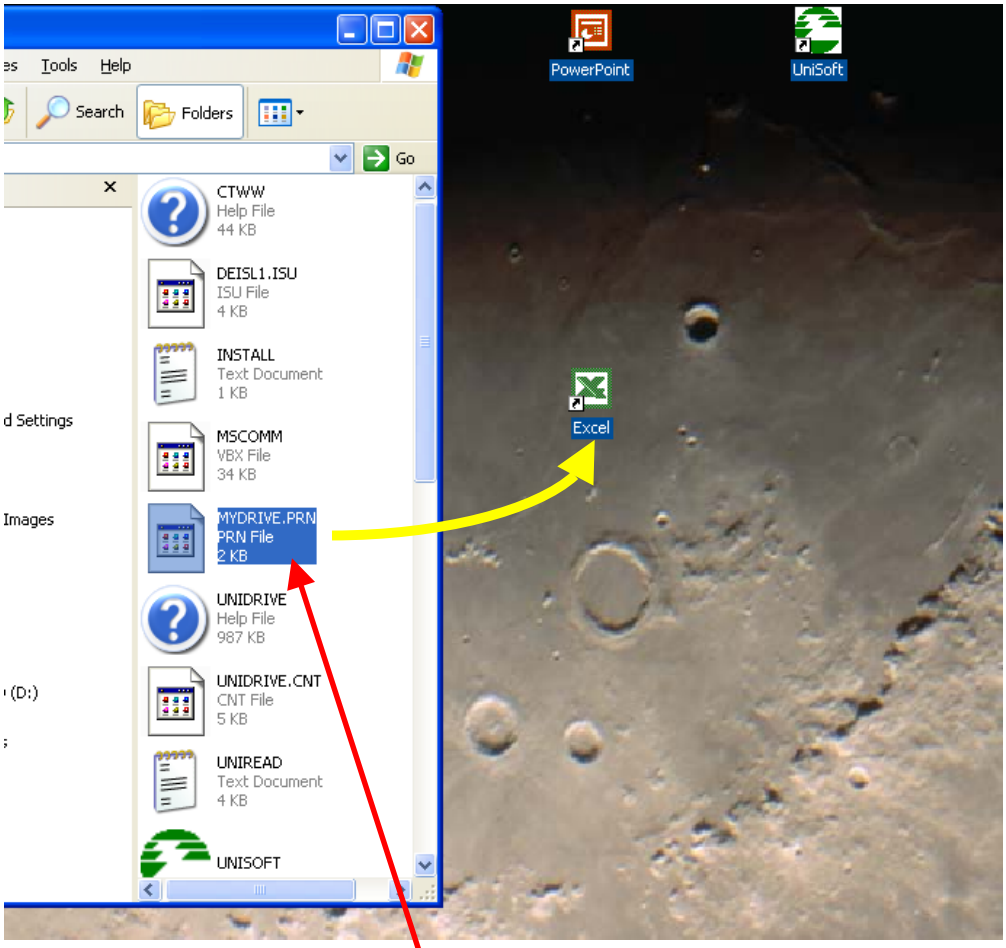


Note:

In the case of the Unidrive, once the basic mode is set (Open Loop, Vector or Servo indicated in parameter #0.48), one could then enter in the differences listed in the Memory column, perform a Store and you should be off and rolling.

The problem with the above printout is that there is no explanation of what some of the settings do and why it was done- what was being accomplished. By having this **difference file** available, one could simply drag it into Microsoft Excel™ and doctor it up to create a very nice printout of ones intentions.

See the following ……

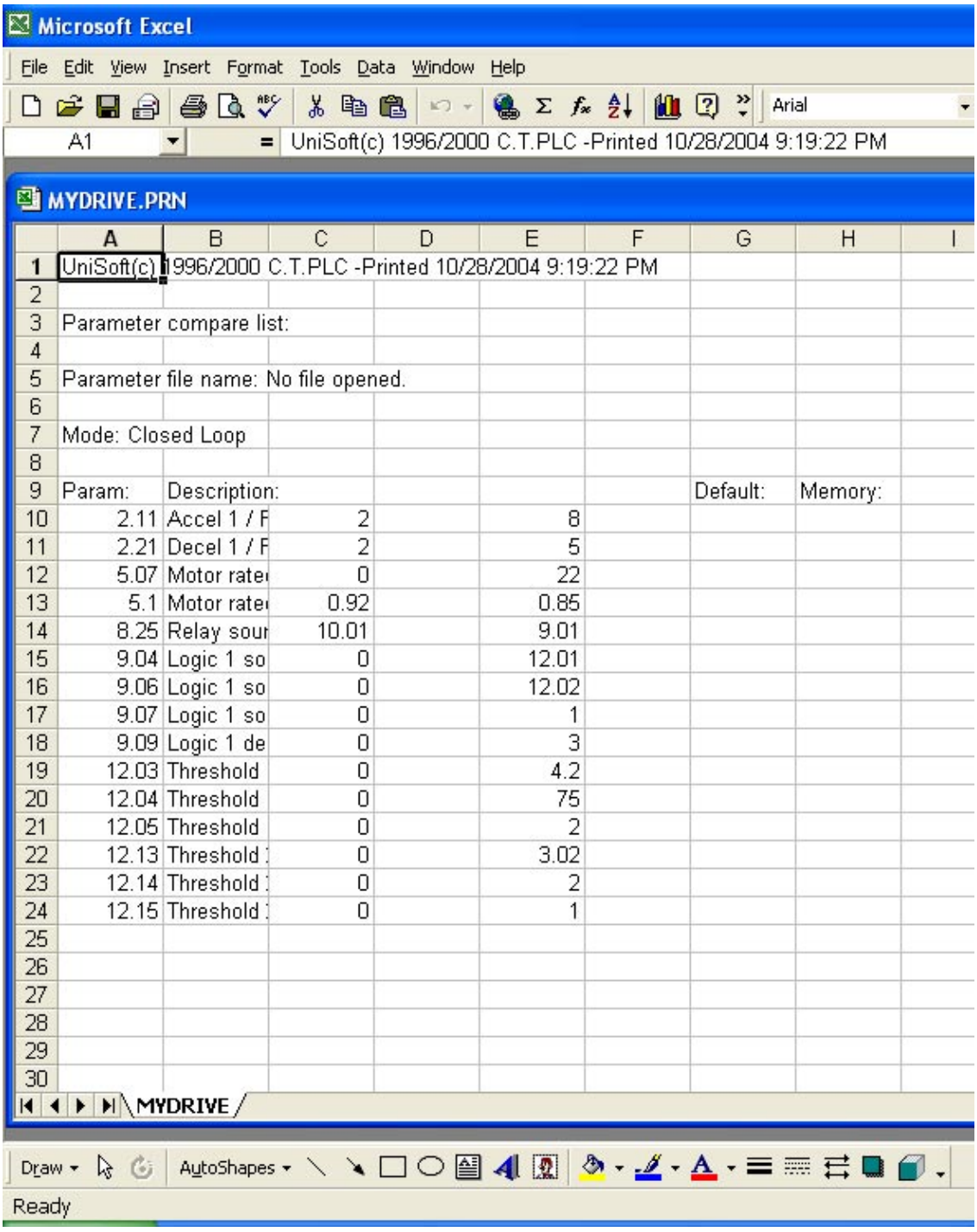


Drag your .prn difference file into Excel

See page 6 on how to create .prn file

Excel can recognize the .prn text file and import it for you directly. If you wish, instead of dragging the file into the Excel icon, you could open Excel and have it open your .prn file – simply click Next/Next until finished.

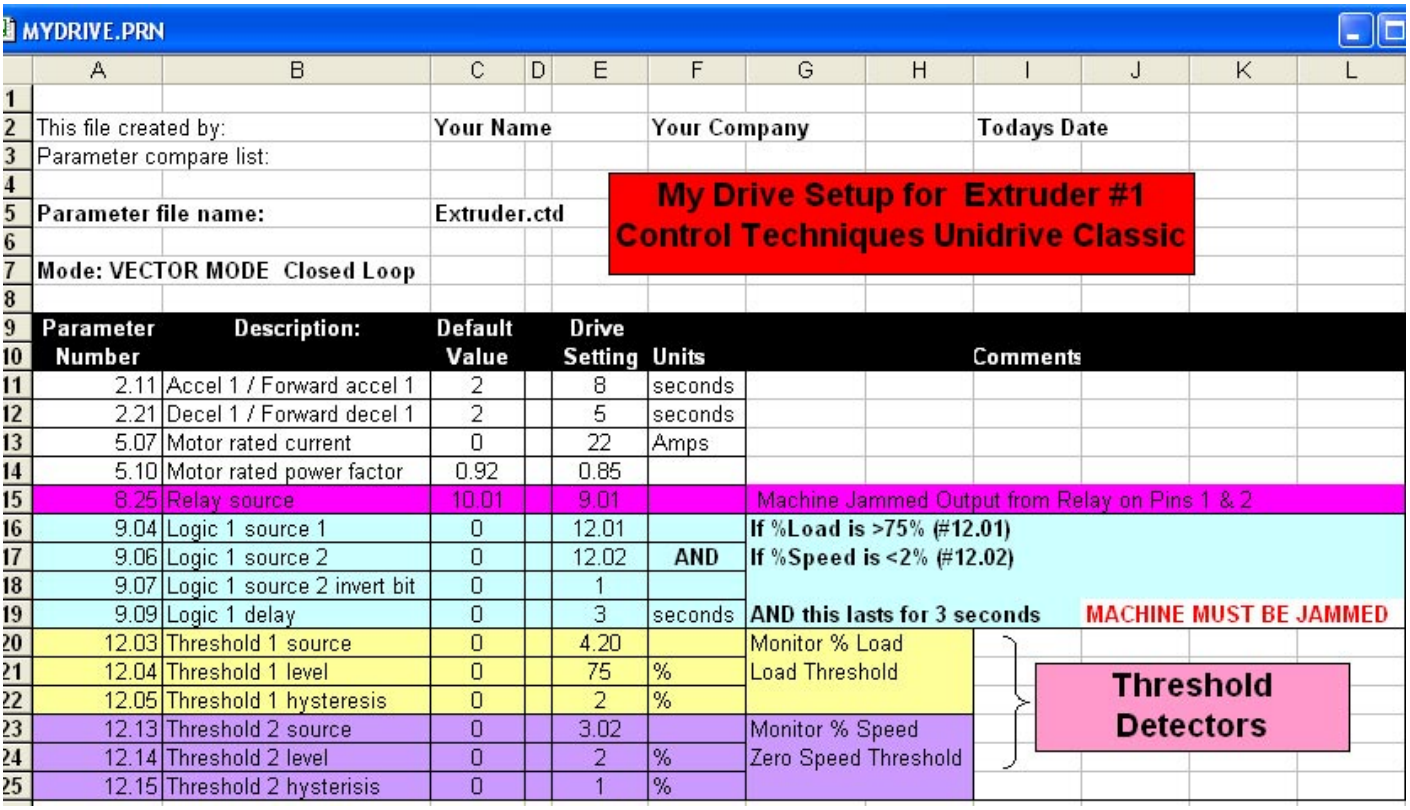
This is the result of the direct import (dragged file) into Excel. Not too bad but using Excel we can make it much better !!!



	A	B	C	D	E	F	G	H	I
1	UniSoft(c)	1996/2000 C.T.PLC -Printed 10/28/2004 9:19:22 PM							
2									
3	Parameter compare list:								
4									
5	Parameter file name: No file opened.								
6									
7	Mode: Closed Loop								
8									
9	Param:	Description:					Default:	Memory:	
10	2.11	Accel 1 / F	2		8				
11	2.21	Decel 1 / F	2		5				
12	5.07	Motor rate	0		22				
13	5.1	Motor rate	0.92		0.85				
14	8.25	Relay sour	10.01		9.01				
15	9.04	Logic 1 so	0		12.01				
16	9.06	Logic 1 so	0		12.02				
17	9.07	Logic 1 so	0		1				
18	9.09	Logic 1 de	0		3				
19	12.03	Threshold	0		4.2				
20	12.04	Threshold	0		75				
21	12.05	Threshold	0		2				
22	12.13	Threshold	0		3.02				
23	12.14	Threshold	0		2				
24	12.15	Threshold	0		1				
25									
26									
27									
28									
29									
30									

Once you import the "**Difference File**" created by UniSoft into Excel, you can then add all the comments or associated documentation that you desire in order to fully document your drive settings and provide explanations if you wish so that others (or even for you after you re-visit this drive setup a year later) on the settings and why they were set that way.

Obviously a copy of this color printout could be placed in a Drive File folder and another copy could be folded up and placed inside the Drive cover for "on-the-floor" convenience. A printout like this would provide an excellent starting point if the Drive should need adjusted or replaced.



MYDRIVE.PRN

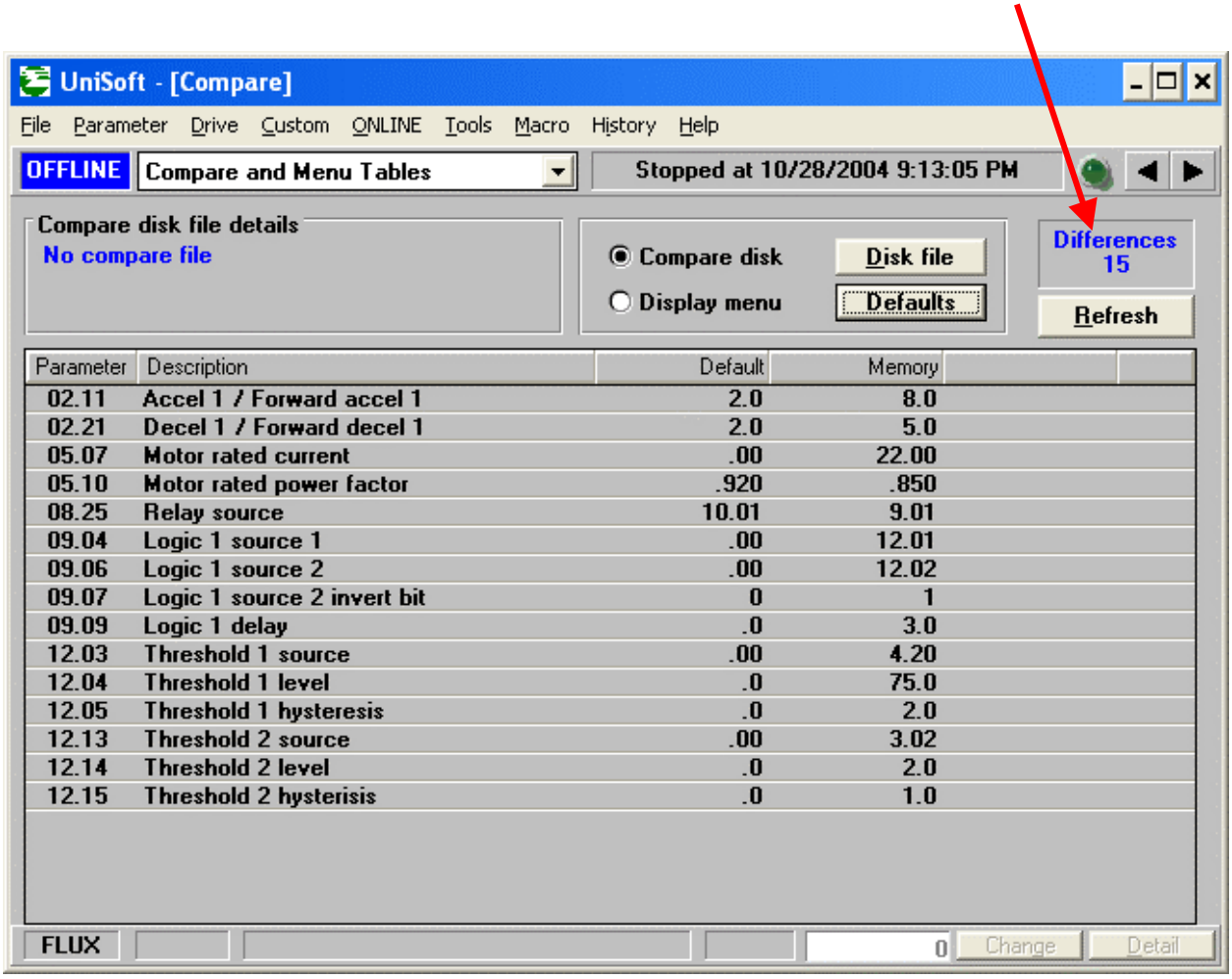
	A	B	C	D	E	F	G	H	I	J	K	L
1												
2	This file created by:		**Your Name**			**Your Company**			**Todays Date**			
3	Parameter compare list:											
4												
5	**Parameter file name:**		**Extruder.ctd**				**My Drive Setup for Extruder #1 Control Techniques Unidrive Classic**					
6												
7	**Mode: VECTOR MODE Closed Loop**											
8												
9	**Parameter**	**Description:**	**Default**		**Drive**							
10	**Number**		**Value**		**Setting**	**Units**	**Comments**					
11	2.11	Accel 1 / Forward accel 1	2		8	seconds						
12	2.21	Decel 1 / Forward decel 1	2		5	seconds						
13	5.07	Motor rated current	0		22	Amps						
14	5.10	Motor rated power factor	0.92		0.85							
15	8.25	Relay source	10.01		9.01		Machine Jammed Output from Relay on Pins 1 & 2					
16	9.04	Logic 1 source 1	0		12.01		**If %Load is >75% (#12.01)**					
17	9.06	Logic 1 source 2	0		12.02	**AND**	**If %Speed is <2% (#12.02)**					
18	9.07	Logic 1 source 2 invert bit	0		1							
19	9.09	Logic 1 delay	0		3	seconds	**AND this lasts for 3 seconds**			**MACHINE MUST BE JAMMED**		
20	12.03	Threshold 1 source	0		4.20		Monitor % Load					
21	12.04	Threshold 1 level	0		75	%	Load Threshold					
22	12.05	Threshold 1 hysteresis	0		2	%						
23	12.13	Threshold 2 source	0		3.02		Monitor % Speed					
24	12.14	Threshold 2 level	0		2	%	Zero Speed Threshold					
25	12.15	Threshold 2 hysterisis	0		1	%						

Threshold Detectors

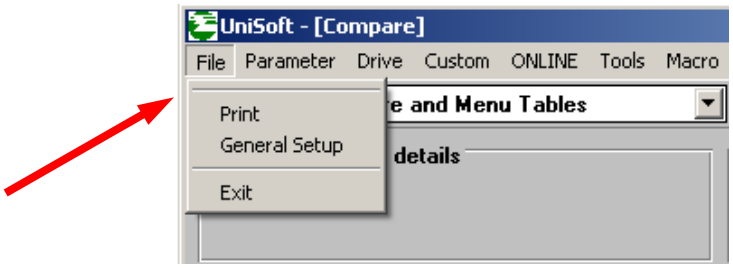
We would encourage all Integrators, OEM's and customers alike to adopt this procedure to help make their jobs easier and your customers or associates will greatly appreciate your documentation efforts.

Creating the Difference File

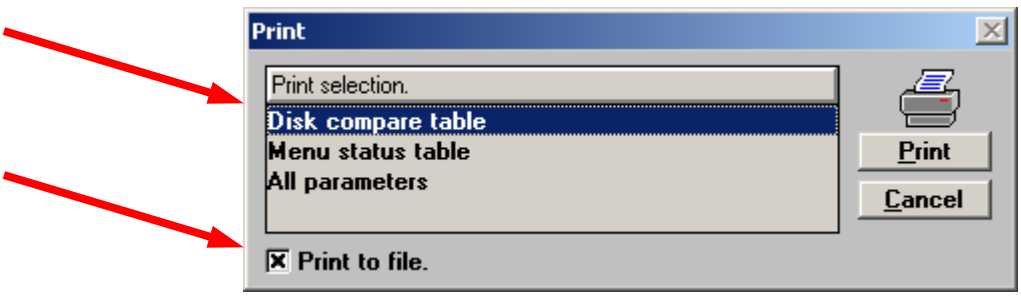
After you've created an on-screen difference as shown:



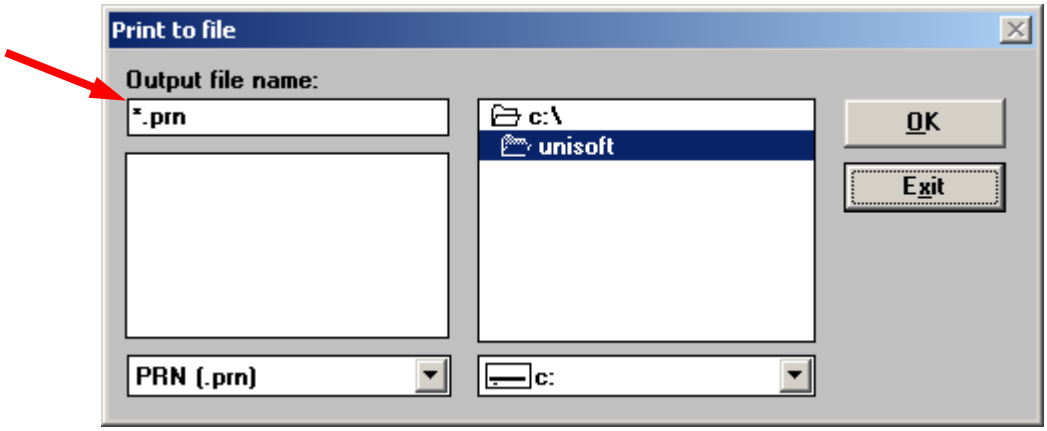
Now go to the File pull down menu in the upper left and select Print



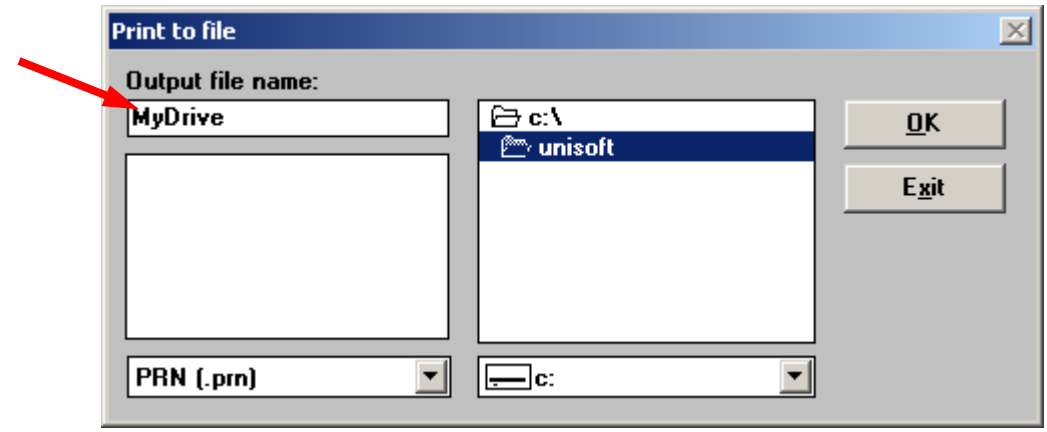
then



A dialog box will appear as shown below:



Simply key in your desired filename (8 characters or less, no spaces). UniSoft will automatically place the .prn extension- no need to type it.



From here you can drag it into Excel and pretty it up as shown on page 5.

This would be our recommended method of documenting a drive setup so others can maintain it in the future. Again, we would encourage all Integrators, OEM's and customers alike to adopt this procedure to help make their jobs easier and your customers or associates will greatly appreciate your documentation efforts.

Questions ?? Ask the Author:

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