Manual Supplement

Manual Title:	2640A/2645A NetDAQ Service	Supplement Issue:	**3**
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This supplement contains information necessary to ensure the accuracy of the above manual. Enter the corrections in the manual if either one of the following conditions exist:

1. The revision letter stamped on the indicated PCA is equal to or higher than that given with each change.
2. No revision letter is indicated at the beginning of the change.

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Change #1

On page 4-28, first paragraph,

Change: The volts dc, volts ac, and resistance functions...
To: The volts dc, volts ac, and **frequency** functions...

On page 4-41, add:

Reference Junction Calibration   *4-47.*

Note

This procedure is necessary only if the Universal Input Module has been repaired or damaged, or if R3 on the Universal Input Module has been inadvertently adjusted.

If thermocouple readings taken in the Thermocouple Temperature Accuracy Test section of the performance tests are found to be out of tolerance, the Universal Input Module Reference Junction may require calibration. Volts dc readings must be accurate before the reference junction can be adjusted. If volts dc calibration is correct, perform the following steps. If volts dc calibration has not been performed or if volts dc readings are inaccurate perform the VDC Calibration then perform the following steps:

1. Using Ethernet Network Communications: If you have an Ethernet network connection between the host computer and the instrument, perform the Thermocouple Temperature Accuracy Performance Test as described earlier in this chapter. (Connect, configure, and measure channel 15 instead of channel 1) Go to step 5.

2. Using Front Panel Programming: If an Ethernet network connection is not available connect, configure, and perform a temperature measurement on channel 15 using the front panel Diagnostic Tools configuration (conF) feature as given below:

    a. Switch OFF power to the instrument and connect a thermocouple: Remove the Universal Input Module from the instrument and connect the supplied type T thermocouple to the channel 15 terminals with the blue lead to the H terminal and red lead to the L terminal. Reinstall the Universal Input Module.

    b. Power the instrument and allow it to complete the normal power-on sequence.

    c. Press and hold the DIO key for 3 seconds until "tool" appears in the secondary display.

    d. Use the up/down arrow keys to sequence you to the "conF" selection, then press ENTER.

    e. Use the up/down arrow keys to sequence you to the "rAtE" selection, then press ENTER.

    f. Use the up/down arrow keys to sequence you to the "SLO" selection, then press ENTER. "conF" will now be displayed. Press ENTER again.

    g. Use the up/down arrow keys to sequence you to the "chAn" selection, then press ENTER.

        You are now in the Channel Function Selection menu. Program channel 15 for degrees C, T type thermocouple measurement using the following steps:

        1. Using the left/right arrow keys select the most significant digit of the channel number.

        2. Use the up/down arrow keys to select a "1" for the most significant digit.

        3. Use the right arrow key select the least significant digit of the channel number.

        4. Use the up/down arrow keys to select a "5" for the least significant digit, then press ENTER.

        5. Use the up/down arrow keys to select "°C", then press ENTER.

6.   Use the up/down arrow keys to select "T", then press ENTER.

7.   Press the DIO key to exit the Diagnostic Tools menu.

3.   Monitor Channel 15 on NetDAQ's Front Panel:

a.   Using the front panel monitor function depress the MON key.

b.   Using the up/down arrow keys select channel 15. NetDAQ's front panel should now be displaying a temperature measurement.

4.   Calibration Adjustment: Adjust resistor R3 on the Universal Input Module until the measured value displays the same temperature reading as the mercury thermometer. Calibration of the Universal Input Module is now complete.

Change #2

Fluke no longer sells the Surface-Mount Device Soldering Kit, therefore, on page 3-3, section 3-4,

Delete: Refer to the Fluke "Surface-Mount Device Soldering Kit" for list of special tools required to perform circuit assembly repair. (In the USA, call 1-800-526-4731 to order this kit).

Fluke no longer sells the Surface-Mount Device Soldering Kit, therefore, on page 3-4, section 3-7, last paragraph,

Delete: Also, refer to the Fluke "Surface-Mount Device Soldering Kit" for a complete discussion of these techniques (in the USA, call 1-800-526-4731 to order this kit).

Change #3

On page 1-21, replace Table 1-29 with:

Table 1-29. 2645A DC Voltage Resolution and Repeatability Specfications

	Resolution	
Range	Slow	Fast
90 mV	3 μV	6 μV
300 mV	10 μV	20 μV
3V	100 μV	200 μV
30V	1 mV	2 mV
50V	10 mV	20 mV

Change #4 - 51665

Rev. -E, A1 Main PCA (2645A-4001)

On page 6-10, Table 6-2, make the following changes:

Change: C4-6,11,15,30,31/CAP,AL,47UF,+-20%,50V,SOLV PROOF/822403/7
To: C4-6,9,11,15,30,31/CAP,AL,47UF,+-20%,50V,SOLV PROOF/822403/8

Change: C9,32,34/CAP,AL,1UF,+-20%,50V,SOLV PROOF/782805/3
To: C32,34/CAP,AL,1UF,+-20%,50V,SOLV PROOF/782805/2

On page 7-4, Figure 7-1, change the value of C9 from 1.0 to 47.

Change #5 - 52116

Rev. -F, A1 Main PCA (2645A-4001)

On page 6-10, Table 6-2,

Change: C10,35,53,81/CAP,CER,1000PF,+-5%,50V,C0G,1206/867408/4
To: C10,35,53,81,**105/**CAP,CER,1000PF,+-5%,50V,C0G,1206/867408/**5**

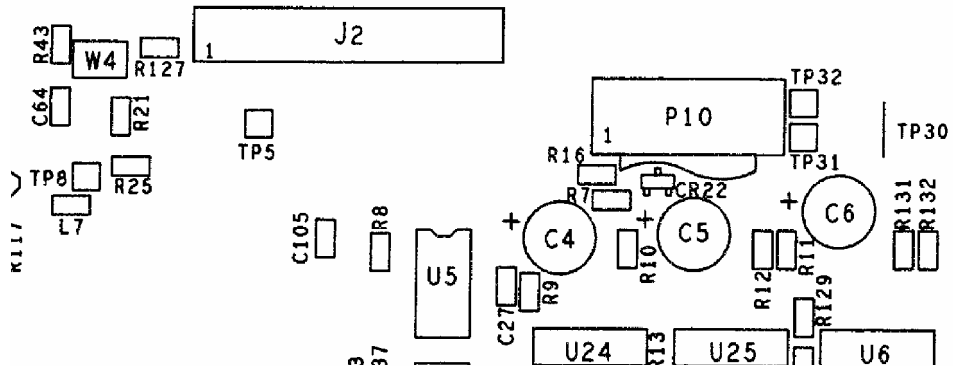On pages 6-14 and 7-3, Figures 6-2 and 7-1, add C105 as shown in Figure A.

2645a_fig_a.bmp

Figure A.

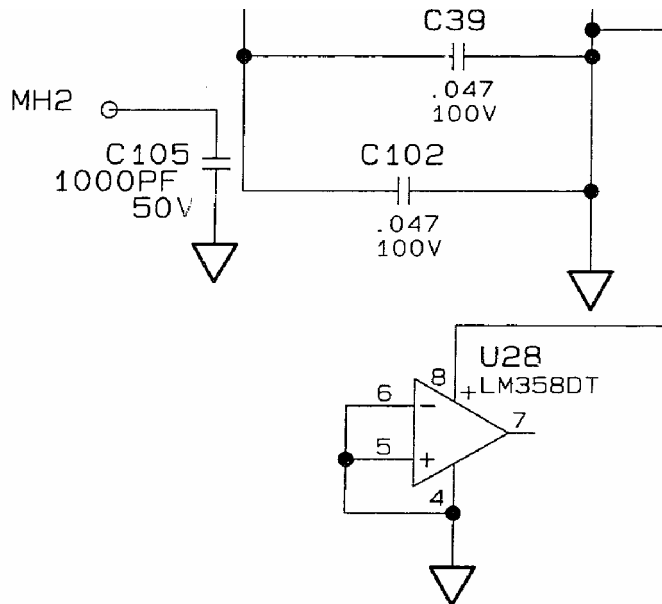On page 7-4, Figure 7-1, add C105 as shown in Figure B.

2645a_fig_b.bmp

Figure B.

Change #6

On page 5-5, Table 5-1, add:

17	65536	0x00010000	Uncalibrated or calibration incomplete.

On pages 5-21 and 5-25, Table 5-10, replace row 6 and add row 17 as follows:

6	Calibration constants corrupt.	A1 Main PCA	**Background** The A1U21 FLASH memory is divided into sections. One of these sections is the memory for the calibration constants. The firmware calculates a CRC and validates it periodically. **Failure** For this error to occur, the calibration constants stored in A1U21 have become corrupted. Firmware has detected a CRC error. This is most likely due to a A1U21 device failure. **Correction** Perform the calibration procedures in Chapter 4. If the error persists, replace A1U21.
17	Uncalibrated or calibration incomplete.	A1 Main PCA	**Background** The A1U21 FLASH memory device stores calibration constants. The firmware keeps a status flag for each calibration procedure. **Failure** If the FLASH has been initialized (eg. by a CAL_CLR command) and all the calibration groups of calibration procedure have not been completed, this error will be reported. **Correction** Complete the calibration procedure for all the calibration groups as explained in chapter 4.

Change #7

On page 5-13, under the *IDN? command, replace the Notes with:

> **Notes:** The<serial-number> field is always zero.

Change #8 - 52627

Rev. -D, 2640A and 2645A A3 A/D Converter PCA (2640A-4003) and (2645A-4003)

On pages 6-19 and 6-24, Tables 6-4 and 6-5,

> Change: U12,27,31/IC,OP AMP,DUAL,PICOAMP IB,SO8/910836/3
> To**:**   U12,27,31/IC,OP AMP,DUAL,PICOAMP IB,SO8,**AD706/602232**/3

Change #9

Note

The 10Base2 Ethernet port has been eliminated on the 2640A and 2645A. Any reference to the 10Base2 or coaxial network connections should be disregarded.

On page 4-3, under ***Configuring the Performance Test Setup*** replace step 1 with the following:

1. **Connect the Instrument and Host Computer** Make the network connections to the instrument and the host computer using a suitable RJ45 UTP Crossover cable as shown in Figure 4-1.

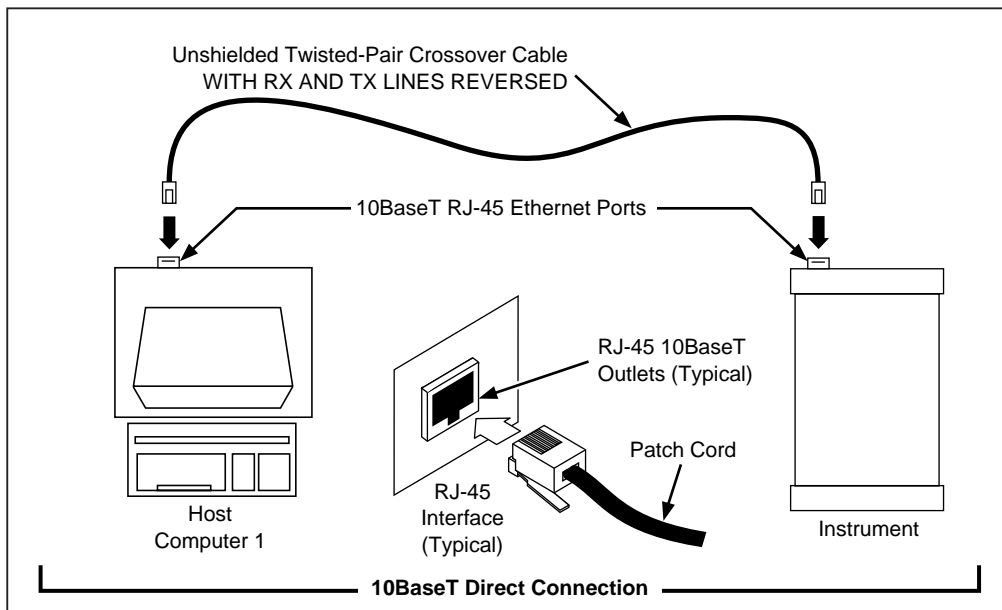On page 4-5, replace Figure 4-1 with the following:

DS600F.eps

Figure 4-1. Performance Test Setup

On page 6-10, Table 6-2,

Change:	C10,35,53,81,105/CAP,CER,1000PF,+-5%,50V,COG,1206/867408/5
To:	C35,53,81,105/CAP,CER,1000PF,+-5%,50V,COG,1206/867408/**4**
Change:	C16,19-22,24,25,29,33,36,40-42,60,62-65,67-69,71,73,75-80,82-84,86-88,90,92,93,95,96/CAP,CER,0.1UF,+-10%,25V,X7R,1206/747287/40
To:	C16,19-22,24,25,29,33,36,40-42,60,62-64,67-69,71,73,75-80,82-84,86-88,90,92,93,95,96/CAP,CER,0.1UF,+-10%,25V,X7R,1206/747287/**39**

On page 6-11, Table 6-2,

Change:	L2,4/COKE,6TURN/320911/2
To:	L2/CHOKE,6TURN/320911/**1**
Change:	R13,18,84,128/RES,CERM,1.5K,+-5%,.125W,200PPM,1206/783241/4
To:	R13,84,128/RES,CERM,1.5K,+-5%,.125W,200PPM,1206/783241/**3**
Change:	R23,35,41,45,63,73,78/RES,CERM,1.5K+-5%,.125W,200PPM,1206/746438/7
To:	R23,35,63,/RES,CERM,1.5K+-5%,.125W,200PPM,1206/746438/**3**

On pages 6-11 and 6-12, delete the entries for the P2, T3, U16 and U38.

On pages 6-14 and 7-3, Figures 6-2 and 7-1 delete the C10,C65, L4, P2, R18, R41, R45, R73, R78, T3, U16 and U38 from the component location drawing.

On page 7-6, Figure 7-1, replace sheet 4 of the schematic with Figure C.

Figure C

2645A-1001
(Sheet 4 of 7)