

INSTRUCTION MANUAL



KEPCO An ISO 9001 Company.

**KIT
219-0523**

BIT 4886 FIRMWARE UPGRADE

1. DESCRIPTION

The Kepco KIT Model 219-0523 contains the firmware upgrade PROM to be installed in BIT 4886 Interface Cards that have been previously installed in Kepco's BOP 100-4D-4886 power supply. This firmware upgrade allows the BOP 100-4D to be programmed to $\pm 104V$ d-c.

This instruction sheet provides procedures for installing the new PROM, initializing the BIT 4886 card, and updating the BIT 4886 manual with new information needed for calibrating the BOP power supply.

2. INSTALLATION OF UPGRADE PROM

A. MATERIAL REQUIRED (SEE TABLE 1.)

TABLE 1. MATERIAL REQUIRED

MATERIAL	LOCATION	QUANTITY
PROM	Not Supplied	4
Extractor	Provided in this Kit	1
ESD (Electrostatic Discharge) wrist strap.	Not Supplied	N/A
Phillips Screw Driver	Not Supplied	N/A
Sealant, Kepco P/N 201-0002 (Glyptol P/N 7526P, 7625R or 7625G or equivalent)	Not Supplied	N/A
Microsoft Windows-based computer with National Instruments VISA software installed	Not Supplied	N/A
Digital Voltmeter (capable of measuring 100.0005V (Keithly 2010 multimeter or equivalent)	Not Supplied	N/A

B. UPGRADE PROCEDURE

1. Remove a-c power to BOP by disconnecting line cord.

CAUTION: Take care not to damage ground strap connected to cover when removing cover. Ground strap may be removed for convenience by removing attaching nut.

2. Remove BOP cover by removing 11 screws: (five from each side and one from the top (see Figure 1, Detail A).
3. Remove the BIT 4886 Interface card from the BOP as follows (See Figure 1):

NOTE: Numbers in circles of Figure 1 refer to numbered steps below:

- Step 1. Unplug 3 pin Connector from Transformer at BIT 4886 Card, Location #3.
- Step 2. Unplug Cable #2 (5-position connectors) from the BIT 4886 Interface Card.
- Step 3. Unplug Cable #1 (18-position connectors) from the BIT 4886 Interface Card.

Step 4. Remove the knurled nuts and lockwashers securing the BIT 4886 Card to hex spacers and remove BIT 4886 Card by sliding to front of BOP, then rotating away from A1.

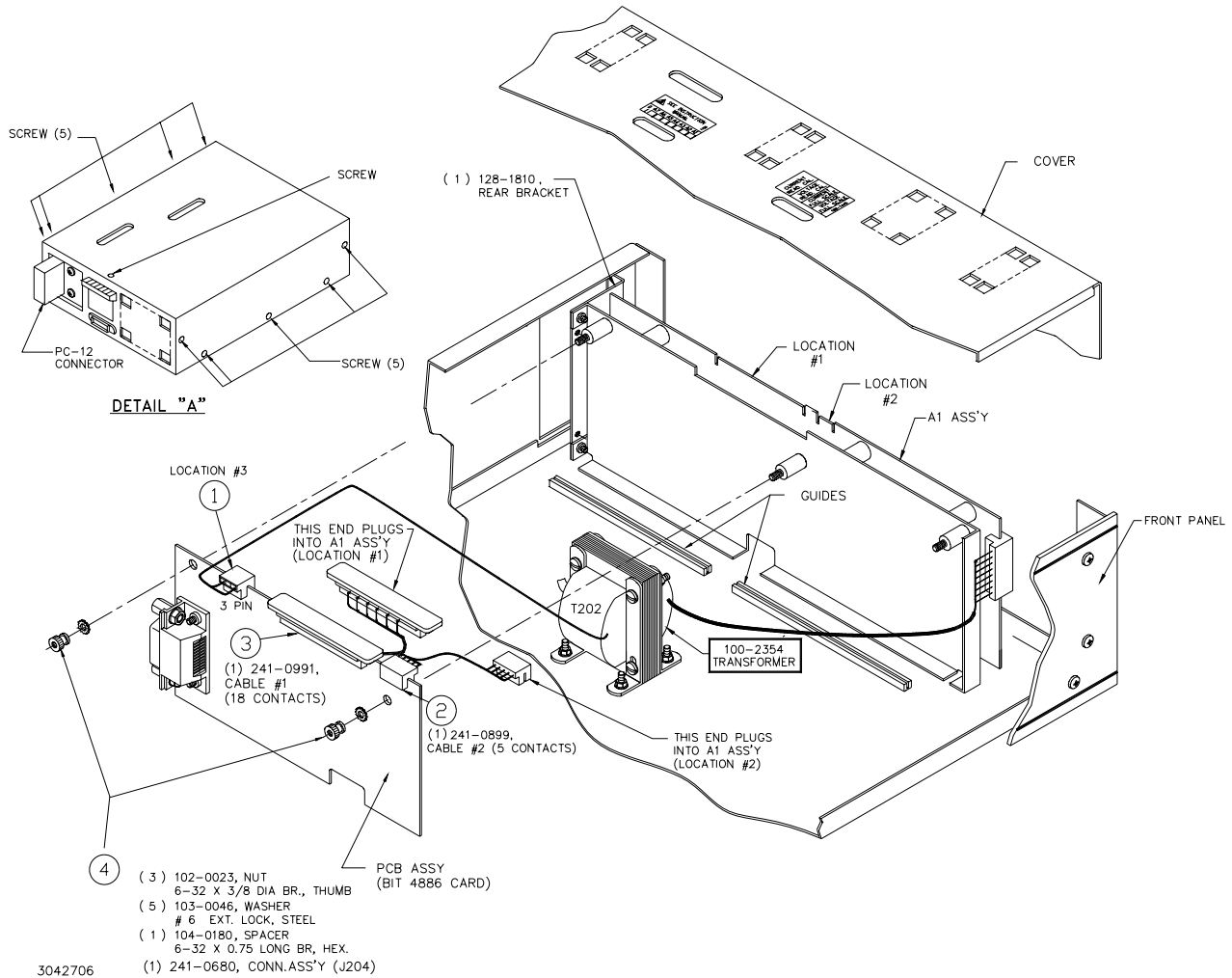


FIGURE 1. BIT CARD REMOVAL

4. A brown IC socket located towards the rear of the unit contains the PROM. Locate the small depression or notch in the PROM as shown in Figure 2. This is pin 1 of the PROM.

CAUTION: FAILURE TO USE AN ESD WRIST STRAP MAY DAMAGE THE PROM!

5. Connect the wrist strap to the chassis of the BOP. Place the strap on your wrist as indicated by the instructions for the wrist strap.
6. Touch the IC tube to the chassis of the BOP. Open one end.
7. Use the extractor and insert the hook, first into one slot and then the other, and gently pry out the PROM. Place the PROM in the tube and close the tube.

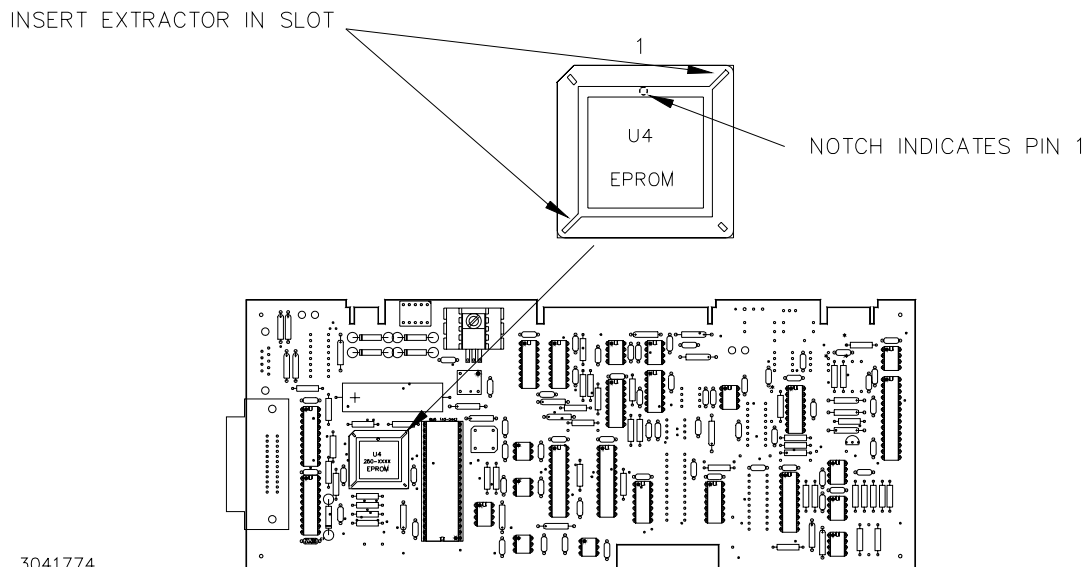


FIGURE 2. PROM LOCATION

8. Open the other end of the IC tube and remove the replacement PROM from the tube.
9. Insert the PROM into the socket, insuring pin one is as shown in Figure 2.
10. Reclose the IC tube. Remove wrist strap and disconnect it from the BOP.
11. Reinstall the BIT 4886 Card in the BOP by reversing removal (Section. 2.B.3, steps 4 through 1). If removed earlier, secure ground strap using nut, then Install cover using 11 screws (five at each side, one at top).
12. On the label at the rear of the BOP, after the revision number (XX-Y) mark "A" (XX-YA).
13. Reconnect power cord and turn on the BOP. Verify the unit beeps and initializes normally.
14. Initialize the BIT 4886 card per Section 3.
15. Calibrate the BOP power supply using the revised procedure found in Section 4.

3. INITIALIZATION OF THE BIT 4886 CARD

The initialization procedure uses the "soft" front panel which is part of the CVI driver for the BIT 4886 which can be downloaded from the Kepco website at: www.kepcopower.com/all_bop.zip.

1. Unzip the files and doubleclick on setup.exe to install the driver. The bit_mdac folder will be added to the Start - Programs folder. Doubleclick bit_mdac.exe to run the program, and refer to the visamdac.pdf in the bit_mdac folder for details about using the soft front panel.
2. Connect GPIB cable from the rear of the BOP to a Microsoft Windows-based computer with National Instruments VISA software installed to BIT 4886 card and verify that BOP has standard PC-12 connector installed (Figure 1).
3. Install the VISA driver per the text file included with the driver. At the Start-up screen (Figure 3) set the correct GPIB Address and click **CONNECT**. Upon successful initialization the initialization window closes and the Power Supply Type field of the Start-up window (Figure 3) shows BIT 4886. Click **Continue**.
4. Refer to Figure 4 and enter the following information:
 - **Select Model:** BOP 100-4.
 - **Serial Number:** Enter serial number found on the rear nameplate of BOP power supply.
 - **Option Number:** Enter 26810

- Press the **Initialize Card** button

NOTE: If initialization fails and an error message is displayed, repeat step 3, making sure that the proper information is entered, and the *new* PROM was installed



FIGURE 3. VISA DRIVER START-UP.

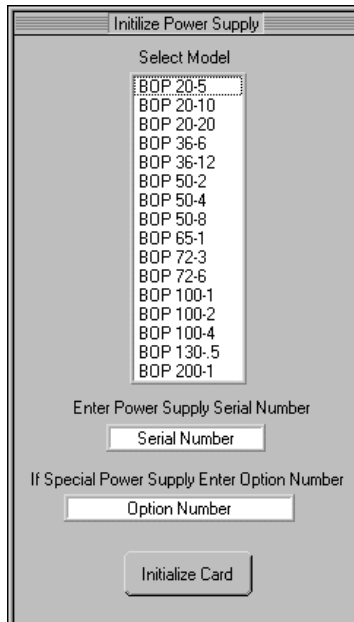


FIGURE 4. BIT 4886 CARD INITIALIZATION USING VISA DRIVER

5. After initialization, proceed to revised PAR. 3.3 to calibrate the upgraded unit.

4. BIT 4886 INSTRUCTION MANUAL CHANGES

A. ADD THE FOLLOWING INFORMATION TO TABLE 3-1.

TABLE 3-1. CALIBRATION MEASUREMENTS AND TOLERANCES - VOLTAGE

MODEL	LOW RANGE ZERO	VOLT ZERO	MAX OUTPUT	HIGH RANGE ACCURACY	LOW RANGE ACCURACY	LOW RANGE NOMINAL	VOLTAGE LIMIT ADJUST
	PAR. 3.3.1 STEP 2	PAR. 3.3.1 STEP 3	PAR. 3.3.1 STEPS 4, 5	PAR. 3.3.1 STEPS 6, 8	PAR. 3.3.1 STEPS 11, 13	PAR. 3.3.1 STEP 10	PAR. 3.3.1 STEP 15
	PAR. 3.3.2 STEP 4	PAR. 3.3.2 STEP 5	N/A	PAR. 3.3.2 STEPS 6, 7	PAR. 3.3.2 STEPS 8, 9	N/A	PAR. 3.3.2 STEP 3
BOP 100-4D-4886-26810	0V ±0.001V	0V ±0.001V	104V	104.0075V (MAX) -104.0075V (MIN) ±0.0075	26.003V (MAX) -26.003V (MIN) ±0.002	26V	+104.0125V ±0.0125V