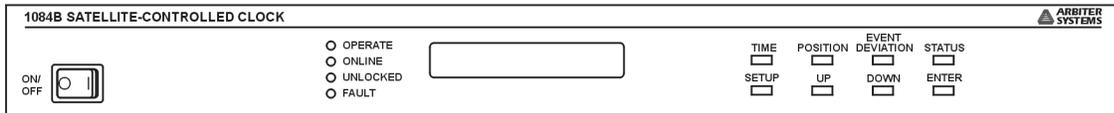


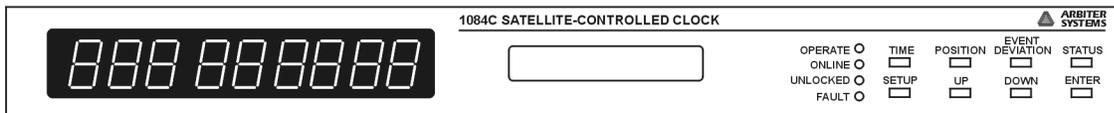
REPLACING THE PROGRAM ROM IN THE MODEL 1084A/B/C



Model 1084A



Model 1084B



Model 1084C

Document No. PD0029900L

Arbiter Systems, Inc.
 1324 Vendels Circle, Suite 121
 Paso Robles, CA 93446 U.S.A.
 (805) 237-3831, (800) 321-3831
<http://www.arbiter.com>
[mailto: techsupport@arbiter.com](mailto:techsupport@arbiter.com)

1 Introduction

These instructions cover the installation of a new program ROM (firmware) in the Model 1084A/B/C series GPS clocks. ROM upgrades provide for new features and bug fixes, including setting up automated Daylight Saving Time (DST) time changes for any geographical region, including recent DST changes in North America. Please read through the entire set of instructions prior to attempting this work.

NOTE: After installing the new program ROM, you must restore the clock to factory default settings for it to function correctly. Instructions to restore to factory default settings are included.

2 Required Equipment

1. Torx T-25 or slot screw driver.
2. IC Removal Tool, curved tweezers or small blade screwdriver.

3 Saving Original Configuration Information

Each clock has a set of operating parameters that are configured into memory. It is advantageous to record these configuration settings prior to disassembly.

1. For 1084B/C series clocks, press the SETUP key and sequentially scroll through the various menus to write down your current settings.
2. Use the ENTER key with any menu to sequence through individual settings and confirm them.
3. For 1084A series clocks, you will need to know beforehand what settings you need to set after installing the new program ROM.

4 Disassembly

1. First turn the power switch to OFF (if so equipped), and disconnect the power cord. For clocks with Options 08 or 10 power supply options, instead of IEC-320 power receptacles, be careful with open voltages.
2. Using a T-25 driver (or flat-blade screwdriver), remove the four screws securing the cover and lift off the cover.

5 Installing the Program ROM

1. The program ROM is located at U2 (see Figure 1 on page 6).
2. Remove the old program ROM using the appropriate IC removal tool.
3. Install the new ROM. Observe the correct IC orientation and make sure the IC pins line up well on both sides of the socket. If necessary, use a pin-bending tool to line up the pins.
4. If you have Option 28 installed in your clock, it may be necessary to install a new Option 28 ROM at this time. Our records should indicate if this is necessary, and the Option 28 ROM and instructions will accompany the main program ROM. If the new Option 28 ROM is included, install it at this time according to instructions in PD0038500.

6 Reassembly and Startup

1. Replace the clock cover and tighten the four M-25 screws that secure it to the clock chassis.
2. Connect the power cord and turn the power switch ON (if equipped with a power switch).

7 Configure Clock and Settings

1. Connect a null-modem cable between a computer and the main serial port on the clock.
2. Open a terminal program (e.g. HyperTerminal) with port settings of 9600, 8, N, 1.
3. Reset the clock to factory defaults by either of two methods:
 - For Models 1084A/B/C, typing in the following command in the terminal window (The command is sent to the clock after typing the last character): 1084XX
 - Alternatively for Model 1084B/C series clocks, at startup you can press the SETUP key until you get the message SET FACTORY DEFAULTS? and press ENTER. Follow the on-screen messages to complete the reset. It should take a few seconds.
4. Type in the serial command listed below according to your clock model. This command sets your clock to the correct version.

Model	Serial Command
1084A	0,1084XZ
1084B	1,1084XZ
1084C	2,1084XZ

7.1 Option Setup

Use the SETUP button to configure options in the 1084B/C models. Use the serial port to configure options in Model 1084A. For the Model 1084A, type in the following command: (Note: option codes are NOT case sensitive; caps used for clarity).

M,N,K,LXI

Where:

M = 0 for Main Board, and M = 1 for Aux Board Option.

N = option number (0 = no option, see codes in table below)

K = security tree (model number, e.g. 1084)

L = use only if N selects Option 28

L = 0 for 60 Hz and L = 1 for 50 Hz

7.1.1 Option Number Codes

Use the following codes (for “N” above) to configure the correct option for the main board and auxiliary board.

Option Code (for N)	0	1	2	3	4	5	6	7	8	9	10	11	12
Main Board Option Number	none	18	19	–	–	–	–	–	–	–	–	–	–
Aux. Board Option Number	none	03	06	17	20A	23	27	28	29	32	33	34	35

7.1.2 Option Setup Examples

Example 1: For a Model 1084B with options 19
0,2,1084XI

Example 2: For a Model 1084B with option 27
1,6,1084XI (Option 27 example)

If you have Option 28 Installed, go back to Step 3 on the Option 28 Firmware Upgrade Instructions.

7.2 Final Setup

1. Cycle power to check model message on display.
2. After the clock finishes the normal startup and locks, reconfigure the clock to your current, local settings.
3. Place clock back into service.

7.3 How to Configure DST from the Front Panel

Automatic Settings include setting the Starting and Stopping Day of week, Minute after midnight, Month and Week of the Month.

1. Press the SETUP button twice to reach the display that reads “SET LOCAL HOUR?” Press ENTER and the display should read (first line) “SET LOCAL OFFSET” (second line) “HOUR:MIN 00:00” Press the UP or DOWN button to adjust the clock to your local offset from UTC. Press ENTER to set. The offset in California is -8:00.
2. The display should now read (first line) “SET DST/SUMMER TIME?” (second line) OFF. The possible modes are OFF, ON and AUTO. To configure the clock to make automatic changes at the correct times each year, you will need to press the UP button and change the mode to “AUTO” and press ENTER.
3. START DAY: The display should read (first line) “DST/SUMMER START” (second line) “DAY: SUN”. Values are from SUN through SAT. Use the UP or DOWN buttons to set up the starting day for DST/Summer Time and press ENTER.
4. START MINUTE: The display should read (first line) “DST/SUMMER START” (second line) “MIN: 0000”. Values are from 0000 to 1440 (minutes in a day). Press either the UP or DOWN button to adjust the starting time number of minutes after midnight and press ENTER. In North America DST starts at 120 minutes after midnight.
5. START MONTH: The display should read (first line) “DST/SUMMER START” (second line) “MONTH: JAN”. Values are JAN through DEC. Press either the UP or DOWN buttons to adjust the starting month for DST/SUMMER TIME and press ENTER.
6. START WEEK OF MONTH: The display should read (first line) “DST/SUMMER START” (second line) “First SUN of JAN”. Values are First, Second, Third, Last, 2nd from Last and 3rd from Last. Press either the UP or DOWN button to adjust the starting week of the month and press ENTER.
7. STOP DAY: The display should read (first line) “DST/SUMMER STOP” (second line) “DAY: SUN”. Values are from SUN through SAT. First use the UP or DOWN buttons to set up the ending day for DST/Summer Time and press ENTER

8. STOP MINUTE: The display should read (first line) "DST/SUMMER STOP" (second line) "MIN: 0000". Values are from 0000 to 1440 (minutes in a day). Press either the UP or DOWN button to adjust the ending time number of minutes after midnight and press ENTER. In North America DST ends at 120 minutes after midnight.
9. STOP MONTH: The display should read (first line) "DST/SUMMER STOP" (second line) "MONTH: JAN". Values are JAN through DEC. Press either the UP or DOWN buttons to adjust the ending month for DST/SUMMER TIME and press ENTER.
10. STOP WEEK OF MONTH: The display should read (first line) "DST/SUMMER STOP" (second line) "SUN of JAN". Values are First, Second, Third, Last, 2nd from Last and 3rd from Last. Press either the UP or DOWN button to adjust the ending week of the month and press ENTER.

7.4 How to Configure DST From the Serial Port

There are several RS-232 port commands that will set up the DST/Summer Time information and return the current setup.

1. MODE SETUP: Use the command 1,mDT to set up which mode you want to operate: OFF, ON or AUTO, with m=mode (0 through 2), 0 = OFF, 1 = ON and 2 = AUTO. To set up the DST/Summer Time to AUTO type in the command 1,2DT.
2. RETURN CURRENT SETTINGS: Use the command 0DT to return the current DST/Summer Time settings.
3. START TIME and DATE: You can set up the Starting Time and Date with one string, 2,w,x,y,zDT; "2" signifies the Start Time command.
4. STOP TIME and DATE: You can set up the Stopping Time and Date with one string, 3,w,x,y,zDT; "3" signifies the Stop Time command.

where:

w = Month, with 0=JAN, 1=FEB through 11=DEC.

x = WeekOfMonth, with 0=First, 1=Second, 2=Third, 3=Last, 4=2nd from Last, 5=3rd from Last

y = DayOfWeek, with 0=SUN, 1=MON through 6=SAT.

z = Minutes, settings from 0 through 1440, starting at midnight.

7.4.1 Start Time Example, Default Setting

2,2,1,0,120DT means that Daylight Saving begins at 2:00 am on the second Sunday of March. "120" means the number of minutes after midnight.

7.4.2 Stop Time Example, Default Setting

3,10,0,0,120DT means that Daylight Saving begins at 2:00 am on the first Sunday of November. "120" means the number of minutes after midnight.

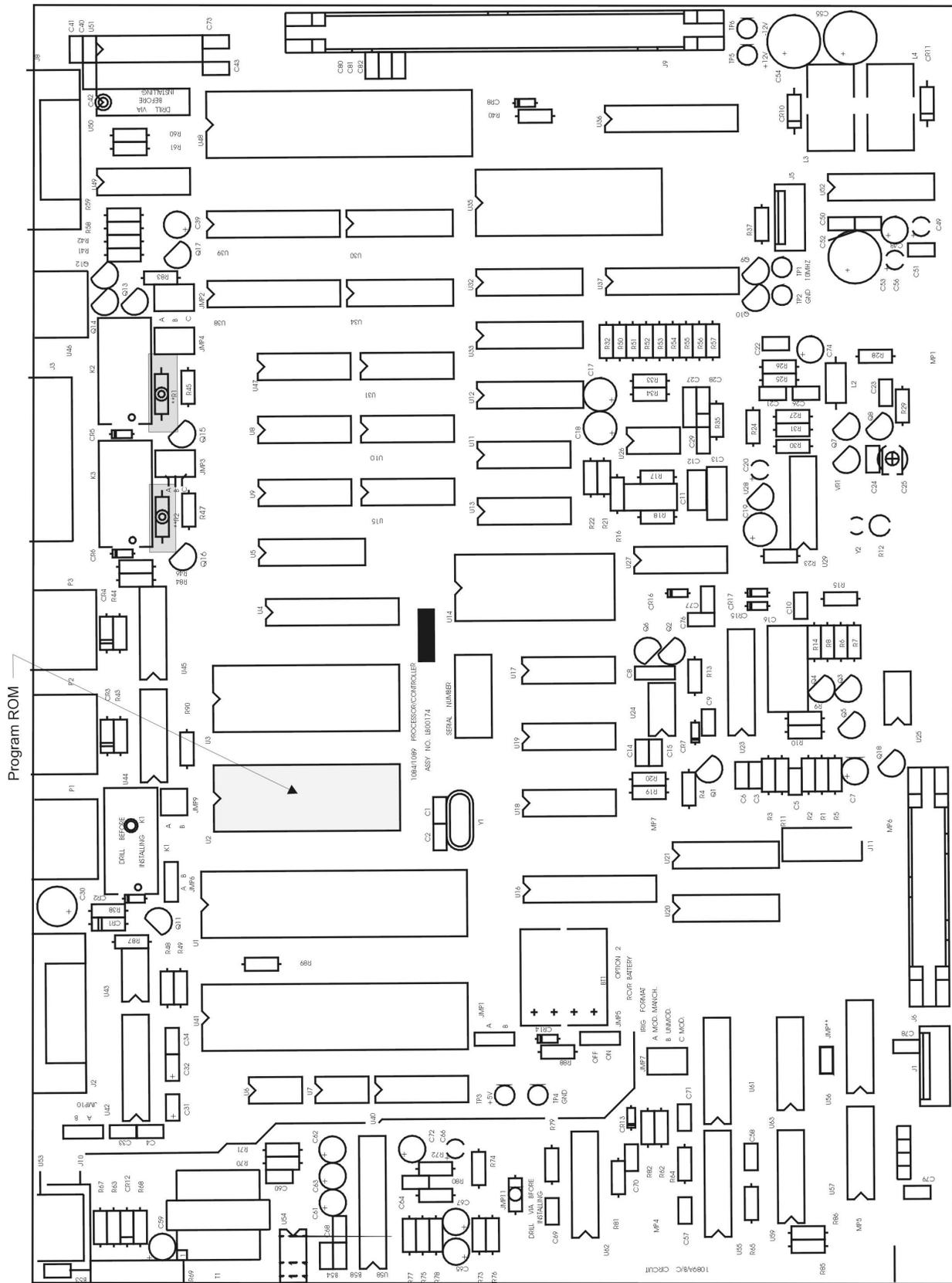


Figure 1: Model 1084 Main Board ROM Location