22. When the Firmware download is complete (in approximately 2 minutes), the program will terminate with a message indicating "The target file was downloaded successfully.", with a final CRC Checksum comparison below it as shown in Figure 11. Click on the “OK” Screen Button to end the Download.

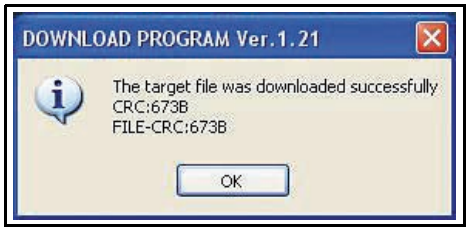


Figure 11 Download Successful Screen

23. Exit from the PC Download Program and disconnect the communications cable between the PC Serial Port and the DBV RJ-45 Connector.
24. On the DBV, set DIP Switch #1 switches 1, 6, 7, and 8 to the 'OFF' position.
25. If required, re-set the DIP Switches for proper communication for the Software Protocol being used (i.e., ID-003, ID-0D3, ID-044 etc.). Refer to the applicable Software Information Sheet for details regarding specific DIP Switch settings.
26. Recycle power to the unit. The DBV is now ready for use with the newly installed Firmware program.

For further technical information and downloadable files, visit the JCM Website at: http://www.jcm-american.com.

If additional assistance is required, or if particular questions regarding any of the above procedures exist, please feel free to contact JCM Technical Support for help at the below contact telephone numbers.

This Download Procedure is now complete.

JCM is a registered trademark of JCM American Corporation. All other product names mentioned herein may be registered trademarks or trademarks of their respective companies. Furthermore, ™, ® and © are not always mentioned in each case throughout this publication.

a RoHS Compliant Product

Contains RoHS Compliant Components

925 Pilot Road, Las Vegas, Nevada 89119
Office & Technical Support: (800) 683-7248 (option 5 after hours), FAX: (702) 651-0214
E-mail: optipaysupport@jcm-american.com http://www.jcm-american.com

Optipay® BV Series

Firmware Download and Memory Flashing Instructions

This document provides instructions for flashing the Firmware located in the Optipay® DBV-30X series Bill Validator’s memory. The procedure may be performed using a Palm Pilot® Personal Data Assistant (PDA), or via a Windows® based PC containing an available Serial Communications Port. Depending on the method chosen, the required support items (hardware and/or software) are listed below:

Palm Pilot® PDA Use

- 1 - Downloading Guide (Part No: 960-100179RA)
- 1 - Palm Pilot® PDA (M100 series, M500 series, or Tungsten T/T2/C)
- 1 - Palm Pilot® Dongle Communications Cable (JCM Part Nº. 400-100219R)

OR

- 1 - JCM BV Communications Dongle (JCM Part Nº. 501-000192RA)
- 1 - Palm Pilot® Cradle (for Charging/Hot Syncing/Saving Data on a PC)
- 1 - Windows® based PC (for downloading applications and firmware to the PDA)
- 1 - JCM PSP04 Palm Software Application
- 1 - Applicable DBV-30X Firmware File
- 1 - Suitable Power Supply/Power Source for energizing a DBV-30X Bill Validator.

Windows® Based PC Use

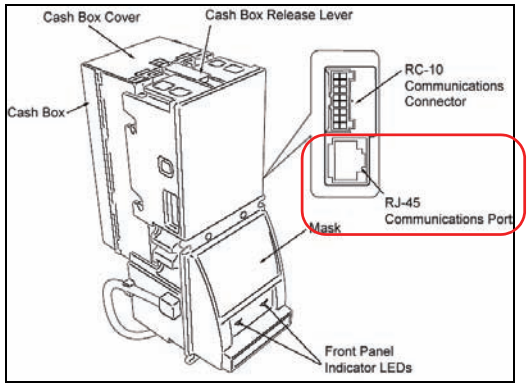
- 1 - Downloading Guide (Part No: 960-100179RA)
- 1 - Windows® based PC with available Serial Communications Port
- 1 - JCM BV Communications Dongle (JCM Part Nº. 501-000192RA)

OR

- 1 - JCM BV Communications Cable (Part Nº. 501-000171R)
- 1 - JCM WBA/DBV Download Application (obtainable @ the JCM-American Website)
- 1 - Applicable DBV-30X Operating Firmware File (obtainable @ the JCM-American Website)
- 1 - Suitable Power Supply/Power Source for energizing a DBV-30X Bill Validator.

OPTIPAY® DBV-30X PROGRAMMING PORT LOCATIONS

Typical DBV-30XSU



DBV-30X RJ-45 Communications Port Location

Figure 1 DBV-30X Programming Port Location

PALM PILOT® PDA FIRMWARE FLASHING PROCEDURE

NOTE: If desired, Palm Pilot® M500 PDAs are available from JCM by ordering Part No. 860-100011RA through your JCM Representative.

In order to Flash the Bill Validator Memory using a Palm Pilot® PDA, the following files must be installed onto the PDA first:

- The JCM PSP04 Software Application
- The desired DBV-30X Operating Firmware file.

If these files are already installed in the PDA, skip ahead to Step #11.

1. Visit the JCM website at http://www.jcm-american.com using a Windows® PC.
2. Use the pull-down menu bars to navigate to the 'Product Support/Software/Software Applications/PSP-04_v3.4.0.zip' file.
3. Download the 'PSP-04 Software Application' to the PC. The file is provided in a WinZip® format. Un-Zip the file on the PC and store its contents in a suitably named folder prior to use.
4. Use the JCM Website Pull-down menu bars to navigate to the 'Product Support/Software/Firmware.asp page.
5. Download the applicable DBV-30X Operating Firmware File (for the DBV being programmed) to the PC. The file is provided in a WinZip® format. Un-Zip the file on the PC and store its contents in a suitably named folder prior to use.
6. Connect the Palm Pilot® PDA to the PC by placing the unit in its charging/Hot Sync Cradle.

   NOTE: The next step uses the Palm Pilot® Desktop and HotSync Manager program to transfer the un-Zipped files from the PC onto the Palm Pilot® PDA. This software is normally provided on a CD-ROM that came with the PDA when it was purchased however. If necessary, you may download the 'Palm Pilot® Desktop and HotSync Manager at http://www.palm.com/us/support/downloads/.

7. Use the 'Palm Pilot® Desktop and HotSync Manager' program to install the un-Zipped PSP-04 .pdb Software file onto the Palm Pilot® PDA. The un-Zipped PSP-04 folder will contain two files; be sure to install both of them.
8. Use the 'Palm Pilot® Desktop and HotSync Manager' program to select the un-Zipped 'DBV-30X Operating Firmware' folder. The un-Zipped Firmware folder will contain the following three files:
   a. an Adobe Acrobat Software Information Sheet
   b. a USA2/USA3 type Binary File, and
   c. a USA2/USA3 Palm Pilot® Database File.
9. Select and install the USA2/USA3 Palm Pilot® Database File onto the Palm Pilot® PDA.
10. The Palm Pilot® PDA is now loaded and ready to Flash Firmware into the DBV-30X Memory.
11. Setup the DBV-30X Bill Validator for programming as shown in Figure 2.
12. Apply power to the DBV; then turn the Palm Pilot® PDA ON.
13. Select the JCM 'PSP04' Application Program by clicking on the PSP04 Icon shown in Figure 3 a.

NOTE: If the current software version is not immediately displayed, the most likely cause is a communications error. After 10 seconds of no response from the DBV, the program will generate an error message advising the user to check cable connections and ensure that power is applied to the unit.

20. To select the desired Firmware file for DBV download, click on the 'BROWSE' Screen Button (See Figure 9 a). A search window will open allowing user browsing and selection of the desired Firmware file. Once a file has been selected, its path and filename will be displayed in the 'File Name' window (See Figure 9 b), and the CRC Checksum value for the file will be displayed to the right of the 'BROWSE' Screen Button (See Figure 9 c).

    NOTE: The Firmware folder being browsed to will contain the following three files:
    1. an Adobe Acrobat type Software Information Sheet,
    2. a USA2/USA3 type Binary File, and
    3. a USA2/USA3 Palm® Database File.
    For this application,select the USA2/USA3 type Binary File.

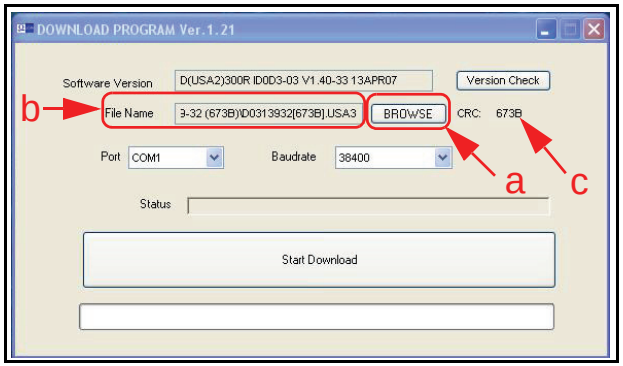


Figure 9 Browse Firmware Selection Screen

21. Click on the large 'Start Download' Screen Button (Figure 10 a) to transfer (flash) the selected file into the DBV memory. The 'Status' Window will indicate 'Deleting' for a few moments, and will then change to read 'Downloading' (See Figure 10 b). During the file download sequence, download progress will appear as a Green progress indicator bar depicted by the incomplete Figure 10 c Green Barograph.

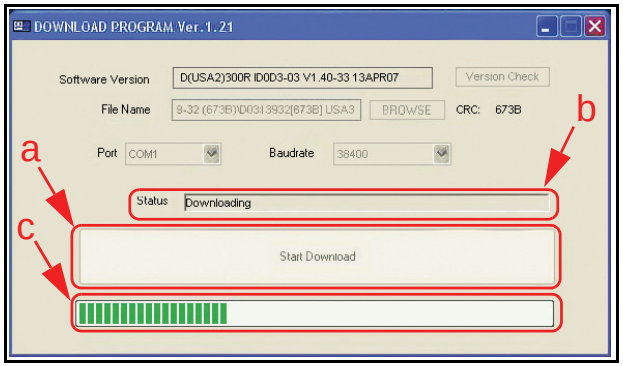


Figure 10 Download in Progress Screen

© 2008, JCM American, Corporation

Lower Sensor Assembly are alternately flashing. This LED condition indicates that the DBV-30X unit is in the 'Download Mode'.

NOTE: If the DBV was already operational when Step 12 was performed, the unit will not currently be in the 'Download Mode', and the LED indications will be different. Simply recycle power to the DBV at this point and the unit will re-initialize in the 'Download Mode' with the proper LED indications as described per Step 15.

16. Locate the folder/location where the 'WBA/DBV Download Application' was un-Zipped and stored on the Windows® based PC. The file name for the unzipped application will be `'DOWNLOAD PROGRAM Vx.xx.exe'`.
17. Use the mouse to double-click on the Icon to execute the program. The program screen shown in Figure 7 will appear.

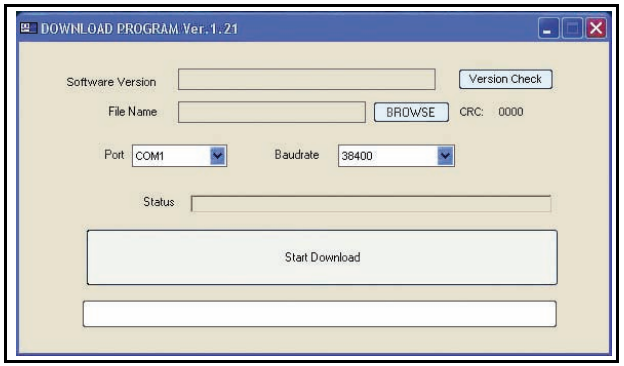


Figure 7 Initial Download Program Screen

18. On the Download Program screen, verify that the 'Port' select pull-down menu box is set to 'COM1' (or another desired port as selected), and that the 'Baudrate' select pull-down menu is set to '38400' (See Figure 8 a).

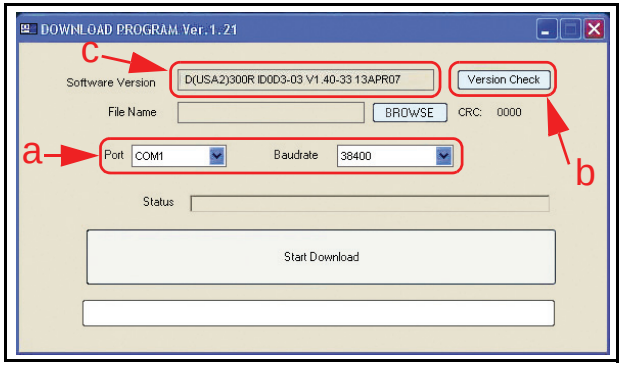


Figure 8 Port, Baudrate and Version Check Screen

19. To verify the communication link between the PC and the DBV-30X, click on the 'Version Check' Screen Button (See Figure 8 b). The DBV will respond by displaying the Firmware Version currently loaded within the CPU memory. (See Figure 8 c).

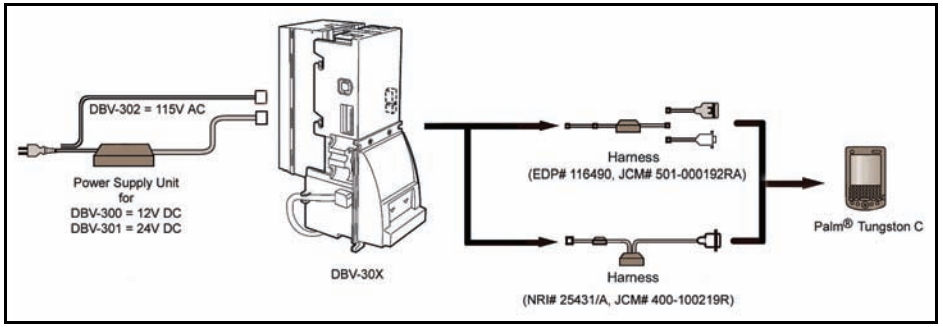


Figure 2 DBV-30X Palm Pilot PDA Firmware Flashing Set-Up

14. From the PSP-04 Main Menu, select the 'Program Download' Screen Button shown in Figure 3 b.

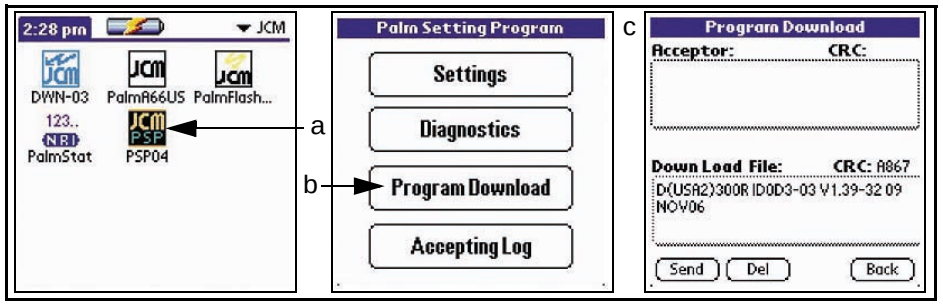


Figure 3 PSP04 Primary Application Main Menu Screens

15. The Program Download Screen depicted in Figure 3 c will appear. Notice that the screen contains both an **'Acceptor:'** Box and a **'Down Load File:'** Box.
16. Tapping anywhere inside the **'Acceptor:'** Box will cause the DBV to display the Firmware Version currently loaded in the DBV memory as shown in Figure 4 a.
17. The **'Down Load File:'** Box shown in Figure 4 b lists the Firmware Version currently scheduled for download to the DBV.

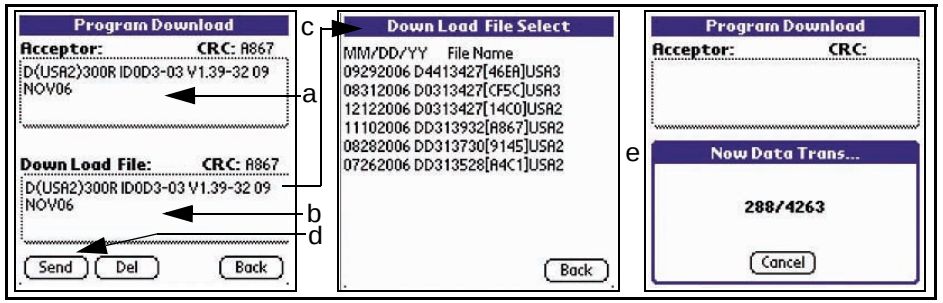


Figure 4 PSP04 Secondary Application Main Menu Screens

To load a different Firmware file, tap anywhere inside the **'Down Load File:'** Box and a list of the available Firmware files will appear, as shown in Figure 4 c. Tap on the desired Firmware file, and it will automatically

© 2008, JCM American, Corporation

appear in the **'Down Load File:'** Box ready for re-downloading into the DBV.

18. Click on the **'Send'** Screen Button to transfer the desired Firmware file to the DBV (See Figure 4 d). During the transfer, the **'Now Data Trans …'** Status Box shown in Figure 4 e will indicate the Firmware download progress.
19. When the Transfer is done, tap once again inside the **'Acceptor:'** Box. The DBV will report back with the current version of firmware that was just transferred into memory. Verify that the versions listed in the **'Acceptor:'** and **'Down Load File:'** Boxes agree with one another. If so, the Firmware download is complete.

NOTE: If the Download failed, or if assistance is required, please contact your local JCM Representative for further help.

WINDOWS® BASED PC FIRMWARE FLASHING PROCEDURE

In order to Flash the Bill Validator using a Windows® Based PC, the following files will need to be installed on the PC:

- JCM WBA/DBV Download Application
- The desired DBV-30X Operating Firmware file.

If these files are already installed on the PC, skip ahead to Step #7.

1. Visit the JCM website at http://www.jcm-american.com using a Windows® PC.
2. Use the pull-down menu bars to navigate to the 'Product Support/Software/Software Applications/WBA/DBV Download Application.zip' file.
3. Download the 'WBA/DBV Download Application' to the Windows® based PC. The file is provided in a WinZip® format. Un-Zip the file on the PC and store its contents in a suitably named folder prior to use.
4. Use the JCM Website Pull-down menu bars to navigate to the 'Product Support/Software/Firmware.asp page.
5. Download the applicable DBV-30X Operating Firmware File (for the DBV being programmed) to the PC. The file is provided in a WinZip® format. Un-Zip the file on the PC and store its contents in a suitably named folder prior to use.
6. The PC is now loaded and ready to Flash Firmware to the DBV-30X memory.
7. Setting up the equipment involves providing a suitable power source for the DBV, establishing a serial connection between the DBV and the PC, and setting the DBV DIP Switches for operation in 'Download Mode'. Setup the DBV-30X Bill Validator as shown in Figure 5.

NOTE: If the DBV being flashed is already installed in a piece of equipment and has a suitable power source available, the memory download procedure may be performed as is, provided access to the DIP Switches located on the left-hand side of the DBV, and the RJ-45 port located on the right side of the DBV are accessible.

8. Verify that a suitable power source is connected to the DBV as depicted in Figure 5. The power source should be OFF at this time.
9. Verify that a serial connection has been made between the DBV and the PC (as depicted in Figure 5) using either JCM Serial cable Part No.501-000192RA or Part No. 501-000171R.

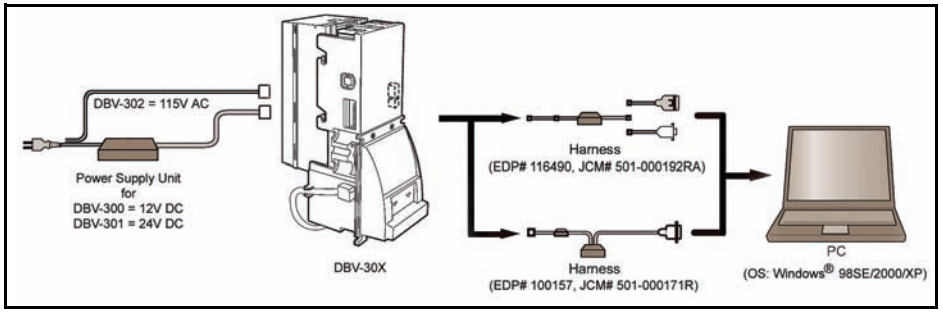


Figure 5 DBV-30X Windows Based PC Firmware Flashing Set-Up

Caution: When making power connections to or from the DBV-30X, ensure that the power source is OFF before proceeding! Failure to do so may cause an electrical shock and/or permanent damage to the device.

10. Connect the RJ-45 Connector end of the cable to the RJ-45 Connector Port located at the middle right side of the DBV -30X.
11. Connect the DB-9 Connector end of the cable to an available PC Serial Port.
12. On the left side of the DBV-30X, locate DIP Switch #1. On later model DBVs, DIP Switch #1 will be Red in color. On earlier model DBVs, DIP Switch #1 will be the larger of the two White DIP Switches. In both cases however, DIP Switch #1 is located directly above DIP Switch #2. Refer to Figure 6 if needed to identify the proper DIP Switch locations.

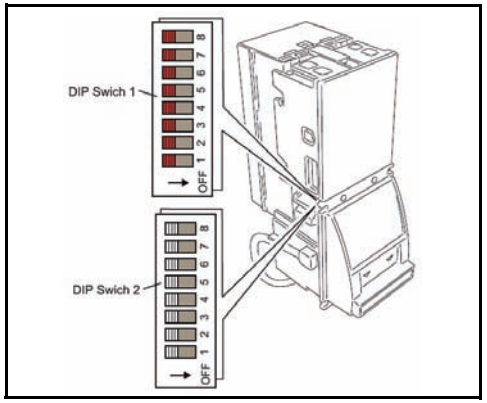


Figure 6 DBV-30X DIP Switch Locations

13. On Dip Switch # 1, Set Switches 1, 6, 7, and 8 to the 'ON' position; and set Switches 2, 3, 4, and 5 to the 'OFF' position.
14. Apply power to the DBV-30X unit.
15. Verify that the two Green indication LEDs located on the front DBV Bezel are flashing, and that the Red, Green, and Yellow Condition LEDs located on the

© 2008, JCM American, Corporation