Guide to Upgrading the Firmware in a Cetac ASX-520/520HS Autosampler

NOTE:
MAKE SURE THE UNIT IS OFF & UNPLUGGED BEFORE BEGINNING THIS PROCEDURE.

This guide describes the necessary steps for upgrading the firmware on the ASX-520 and ASX-520HS autosamplers. The software needed to upgrade the firmware on the autosampler and the firmware upgrade file can be downloaded from the CETAC web site. To download the software and the firmware, go to http://www.cetac.com/downloads/download.html and select Autosampler Firmware Update. You will be presented with a form that asks for basic contact information. Upon completion, you will be e-mailed a web site address, a login ID and a password that will allow you to download any new firmware upgrade that may be available for your autosampler along with the necessary software to perform the upgrade.

Preparing the Autosampler for Firmware Upgrade

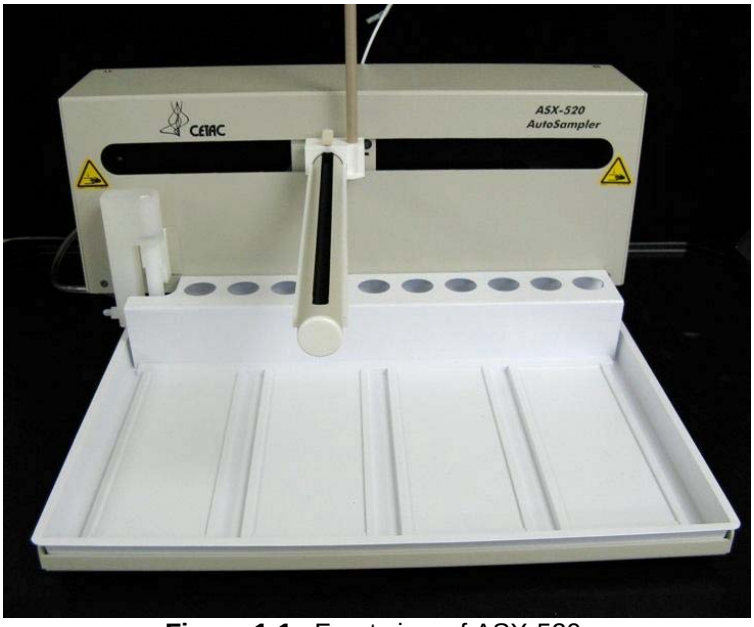

Figure 1-1. Front view of ASX-520.

1. First, remove the two Kynar thumbscrews from the Y-axis home block. See Figure 1-2.

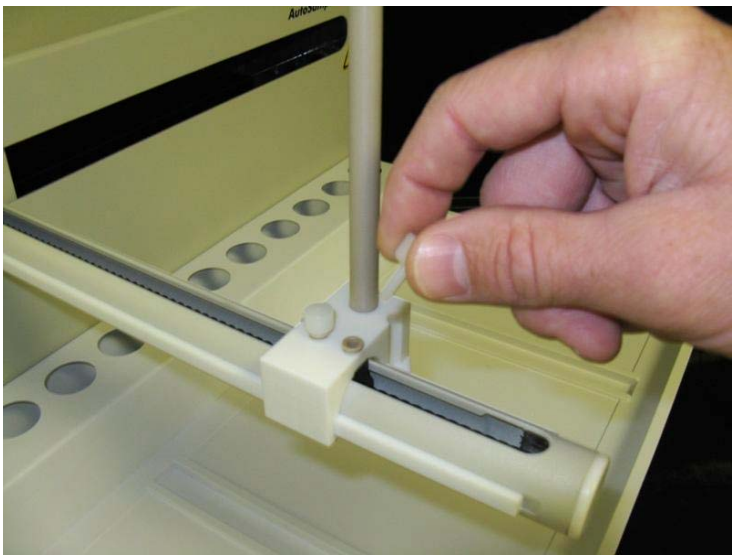

Figure 1-2. View of Y- axis home block with Kynar thumbscrews.

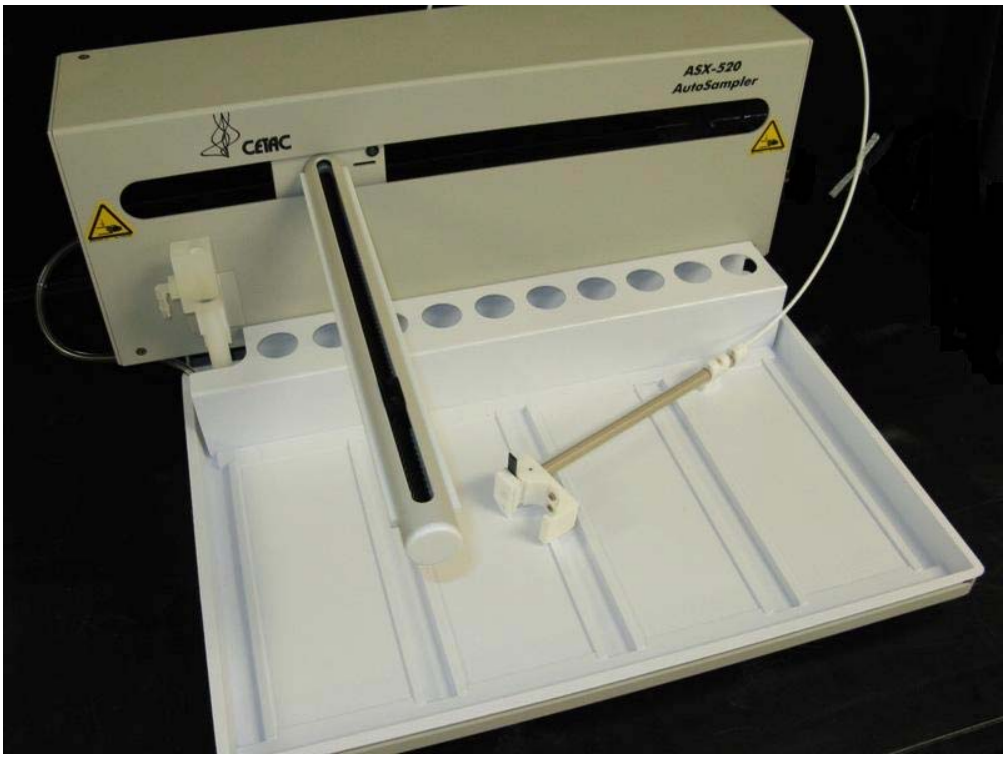

Figure 1-3. Z-drive removed from arm assembly.

2. Next, remove the whole Z-drive assembly from the arm by pulling the whole Z-drive assembly forward and off the Auto Sampler arm. See Figure 1-3.

3. After the Z-drive assembly is removed, then remove the rinse station. See Figure 1-4. Turn the rinse station ¼ turn counter-clockwise while pulling up. Also, the tubing located at the bottom of rinse station will have to be removed or moved aside. See Figure 1-5.

Figure 1-4. View of rinse station.

4. Some Auto Samplers may have a different rinse station, although they both connect the same. See figure 1-5.

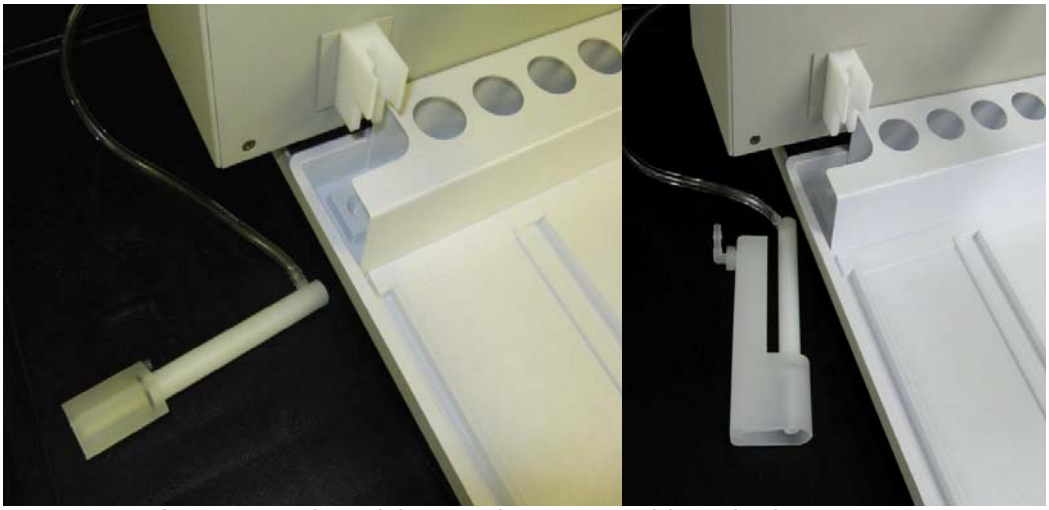

Figure 1-5. View of rinse stations removed from the front cover.

5. The Auto Sampler tray is next to be removed. Lift up on the tray and pull forward. See Figure 1-7.

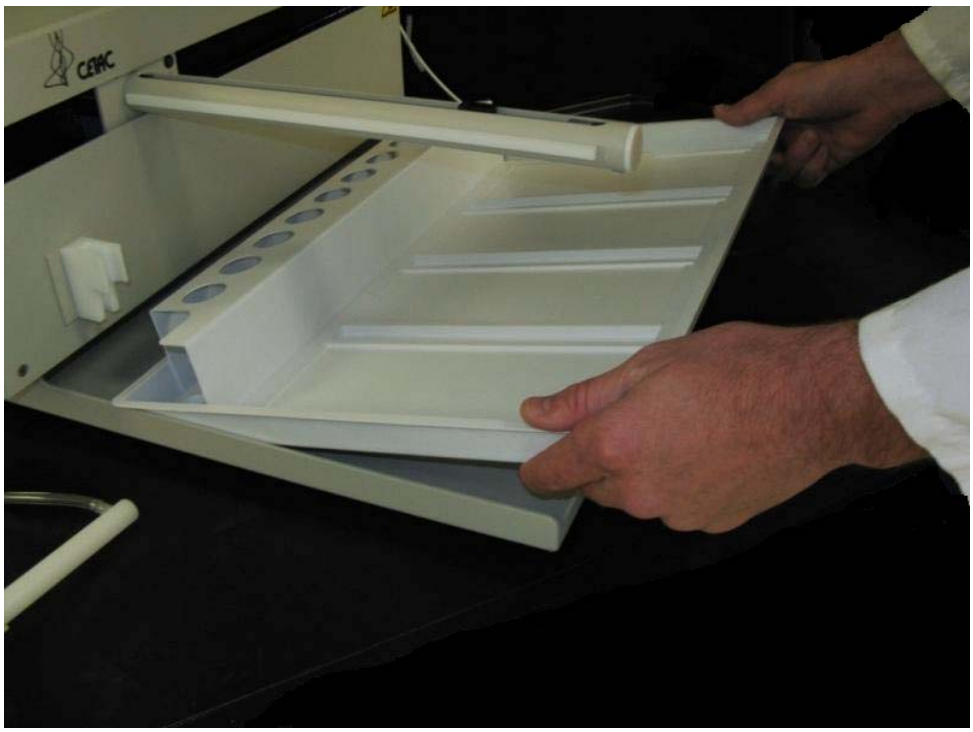

Figure 1-7. Removing the tray.

Figure 1-8. Front view of ASX-520 Auto Sampler showing front cover screws.

6. Next, the front cover needs to be removed. Remove the four corner screws shown in Figure 1-8.

7. The front cover can be removed by lifting it slightly and pulling forward. See Figure 1-9.

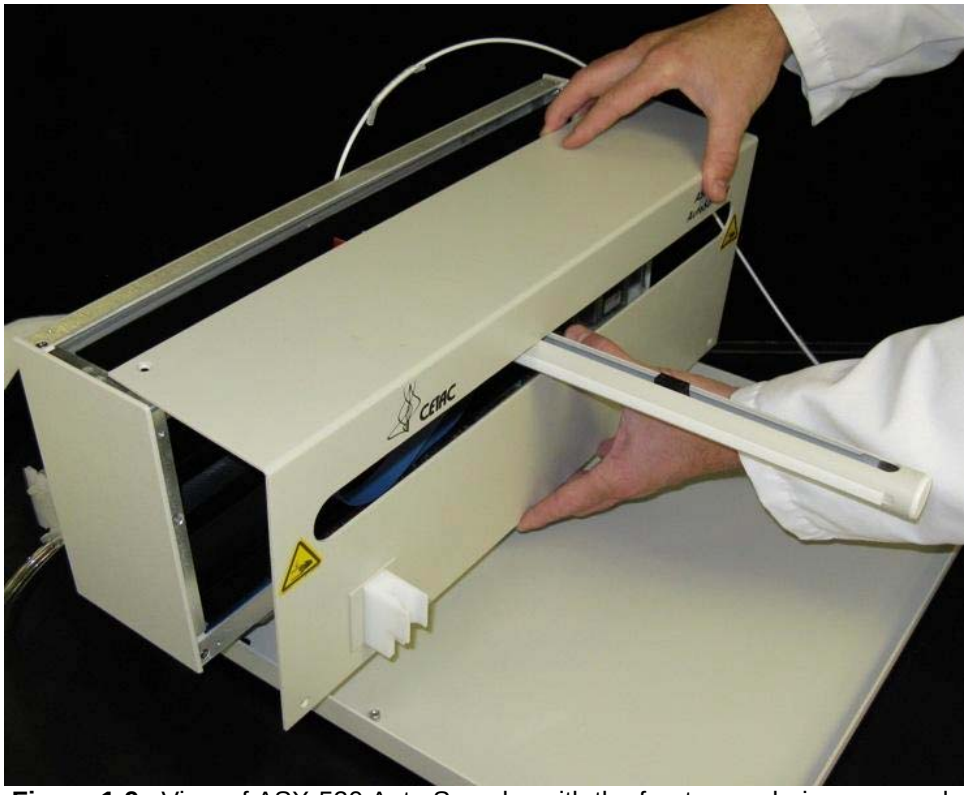

Figure 1-9. View of ASX-520 Auto Sampler with the front cover being removed.

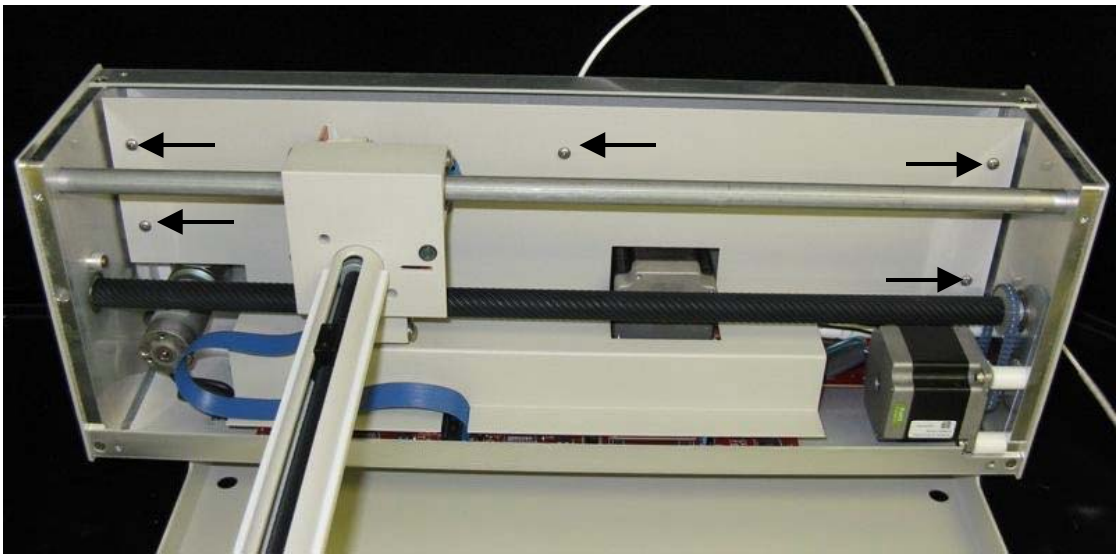

Figure 1-10. View of inner shield inside the ASX-520 (old shield).

8. The five screws that hold the inner shield will have to be removed. Move the Y-axis assembly all the way to the left. See Figure 1-10. If you have a newer two piece shield and splashguard proceed to step 10.

9. The inner shield can be removed by moving the arm to the right or left then lifting it up while pulling forward. See Figure 1-11.

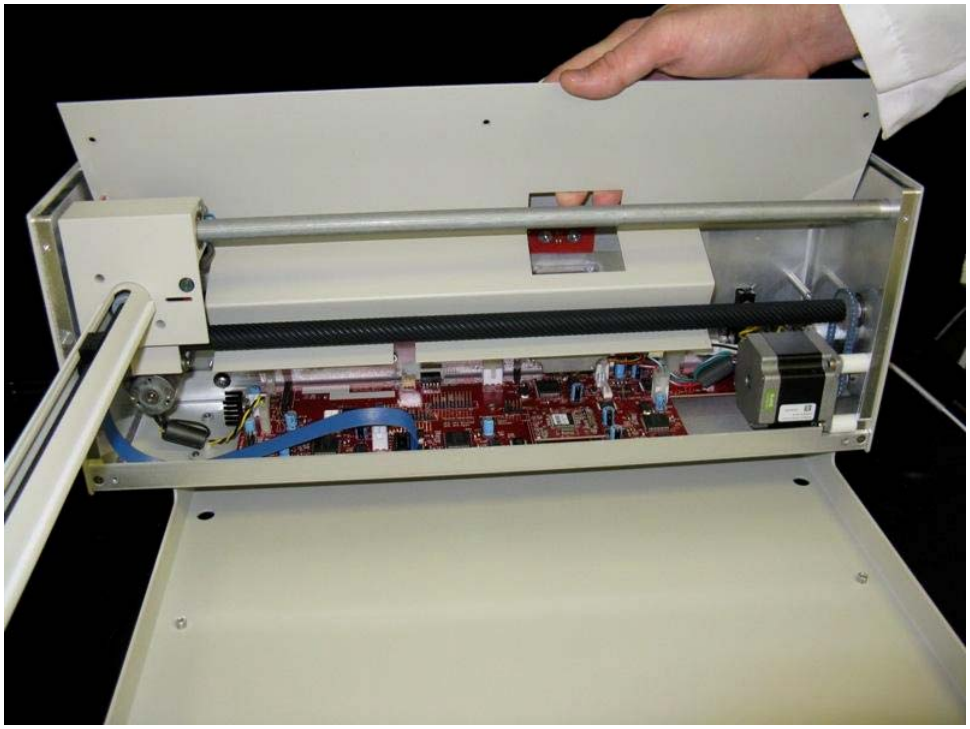

Figure 1-11. Removal of inner shield.

Figure 1-12. View of ASX-520 with inner shield removed (Rev 5 main board).

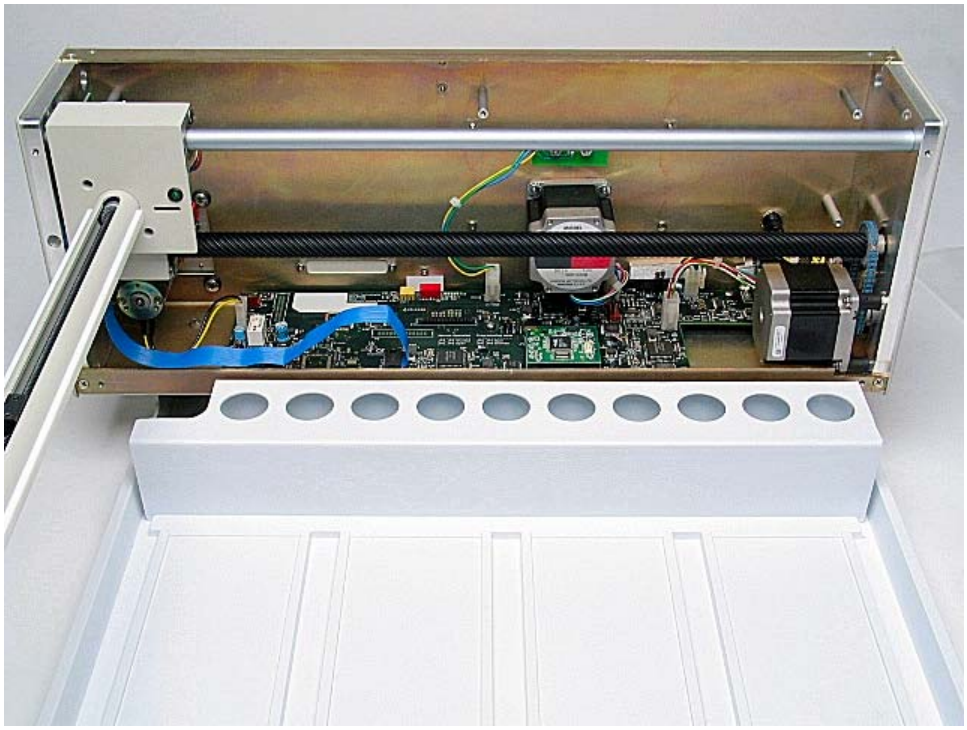

Figure 1-12A. View of older style main board (Rev2).

10. If you have a newer shield/splash guard combination proceed as follows. Locate and remove the 5 screws holding the shield in place. See Figure 1-13.

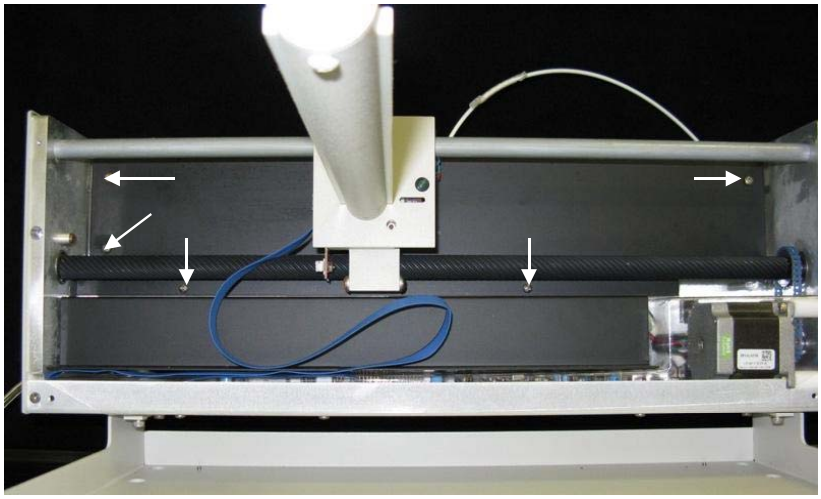

Figure 1-13. View of new shield and splashguard inside the ASX-520.

11. Remove the two shield pieces. Notice that the splashguard goes under the chassis on the top and over the chassis on the bottom. See Figure 1-14. When you replace the splashguard, ensure it is oriented in this manner.

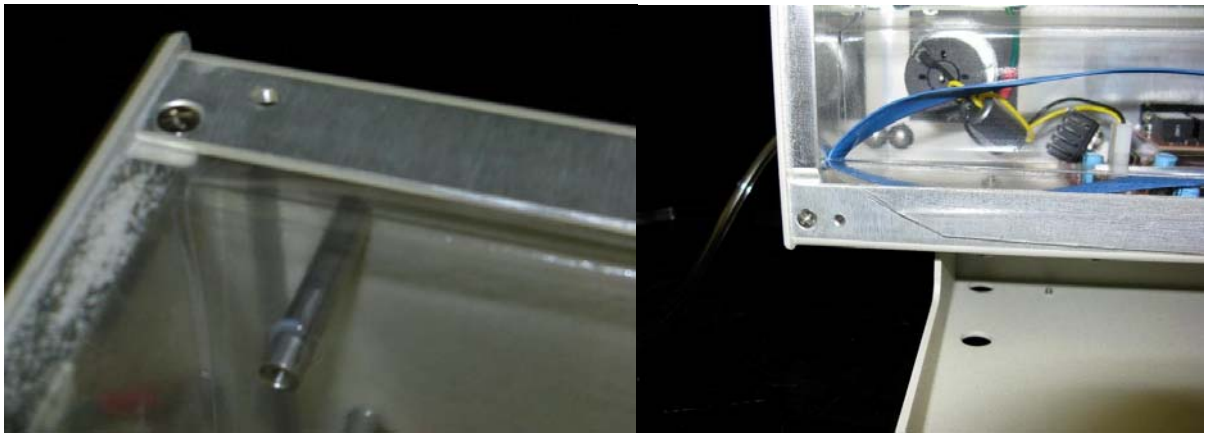

Figure 1-14. View of splashguard placement.

12. Remove the splashguard by pulling it out from one side. It may be necessary to reach under the guard and remove it from the support stand offs. See Figure 1-15.

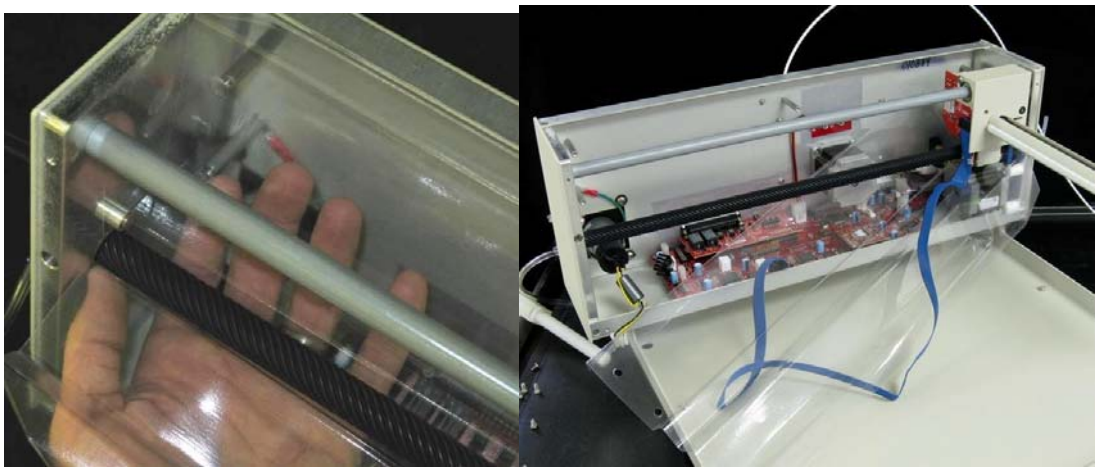

Figure 1-15. View of splashguard removal.

Establish Communications

1. Put the Z-drive assembly back on the arm and screw in the Y-axis home block.
2. Reconnect the power cord and the serial cable and turn the autosampler on.
3. Start HyperTerminal. (For instructions on using HyperTerminal, refer to the *Guide to Operating a CETAC Autosampler using HyperTerminal* located at the end of this guide.)
4. In HyperTerminal type *VER*. The system will respond with the current firmware version and it should be noted.
5. In HyperTerminal type *HOME*. This is to verify that the system is communicating.
6. Close HyperTerminal.

Figure 2-1. Rabbit Field Utility Application

Setup of Rabbit Utility

1. Run the Rabbit Field Utility application, RFU.exe. (Figure 2-1).
2. Select the menu Setup, and then Communications.
3. On the Communications Options window (Figure 2-2), in the Comm Port field, select the COM port on the computer that is connected to the autosampler. Press the OK button.

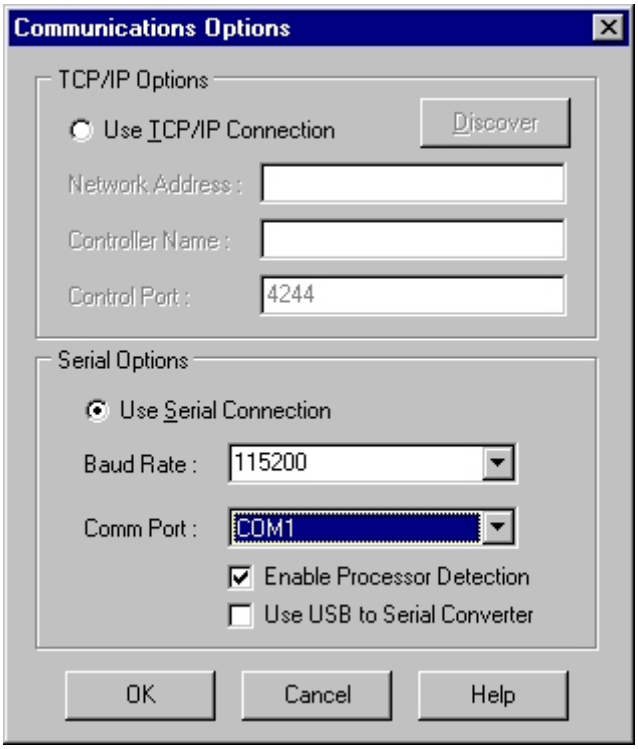

Figure 2-2. Communications Options Window.

4. Select the menu Setup, and then File Locations.
5. On the Choose File Locations window (Figure 2-3), fill in the fields with Cold Loader as coldload.bin and Pilot BIOS as pilot.bin. Press the OK button

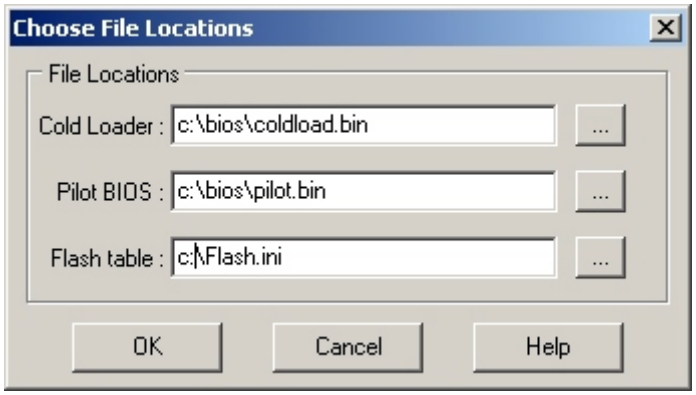

Figure 2-3. Choose File Locations Window.

Autosampler Programming Configuration

1. Turn off the autosampler.
2. On the main board move the jumpers from J3 & JP4 to J5 & JP6 (Figure 2-4).

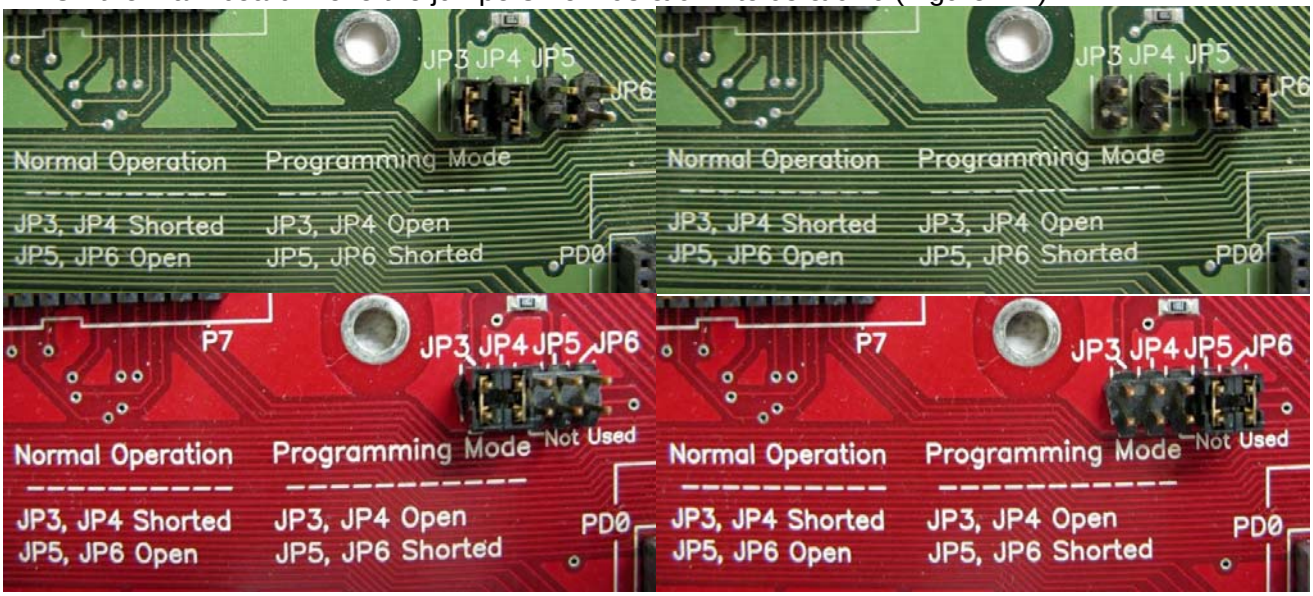

Figure 2-4. Jumpers on Rev 2 (top) and Rev 5(bottom). Normal operation (left) an Programming Mode (Right)

3. Turn the autosampler back on.

Upgrading the Firmware

1. In the Rabbit Field Utility, select the menu File, and then Load Flash Image.
2. On the Choose Flash Image window (Figure 3-1), select the firmware file.

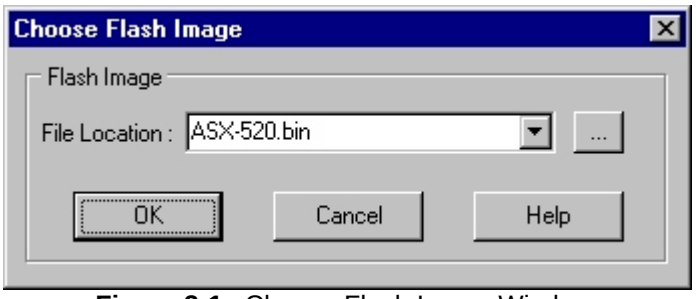

Figure 3-1. Choose Flash Image Window.

3. Select the OK button. A progress bar will appear.
4. When it is complete, the Rabbit Field Utility can be closed.

Autosampler Normal Configuration

1. Turn off the autosampler.
2. On the board move the jumpers from J5 & JP6 back to J3 & JP4 (Figure 2-4).
3. Turn the autosampler back on. The autosampler should go to the home position.

Verification of Firmware Upgrade

1. Start HyperTerminal. (For instructions on using HyperTerminal, refer to the *Guide to Operating a CETAC Autosampler using HyperTerminal*).
2. In HyperTerminal type *VERSS*. The system should respond with the new firmware version.
3. Turn off the autosampler.
4. Remove the Z-drive assembly from the y-arm.
5. Install the splash guard, if equipped, taking note of the top and bottom edge placement as noted earlier.
6. Install the inner shield.
7. Replace cover and rinse station.
8. Replace z-drive assembly.
9. Return to service.

Guide to Operating a CETAC Autosampler Using HyperTerminal

All CETAC autosamplers can be controlled using a serial communications protocol. This guide explains how to operate any one of the CETAC autosamplers using the Windows HyperTerminal program.

Steps for operating the autosampler with HyperTerminal

1. Using a serial cable, connect the CETAC autosampler with the computer. Plug each end of the serial cable into the COM 1 port of the autosampler and the computer, respectively.
2. Turn on the computer (must have Windows operating system) and select the Accessories folder. Select the HyperTerminal folder and then the HyperTerminal program.
3. A window will appear as in Figure 1-1. Enter **COM 1** in the name box. Press the OK button.

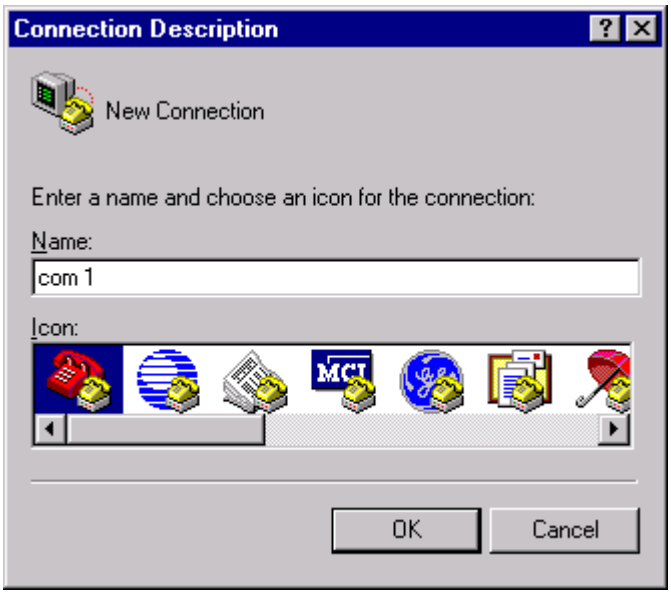

Figure 1-1

4. In the Connect To window (Figure 1-2), in the field Connect using, select COM1. Press the OK button.

Figure 1-2

5. The COM1 Properties window will appear (Figure 1-3). Set the fields as follows: Bits per second to 9600 and Flow control to None. Then press the OK button.

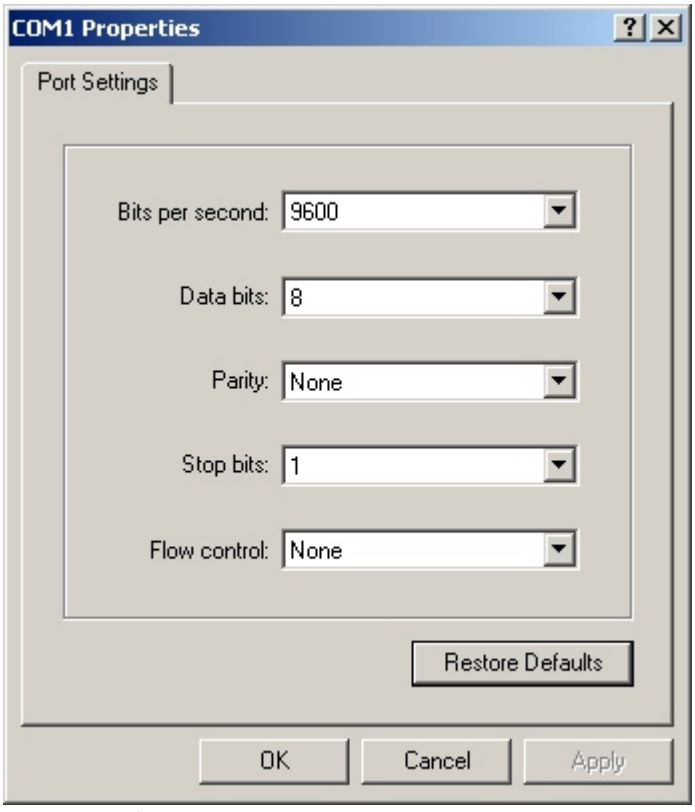

Figure 1-3.

6. The HyperTerminal window will then open (Figure 1-4).

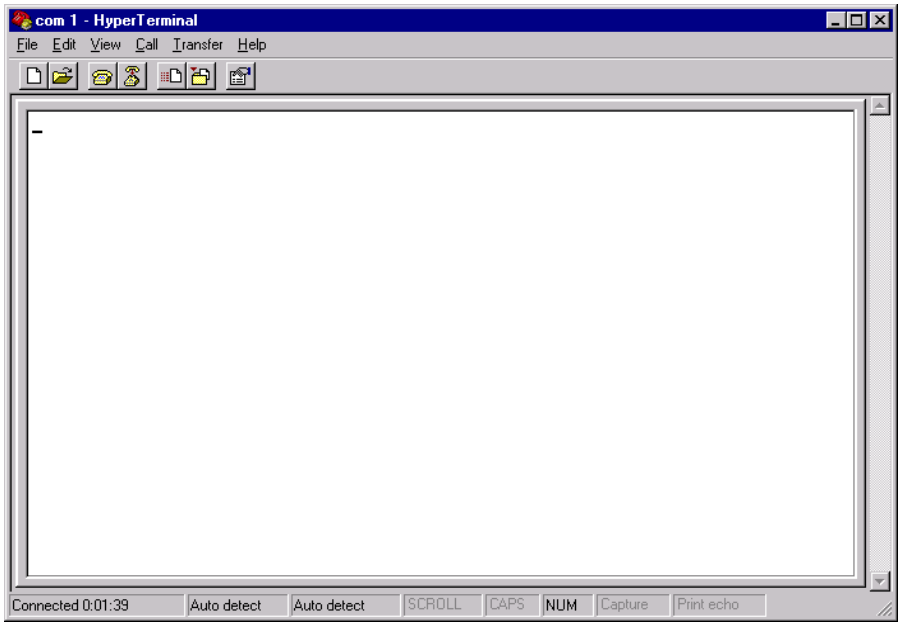

Figure 1-4

7. Select File. Then select Properties.
8. When Properties window appears (Figure 1-5), select the Settings tab.

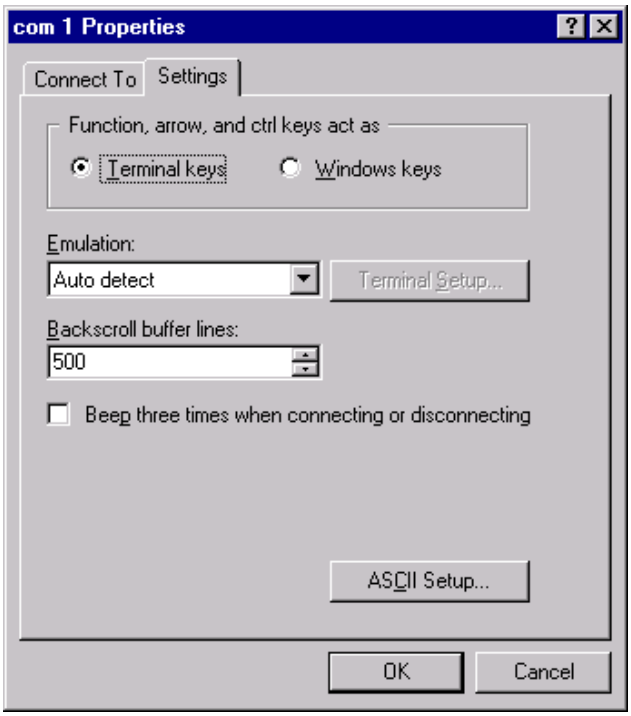

Figure 1-5

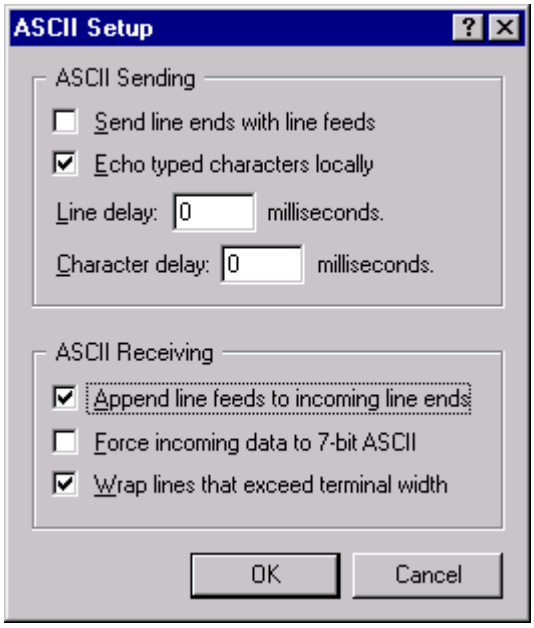

Figure 1-6

9. Press the ASCll Setup… button. A window for ASCll Setup will appear (Figure 1-6). You will need to check Echo typed characters locally and Append line feeds to incoming line ends as shown in Figure 1-6. Press the OK button.

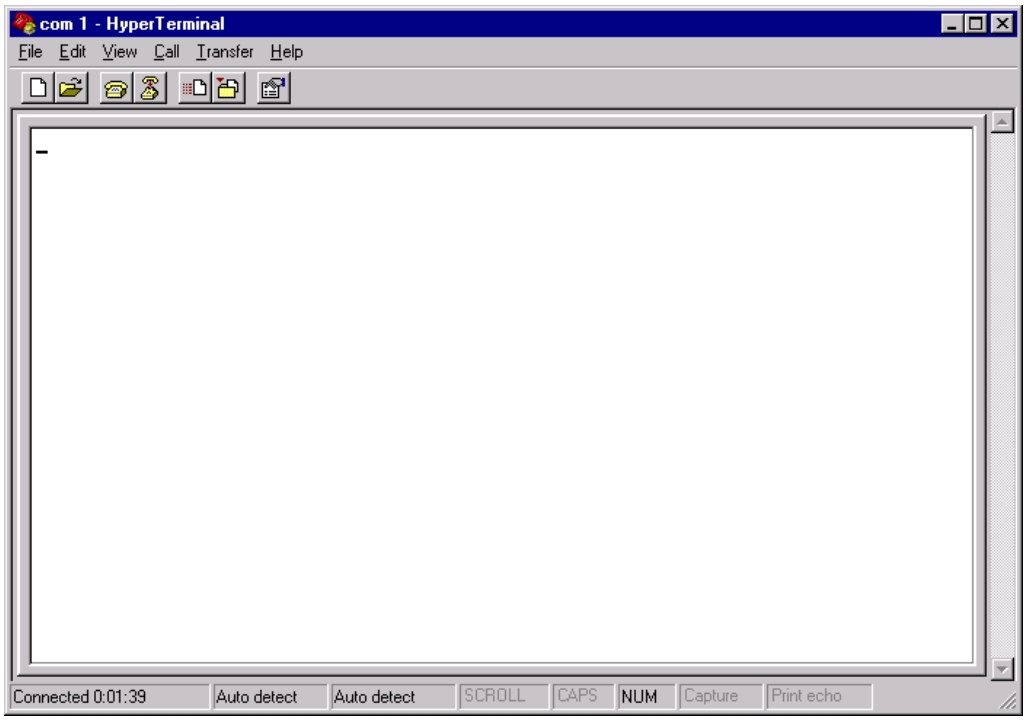

Figure 1-7

10. Turn on the autosampler and the HyperTerminal window (Figure 1-7) should display an **OK.**

11. The following commands will produce various responses of the autosampler.
    a) **Ver** (returns firmware version)
    b) **Home** (returns all axis to home position, same as power up)
    c) **Tray=n** (defines tray size and **n**= #of positions)
    d) **Tube=3-4-150** (tube=row-colimn-down as defined by tray command)
    e) **Pmp on** (pump on if unit has a pump)
    f) **Pmp off** (pump off if unit has a pump)
    g) **Rinse** (moves sipper to the rinse position, extends and retracts the sipper 3 times and starts rinse pump. Stays in down position with pump running. **up,pmp off** stops the pump
    h) **Down=n** (moves the z-axis down by the parameter(**n**) in mm.(do not run down command if sipper is not all the way up on up position or damage may occur to sipper or z-axis)
    i) **Up** (moves z-axis to upper most postion.)

With the commands listed in Step 11 it can be determined if the CETAC autosampler is communicating and functioning properly. If more assistance is needed, please contact customer service.