

Use this general procedure when making a service run to sites where a Reftek RT-130 and a short-period sensor have been installed.

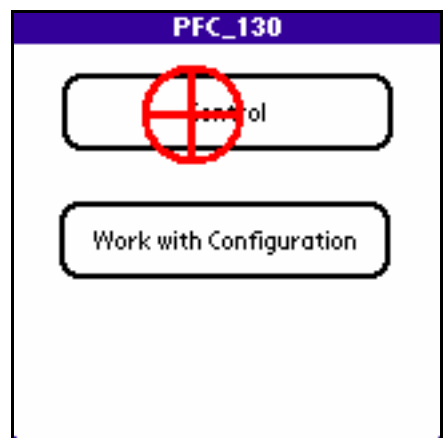
1. **Inspect the site.** Arrive at the site. Gain access to the RT-130. Take note of any unusual physical conditions of the site and equipment. Inspect solar panel installation and cables (if installed), sensor cover/vault and cable condition, battery condition and fluid levels (if applicable), any cover or container used for protection of the DAS and other equipment, and the GPS antenna and its cable. Observe that the LCD display on the DAS is updating. Make notes of any items that needed attention, or possible changes that will need to be made to items during future visits.

2. **Record.** Fill in the information in item 1 on the RT-130/Short-Period Site Service Data Sheet.

3. **Establish communication with the DAS.** Connect the handheld terminal to the RT-130.



4. Start the PFC_130 application. From the main menu of the PFC_130 application enter the Control portion of the application.

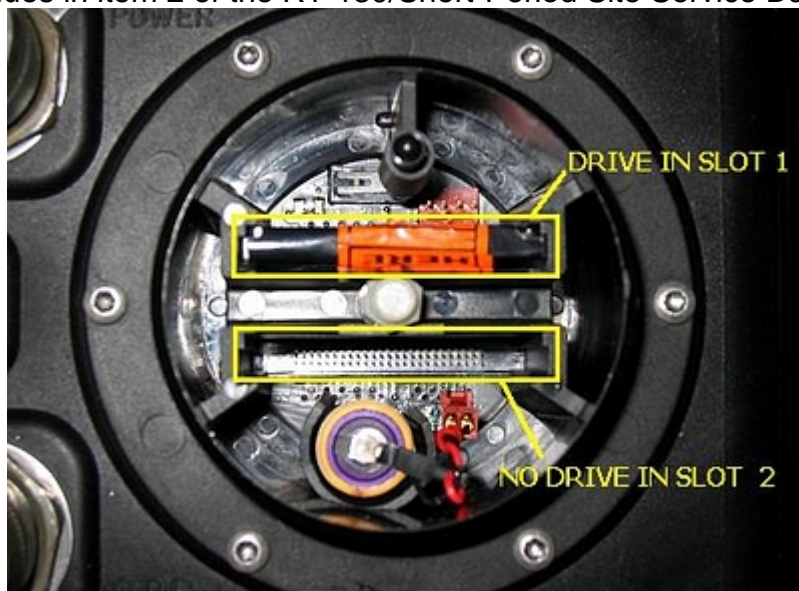


5. **Check the GPS.** On the Control menu tap the Status button. On the Status form tap the GPS button. This will bring up the GPS Status form. If the GPS has been operating correctly the value following the Sec since LL label will indicate an amount of time less than 20 minutes (i.e. 00:00:20:00). The Phase Diff.(us) value should also be some small number. The GPS attempts to get a lock every 20 minutes, so the Status value may be any one of Asleep, Searching, or Lock. If it does not appear that the GPS is functioning (i.e. has not obtained a lock for days) attempt to troubleshoot the system and obtain a GPS/time lock before continuing, otherwise it will be very difficult to properly time correct the data during post-processing. Tap the Done button when finished.



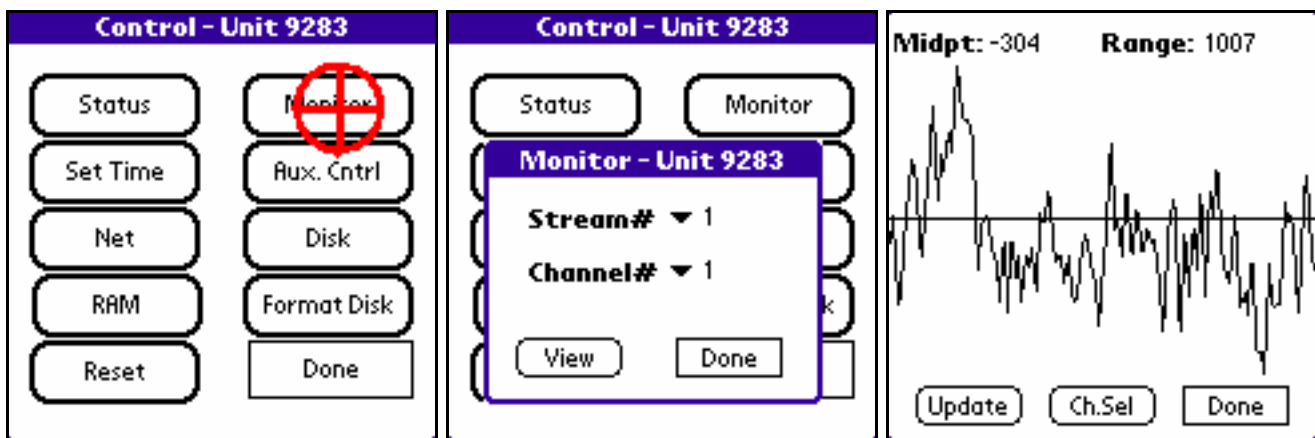
6. **Check the general DAS status.** Examine the values on the Status form. If everything has been running smoothly the acquisition state should be Start ON, there should be some number of events (the number will depend on the recording parameters that are in use), and the disk drive(s) should indicate having data on them. Tap the Update button on the Status form and check that the amount of RAM used is increasing. If it appears that the DAS has not been recording try to determine the cause before continuing.

7. **Stop acquisition.** Remove the round cover from the RT-130 so the CompactFlash disk drives or memory cards can be seen. Tap the Stop Acq. button on the Status form. The DAS will report on the Status form that acquisition has been stopped, but it may take up to a minute for the data in RAM to be written to the CompactFlash disk or memory card. Do not remove the CompactFlash device(s) until the LED in the well has changed from red to green. **Record** the Status form values in item 2 of the RT-130/Short-Period Site Service Data Sheet.



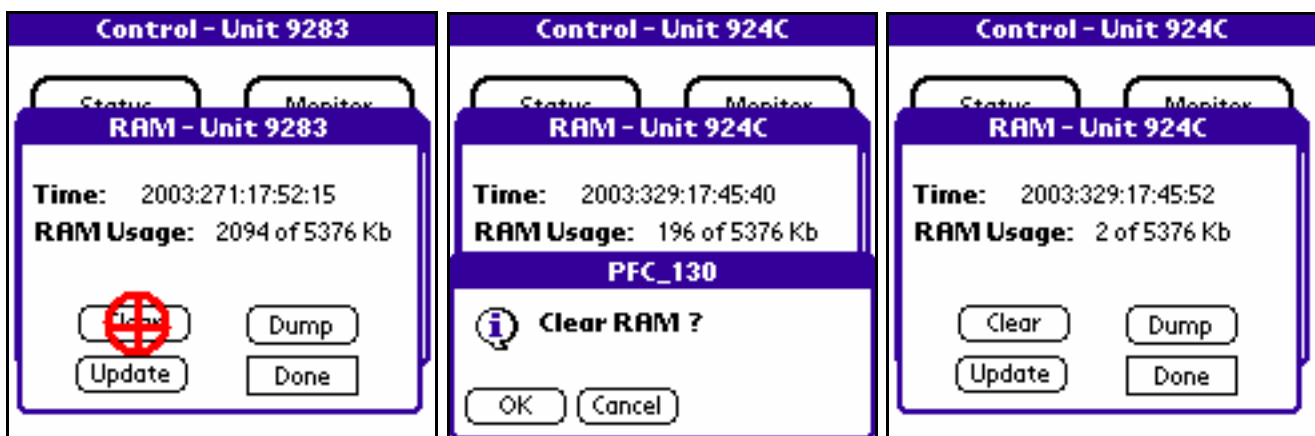
8. **Change the used CompactFlash drives or memory cards.** Remove the card or cards that have had data written to them. **Record** the serial numbers of the cards that were removed, and the serial numbers of the replacement cards in item 3 of the RT-130/Short-Period Site Service Data Sheet. Install the new card or cards into their appropriate drive slot. **Record** the new serial number values in item 3 of the RT-130/Short-Period Site Service Data Sheet.

9. **Monitor the sensor.** From the Control menu select the Monitor function. A dialog box will appear. Select one of the active data streams and a channel for that stream that is in use and tap the View button. The handheld terminal will command the DAS to sample and collect data from the selected data stream and channel for 8 seconds. During the 8 seconds noise in the area should be kept to a minimum, or the ground should be stomped to generate a signal. The handheld terminal will then download and display the result. Tap the Ch.Sel button and repeat the procedure for each of the channels in use until you are sure that the sensor is functioning. Tap on the Done button when finished.

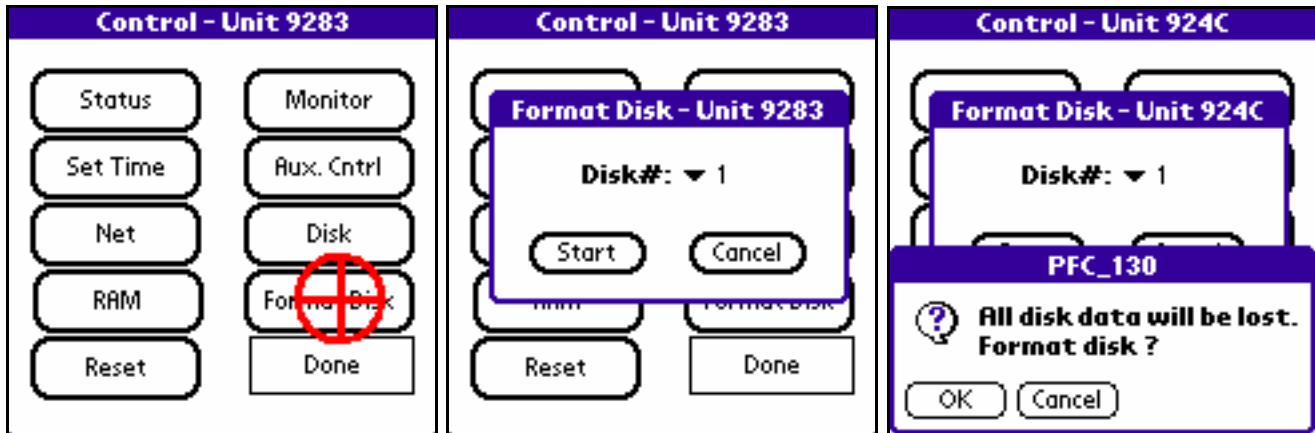


10. **Finish servicing the site.** Perform any necessary site maintenance tasks required such as swapping batteries, examining data written to the CompactFlash devices using the field laptop, or changing recording parameters. Continue with this procedure when finished.

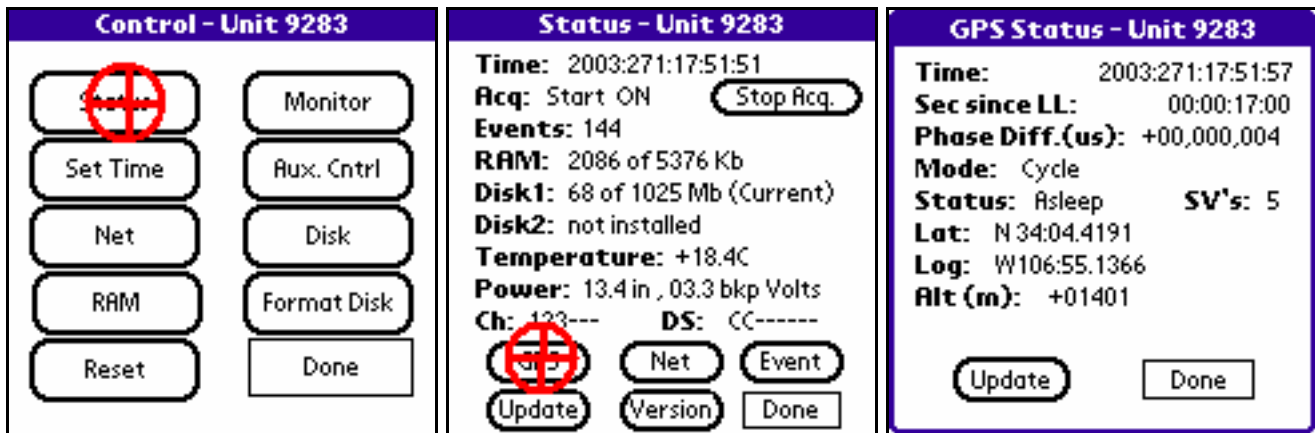
11. **Clear the RAM.** Tap the RAM button on the Control menu. A dialog box showing the time and the RAM usage will appear. Tap the Clear button and then the OK button on the confirmation dialog box. When the program is finished the RAM Usage value should still show 2 KBs used. This step is mainly done to reset the event counter value on the Status form.



12. **Format the disk drives.** From the Control menu tap on the Format Disk button. A dialog box will appear. Select each disk slot where a CompactFlash disk or memory card is installed and tap the Start button. While the disk is formatting you should see a red LED light in the well where the CompactFlash cards are located. The CompactFlash cards should never be removed any time that LED is red. If the formatting process takes longer than 1 minute then something may be wrong with the CompactFlash card. Attempt to Cancel the operation using the button that will be on the display, remove the card, replace it with a different one, and try the format operation again.



13. **Check the GPS.** On the Control menu tap the Status button. On the Status form tap the GPS button. This will bring up the GPS Status form. Check for proper operation of the GPS clock as described back in step 5, especially if any maintenance was performed on the GPS antenna and/or cable. When the GPS is functioning correctly **record** the GPS form values in item 4 on the RT-130/Short-Period Site Service Data Sheet. When finished tap the Done button which will return you to the Status form.



14. **Start acquisition.** On the Status form the last thing to do should be to start data acquisition. Do that by tapping the Start Acq. button. Once acquisition has been started the Status form will update, but you may still have to tap the Update button again to get everything to update. The Start Acq. button should change to Stop Acq., the value following the Acq label should change to Start ON, the Events value should increment by some amount (dependent on the recording parameters -- usually 0 plus the number of data streams in use), and the amount of RAM used should increase. Wait a few moments and tap the Update button and note that the amount of used RAM is increasing. This is the best indication that the DAS is recording for most experiments. **Record** the values on the Status form in item 5 on the RT-130/Short-Period Site Service Data Sheet.



15. If everything appears to be functioning, tap the Done button on the Status form, turn off the handheld terminal, and secure the site.

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