CSI TORO TOOLBOX
INSTRUCTION MANUAL

7/94

CAMPBELL SCIENTIFIC, INC.

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CSI TORO TOOLBOX

1. TOOLS REQUIRED

With this manual you should have the following items:

- 3.5" or 5.25" Floppy disk entitled "CAMPBELL SCIENTIFIC TORO TOOLBOX DOS 5.0 BOOT DISK".
- Volt/Ohm meter that reads AC/DC volts and ohms.
- Small and medium bladed screwdrivers, both Phillips and straight bit.
- Several pieces of wire (about 8 inches long), or paper clips.
- CR10KD CR10 keypad.

Before we attempt to troubleshoot the system, let's become acquainted with all the players.

2. WHAT'S INSIDE THE ENCLOSURE AT THE WEATHER STATION

PS12LA – Inside the enclosure, at the top, is the PS12LA power supply (see Figures 1 and 2). This is a voltage charger/regulator with a 7 amp-hour rechargeable battery. AC power is used to trickle charge the battery. If you remove the plate on the top of the PS12LA power supply you will see a battery on the right side of the box. On the left side of the battery box you should see green terminal blocks, a red LED, and a toggle switch.

The toggle switch should be "ON" in order to switch on the datalogger. The battery will charge once the transformer is attached whether the switch is "ON" or "OFF".

The red LED will always be glowing if there is voltage across the "CHG" terminal blocks. This is not an indication of whether or not there is enough power to charge the battery and keep the datalogger running. Consult your Toro Manual to see how the transformer and datalogger are wired to the terminal blocks.

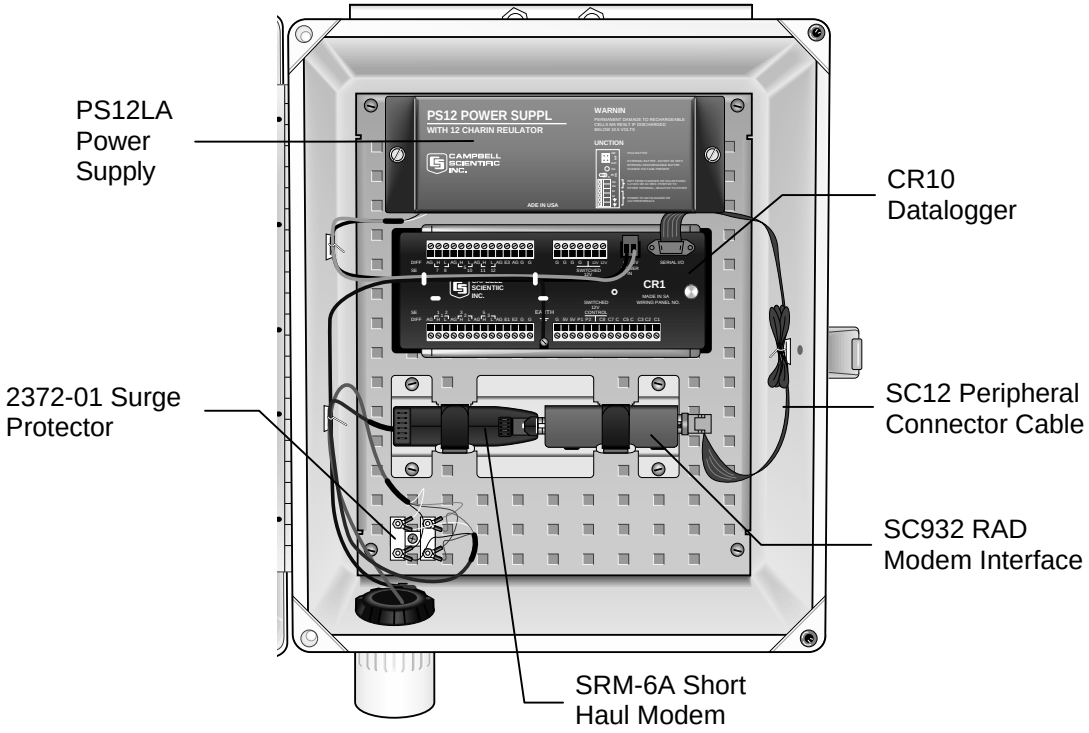

FIGURE 1. Enclosure Contents

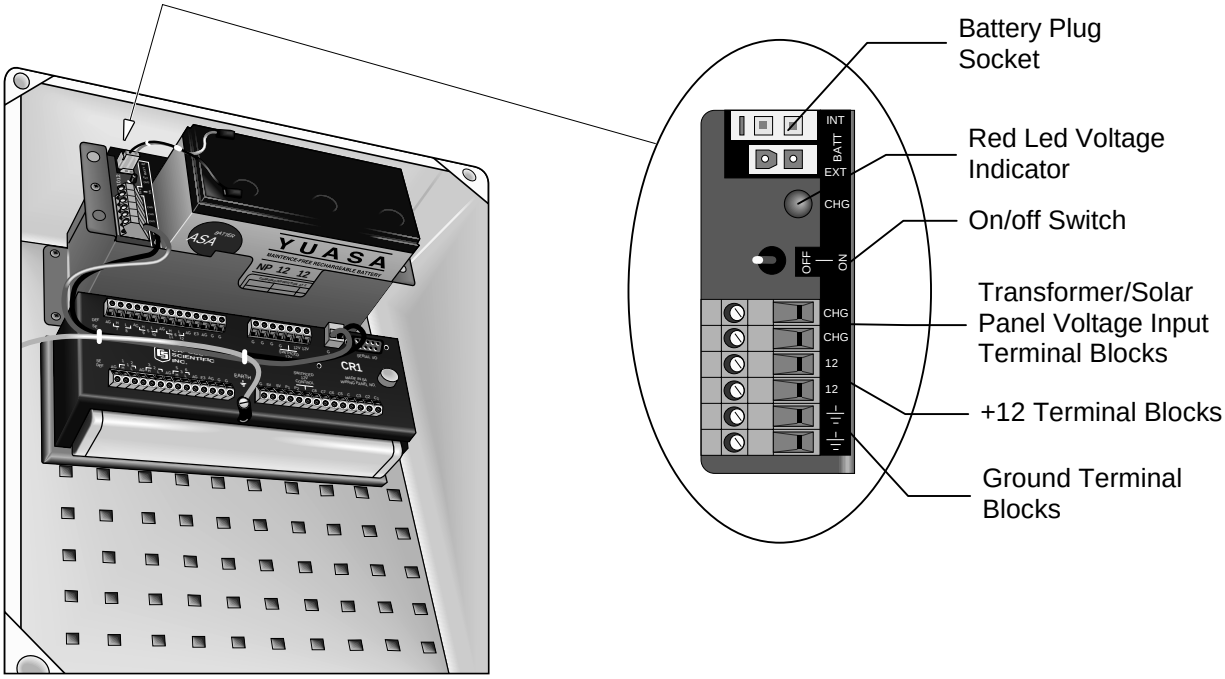

FIGURE 2. PS12LA Power Supply

CR10 – In the middle of the enclosure is the CR10 datalogger with its wiring panel. You will notice all the sensor wires come into the enclosure and are attached to the face of the wiring panel. The power from the PS12LA attaches to the "12V" and "G" terminal blocks on the CR10 wiring panel.

On the far right side of the wiring panel is the 9-pin "SERIAL I/O" port. This is how the CR10 datalogger communicates with the outside world. The CR10 uses very low voltage to communicate. This makes it necessary to use an RS232 interface between the datalogger and the computer.

The wiring panel has built in surge and lightning protection, but there is no protection against a direct lightning strike.

Surge Protector – At the bottom left of the enclosure is an "H" shaped plastic yoke that has wires attached for the short haul, or DC112 phone modem. This device is another surge protector to protect the communication lines from power surges or lightning strikes.

Communication Interface – The bottom center of the enclosure is where the communications device sits. Either the short haul modem (RAD or SC95A), or the DC112 telephone modem. A short haul modem requires a dedicated communication cable between the computer and the datalogger. A telephone modem requires a dedicated telephone line at the datalogger site, and the computer calls the station via another telephone modem.

The SC95A and the DC112 will be plugged directly into the 9-pin connector on the CR10 datalogger using an SC12 blue or gray ribbon cable.

The RAD short haul modem plugs into a SC932 interface device, which in turn is connected to the CR10 datalogger using the SC12 ribbon cable.

Ground Lug – The very bottom left hand of the enclosure is the ground lug. A green wire comes off this lug and goes to a "G" terminal block on the CR10 wiring panel. On the outside of the enclosure there is a wire going from the grounding lug to the user supplied grounding rod.

All wires going into the enclosure should be sealed by gray electricians putty. A few loose packets of desiccant are used to keep the inside of the enclosure free of moisture.

3. WHAT'S AT THE COMPUTER SIDE:

3.1 SHORT HAUL MODEM

SC95C - If you have a SC95C you should have a blue ribbon cable coming out of COM port 1 of your computer and plugging into the "INTERACTIVE" port on the SC95C. The SC95C requires AC power and needs to be plugged into a wall socket. Wiring of this device is shown in the Toro manual.

RAD - This will be a black plastic box connected directly into the COM 1 port, or indirectly using an adapter cable. The RAD uses the computer COM port for its source of power. Wiring of this device is shown in the Toro manual.

3.2 TELEPHONE MODEM

Internal Modem - This will be a card plugged into a COM port inside the computer. You will see a phone line going from the back of the computer to the telephone wall jack. The internal modem should be configured as COM 1.

External Modem - This will be a box sitting by the computer that is powered by an AC transformer plugged into an outlet. Coming out of the back of the modem will be a phone line going to the telephone wall jack and a cable going to COM 1 on the computer.

4. TROUBLESHOOTING

4.1 WHAT SHOULD ALWAYS BE CHECKED REGARDLESS OF PROBLEM

Always check the 12 volt and the 5 volt power supplies coming off the CR10 wiring panel. Make sure the power switch on the power supply is "ON".

To check these voltages you will need a voltmeter. Measure the 12 volt supply between the "12V" terminal block in the upper right hand corner of the wiring panel and one of the "G" terminal blocks. The 12 volt supply should be between 12.0 - 14.4 volts. If the voltage is outside these ranges, particularly below 12 volts, you have a problem (see Section 4.3).

The "5V" terminal block is directly below the "12V" terminal blocks. Measure the 5 volt supply between the "5V" terminal block and one of the "G" terminal blocks. The measurement here should be from 4.95 - 5.02 volts. If the voltage is outside this range see Section 5 "Communication Problems."

Always verify that there are no loose wires on the datalogger wiring panel, the short haul or phone modem, power supply, or the surge suppressor yoke. The wires should be clean and free of moisture or contaminants.

4.2 IDENTIFYING WHAT IS WRONG WITH THE STATION

If the Toro software is NOT receiving data:

1. See Section 4.3 "Power Supply Problems"
2. See Section 5 "Communication Problems"

If the Toro software is receiving data, but some of the data looks wrong, or out of range:

1. See Section 4.3 "Power Supply Problems"
2. See Section 6 "Sensor Problems"
3. See Section 7 "ETPRO" if you are using the Campbell Scientific ETPRO software package.

4.3 POWER SUPPLY PROBLEMS

The power supply is the heart and soul of the weather station. Check the system as indicated in Section 4.1.

If you are not getting 12 volts at the CR10 datalogger wiring panel then check the following on the PS12LA power supply.

The red LED should be glowing. The power switch should be in the "ON" position.

4.3.1 THE RED LED IS NOT GLOWING

1. Verify there are wires going into the "CHG" terminal blocks and that they are not loose.
2. With a voltmeter, set for DC volts, measure the voltage across the "CHG" terminal blocks on the PS12LA power supply. It should be 16 - 25 VAC.
3. If the voltage is low or zero then carefully remove both wires from the "CHG" terminal blocks. Do not allow the wires to short together or touch anything else. Measure them again.
4. If the voltage is still low with the wires disconnected from the PS12LA then check the transformer for AC voltage on its primary side. You should be measuring from 110 - 120 VAC. If you don't see a voltage, or there is a low AC voltage, then check your service for tripped breakers, or blown fuses. Correct the problem and start from the top of this section.

5. If the voltage returns to normal with the wires disconnected then swap out the transformer and see if the problem still exists. Remember to reconnect the "CHG" wires at the PS12LA.
6. If the voltage still is low once you have swapped out the transformers then call Campbell Scientific. You might have a problem with the PS12LA.
7. If the LED comes on by swapping out the transformer then remeasure all the voltages. If the voltages look good at the PS12LA and at the datalogger then you have a bad transformer.

   Go to Section 5 to verify the datalogger is communicating and working properly.

4.3.2 THE RED LED IS GLOWING BUT NO VOLTAGE AT THE DATALOGGER

1. Go through steps 2 - 7 in Section 4.3.1.
2. If everything checks fine on the "CHG" side but you still are not getting any voltage out to the datalogger then disconnect all wires going into the "+12" terminal blocks on the PS12LA. Measure the voltage between "+12" and the ground symbol on the PS12LA.
3. If the voltage is still low then **call Campbell Scientific**. The PS12LA could be having problems.
4. If the voltage comes up to an acceptable level then double check all the wiring going into, and out of, the PS12LA. Compare the wiring with the Toro manual. If a wire seems out of place, double-check to make sure the wire is really out of place before moving it to the correct terminal block.
5. Give all the wires a gentle tug to make sure they are being held firmly in the terminal blocks. See if any wires have loose strands going into the wrong terminal block, or touching another wire.
6. Remove any wires with loose strands, twist the strands together and put them back into the same terminal block they were in originally. Tighten down any loose wires. Do not overtighten the terminal block screw!
7. Reattach all the wires and check the power again. If the power drops off again when you reattach the leads then **call Campbell Scientific**. There could be a problem with the PS12LA, or the CR10, or both.

5. COMMUNICATION PROBLEMS

Communication problems can exist at the host computer, at the datalogger, the modem, the communication line between modem and datalogger, or combinations of all the above. Finding the cause of the problem may require checking all aspects of communication.

Another factor is whether the software you are presently running will conflict with the Campbell Scientific TERM program. You will use the TERM program to help with trouble shooting the station.

A word on the CR10KD keyboard and display: the quickest way to verify whether the datalogger is operating or not is to go out to the station and plug in a CR10KD. If the keypad works then the datalogger has a 5 volt supply. The keypad also allows you to check input locations directly at the datalogger**. Call Campbell Scientific** for more information.

5.1 A CAMPBELL SCIENTIFIC TERM PRIMER

1. The best trouble shooting tool you have is the TERM program in your Toro Toolbox diskette. Do the following in order to run TERM.
2. Put the Toro Toolbox diskette in the "A" drive of the computer.
3. Turn the computer off and on again, or with the computer still on, press the following sequence of keys, holding them down together, then releasing them together. Press <Ctrl> <Alt> <Delete> release.
4. The computer will reboot itself off the disk in the "A" drive. It will next ask you for a date. Press <Enter>.
5. The computer will next ask you for a time. Press <Enter>.
6. You should now see "A:>" on your screen. Type in "TERM" and press <Enter>.
7. TERM will ask you for a station file. Type in "Toro", then <Enter>.
8. You should see FIGURE 3 on your screen.

```
TERM:  Ver5.0            Com1:9600 baud          Datalogger Type:  CR10
Option:  None
```

TERM OPTIONS

C - Call station TORO
T - Terminal emulator
D - Download program to datalogger
S - Save program from datalogger
K - PC time to datalogger clock
P - Create power-up prom file
M - Monitor Input Locations
R - Receive a file
X - Transmit a file
E - Edit station parameters
Q - Quit
Option:_

FIGURE 3. Term Main Menu Window

This is the main TERM menu window. All testing of the system will work out of this window.

Normally you will not use the following options: D, S, P, R, or X

9. Type "e" to edit the station file. You should see Figure 4 appear on your screen.

   TERM has no idea how to communicate with your station until a station file is created. This file tells term what kind of datalogger is out there, which serial port to use, the speed of communication, and what kind of communication device is hooked up to the serial port.

Use the <Enter> key to move around to each parameter. The parameter that the cursor is presently on will be reverse highlighted. Make sure the COM port you are using to communicate with the datalogger is the COM port specified in the station parameter file. To change a parameter in the station file you will need to move the cursor to that parameter then use the <Tab> key to change it.

After completing changes, or to exit the station file window, press <Enter> until you see the save options area. Press <s> to save the file and return to the main menu window.

```
TERM: Ver5.0             NoCom:0 baud            Datalogger Type: None
Option: Edit Station Parameters                  Esc = Abort Option

 Telecommunication Parameters For Station:  TORO
                          Datalogger Type:  CR10           Security Code:  0
  Use Asynchronous Communications Adapter:  COM1
                 Communications Baud Rate:  9600

Interface Device:
#1: Short Haul
```

FIGURE 4. Term Station File Window

10. Call the station by pressing <m>. The screen should momentarily change while TERM is attempting to call the station. If you don't get the screen as shown in Figure 5, or it takes longer than a couple of minutes to call the station, then there is something wrong with the communication line (See Section 5.2).

```
TERM: Ver5.0            Com1:9600 baud          Datalogger Type: CR10
Option: Monitor toro.dld                        Esc = Abort Option

                          1:CR10 TEMP        23.6
                          2:SIGNITURE          .000
                              3:SOLAR          .000
                             4:TEMP C     -9999
                                 5:RH         1.02
                                 6:WS          .000
                               7:RAIN          .000
                                 8:WD       -52.0
                          9:TOTALrain          .000
                         10:_________        14.0
                         11:_________          .000

Flags:  [ F1 ]   [ F2 ]   [ F3 ]   [ F4 ]   [ F5 ]   [ F6 ]   [ F7 ]   [ F8 ]
                        Datalogger Time     8:24:06            Ports  87654321

P1..P8 = Port toggle        I = Input value load
F1..F8 = Flag toggle        L = Locations displayed       Esc = Exit monitor
D = Digits displayed        T = Terminal emulator         Enter:
```

FIGURE 5. Term Monitor Window

11. If you do get a window similar to FIGURE 5 then the communication line is fully functional. You should see a different datalogger time and the values in the input locations should be different. Check these values and make sure they look right. These values should change every 60 seconds and show present weather conditions.

12. Here is an explanation of each of the input locations:

    1:CR10 TEMP - internal temperature in degrees Celsius of the datalogger.
    2:SIGNATURE - program signature. This value should never change.
    3:SOLAR - solar energy in kilowatts per meter^2.
    4:TEMP C - air temperature in degrees Celsius.
    5:RH - percentage relative humidity.
    6:WS - wind speed in miles per hour.
    7:RAIN - rainfall for the past minute in inches.
    8:WD - wind direction in degrees.
    9:TOTALRAIN - rainfall for the past hour in inches.

13. Press <Esc> to quit monitoring the datalogger and return to the main options window.

14. The other options will be explained as they are used for testing. Press <q> to leave TERM and return to the DOS prompt.

15. To reboot your system remove the diskette out of drive "A" and repeat step 3 in Section 5.1. The Toro software should appear on the screen.

5.2 SYSTEM IS NOT COMMUNICATING - RAD MODEM

1. Physically check the entire setup. Check to make certain the RAD modem is attached to COM port #1. If it isn't then move the RAD to COM port #1 and repeat steps 3 – 5 in Section 5.1.

2. Carefully remove the RAD modem from the back of the computer and open it up by squeezing the sides. Handle the printed circuit (PC) board by the outer edges. Don't touch the circuitry. There should be a slide switch and some terminal blocks on one side of the PC board. Next to the switch on the PC board should be the following lettering: "DCE" and "DTE". The switch should be slid to the "DCE" position, or slid closest to the end with the 25-pin sub "D" connector. If the switch is not in the correct position then slide it to the correct position.

3. At the rear of the RAD modem are five screw type terminal blocks. There should be four wires attached to it. You should see the following markings next to each terminal block: -RCV+ G -XMT+. These markings will be read from left to right as follows: "-RCV", "+RCV", "G", "-XMT", "+XMT". Each marking is associated with the screw terminal directly above it.

4. Get a piece of paper and write down the wire color that is associated with each terminal block. If you have two of the same colored wires then wrap a piece of tape around one of them, or mark it with a pen. It is crucial that the wiring is put back in the correct order.

5. Disconnect all the wires from the RAD modem. Make sure none of the wires accidentally touch each other.

6. Get two paper clips and straighten them. If you don't have paper clips, find two short lengths of wire. Attach the paper clips, or the wire, to the RAD modem as follows:

   a. Attach one paper clip from "-RCV" to "-XMT".

   b. Attach one paper clip from "+RCV" to "+XMT".

   Make sure the paper clips don't short against each other.

7. Plug the RAD modem back into the computer. Get into TERM as described in steps 3 - 8 in Section 5.1.

8. At the main menu window press <t>. The screen changes to resemble FIGURE 6. The cursor should be in the upper left hand corner of the screen. Start typing on the keyboard. If the computer and RAD modem are operating properly you should see the typed characters being echoed on the screen.

   Figure 6 shows an example of characters being echoed on the screen. If you are seeing characters echoed on the screen then skip the next step.

```
TERM: Ver5.0            Com1:9600 baud          Datalogger Type: CR10
Option: Terminal Emulator                       Esc = Abort Option

&KLDJFHGVMBNCVHX,CMVNC,XC
```

FIGURE 6. Terminal Emulation Window

9. If you don't see characters echoed on the screen then the problem could be with the RAD modem or the computer's serial port. Unplug the RAD modem from the back of the computer. The COM port will have either 9 or 25-pins. The pins are in two rows, with one row having one more pin then the other.

   Call the row with the most pins as the top row.

   Pin 1 is on the top row on the far left side. Pins are counted from left to right across the top row.

   Get into TERM and go into terminal emulations. Take a small screwdriver and short pin 2 to pin 3 on COM port 1. Be very careful not to accidentally short any of the other pins, or short to the housing around the connector.

   Start typing. You should see the keypresses echoed on the screen. If you don't then you probably have a bad COM port and will need to replace it.

   If you do see characters being typed then the modem could be bad. **Call Campbell Scientific**.

10. Remove the paper clips from the back of the RAD modem. Reattach all the wires to the RAD modem according to your wiring diagram. Put the RAD modem back into its housing and plug it back into the computer's COM 1 port.

11. Take your paper, pen, and meter with you and go out to the weather station. Disconnect the SC932 from the datalogger and the RAD modem. Take the housing off the RAD modem and write down the wiring diagram as you did in step 4 of Section 5.2. Verify the RAD modem is wired as shown in FIGURE 1.3-1 in the Toro station manual.

    Keep in mind that the wires should ultimately be attached as follows:

TABLE 1. RAD At Computer [Goes To] RAD At Datalogger

+RCV	→	+XMT
-RCV	→	-XMT
+XMT	→	+RCV
-XMT	→	-RCV

12. Set your meter for low ohms and measure between the metal backplate inside the enclosure and one of the wires going to the surge suppresser on the lower left hand side of the enclosure.

    If you measure a very low resistance then the surge suppresser is bad and it will need to be replaced. After it is replaced retest the system as explained in steps 3 - 15 of Section 5.1..

    If it checks out with a very high resistance then continue.

13. Disconnect the wires from the RAD modem. Carefully twist the conductors of the following wires together:

    a. Twist the "-RCV" and "-XMT" wires together.

    b. Twist the "+RCV" and "+XMT" wires together.

    Make sure these wires don't touch anything else.

14. Take the RAD modem out of the enclosure and back to the computer

    Test the RAD modem as explained in steps 2 - 11 in Section 5.2.

    If the modem is bad, **call Campbell Scientific**.

    If the modem checks out then continue.

15. Reattach the wires to the back of a working RAD modem and plug it into the computer. Go into terminal emulation mode in TERM and test the system as explained in steps 7 - 8 in Section 5.2.

16. If the system tests out then your wiring has no shorts or opens.

    Skip to step 19 of 5.2.

17. If you do not see characters echoing on the screen then possibly the wiring going out to the datalogger has an open, a short, or is miswired.

    Unplug the RAD modem from the computer and remove the wires from it.

    Take your meter and set it for low ohms. Measure across the wires that were connected to "-RCV" and "-XMT". Also

measure across the wires that were connected to "+RCV" and "+XMT". Both measurements should be less than 20 ohms.

If either measurement is very high, or infinite, then there is a break or an intermittent connection somewhere in the wiring.

18. Go back to the weather station with your meter set to read low ohms. Untwist the wires that were connected in step 13 of section 5.3.

    Measure across all the wires in any order you want. The meter should read infinite resistance across any set of wires. If the meter is measuring any different then you probably have a short somewhere in the line.

    A short or open circuit in the line will need to be corrected before communication between the datalogger and the computer can resume.

    NOTE: Remember to reattach the RAD modems and check the system again once the line is repaired.

19. If the computer COM port 1, the RAD modems, the cable run, and the datalogger voltages all check out then the final piece is the SC932. **Call Campbell Scientific**.

5.3 SYSTEM IS NOT COMMUNICATING – SC95A/C

TERM uses the same station file for both the RAD or the SC95A/C short haul modem.

The method the SC95A/C uses to communicate is not the same as the RAD and does not allow the paper clip loopback tests that are employed for the RAD modem.

The SC95C should have a transformer that is plugged into a wall socket. There should be separate wires attached to all the terminals on the terminal blocks.

A ribbon cable should be coming out of COM port 1 on the computer and going to the port marked "INTERACTIVE" on the SC95C.

Nothing should be attached to the port marked "OUT ONLY" on the SC95C.

WARNING: The SC95C should have the communication shield wire attached to the ground symbol terminal block. The SC95A should not have anything attached to the ground symbol terminal block.

If any cables or wires are not properly attached then hook them up and proceed to the next step.

1. Communicating with the datalogger using TERM software is the same as in steps 3 - 15 in Section 5.1.
2. If the computer will not communicate with the datalogger then the first test will be the serial port on the computer. See step 9 in Section 5.2.
3. If the computer's serial port checks out then the blue cable going from the COM port to the SC95C could have a break.
4. Unplug the ribbon cable from the SC95C's "INTERACTIVE" port. Make sure it is still connected at the computer's COM port 1.
5. Hold the connector that goes into the SC95C so that you are looking at the sockets in the connector. Orient the connector so that the two rows of sockets are horizontal and the molded blue square is on the top of the connector. Socket #1 is in the upper left hand corner of the connector and the sockets are counted horizontally from left to right.
6. Get a small piece of wire and jumper socket 2 to socket 3. Repeat step 9 in Section 5.3., except you will have jumpered across the cable instead of directly across the COM port.

   If the cable fails this test then **call Campbell Scientific** to get a replacement.

   If the cable passes this test then proceed to the next step.

7. On a piece of paper write down the wire connections going to the three terminal blocks on the SC95C. The SC95A should be wired exactly the same except nothing should be wired to the ground symbol terminal block! Remove the wires from the

terminal blocks on the SC95C. Make sure they don't short against something.

8. Set your meter for DC volts. The positive meter probe goes to the "RET" terminal block and the negative meter probe goes to the "SRC" terminal block.

9. With the SC95C plugged into a wall socket you should be measuring somewhere between 7.5 - 8.0 volts, if the voltage is negative reverse the voltmeter probes. Voltages below 7.0 volts might indicate a problem. **Call Campbell Scientific**.

10. Press and hold down the "RING" button while still making a measurement. The voltage should climb to around 15.0 volts. Voltages above 16.5 volts might indicate a problem. **Call Campbell Scientific**.

11. Release the "RING" button. The voltage should drop back to what was measured in step 8. If the voltage does not drop back to a normal state, or seems to wander**, call Campbell Scientific**.

12. If the SC95C passes the above tests then reattach the wires in the correct order. Measure the SC95C again as described in steps 8 - 9. The voltages should be within the same parameters.

13. Press the "RING" button again but hold it down for only a second then release it. The voltage should drop down to 6.5 - 7.0 volts and stay there for about 45 seconds. The voltage should then reset itself and return to what was measured in step 12. If the voltage does anything different **call Campbell Scientific**.

6. SENSOR PROBLEMS

Sensor problems usually end up being maintenance problems or problems associated with what was covered in Sections 4 through 6.

6.1 WEATHER STATION MAINTENANCE

6.1.1 RELATIVE HUMIDITY SENSORS

Older stations using the 207-L7 temperature and humidity sensor need to have the humidity chip replaced every 6 months to a year in order to give accurate measurements. The time to replacement depends on humidity. The dryer the climate, the longer the sensor will last.

Newer stations using the 6911 temperature and humidity sensor need to have sensors calibrated every two years. This needs to be done at Campbell Scientific.

Both sensors use temperature sensing thermistors that should never need to be replaced or recalibrated.

The sensors are placed into gill shields to deflect direct sunlight. These shields need to be kept free of dust, dirt, and anything that might block the free movement of air across the sensor.

6.1.2 SOLAR RADIATION SENSORS

Wind speed and solar radiation are the primary factors that determine correct evapotranspiration values calculated by the Toro software.

The 6910 solar radiation sensor is a solid state device that is very durable. It needs to have the white plastic button on the top of the sensor kept free of dirt or debris. This is best accomplished by wiping the sensor off with a soft camel hair paint brush. Normal wind and rain action will keep the sensor fairly clean but bird droppings need the personal touch.

Blocking light to the sensor will really skew the values the datalogger gives.

6.1.3 TIPPING RAIN BUCKET

This is probably the sensor that will need the most maintenance.

Birds like to use them for nesting sites and lizards and spiders have been known to live inside. The bucket has moving parts inside that need to be kept free of webs or anything that might disturb their normal movement.

The older buckets did not have the drain plug on the bottom of the bucket that blocks entry of pests. The newer buckets do have this plug but it won't stop the spiders. The bucket needs to be checked daily to weekly to empty it out.

6.1.4 WIND DIRECTION AND WIND SPEED SENSORS

Both wind speed and direction (6908 & 6909) have internal bearings that probably will need to be replaced every 1 - 2 years. This can be determined by watching the sensor as it turns. If there appears to be a particular place in the sensor's rotation that seems to "hang" or "rub" then the sensor probably needs its bearings replaced. **Call Campbell Scientific**.

7. ETPRO

ETPRO uses GraphTerm and can be used instead of TERM for testing the weather station. If the customer is using PC121 software then go to the directory where the software resides and type in "GT" <Enter> from the keyboard.

If a station file has already been created for ETPRO than type in "weather" from the station file prompt. The station file screen should be similar to what is in FIGURE 4. Differences are the interface device. RAD and SC95A/C are selected separately. To save station file setups press and hold the <Cntrl> key followed by the <p> key. Release both keys simultaneously.

The datalogger .dld file will also be entitled "WEATHER". Only use the main menu options mentioned in Section 5.2.

Trouble shooting the system will be the same as outlined in the previous sections.