

## 4. quick start

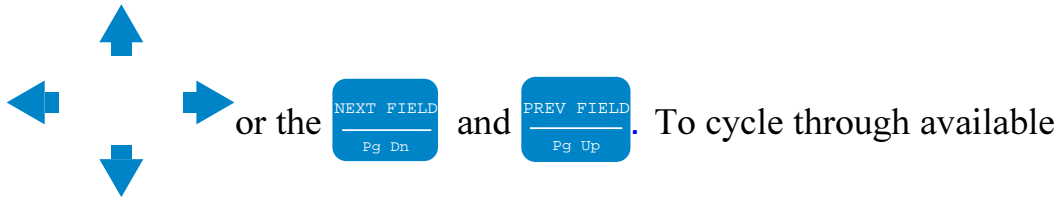
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## 4.1 INTRODUCTION

This section covers the basic startup procedure. Use this summary to test the basic functions of the receiver without having to be intimately familiar with its operation. More complete operating instructions are available for each topic in later sections of this manual.





Simple menus make operating the GDP-32 straightforward. The easiest way to become familiar with the receiver operation is to try the various software options.

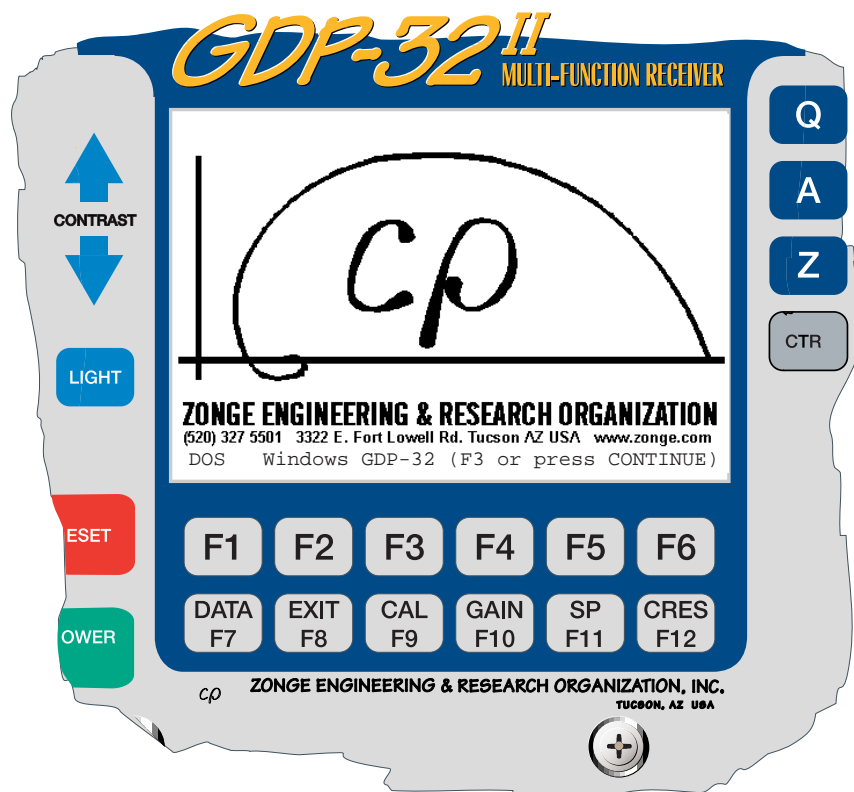
To position the cursor on the LCD display use the Cursor Control Keys:

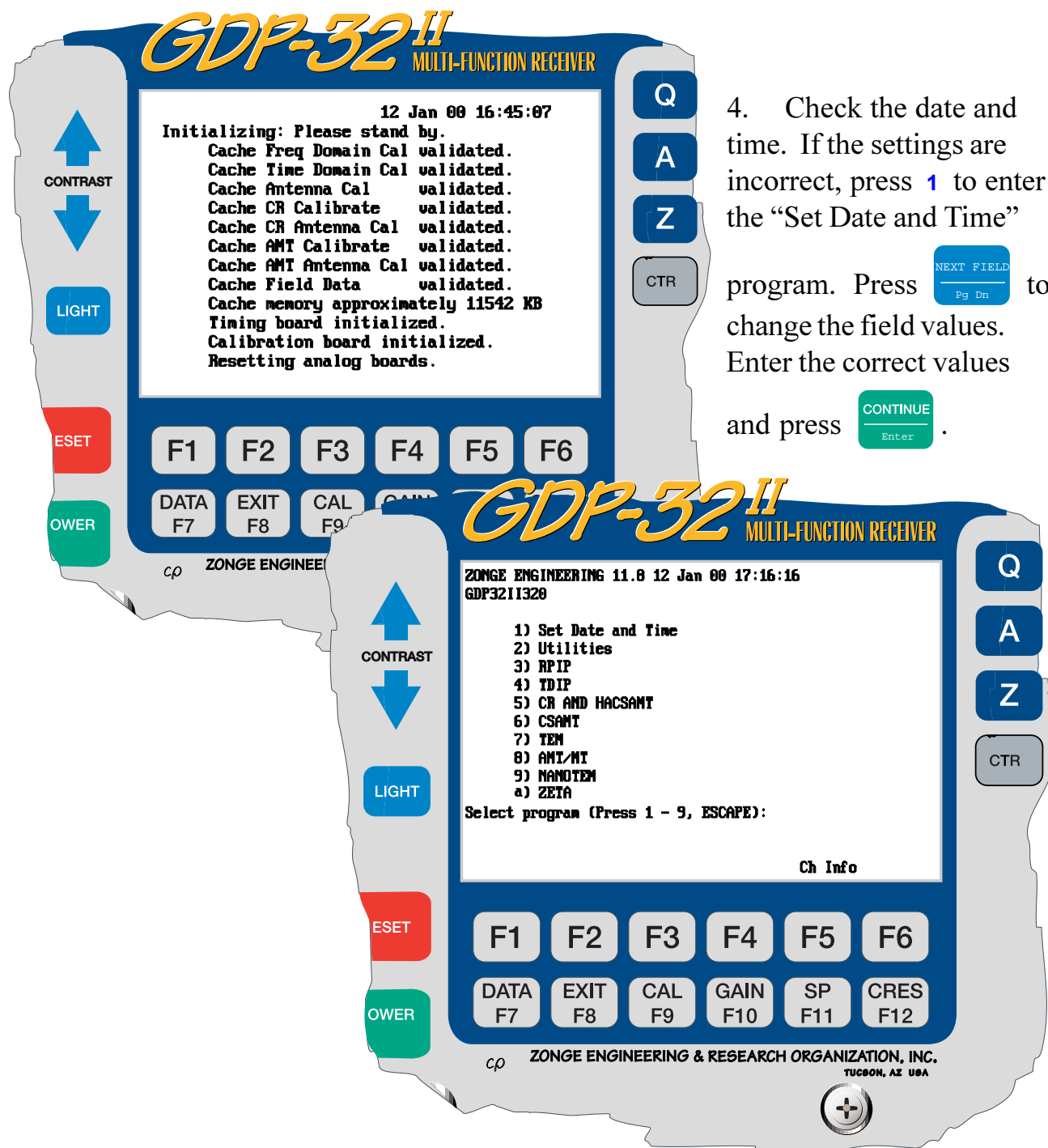


options, labels and numbers use the Rotary Entry Keys:  and 

## 4.2 RECEIVER START-UP

1. Power Up the receiver by pressing the **Power ON/OFF** button on the Control I/O panel. This applies power to the oven-stabilized Crystal Oscillator and illuminates the Crystal Oscillator Power Light on the Front Panel.
2. Press the  button located on the Front Panel. The unit beeps and the LCD displays the initializing parameters for the digital section.
3. After adjusting  (if necessary), press  or  and wait for the unit to verify the caches and analog channels.





4. Check the date and time. If the settings are incorrect, press **1** to enter the “Set Date and Time”

program. Press **NEXT FIELD** to change the field values. Enter the correct values


and press **CONTINUE**.

5. Select the desired Field Survey Program (e.g. Press **9** for the NanoTEM program). This brings up the **Initial Program Screen** for that Program. For a complete description of program screens and parameters see Section 5 – Accessing Programs.


## 4.3 ENTER SURVEY PARAMETERS

Each Field Survey Program has four primary screens where survey parameters are entered.

### 1. Initial Program Screen:

Enter the Array type, Mode, etc. (depending upon survey type), and press .

### 2. Operation Information Screen:

This screen displays semi-permanent data. Enter the value for OPERATOR, TX ID (Transmitter ID), A-SP (A-Spacing or Dipole Spacing), JOB, LINE, SPREAD (as needed) and press .

### 3. Channel Parameters Screen:


Enter channel parameters. Some examples follow:

TDIP	RPIP	C R	AMT, CSAMT			T E M
Ch N	Ch N	Ch N	Ch Sta/Ant	Ch Sta/Ant	Ch Sta/Ant	Ch ANT
1 ON 1	1 ON 1	1 Ref 0	1 Ex 1	1 Ex 1	1 Ex 1	1 Hx 43
2 ON 2	2 ON 2	2 Ex 1	2 Hy 211	2 Ex 2	2 Hy 211	2 Hy 53
3 ON 3	3 ON 3	3 Ex 2	3 Ey 2	3 Ex 3	3 Ey 1	3 Hz 63
4 ON 4	4 ON 4	4 Ex 3	4 Hx 212	4 Ex 4	4 Hx 212	4 OFF
5 ON 5	5 ON 5	5 Ex 4	5 Hz 30	5 Ex 5	5 Ex 2	5 OFF
6 ON 6	6 ON 6	6 Ex 5	6 OFF	6 Ex 6	6 Hy 321	6 OFF
7 OFF	7 OFF	7 Ex 6	7 OFF	7 Ex 7	7 Ey 2	7 OFF
8 OFF	8 OFF	8 OFF	8 OFF	8 Hy 211	8 Hx 322	8 OFF
	N=1,6 IP		1 STATION TENSOR	7 STATION SCALAR	2 STATION VECTOR	1 STATION 3 AXIS

*NOTE: Refer to the appropriate Survey Program chapters for more information on setting up channels.*

- Any designator other than OFF will turn on channels for all programs.
- For CR, Ref is the current reference channel and can be set to any single channel. Any designator other than Ref can be used for the rest of the channels.

- For CSAMT and HACSAMT, the program uses the first orthogonal H-field component found for the respective E-field. Hence, Ex must always precede Hy; Ey precedes Hx, etc., as above.
- For CSAMT the numbers beside the H-field designators in the Sta/Ant column are coil serial numbers for coil calibrations. The last digit signifies the antenna type:
  - A single channel ANT/1 CSAMT antenna ends in **0**.
  - A dual channel ANT/2 ends in **1** for channel 1 or **2** for channel 2.
  - CSAMT/AMT antennas, ANT/3 ends in 3.
  - MT antennas, ANT/4, EMI-BF ends in 4.
  - CSAMT light weight antennas, ANT/5, UOII, UOIV, ends in 5.
  - Low noise AMT antennas, AMT/6, end in 6.
  - A TEM/ 3 TEM antenna ends in **9**.
- Numbers beside the E-field designators in the Sta/Ant column are used as station numbers.

Press  to go to the next screen.

- 4. Data Acquisition Screen:** Select frequency, number of cycles to average, notch filter in or out, etc. From here you can perform Calibrations, System Checks or set Gains prior to acquiring data.

## 4.4 CALIBRATION

Calibrations are performed from the Data Acquisition Screen of the Survey Program to be calibrated.

*CAUTION: Performing a calibration overwrites any previous calibration data for that program.*

### INTERNAL CALIBRATION SUMMARY

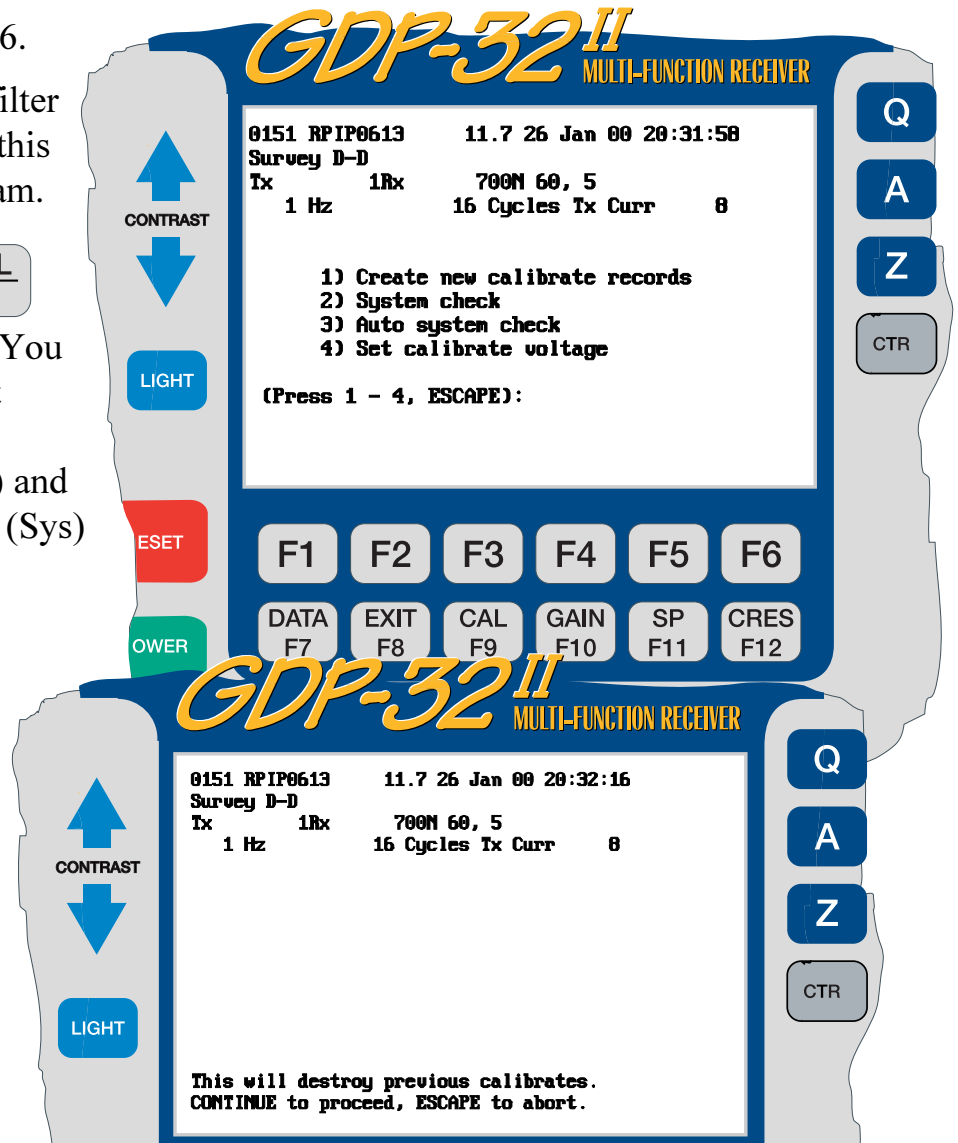
*NOTE: The following summary is based on the TDIP, RPIP or CSAMT Survey Programs.*

1. Set the frequency to the lowest frequency to be used in your survey.  
(e.g. 0.125 Hz)
2. Set cycles to 16.
3. Set the notch filter to be used for this Survey Program.

4. Press the **CAL F9** function key. You can now select between the Calibrate (Cal) and System Check (Sys) Mode.

5. Press **1** to “Create new calibrate records”.

6. Press **CONTINUE Enter** to proceed.



7. Press **1** for “Internal” voltage source.

**GDP-32<sup>II</sup> MULTI-FUNCTION RECEIVER**

0151 RPIP0613 11.7 26 Jan 00 20:32:46  
Survey D-D  
Tx 1Rx 700N 60, 5  
1 Hz 16 Cycles Tx Curr 8

1) Internal  
2) External

(Press 1 - 2, ESCAPE):

**GDP-32<sup>II</sup> MULTI-FUNCTION RECEIVER**

0151 RPIP0613 11.7 26 Jan 00 20:33:14  
Survey D-D  
Tx 1Rx 700N 60, 5 ICal 1u  
1 Hz 16 Cycles Tx Curr 8

Change calibrate voltage or press  
CONTINUE to proceed, ESCAPE to abort.

**GDP-32<sup>II</sup> MULTI-FUNCTION RECEIVER**

0151 RPIP0613 11.7 26 Jan 00 20:33:33  
Survey D-D  
Tx 1Rx 700N 60, 5 ICal 1u  
1 Hz 16 Cycles Tx Curr 8

CH	N	G0	G1	G2	Atn	SP	GGGA
1	ON	1	1	1	OUT	0.00	0000
2	ON	2	1	1	OUT	0.00	0000
3	ON	3	1	1	OUT	0.00	0000
4	ON	4	1	1	OUT	0.00	0000

CONT when gains are set, ESCAPE to exit



8. Press **CONTINUE** (Enter) to select the default calibrate voltage (Cal=1.000V).

9. Press **CONTINUE** (Enter). The program now sets all gains to 1, and pauses to enable the operator to change gains and attenuator settings.




10. Press **CONTINUE** (Enter) to automatically gather







calibration data from the starting frequency to the highest frequency available in the selected program.

11. To limit the calibration to a particular frequency range, press  at the appropriate frequency. If you halt the calibration routine, you must answer the question: “Exit auto-cal mode? (1 - yes, 2 - no)”. Press **2** to change the frequency, number of cycles, or calibration voltage, and then proceed with the calibration. The calibration data is stored in the corresponding calibration cache, and in the main field data cache.
12. To terminate the calibration before it completes its cycle for all frequencies, press  and then **1** to exit the autocal mode [“Exit autocal mode? (1 - yes, 2 - no)”]. When the calibration is complete, a system check is recommended.

### EXTERNAL CALIBRATION SUMMARY

1. Connect the peripheral equipment to be included in the calibration. (See Figure 6.1 for an example of how to connect an Isoamp to the calibration circuit for referenced CR measurements.)
2. Set the frequency to the lowest frequency to be used in your survey. (e.g. 0.125 Hz)
3. Set cycles to 16.
4. Set the notch filter to be used for this Survey Program.
5. Press the  function key.
6. Press **1** to “Create new calibrate records”.
7. Press  to proceed.
8. Press **2** for “External” voltage source.
9. Press  to select the default calibrate voltage (Cal=1.000V).

10. Press  . The program now sets all gains to 1, and pauses to enable the operator to change gains and attenuator settings.
11. Press  to automatically gather calibration data from the starting frequency to the highest frequency available in the selected program.
12. To limit the calibration to a particular frequency range, press  at the appropriate frequency. If you halt the calibration routine, you must answer the question: “Exit auto-cal mode? (1 - yes, 2 - no)”. Press **2** to change the frequency, number of cycles, or calibration voltage, and then proceed with the calibration. The calibration data is stored in the corresponding calibration cache, and in the main field data cache.
13. To terminate the calibration before it completes its cycle for all frequencies, press  and then **1** to exit the autocal mode [“Exit autocal mode? (1 - yes, 2 - no)”].
14. When the calibration is complete, a system check is recommended.

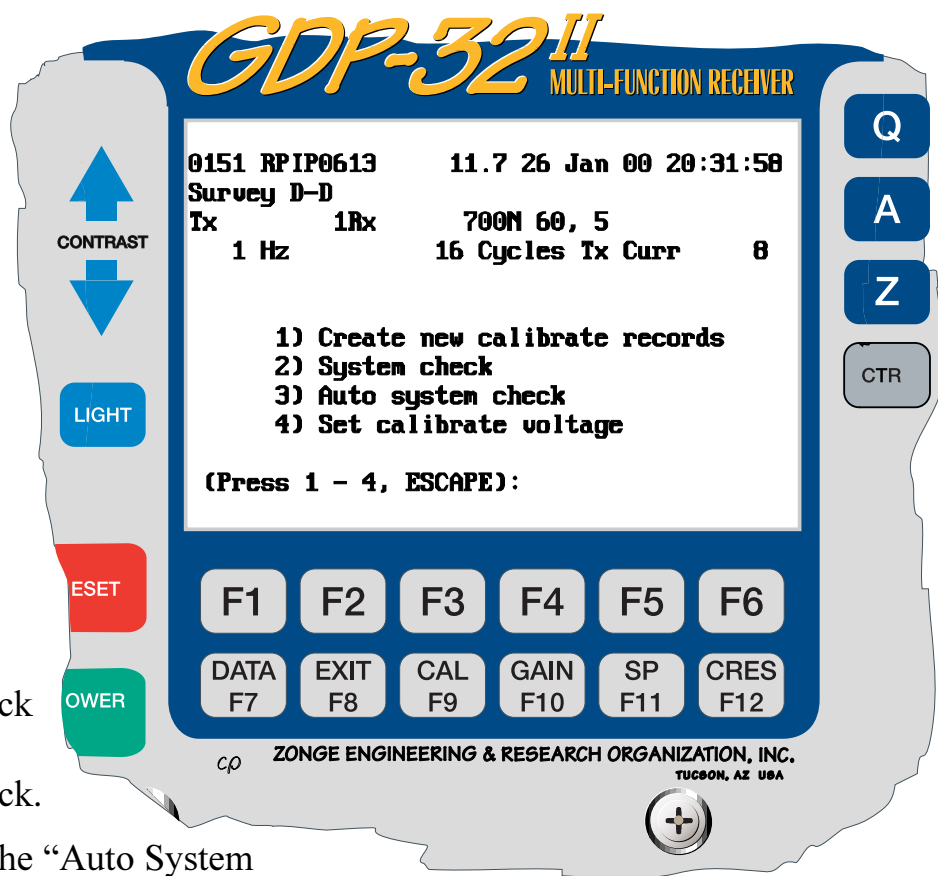
## 4.5 SYSTEM CHECK

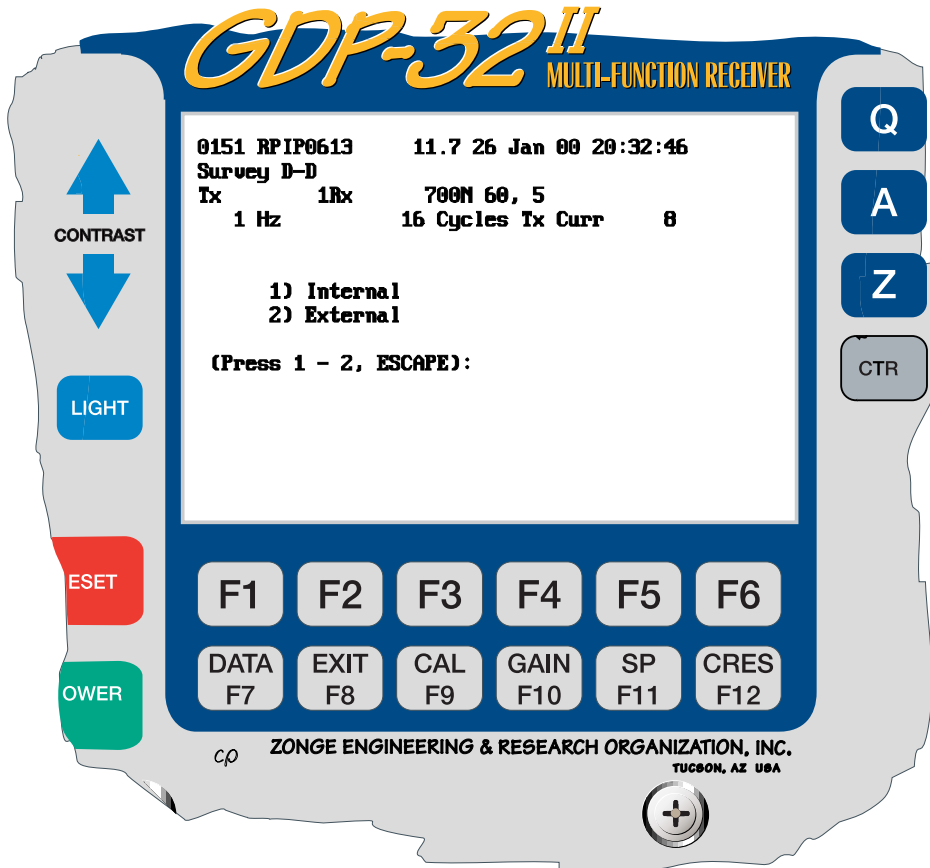
System checks are performed from the Data Acquisition Screen of the Survey Program to be checked.

### SYSTEM CHECK SUMMARY

1. Set the frequency value to check (e.g. 0.125 Hz )
2. Press the **CAL F9** function key. You can now select between the Calibrate and System Check Mode.

3. Press **2** ,  
System Check  
or **3** , Auto  
System Check.
4. NOTE: In the “Auto System  
Check” mode, the program  
automatically goes from the frequency selected in Step 1 above, to the  
highest frequency available for the selected Survey Program or until  
**STOP AVG** is pressed.

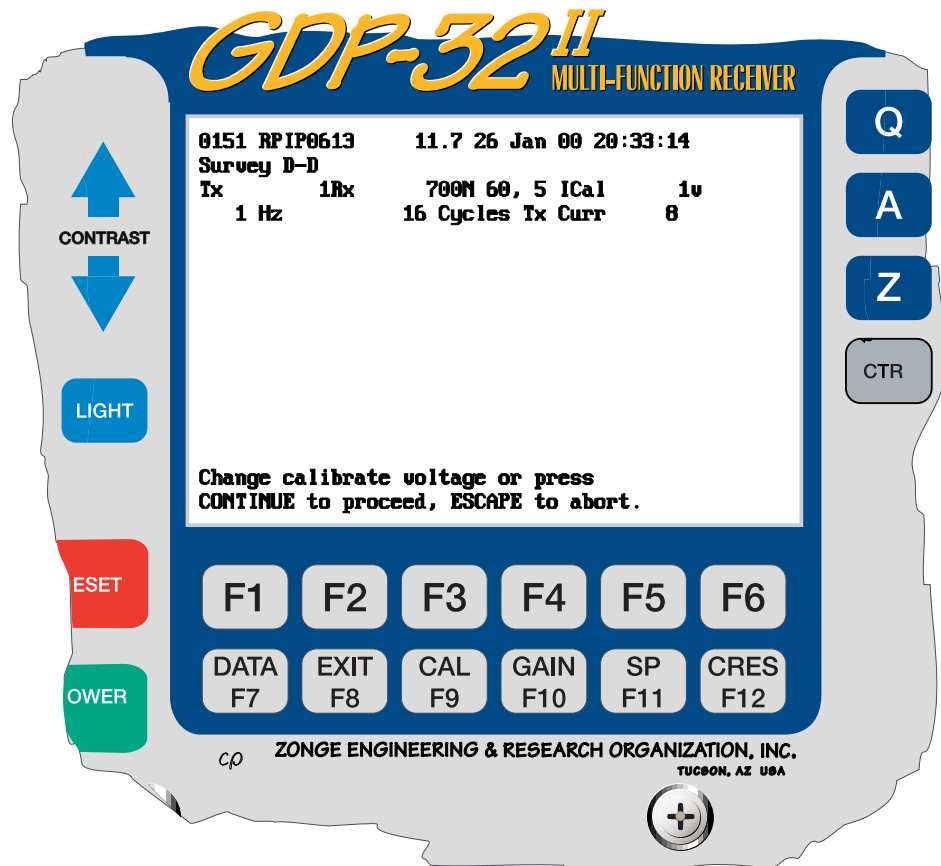




5. Press **1** for “Internal” voltage source.

6. Press **CONTINUE** to set the default calibrate voltage (Cal=1.000V).



7. Press **CONTINUE** to begin data acquisition. If this is the first time data have been acquired at this frequency, the automatic gain adjust program takes over. Watch the screen to see how it adjusts the



gains. The program will go directly from automatic gain setting to data acquisition.

8. The GDP-32 receiver will now:

- Stack and average the calibrate signal
- Calculate a standard error of the mean (SEM) on the real-time parameter displayed
- Calculate the resistivity and IP parameters, display them, and ask if you want to save or discard your data.

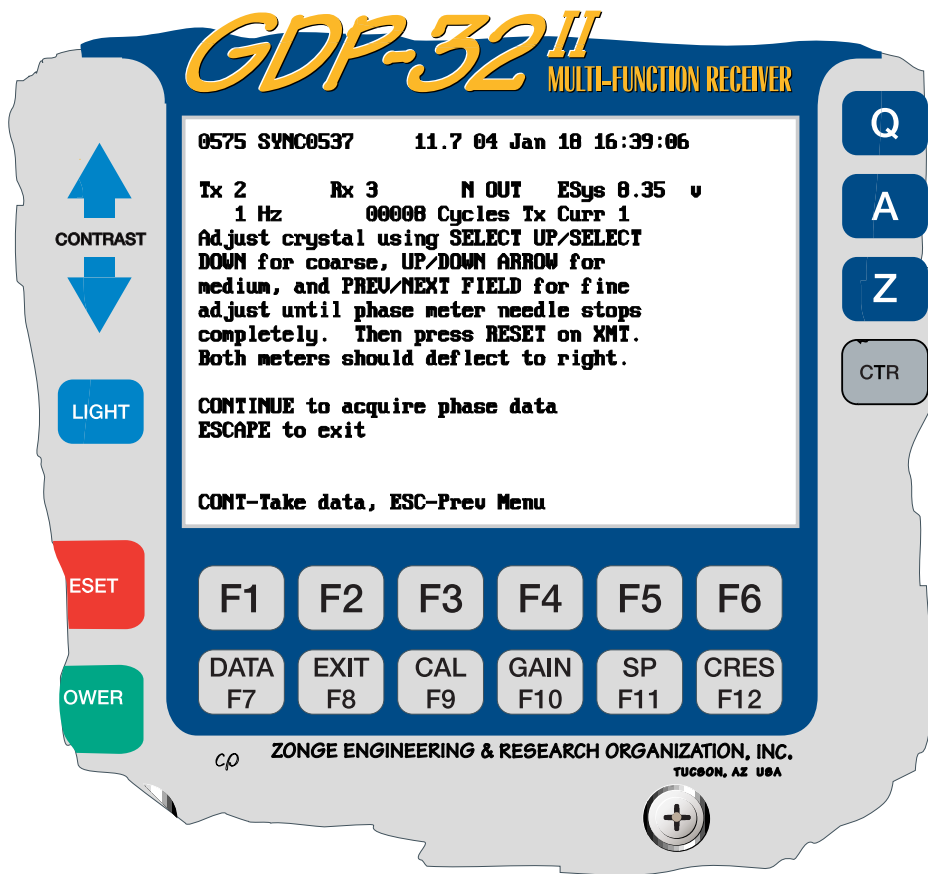
9. Press  to store the data in the *Field Data* cache, or press  to discard the data.

10. Press **2** or  to stay in the System Check mode, or press **1** to exit.





when everything is connected properly.



6. If a fast beep sounds while pressing any of the crystal adjust keys, no more adjustment is available on that particular key. Move to the next higher (coarser) adjustment key.

7. If unable to make the phase meter needle stop moving completely, see Section 6.2 for the manual adjustment procedure.

8. Once the crystals have been adjusted to give the

same frequency (the phase meter needle has stopped), press and hold the RESET button on the XMT. The analog meters for channels 1 and 2

should deflect to the right. Release the RESET button and press








on the GDP-32 to make a phase measurement. If everything has been done properly, the phase should be close to 0.0.

9. Ensure that synchronization has been obtained by disconnecting the synchronization cable and repeating the phase measurement.

*Note: The XMT Sync screen instructions assume that there are standard analog cards at channels 1 and 2. A NanoTEM card in either channel can cause the receiver to lock up if the synchronization routine is tried.*



## 4.7 ACQUIRE FIELD DATA

(For survey specific settings refer to the individual Survey Program sections).


1. Enter the appropriate Survey Program from the Program Menu, and enter the information required in each following screen.
2. Connect the field wires from the receiver electrodes to the input connectors for each channel.
3. With the transmitter turned OFF, Press  to check the contact resistance. You may find that it is not necessary to turn off the transmitter if the receiver signals are relatively weak.
4. Turn the transmitter ON.
5. Input information for Rx and Tx location, and transmitter current in the Data Acquisition Screen. Select the frequency, number of cycles, and notch filter setting. See Section 6 – Receiver Setup for advice on setting notch filters and gains.
6. Press  to begin data acquisition. Monitor the acquisition progress by observing the SEM values and the number of cycles.
7. Press  to halt data collection before the predetermined number of cycle stacks has been obtained. Press  to save the data in *Field Data* cache, or  to discard the data.



## 4.8 CHECK DATA IN THE DATA CACHE


1. Press the  function key. This causes the program to enter the cache at the last data block.
2. Use the Cursor Control Keys to move around in the cache to review data.
3. Press the  function key to return to Data Acquisition mode.

## 4.9 DATA TRANSFER TO A COMPUTER



1. Connect the cable from the Serial Port on the GDP to the RS-232 input on your computer.
2. Access the directory in your computer where the data will be sent.
3. Open a data file in your computer by using Hyper Terminal or other similar data transfer or terminal program.
4. On the GDP-32 press  to enter Data Mode.

From this point there are two methods for transferring data:

### DUMP FIELD DATA DIRECTLY

1. Press .
2. Press **2** to output all field data or **3** to transfer selected blocks.
3. Close the data file on the remote computer and exit the transfer program.  
Check the data files on the remote computer to verify the transfer.

### TRANSFER CALIBRATION DATA OR CONFIGURE THE SERIAL PORT

1. While in Data Mode, Press  twice to get to the cache/port configuration menu.
2. Press **3** to configure the serial port (if necessary). Default values are: 9600 baud, no parity, 8 data bits, 1 stop bit.
3. Press .
4. Press **1** "Access Cache".
5. Access the desired cache (e.g. Press **2** to access the *Frequency Domain* calibration cache).
6. Press **2** to output the calibration data.