



Operator's Manual  
SD385 NOMAD Portable  
Signal Analyzer  
Part Seven  
Legacy Manual

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**WATERFALL CONTROL**  
**(Setup Page 6)**

### 3-3.6 Setup Page 6 -- WATERFALL CONTROL PAGE

To access this Setup Page (from the data display), press the SETUP group SETUP ON/OFF button. This displays the Setup Page listing. Next, place the RV on selection 6, WATERFALL CONTROL. Now, press the SCROLL group MENU button and Setup Page 6 will appear on the display. If a Setup Page appears instead of the Setup Page Listing when SETUP ON/OFF is pressed, or if Setup Page 5 is already on the display, the PAGE ADV button can be used to access Setup Page 6.

- RECALLABLE WATERFALL CONTROL PAGE

UPDATE MODE: <input type="text" value="MAX"/>	UPDATE MODE
FILE SIZE: <input type="text" value="200"/>	1. <input type="text" value="MAX"/>
SELECTED FILE #: <input type="text" value="FILE 1"/>	2. % LEVEL
DISPLAY MODE: <input type="text" value="WF-CONT"/>	3. AVG RCYCL
RECORDS PER DISPLAY: <input type="text" value="88-100"/>	4. SECONDS
X GAIN: <input type="text" value="1"/>	5. +1
VERTICAL GAIN: <input type="text" value="32"/>	6. +,-Δ RPM
HIDDEN LINES: <input type="text" value="OFF"/>	7. +&-Δ RPM
SKREW: <input type="text" value="OFF"/>	
% SUPPRESSION: <input type="text" value="00"/>	
SECONDS: <input type="text" value="3"/>	
% LEVEL: <input type="text" value="20"/>	

FOR A FIELD SELECTION:      PRESS SETUP 'UP/DN' ARROWS.  
 TO EXERCISE A FIELD:        PRESS SCROLL 'UP/DN' ARROWS.  
 FOR NEXT 'SETUP PAGE':      PRESS SETUP 'PAGE ADV'.  
 FOR LIST OF 'SETUP PAGES':   PRESS 'MENU' ON/OFF.  
 TO EXIT 'SETUP MODE':        PRESS 'SETUP ON/OFF'.

Before the WATERFALL CONTROL PAGE Controls are discussed, a brief discussion of the operational limitations of the Waterfall feature are in order. Waterfall loading/updating will not occur under the following conditions: selected function is Time Domain data; 800 LINES of RESOLUTION is selected on the INPUT/PROCESS CONTROL Page; any multi-trace function is selected; or if any X-AXIS UNITS other than LNX1, LNX2, LNX4, or LOG. Furthermore, Waterfall updating will not occur if any of the following settings are changed during the updating

process: X-AXIS UNITS or GAIN; Y-AXIS UNITS or GAIN; DISPLAY FUNCTION, or DISPLAY MEMORY on the DISPLAY SELECTION PAGE; Full scale Analysis Range; number of lines of resolution; or if the displayed channel is changed; e.g., switching from channel A to channel B.

Most of the Waterfall Controls can be accessed directly from the Waterfall data display without accessing Setup Page 6. Figure 3-WATRFAL-1 shows the location of each of the Controls that can be accessed in this manner.

- RECALLABLE WATERFALL CONTROL PAGE

UPDATE MODE: <input type="text" value="MAX"/>	UPDATE MODE
FILE SIZE: <input type="text" value="200"/>	1. <input type="text" value="MAX"/>
SELECTED FILE #: <input type="text" value="FILE 1"/>	2. % LEVEL
DISPLAY MODE: <input type="text" value="WF-CONT"/>	3. AVG RCYCL
RECORDS PER DISPLAY: <input type="text" value="88-166"/>	4. SECONDS
X GAIN: <input type="text" value="1"/>	5. +1
VERTICAL GAIN: <input type="text" value="32"/>	6. +/- Δ RPM
HIDDEN LINES: <input type="text" value="OFF"/>	7. +&- Δ RPM
SKEW: <input type="text" value="OFF"/>	
% SUPPRESSION: <input type="text" value="00"/>	
SECONDS: <input type="text" value="3"/>	
% LEVEL: <input type="text" value="20"/>	

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
 TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
 FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
 FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
 TO EXIT 'SETUP MODE': PRESS 'SETUP ON/OFF'.

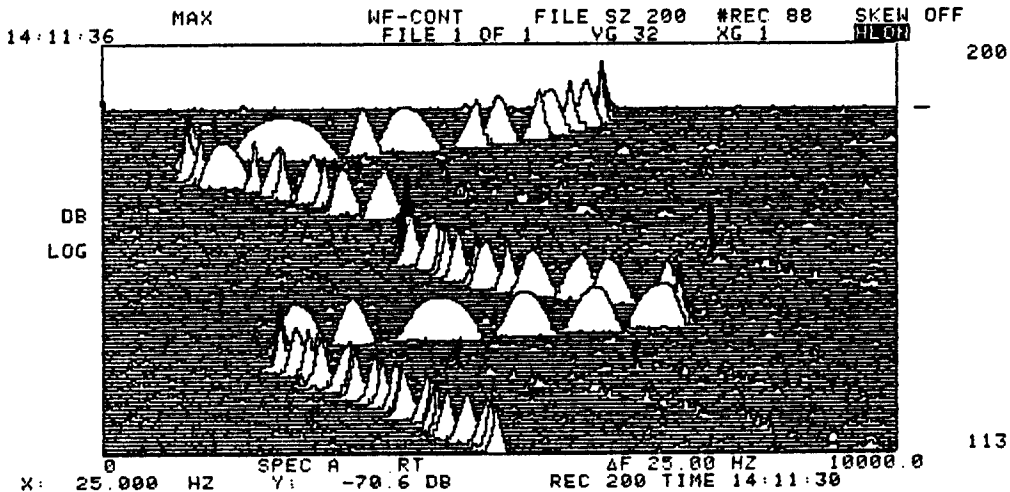


Figure 3-WATRFAL-1. Accessing the Waterfall Controls from the Waterfall Display

## UPDATE MODE:

- RECALLABLE WATERFALL CONTROL PAGE

UPDATE MODE:	MAX	UPDATE MODE
FILE SIZE:	200	1. MAX
SELECTED FILE #:	FILE 1	2. % LEVEL
DISPLAY MODE:	WF-CONT	3. AVG RCYCL
RECORDS PER DISPLAY:	98-100	4. SECONDS
X GAIN:	1	5. +1
VERTICAL GAIN:	32	6. +/-Δ RPM
HIDDEN LINES:	OFF	7. +&-Δ RPM
SKEW:	OFF	
% SUPPRESSION:	00	
SECONDS:	3	
% LEVEL:	20	

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

### Control Menu for Selecting Waterfall Data Acquisition Mode

- 1. MAX** With this selection, the Waterfall acquires data at the maximum update rate. When this mode is selected and the Display Mode is WF-FULL, the Waterfall display will not update until the selected Waterfall file is full.
- 2. % LEVEL** With this selection the Waterfall will still be acquiring data at the maximum update rate. However, only those blocks of data that have an amplitude greater than or equal to the selected % LEVEL will be accepted. The actual percentage level is entered via the % LEVEL Control Field located at the bottom of this Setup Page.
- 3. AVG RCYCL** In this mode the Waterfall will select and initiate the average from the analyzer. To use this feature, first select, via the AVG TARGET COUNT menu on the ACQUISITION PAGE, the number of ensembles to be averaged. When this is accomplished, press the INPUT MEMORY group UPDATE button. The Waterfall will then initiate the average start sequence by automatically selecting the analyzer average-start function. When the number of ensembles to be averaged is reached, that averaged block of data will then be transferred to the Waterfall. The Waterfall will then re-start the average function.

The Waterfall will continue to perform the previously described sequence of operations until another data acquisition mode from the UPDATE MODE menu is selected, HOLD is selected, or the SYS RESET button is pressed.

When EXP (Exponential) or PEAK is selected on the AVERAGE MODE menu of the INPUT/PROCESS CONTROL page, there is no provision for an automatic stop to the averaging process unless, TIME-T is selected on the AVG STOP ON menu of the ACQUISITION PAGE. The averaging process can also be stopped/updated manually by pressing the AVERAGE group STOP button.

4. SECONDS      When this selection is made, the Waterfall acquires the most recent block of data every XXX seconds. The number of seconds is selectable via the SECONDS Control Field located on this Setup Page.
  
5. +1            When this selection is made, the Waterfall acquires the most recent block of data each time the front panel WATERFALL group LOAD button is pressed.

UPDATE MODE menu selections 6 and 7 are "rpm data acquisition modes." These two selections require installation of the SRA/TACH Option and an external tachometer input. Refer to Setup Page 9, OPTIONS-SRA/TACH & DISK. Setup Page 9 contains the Control Fields for entering specific tachometer and rpm values.

Before UPDATE MODE menu items 5 and 6 are discussed, brief discussions of the tachometer inputs and input specifications are in order. The tach input specifications provided with this description are the same tach input specifications contained in Section I of this manual. These specifications are repeated in this section for convenience purposes.

Located on the front panel is a BNC connector labeled TACH. This BNC connector accepts the tachometer input.

**Tach Input:**

Range 1 Hz to 10kHz (60 to 600,000 pulses/min).

Coupling ac only

Polarity Positive (negative for 10% duty cycle pulses)

Pulse Amplitude Range 300mVpk to 80Vpk, with AGC control

Minimum Pulse Width 10us or 0.1% of the total tach period, whichever is greater

Input Impedance 65kohms

**Tach Readout & Control:**

RPM Readout Accuracy From 60 to 60,000 rpm, 0.5%; from 60,000 rpm to 600,000 rpm, 1.0%

Tach Pulses Per Revolution Programmable from .0001 to 99,999.

6. +, -  $\Delta$  RPM This selection uses the +, - D RPM values entered via the +, - D RPM Numerical Entry Field located on Setup Page 9. As explained in the description on Setup Page 9, when this Waterfall Update Mode is selected, data acquisition will occur with every increase or decrease of the selected D RPM, but not both. Remember, initial data acquisition will not occur until the assigned Threshold rpm has been passed thru (D RPM THRESHOLD Numerical Entry Field on Setup Page 9).

7. +&-  $\Delta$  RPM This selection uses the +&-D RPM values entered via the +&-D RPM Numerical Entry Field located on Setup Page 9. As explained in the description on Setup Page 9, when this Waterfall Update Mode is selected, data acquisition will occur with every increase and decrease of the selected D RPM (either direction). Remember, initial data acquisition will not occur until the assigned Threshold rpm has been passed thru (D RPM THRESHOLD Numerical Entry Field on Setup Page 9).



Display annotation indicating these UPDATE MODE selections were made, is shown in Figure 3-WATRFAL-2. In addition, Figure 3-WATRFAL-2 also shows the continuous rpm readout that appears on the display when a tach signal is input to the SD385.

When the Waterfall is placed in the HOLD Mode, additional annotation will appear on the top and bottom of the display indicating the X and Y-axis values of the DATA Cursor. In addition, the time-of-acquisition of the record the Record Cursor is pointing to and, if a tach signal is present, the rpm value of the record at the time-of-acquisition, will also appear on the bottom line of annotation. This is also shown in Figure 3-WATRFAL-2.

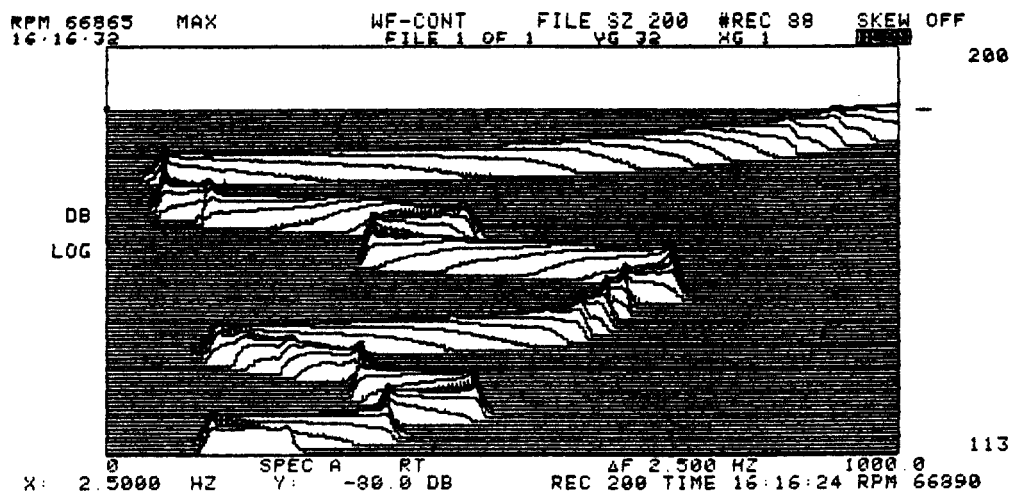


Figure 3-WATRFAL-2. RPM Display Example

**FILE SIZE:**

- RECALLABLE WATERFALL CONTROL PAGE

UPDATE MODE:	MAX	
FILE SIZE:	200	FILE SIZE
SELECTED FILE #:	FILE 1	1. 200
DISPLAY MODE:	WF-CONT	2. 100
RECORDS PER DISPLAY:	88-100	3. 50
X GAIN:	1	4. 25
VERTICAL GAIN:	32	
HIDDEN LINES:	OFF	
SKEW:	OFF	
% SUPPRESSION:	00	
SECONDS:	3	
% LEVEL:	20	

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

**Control Menu for Selecting File Size**

The 200 record storage capacity of the Waterfall can be divided into four different file sizes. For example, if a file size of 200 is selected, all 200 records will be stored in 1 file. If a file size of 100 is selected, then the space will be divided into 2 files, each large enough to contain 100 records. If a file size of 50 is selected, then the space will be divided into 4 files, each large enough to contain 50 records. If a file size of 25 is selected, then the space will be divided into 8 files, each large enough to contain 25 records. If more records are loaded into a file than it is configured for, only the most recent records will appear and all others will be discarded. For example, if 100 records are loaded into a 25 record file, only the most recent 25 records will appear in the file.

All selected functions and data acquisition modes will apply only to the file selected for display (SELECTED FILE # Menu). For example, if a file size of 50 is selected, and file 2 is chosen for display (indicated by the display annotation statement "FILE 2 OF 4"), then file 2 (containing 50 records) will be the only file acquiring data. To change the file size, press ERASE twice before making the change. Failure to do this will cause the help message "PRESS ERASE, RESELECT # FILES" to appear. The displayed file (the "FILE X OF X" statement) is changed by accessing the next menu on this Setup Page (SELECTED FILE #). Anytime the file size is reduced, all current files will have to be erased before the change is made.

If a change is made to the analyzer setup when the instrument is in the HOLD mode, and then LOAD is pressed, the statement "CHANGE TO ANALYZER SETUP--ERASE FILE AND RE-UPDATE" will appear on the display and the Waterfall will go into the HOLD mode. This message will appear anytime the analyzer setup does not agree with the setup stored in the current Waterfall file.

**SELECTED FILE #:**

```

- RECALLABLE WATERFALL CONTROL PAGE
UPDATE MODE: MAX
FILE SIZE: 200
SELECTED FILE #: FILE 1
DISPLAY MODE: WF-CONT
RECORDS PER DISPLAY: 88-100
X GAIN: 1
VERTICAL GAIN: 32
HIDDEN LINES: OFF
SKEW: OFF
% SUPPRESSION: 00
SECONDS: 3
% LEVEL: 20
SELECTED FILE #
1. FILE 1
  
```

```

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.
  
```

**Control Menu for Selecting the File to be Displayed**

Selections made on this Control Menu are reflected by the "FILE X OF X" statement on the Waterfall data display. The number of selections that appear on this menu will depend upon the FILE SIZE selection from the previous menu. This is shown in the following table:

Selected FILE SIZE			
200	100	50	25
Corresponding "SELECTED FILE #" Menu			
SELECTED FILE #	SELECTED FILE #	SELECTED FILE #	SELECTED FILE #
1. FILE 1	1. FILE 1 2. FILE 2	1. FILE 1 2. FILE 2 3. FILE 3 4. FILE 4	1. FILE 1 2. FILE 2 3. FILE 3 4. FILE 4 5. FILE 5 6. FILE 6 7. FILE 7 8. FILE 8

## DISPLAY MODE:

- RECALLABLE WATERFALL CONTROL PAGE

UPDATE MODE:	MAX	DISPLAY MODE	
FILE SIZE:	25	1.	WF-CONT
SELECTED FILE #:	FILE 1	2.	WF-FULL
DISPLAY MODE:	WF-FULL	3.	SINGLE
RECORDS PER DISPLAY:	88-100	4.	PEAK
X GAIN:	1	5.	PROF-REC
VERTICAL GAIN:	32	6.	PROF-RPM
HIDDEN LINES:	OFF	7.	PROF-TIME
SKEW:	OFF		
% SUPPRESSION:	00		
SECONDS:	3		
% LEVEL:	20		

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

### Control Menu for Selecting the Waterfall Display Mode

1. WF-CONT      The purpose of the Waterfall feature is to provide a moving, 3-dimensional, cascaded display of Spectrum history; i.e., a frequency versus amplitude versus time display. Hence, AND
2. WF-FULL      the name "Waterfall." These two selections are the Waterfall Display Modes.

When Waterfall Continuous (WF-CONT) is selected, and LOAD is pressed, records will be stored as they are acquired until the selected file is full. The selected file will then continue to update, retaining only the latest records. In the Waterfall Full mode (WF-FULL), acquisition is almost the same as for Waterfall Continuous except, when the selected file is full, the file will cease to update and automatically go into the HOLD mode. Figure 3-WATRFAL-4 is an example of a Waterfall display.

Refer to Figure 3-WATRFAL-4 and note that, like the other analyzer displays, the bottom line of display annotation is the cursor readout data. The cursor readout data reflects information only for the record upon which the data cursor resides. The record location of the data cursor is also included with the cursor readout data annotation. In

addition, there is a small horizontal line located on the right side of the display just outside the display grid. This is the Record Cursor. The Record Cursor points to the record where the Data Cursor is located and only appears on the Waterfall-type displays. The Record Cursor and Data Cursor (they move together) are moved from one record to another using the CURSOR group UP/DOWN buttons.

The remaining DISPLAY MODE selections are standard, 2-dimensional X-Y display presentations.

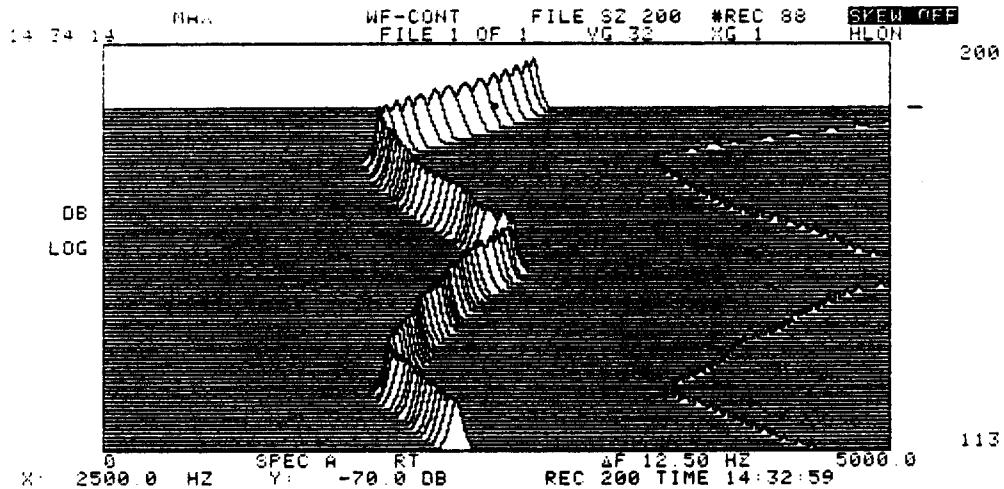


Figure 3-WATRFAL-4. WATERFALL Display Example

3. SINGLE

This Display Mode is a 2-dimensional Spectrum display of the Record being pointed to by the Record Cursor. The Waterfall display does not have to be selected to change position of the Record Cursor. The displayed Record can be changed, in this display mode, by pressing the CURSOR group UP/DOWN buttons. Figure 3-WATRFAL-5 is an example of the SINGLE display mode.

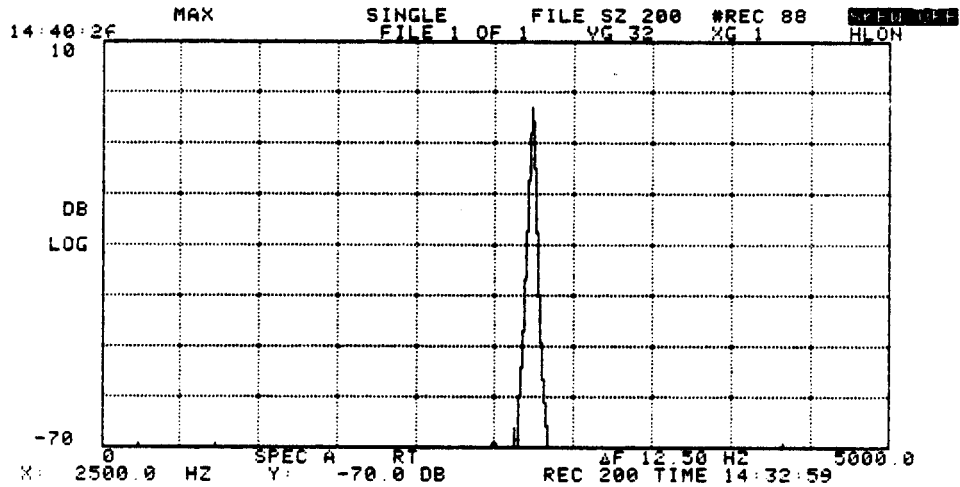


Figure 3-WATRFAL-5. SINGLE Display Example

4. PEAK

This Display Mode is a 2-dimensional, X-Y display of amplitude versus frequency. The amplitude displayed is the maximum value found for all stored records in the selected file, at each frequency cell. Figure 3-WATRFAL-6 is an example of the PEAK Display Mode.

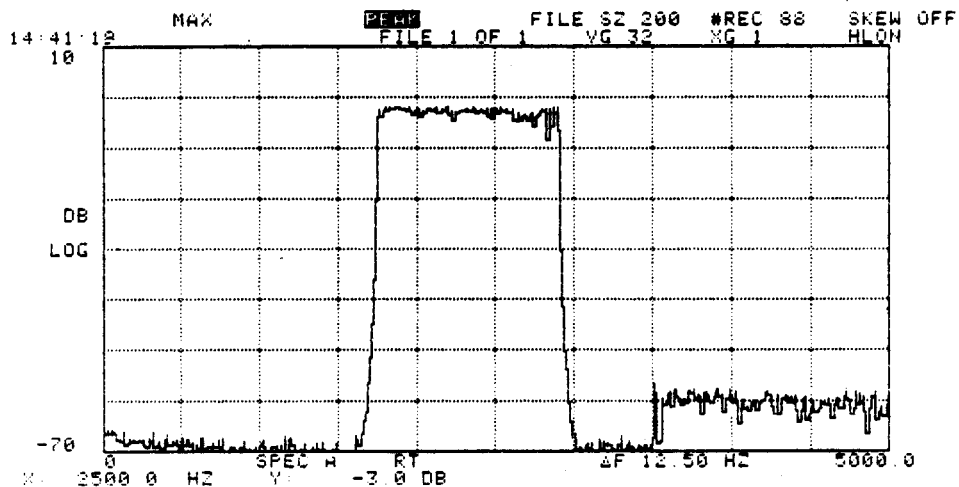
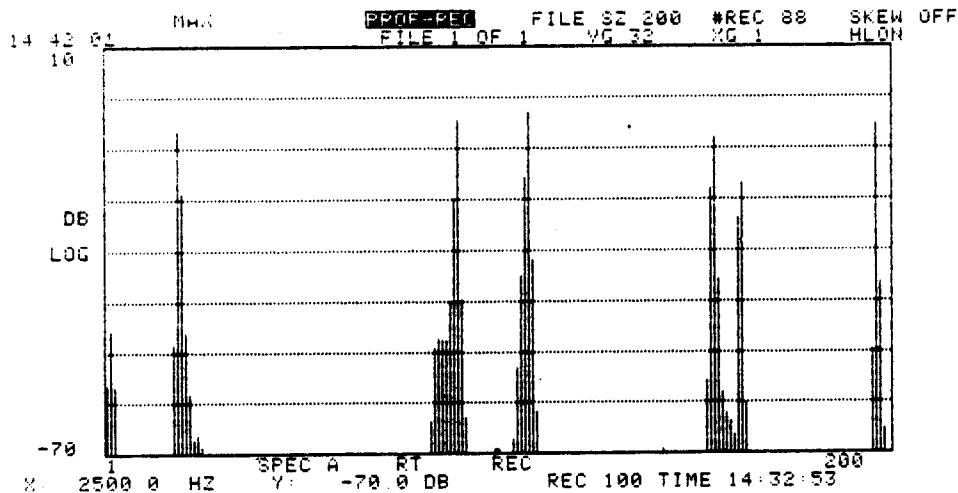


Figure 3-WATRFAL-6. PEAK Display Example

5. PROF-REC The PROF-REC (Profile-Record), PROF-RPM (Profile-RPM) and PROF-TIME (Profile-Time) Display Modes are 2-dimensional, X-Y displays of amplitude versus record number (Profile-Record), or amplitude versus rpm (Profile-RPM), or amplitude versus time (Profile-Time) at the frequency cell the Record Cursor is pointing to. The number of data points displayed is equal to the number of records stored in file. If the number of records stored is 10, there will be 10 data points displayed. Profile RPM and Profile Time displays will appear identical to the Profile Record display except, X-axis scaling will be rpm or time instead of records. To select a new frequency to profile, you must exit the Profile mode. Using the Data Cursor, select a new frequency and reenter the Profile mode. Figure 3-WATRFAL-7 shows examples of each of these displays.

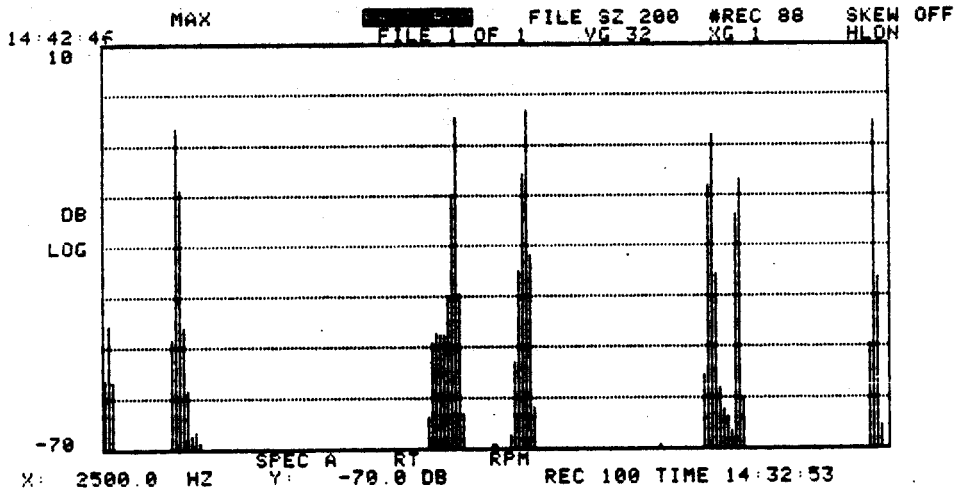
### PROFILE RECORD DISPLAY



**X-Axis scaling is Records**

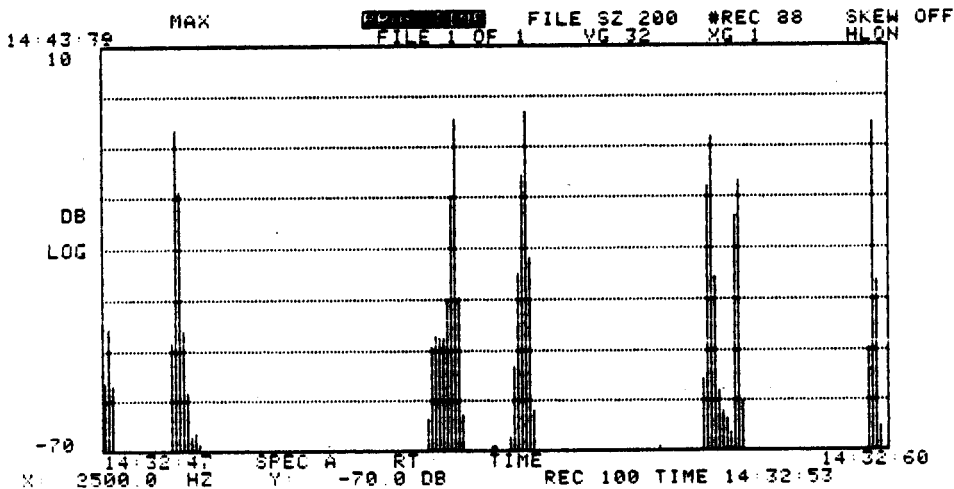
**Figure 3-SP6-7. PROFILE Display Examples**

**PROFILE RPM DISPLAY**



**X-Axis scaling in rpm**

**PROFILE TIME DISPLAY**

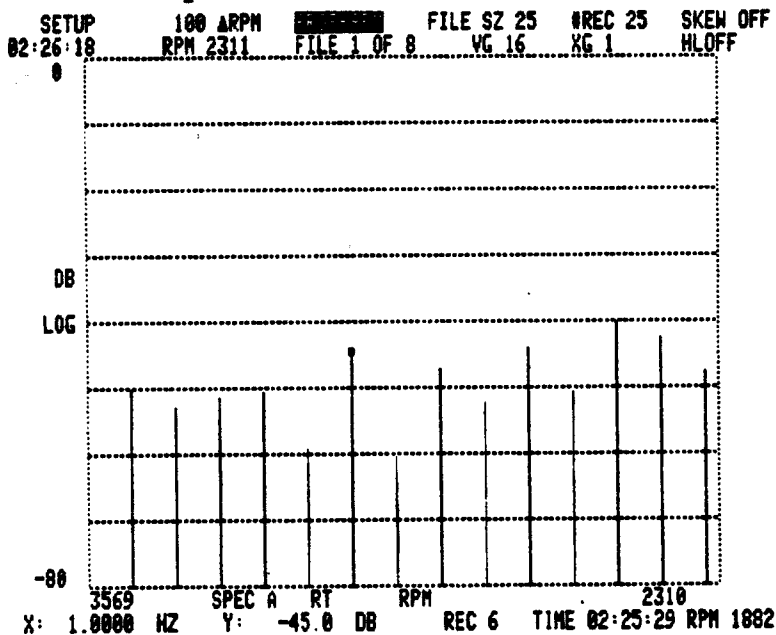


**X-Axis scaling is Time**

**Figure 3-SP6-7 (cont). PROFILE Display Examples**



In the PROFILE modes there is a formatting difference between the displayed data and data ported out to an external plotter via the IEEE data bus. The displayed data is presented as single vertical lines indicating amplitude of the stored record. The plotted data is presented as a "point-to-point" graph. This is done to avoid confusion between records with no signal and records with a low amplitude signal. Figure 3-WATRFAL-8 shows examples of both data formats.



Profile Data as it Appears on the Display

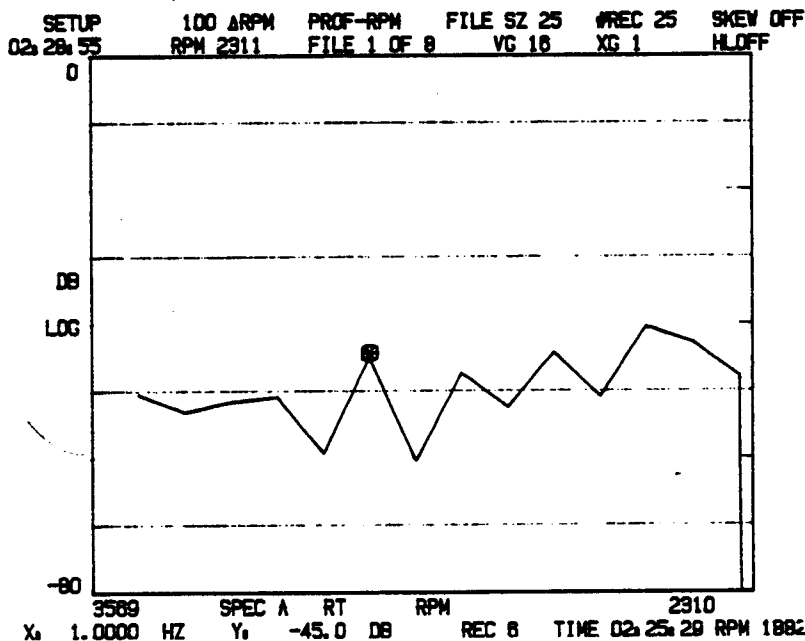


Figure 3-WATRFAL-8. Example of Display Screen Data Versus Plotted Data in the PROFILE Mode

## RECORDS PER DISPLAY:

- RECALLABLE WATERFALL CONTROL PAGE

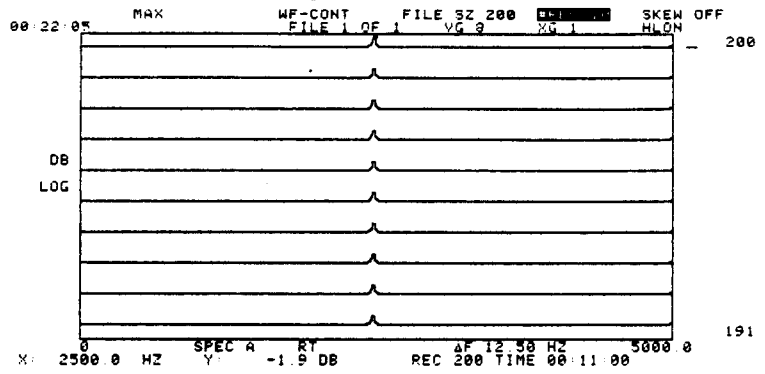
UPDATE MODE:	MAX	RECORDS PER DISPLAY	
FILE SIZE:	25	1. 88-100 VG DEPENDENT	
SELECTED FILE #:	FILE 1	2. 50	
DISPLAY MODE:	WF-CONT	3. 25	
RECORDS PER DISPLAY:	88-100	4. 10	
X GAIN:	1		
VERTICAL GAIN:	32		
HIDDEN LINES:	OFF		
SKEW:	OFF		
% SUPPRESSION:	00		
SECONDS:	3		
% LEVEL:	20		

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

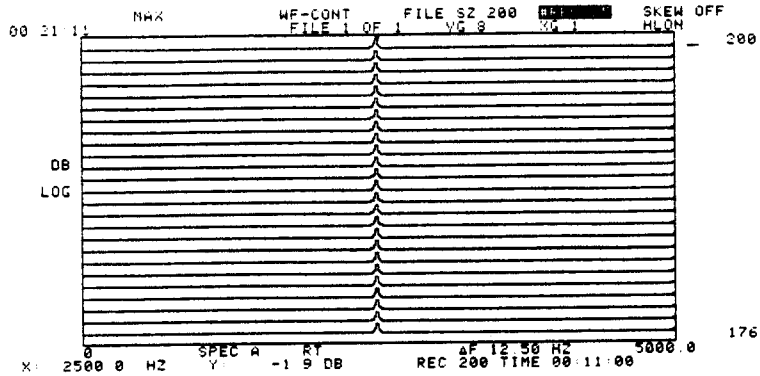
### Control Menu for selecting number of displayed records.

This menu is for selecting the number of records to be displayed. Selection 1 on the menu states that the displayed number of records depends upon the selected vertical gain (height of the displayed spectrum). The displayed number of records, in the case of selection 1 on the RECORDS PER DISPLAY menu, will be 88, 96, or 100 records, depending upon the selected vertical gain. If the number of records selected is greater than the file size, only the "File Size" number of records will be displayed. However, the spacing of the records will be determined by the number of records selected. Figure 3-WATRFAL-9 shows an example of each of the number of records selections.

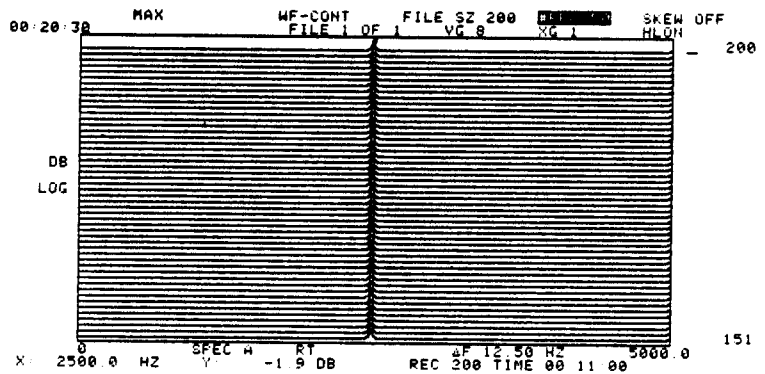
10 RECORDS



25 RECORDS



50 RECORDS



100 RECORDS

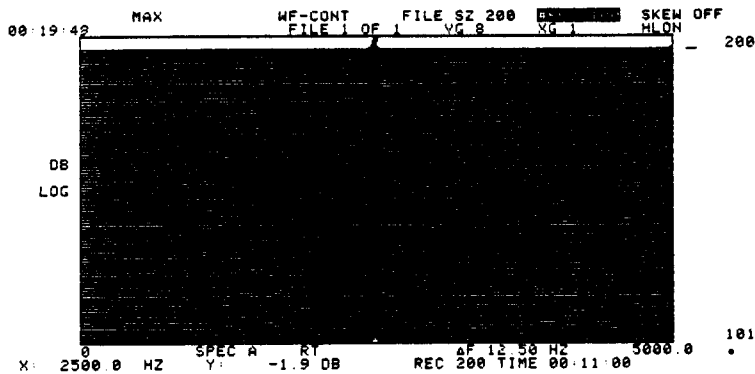


Figure 3-WATRFAL-9. Display Examples of each of the Number of Record Selections

**X GAIN:**

- RECALLABLE

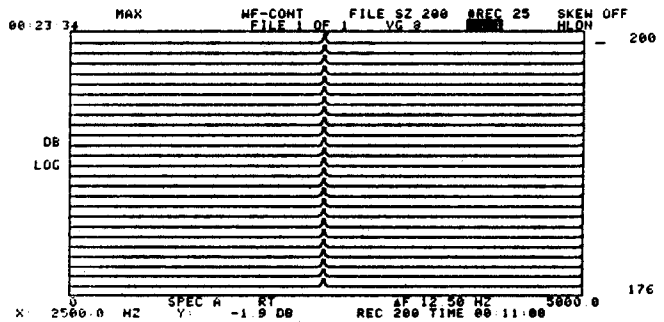
WATERFALL CONTROL PAGE

UPDATE MODE:	MAX	
FILE SIZE:	200	
SELECTED FILE #:	FILE 1	
DISPLAY MODE:	WF-CONT	
RECORDS PER DISPLAY:	88-100	
X GAIN:	1	1. 4
VERTICAL GAIN:	32	2. 2
HIDDEN LINES:	OFF	3. 1
SKREW:	OFF	
% SUPPRESSION:	00	
SECONDS:	3	
% LEVEL:	20	

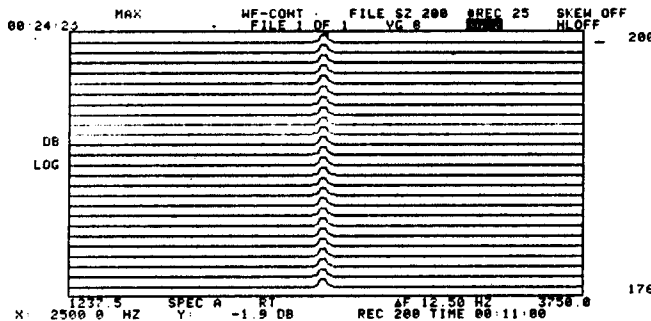
**Control Menu for Selecting X-axis Expansion.**

This Control Menu is for selection of X-axis expansion. Figure 3-WATRFAL-11 shows an example of each selection.

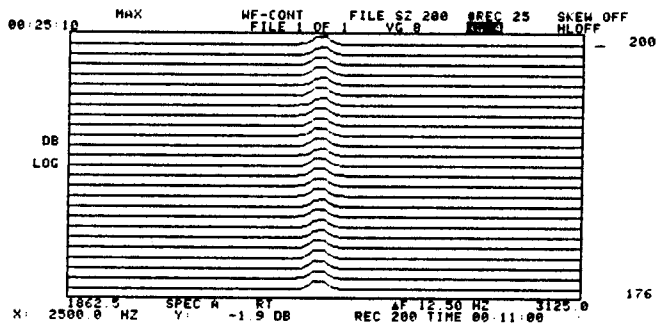
**X GAIN OF 1**



**X GAIN OF 2**



**X GAIN OF 4**



**Figure 3-WATRFAL-11. Display Examples of the X GAIN Menu Selections**

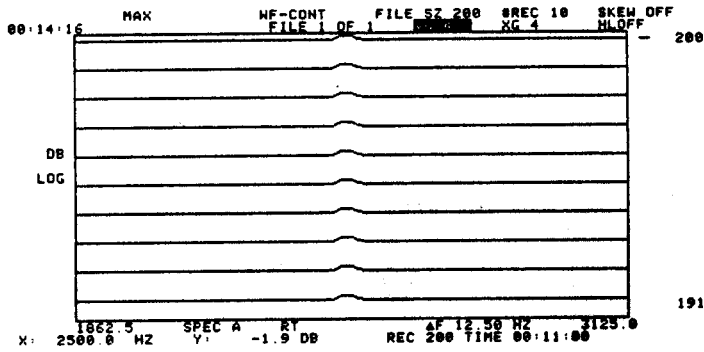
**VERTICAL GAIN:**

- RECALLABLE WATERFALL CONTROL PAGE

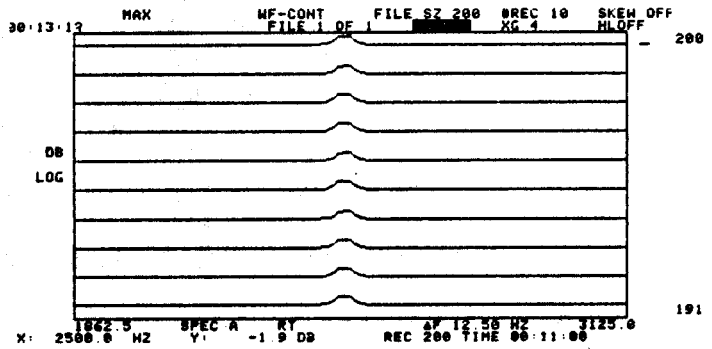
UPDATE MODE:	MAX	
FILE SIZE:	200	
SELECTED FILE #:	FILE 1	
DISPLAY MODE:	WF-CONT	VERTICAL GAIN
RECORDS PER DISPLAY:	89-100	1. 4 LINES
X GAIN:	1	2. 16
VERTICAL GAIN:		3. 8
HIDDEN LINES:	OFF	4. 4
SKEW:	OFF	
% SUPPRESSION:	00	
SECONDS:	3	
% LEVEL:	20	

**Control Menu for Selecting Vertical Gain.**

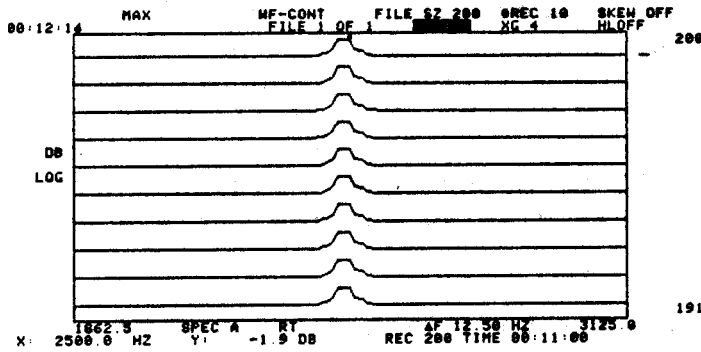
This Control Menu is for selecting vertical gain for the height of the spectrum. The selected vertical gain indicates the number of TV lines used to represent signal full-scale value. Figure 3-WATRFAL-12 shows an example of each of the Vertical Gain selections.



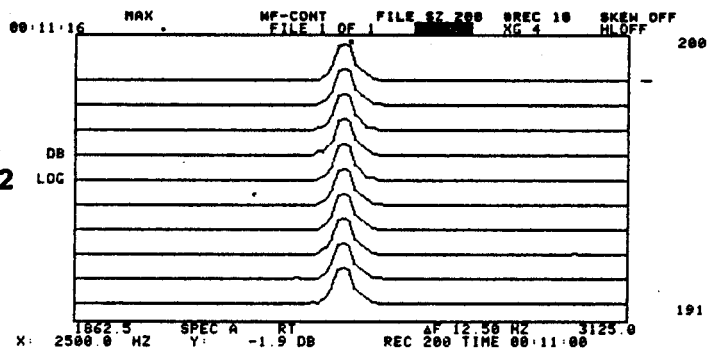
**VERTICAL GAIN OF 4**



**VERTICAL GAIN OF 8**



**VERTICAL GAIN OF 16**



**VERTICAL GAIN OF 32**

**Figure 3-WATRFAL-12. Display Examples of each of the VERTICAL GAIN selections**

## HIDDEN LINES:

- RECALLABLE WATERFALL CONTROL PAGE

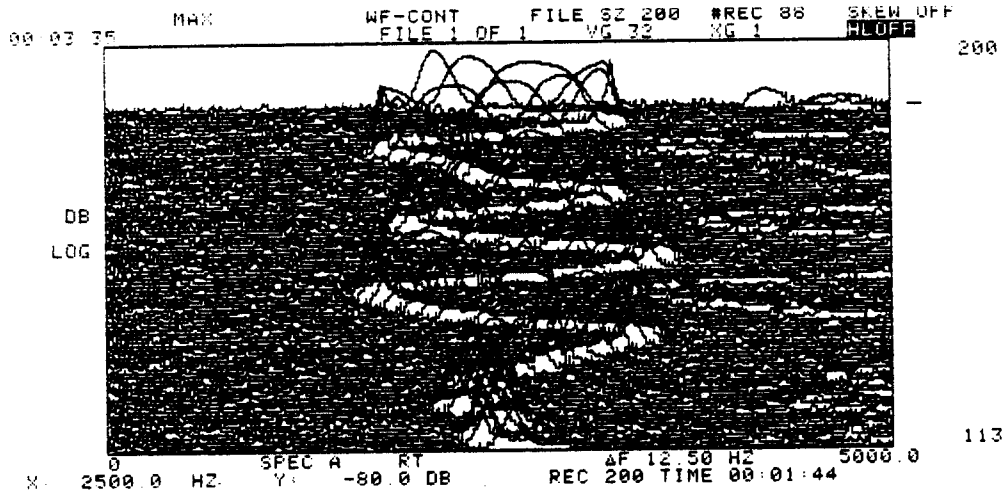
UPDATE MODE:	MAX	
FILE SIZE:	200	
SELECTED FILE #:	FILE 1	
DISPLAY MODE:	WF-CONT	
RECORDS PER DISPLAY:	88-100	
X GAIN:	1	
VERTICAL GAIN:	32	
HIDDEN LINES:	OFF	1. OFF
SKEW:	OFF	2. ON
% SUPPRESSION:	00	
SECONDS:	3	
% LEVEL:	20	

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

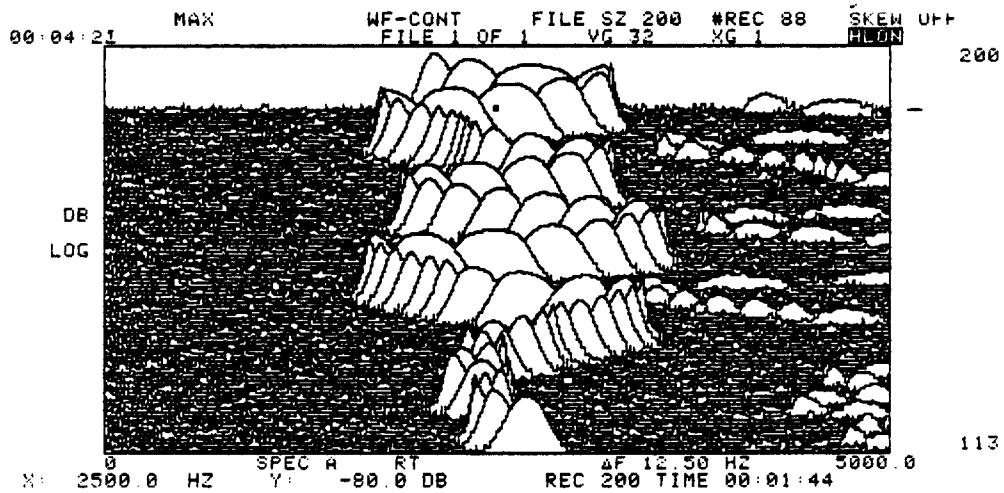
### Control Menu for Enabling/Disabling the Hidden Lines Feature

This menu is a display enhancement feature that suppresses overlapping lines on the Waterfall display. When hidden lines OFF is selected, the feature will be turned off and overlapping data will be observed on the Waterfall display. When hidden lines ON is selected, the feature will be turned on and overlapping data will be suppressed. Figure 3-WATRFAL-13 is an example of the same display showing the Hidden Lines feature both on and off.

If you attempt to SCROLL the Waterfall display data with the hidden lines feature turned on, the feature will automatically be turned off and the message "NO HL IN WATERFALL SCROLL" will appear on the display.



**HIDDEN LINES OFF**



**HIDDEN LINES ON**

**Figure 3-WATRFAL-13. Display Examples of the HIDDEN LINES Feature**



**SKEW:**

```
- RECALLABLE WATERFALL CONTROL PAGE
UPDATE MODE: MAX
FILE SIZE: 200
SELECTED FILE #: FILE 1
DISPLAY MODE: WF-CONT
RECORDS PER DISPLAY: 86-100
X GAIN: 1
VERTICAL GAIN: 32
HIDDEN LINES: OFF
SKEW: OFF
% SUPPRESSION: 00
SECONDS: 3
% LEVEL: 20
1. SKEW OFF
2. ON
```

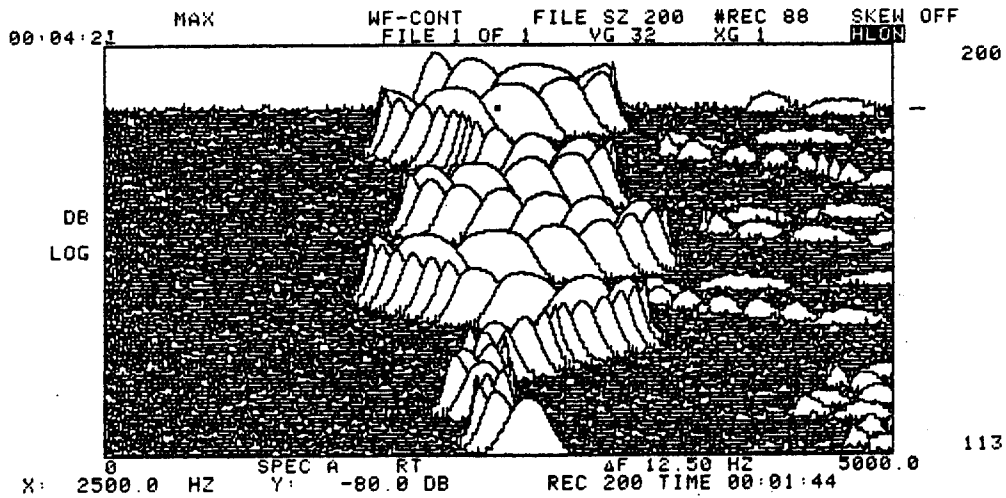
FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

**Control Menu for Enabling/Disabling the SKEW feature.**

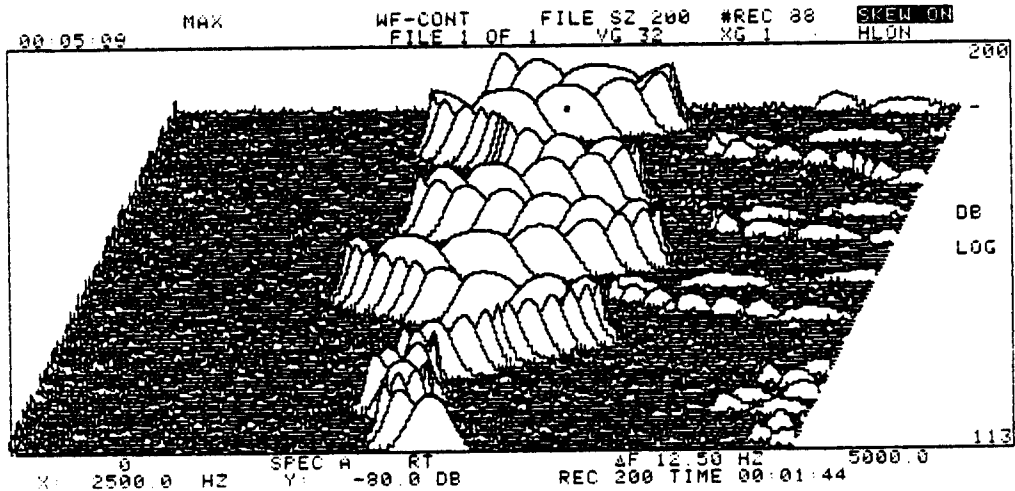
This Control Menu is used to enable/disable a display enhancement feature that provides a right Skew of the Waterfall display data. This feature gives the operator the advantage of being able to see around data peaks that appear in a straight line.

SKEW can be enabled in the HOLD mode only. If an attempt is made to enable this feature without selecting the HOLD mode first, the Waterfall will ignore the attempt until HOLD is selected, then SKEW will automatically be turned on.

Figure 3-WATRFAL-14 is an example of the same data display showing the SKEW feature disabled (SKEW OFF) and enabled (SKEW ON).



**SKEW OFF**



**SKEW ON**

**Figure 3-WATRFAL-14. Display Examples of each of the SKEW Menu Selections**

**% SUPPRESSION:**

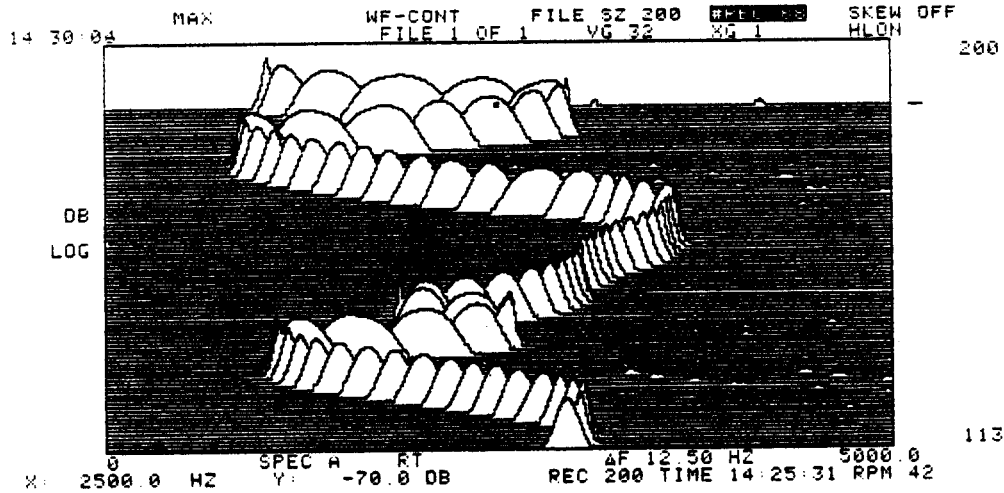
- RECALLABLE WATERFALL CONTROL PAGE

UPDATE MODE:	MAX	% SUPPR: 00
FILE SIZE:	200	
SELECTED FILE #:	FILE 1	
DISPLAY MODE:	WF-CONT	
RECORDS PER DISPLAY:	88-100	
X GAIN:	1	
VERTICAL GAIN:	32	
HIDDEN LINES:	OFF	
SKEW:	OFF	
% SUPPRESSION:	00	
SECONDS:	3	
% LEVEL:	20	

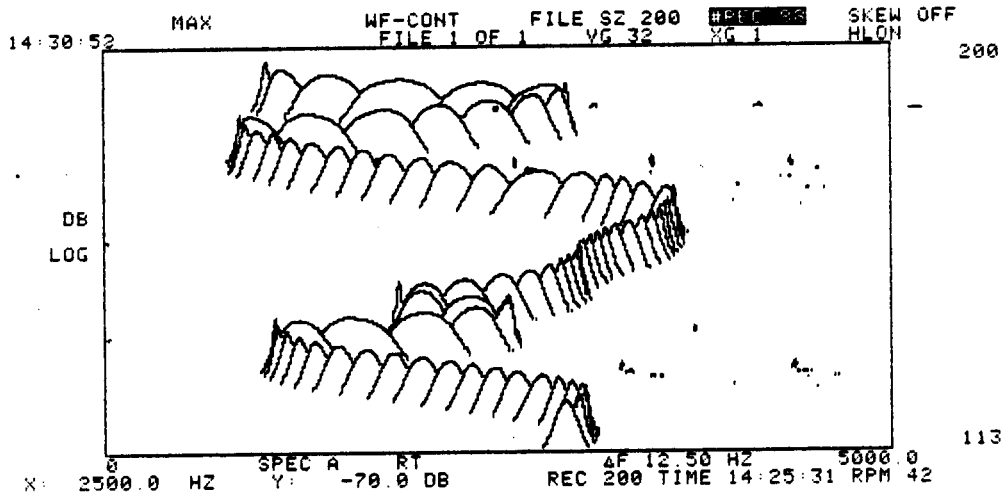
FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MENU': PRESS 'SETUP' ON/OFF.

**Numerical Entry Control Field for Selecting Percent of Baseline Suppression.**

This control field is a display enhancement feature that provides baseline suppression of the displayed data. Figure 3-WATRFAL-15 is an example of this feature showing the same display data before and after baseline suppression. Twenty percent suppression was used for this example. The amount of suppression is selectable via the front panel ENTRY keypad. Values from 1% to 99% can be entered in 1% increments.



**NO BASELINE SUPPRESSION**



**20% BASELINE SUPPRESSION**

**Figure 3-WATRFAL-15. Baseline Suppression Display Examples**

**SECONDS:**

- RECALLABLE WATERFALL CONTROL PAGE

UPDATE MODE:	MAX	SECONDS:	3
FILE SIZE:	200		
SELECTED FILE #:	FILE 1		
DISPLAY MODE:	WF-CONT		
RECORDS PER DISPLAY:	88-100		
X GAIN:	1		
VERTICAL GAIN:	32		
HIDDEN LINES:	OFF		
SKEW:	OFF		
% SUPPRESSION:	00		
SECONDS:	3		
% LEVEL:	20		

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

**Numerical Entry Control Field for Entering the Amount of Time for the "SECONDS" Waterfall UPDATE MODE.**

This control field is for entering the desired number of seconds for UPDATE MODE menu item 4, SECONDS. Values from 1 to 9999 in 1 second increments can be entered via the ENTRY keypad.

**% LEVEL:**

- RECALLABLE WATERFALL CONTROL PAGE

UPDATE MODE:	MAX	% LEVEL:	20
FILE SIZE:	200		
SELECTED FILE #:	FILE 1		
DISPLAY MODE:	WF-CONT		
RECORDS PER DISPLAY:	88-100		
X GAIN:	1		
VERTICAL GAIN:	32		
HIDDEN LINES:	OFF		
SKEW:	OFF		
% SUPPRESSION:	00		
SECONDS:	3		
% LEVEL:	20		

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

**Numerical Entry Control Field for Entering the Percentage Value for the "% LEVEL" Waterfall UPDATE MODE**

This control field is for entering the desired percent level for UPDATE MODE menu item 2, % LEVEL. Values from 0% to 99% in 1% increments can be entered. For acquisition to occur, peak signal amplitude must exceed the entered level. The selected percentage is in terms of full scale display.

**IEEE COMMUNICATION  
CONTROL  
(Setup Page 7)**

### 3-3.7 Setup Page 7 - IEEE COMMUNICATION

- **FIXED** IEEE COMMUNICATION

ADDRS: **31**

DEVICE ADDRESS: **31**

FLTNQ PT FORMAT: **BYTE**

INPUT TERMINATOR: **EOI**

OUTPUT TERMINATOR: **EOI**

SET DEVICE ADDRESS = 31 TO ENABLE  
TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.

To access this Setup Page (from the data display), press the SETUP group SETUP ON/OFF button. This displays the Setup Page listing. Next, place the RV on selection 7, IEEE COMMUNICATION. Now, press the SCROLL group MENU button and Setup Page 7 will appear on the display. If a Setup Page appears instead of the Setup Page Listing when SETUP ON/OFF is pressed, or if Setup Page 6 is already on the display, the PAGE ADV button can be used to access Setup Page 7.

**DEVICE ADDRESS:**

```

- FIXED
IEEE COMMUNICATION
ADDRS: 31

DEVICE ADDRESS: 31
FLTNG PT FORMAT: BYTE
INPUT TERMINATOR: EOI
OUTPUT TERMINATOR: EOI

SET DEVICE ADDRESS = 31 TO ENABLE
TALK ONLY FOR STAND ALONE PLOTTING.
```

```

FOR A FIELD SELECTION:    PRESS SETUP 'UP/DN' ARROWS.
TO EXERCISE A FIELD:     PRESS SCROLL 'UP/DN' ARROWS.
FOR NEXT 'SETUP PAGE':   PRESS SETUP 'PAGE ADV'.
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.
TO EXIT 'SETUP MODE':    PRESS 'SETUP' ON/OFF.
```

**Numerical Entry Field for Entering the Device Address.**

This Control Field is for entering the primary address of the SD385. The primary address is entered by selecting the desired number on the ENTRY group keypad (values from 0 to 31 are allowed), and then pressing the ENT button.

There is a message located at the bottom of this Setup Page that relates to this Control Field. The message states: SET DEVICE ADDRESS = 31 TO ENABLE TALK ONLY FOR STAND ALONE PLOTTING. When the device address is 31, the analyzer is in a talk-only mode and, when the DISK I/O group PLOT button is pressed, plot data is sent out. If the device address is not 31 (0-30), pressing the PLOT button will result in one of two things: either nothing will happen, or (if PLOT REQUEST is masked by the controller) an SRQ will be issued. The plotter must be placed in listen-only for stand-alone plotting.

\* The same procedure is used to output to the HP ThinkJet<sup>tm</sup> printer except the front-panel PRINT button is pressed instead of the PLOT button.



**FLTNG PT FORMAT:**

- **FIXED** IEEE COMMUNICATION

DEVICE ADDRESS:	<input type="text" value="31"/>	FLTNG PT FORMAT
FLTNG PT FORMAT:	<input type="text" value="BYTE"/>	1. <input type="text" value="BYTE"/>
INPUT TERMINATOR:	<input type="text" value="EOI"/>	2. DEC
OUTPUT TERMINATOR:	<input type="text" value="EOI"/>	

SET DEVICE ADDRESS = 31 TO ENABLE  
TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
~~TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.~~

**Control Menu for selecting Floating Point Number Format.**

This Control Menu applies to binary data only. Floating point information is expressed in binary mantissa/exponent fashion. This data is available in two formats: BYTE and DEC. BYTE format is optimized for easy conversion of byte values (0 to 255) into a floating point number. DEC format, though not easily manipulated on a byte-by-byte format, is bit for bit compatible with the MACRO-11(tm) assembly language format. This allows data to be transferred directly into a floating point array memory block without manipulations.

## INPUT TERMINATOR:

- **FIXED** IEEE COMMUNICATION

DEVICE ADDRESS:	<input type="text" value="31"/>	INPUT TERMINATOR
FLTNG PT FORMAT:	<input type="text" value="BYTE"/>	1. <input type="text" value="EOI"/>
INPUT TERMINATOR:	<input type="text" value="EOI"/>	2. CR
OUTPUT TERMINATOR:	<input type="text" value="EOI"/>	3. LF
		4. ETX

SET DEVICE ADDRESS = 31 TO ENABLE  
TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
~~TO SWAP 'SETUP PAGES': PRESS 'SETUP' ON/OFF.~~

### Control Menu for Selecting Input Terminator.

There are two methods of identifying the end of an ASCII data stream being received. The first method designates the byte that is coincident with the End Or Identify (EOI) signal as the last byte of a data stream. The second method designates a particular ASCII character as the last byte. This menu is used to select which method is desired, and which particular ASCII character is the input terminator: CR (carriage return), LF (line feed), or ETX (end of text). Input terminators apply only to ASCII data. Binary data is terminated by EOI or byte count.

## OUTPUT TERMINATOR:

- ~~FIXED~~ IEEE COMMUNICATION

DEVICE ADDRESS:	<input type="text" value="31"/>	OUTPUT TERMINATOR
FLTNQ PT FORMAT:	<input type="text" value="BYTE"/>	1. <input checked="" type="text" value="EOI"/>
INPUT TERMINATOR:	<input type="text" value="EOI"/>	2. CR
OUTPUT TERMINATOR:	<input checked="" type="text" value="EOI"/>	3. LF
		4. ETX

SET DEVICE ADDRESS = 31 TO ENABLE  
TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION:      PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD:      PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE':      PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES':    PRESS 'MENU' ON/OFF.  
~~TO EXERCISE SETUP MODE:      PRESS 'SETUP' ON/OFF.~~

### Control Menu for Selecting Output Terminator.

There are two methods of identifying the end of an ASCII data stream being sent. The first method designates the byte that is coincident with the End Or Identify (EOI) signal as the last byte of a data stream. The second method designates a particular ASCII character as the last byte. This menu is used to select which method is desired, and which particular ASCII character is the output terminator: CR (carriage return), LF (line feed), or ETX (end of text). Output terminators apply only to ASCII data. Binary data is terminated by the EOI signal or byte count.

The analyzer always sends an EOI with the last byte.

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**DIGITAL PLOTTER  
CONTROL  
(Setup Page 8)**

3-3.8 Setup Page 8 -- DIGITAL PLOTTER CONTROL

- RECALLABLE DIGITAL PLOTTER PAGE

PLOTting FORMAT: <input type="text" value="COPY SCREEN"/>	PLOTting FORMAT
PLOT CALIBRATION: <input type="text" value="MANUAL"/>	1. <input type="text" value="COPY SCREEN"/>
TIME X FULL SCL: <input type="text" value="0.30"/>	2. <input type="text" value="SCREEN+LIST"/>
PLOT LIST SELECT: <input type="text" value="MARK"/>	3. <input type="text" value="TRC OVERLAY"/>
OVERLAY LINE TYPE: <input type="text" value="DASHED"/>	4. <input type="text" value="SIMUL TIME X"/>
GRID PEN: <input type="text" value="PEN 1"/>	5. <input type="text" value="SIMUL CRSR X"/>
ANNOTATION PEN: <input type="text" value="PEN 1"/>	
TRACE PEN: <input type="text" value="PEN 1"/>	
CURSOR PEN: <input type="text" value="PEN 1"/>	

SET IEEE TO TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
 TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
 FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
 FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
 TO EXIT 'SETUP MODE': PRESS 'SETUP ON/OFF'.

To access this Setup Page (from the data display), press the SETUP group SETUP ON/OFF button. This displays the Setup Page listing. Next, place the RV on selection 8, DIGITAL PLOTTER CTL. Now, press the SCROLL group MENU button and Setup Page 8 will appear on the display. If a Setup Page appears instead of the Setup Page Listing when SETUP ON/OFF is pressed, or if Setup Page 7 is already on the display, the PAGE ADV button can be used to access Setup Page 8.

## PLOTTING FORMAT:

- RECALLABLE      DIGITAL PLOTTER PAGE

PLOTTING FORMAT:	<input checked="" type="checkbox"/> COPY SCREEN	PLOTTING FORMAT
PLOT CALIBRATION:	<input type="checkbox"/> MANUAL	1. <input checked="" type="checkbox"/> COPY SCREEN
TIME X FULL SCL:	<input type="checkbox"/> 030	2. <input type="checkbox"/> SCREEN+LIST
PLOT LIST SELECT:	<input type="checkbox"/> MARK	3. <input type="checkbox"/> TRC OVERLAY
OVERLAY LINE TYPE:	<input type="checkbox"/> DASHED	4. <input type="checkbox"/> SIMUL TIME X
GRID PEN:	<input type="checkbox"/> PEN 1	5. <input type="checkbox"/> SIMUL CRSR X
ANNOTATION PEN:	<input type="checkbox"/> PEN 1	
TRACE PEN:	<input type="checkbox"/> PEN 1	
CURSOR PEN:	<input type="checkbox"/> PEN 1	

SET IEEE TO TALK ONLY FOR STAND ALONE PLOTTING.

### Control Menu for Selecting Plotting Format

1. COPY SCREEN      When selected, this menu item provides a complete plot of all displayed information (cursor, grids, annotation, and trace data).
2. SCREEN + LIST      When selected, this menu item provides a complete plot of all displayed information and the selected list (MARK, HARMONIC, OCTAVE or PEAK FIND LIST). The desired list is selected via the PLOT LIST SELECT menu.
3. TRC OVERLAY      Selection of this item, results in a plot consisting of trace data only. The trace data will be composed of dashed or dotted lines, depending on the OVERLAY LINE TYPE menu selection.
4. SIMUL TIME X      When this menu item is selected, the plotted display will be cursor Y-axis amplitude versus time. The length of time the X-axis represents, is determined by the entered value on the TIME X FULL SCL field.
5. SIMUL CRSR X      Selection of this item produces a plot showing the position of the Data Cursor in the X and Y-axis. The plotter will plot any and all movements of the cursor (even back-and-forth) until the cursor reaches the extreme right end of the trace.

## PLOT CALIBRATION:

- RECALLABLE DIGITAL PLOTTER PAGE

PLOTTING FORMAT:	COPY SCREEN	PLOT CALIBRATION	1. MANUAL
PLOT CALIBRATION:	MANUAL		2. FULL
TIME X FULL SCL:	030		3. 1/2
PLOT LIST SELECT:	MARK		4. 1/4
OVERLAY LINE TYPE:	DASHED		
GRID PEN:	PEN 1		
ANNOTATION PEN:	PEN 1		
TRACE PEN:	PEN 1		
CURSOR PEN:	PEN 1		

SET IEEE TO TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

### Control Menu for Selecting Plot Size

- 1. MANUAL**

Selection of this item allows all plot calibration settings to be made manually on the external plotter. However, it should be noted that the plotter P1, P2 set points define the grid corners. The annotation will be plotted outside this area.
- 2. FULL**

When this menu item is selected, the external plotter will plot the display full size. A full size plot is approximately 9" X 7".
- 3. 1/2**

Selection of this menu item will result in a plotted display one-half size. A one-half size plot is approximately 7" X 6".
- 4. 1/4**

This menu item, when selected, provides a plotted display one-quarter size. A one-quarter size plot is approximately 5" X 4".



**TIME X FULL SCL:**

- RECALLABLE      DIGITAL PLOTTER PAGE

PLOTTING FORMAT:	COPY SCREEN	SIMUL TIME 020
PLOT CALIBRATION:	MANUAL	
TIME X FULL SCL:	020	
PLOT LIST SELECT:	MARK	
OVERLAY LINE TYPE:	DASHED	
GRID PEN:	PEN 1	
ANNOTATION PEN:	PEN 1	
TRACE PEN:	PEN 1	
CURSOR PEN:	PEN 1	

SET IEEE TO TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION:      PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD:      PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE':      PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES':      PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE':      PRESS SETUP UP/OFF.

**Numerical Entry Field for Entering the Amount of Time for the "SIMUL TIME X" PLOTTING FORMAT.**

This Control Field is for entering the desired time, in seconds, for PLOTTING FORMAT menu item 4, SIMUL TIME X. The value entered for this Control Field controls the length of time the X-axis represents. Values from 1 to 999 in 1 second intervals can be entered.

**PLOT LIST SELECT:**

- RECALLABLE      DIGITAL PLOTTER PAGE

PLOTTING FORMAT:	<input type="checkbox"/> COPY <input checked="" type="checkbox"/> SCREEN	PLOT LIST SELECT
PLOT CALIBRATION:	<input type="checkbox"/> MANUAL	
TIME X FULL SCL:	<input checked="" type="checkbox"/> 0.30	1. <input checked="" type="checkbox"/> MARK
PLOT LIST SELECT:	<input checked="" type="checkbox"/> MARK	2. <input type="checkbox"/> HRMNC
OVERLAY LINE TYPE:	<input type="checkbox"/> DASHED	3. <input type="checkbox"/> PK FIND
GRID PEN:	<input type="checkbox"/> PEN 1	
ANNOTATION PEN:	<input type="checkbox"/> PEN 1	
TRACE PEN:	<input type="checkbox"/> PEN 1	
CURSOR PEN:	<input type="checkbox"/> PEN 1	

SET IEEE TO TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION:      PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD:      PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE':      PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES':      PRESS 'MENU/ ON/OFF'.  
**TO EXIT 'SETUP MODE':      PRESS 'SETUP ON/OFF'.**

**Control Menu for Specifying the Type of List for PLOTTING  
FORMAT Menu Selection 2, SCREEN + LIST.**

1. MARK                      Selection of this menu item allows the Mark List to be plotted only when item 2 is selected on the PLOTTING FORMAT menu.
  
2. HRMNC                    This menu item actually has two functions. When the selected CURSOR MODE is Harmonic (HMNC; Setup Page 4), and the PLOTTING FORMAT is SCREEN + LIST, a Harmonic List will be plotted. When the selected ANALYSIS BAND (Setup Page 2) is any of the Octave Bands and the PLOTTING FORMAT is SCREEN + LIST, the Octave List will be plotted.
  
3. PK FIND                  This menu item, when selected, allows the Peak Find List to be plotted only when the plotting format is SCREEN + LIST. When the selected ANALYSIS BAND (Setup Page 2) is any of the Octave Bands and the PLOTTING FORMAT is SCREEN + LIST, the Octave List will be plotted.

**GRID PEN:, ANNOTATION PEN:, TRACE PEN:, CURSOR PEN:**

- RECALLABLE DIGITAL PLOTTER PAGE

PLOTTING FORMAT:	<input type="text" value="COPY SCREEN"/>	
PLOT CALIBRATION:	<input type="text" value="MANUAL"/>	PEN SELECTION
TIME X FULL SCL:	<input type="text" value="030"/>	1. <input type="text" value="PEN 1"/>
PLOT LIST SELECT:	<input type="text" value="MARK"/>	2. <input type="text" value="PEN 2"/>
OVERLAY LINE TYPE:	<input type="text" value="DASHED"/>	3. <input type="text" value="PEN 3"/>
		4. <input type="text" value="PEN 4"/>
		5. <input type="text" value="MANUAL"/>
		6. <input type="text" value="OFF"/>
GRID PEN:	<input type="text" value="PEN 1"/>	
ANNOTATION PEN:	<input type="text" value="PEN 1"/>	
TRACE PEN:	<input type="text" value="PEN 1"/>	
CURSOR PEN:	<input type="text" value="PEN 1"/>	

SET IEEE TO TALK ONLY FOR STAND ALONE PLOTTING.

FOR A FIELD SELECTION: PRESS SETUP 'UP/DN' ARROWS.  
TO EXERCISE A FIELD: PRESS SCROLL 'UP/DN' ARROWS.  
FOR NEXT 'SETUP PAGE': PRESS SETUP 'PAGE ADV'.  
FOR LIST OF 'SETUP PAGES': PRESS 'MENU' ON/OFF.  
TO EXIT 'SETUP MODE': PRESS 'SETUP' ON/OFF.

If you look at the menus associated with the last four selections on this Setup Page (GRID PEN, ANNOTATION PEN, TRACE PEN and CURSOR PEN) you will notice that they are identical. This allows you to control what happens when the front-panel PLOT button is pressed by dividing the plotted information into four parts. For example, if a multi-pen type digital plotter is being used (such as a four-color plotter), assigning a pen number to each portion of the plot using each PEN SELECTION menu (specifically the PEN 1, PEN 2, PEN 3, and PEN 4 selections), allows you to control plotter-pen selection from this Setup Page rather than having the plotter do it for you. As you can see, this feature increases the user-flexibility of the multi-color/multi-pen type plotter. However, this isn't the only use for this feature. You can also leave out certain portions of the plot simply by selecting OFF (item 6 on each PEN SELECTION menu) from the desired PEN SELECTION menu. This part of the feature works with both the single-pen and multi-pen type plotters.

#### NOTE

Assigning different pen numbers to each of the PEN SELECTION menus will have no effect on a single-pen plotter.

Item 5 on each PEN SELECTION menu, MANUAL, allows you to perform a multi-color plot using a single-pen type plotter (you will need, of course, different colored plotter pens). For example, MANUAL is selected on each of the four PEN SELECTION menus and the front-panel PLOT button is pressed. This is what will happen:

First, an RV message will appear at the top of the display. The message will say:

"LOAD PEN FOR GRIDS & PUSH PLOT TO CONTINUE"

Place the appropriate colored pen (the color you want the grid(s) to be) in the plotter. Press the front-panel PLOT button. Only the grid(s) will be plotted. As soon as the plotter is finished, another message will appear in the same place on the display. The message will say:

"LOAD PEN FOR TRACE & PUSH PLOT TO CONTINUE"

Place the appropriate colored pen (the color you want the trace data to be) in the plotter. Press the front-panel PLOT button. Only the trace data will be plotted. As soon as the plotter is finished, another message will appear in the same place on the display. The message will say:

"LOAD PEN FOR CURSOR & PUSH PLOT TO CONTINUE"

Place the appropriate colored pen (the color you want the data cursor to be) in the plotter. Press the front-panel PLOT button. Only the data cursor will be plotted.

#### NOTE

If the display you are plotting is of the multiple-cursor type such as Harmonic or Mark Data, all the cursors will be plotted.

As soon as the plotter is finished, another message will appear in the same place on the display. The message will say:

**"LOAD PEN FOR ANNOTATION & PUSH PLOT TO CONTINUE"**

Place the appropriate colored pen (the color you want the annotation to be) in the plotter. Press the front-panel PLOT button. Only the annotation will be plotted.

You have just performed a four-color plot with a single pen plotter. A bit more cumbersome than having your own four-color plotter, but a lot cheaper.

MANUAL can also be selected for a single pen, or any two/three pen combination. For example, MANUAL is selected on the ANNOTATION PEN's PEN SELECTION menu, and PEN 1 is selected for the other three (GRID PEN, TRACE PEN and CURSOR PEN). What will happen is the grid, trace data and cursor will be plotted first and then the previously described "LOAD PEN FOR ANNOTATION & PUSH PLOT TO CONTINUE" message will appear on the display allowing you to change plotter pens for the annotation.

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