5 January 2005 – This contact update page has been added to the Acrobat document you have downloaded. Please disregard any contact information printed within the document.

Our Mailing and Shipping Address:

White Instruments Div. C Van R, Inc.
1514 Ed Bluestein Blvd., Suite 201 (for U.S. Mail)
Austin, TX 78721 U.S.A.
Phone: 512-389-5358
Fax: 512-301-3932
Main Email Address: cvanr@whiteinstruments.com
World Wide Web Site: http://www.whiteinstruments.com/

Note: Repairs and packages should be shipped to Suite 202

MODEL
4700
4700-2
4710

Digitally Controlled

USERS MANUAL

CONGRATULATIONS!

You have purchased one of the finest Equalizers that money can buy!

This manual is intended to help you get your new equalizer installed and working. **Please fill-out and return the User's Service Card packed with your equalizer.** Your comments are always appreciated. Recording your ownership of this product with us could help you recover it in the event it is lost or stolen.

What You Paid For:

By choosing our product over our competition's you have made a direct contribution to the livelihood of everyone at White Instruments. In all likelihood your new equalizer will be installed in a system upon which you or others **depend for a living**. We believe we must continue to earn your trust.

White Instruments has manufactured your new equalizer to the highest possible quality standards within the given realm of economic reason. We want you to be happy with your purchase over the long term. We want you to continue to purchase and recommend our products. We believe we have built our reputation and business on customer satisfaction by offering quality products, personalized service, instant response to field problems and no hype. **You**, our customer, are the most **important** person in the world to us as a company. If you have any problems with this product, or if you have any questions please remember that we are as near as your telephone.

Contents:

Unpacking 4
How to Obtain Warranty Service 4
How to Obtain Out-of-Warranty Service . . . 4
How to Contact White Instruments 4
Front Panels Controls and Features 5
Overview of Operation 5–6
Rear Panel Controls and Features 6
AC Power and Power Supply 6–7
Sound System Connections 7–8
Unbalanced Operation 8
Balanced Operation 8–9
High and Low-Pass Filters 9
One-Third Octave Filters 9–10
Accessories and Options 10
PROGRAMMING 11–25
Overview 11–12
Power up 13
Step 1
Select Main Menu 13
Step 2
Equalizer is Locked 14–16
Step 3
Recall a Preset 14–15
(Access Code Required)
Step 3A
Recall a Preset 15
(Access Code Not Required)
Step 3B
Enter Sytem Access Code 15–16
to Unlock Equalizer
Step 3C
Equalizer Adjustment 16–18
Step 4
Channel (if dual channel) 16–17
Step 4A
One-Third Octave Filters 17
Step 4B
High-Pass Filter 17–18
Step 4C
Low-Pass Filter 18
Step 4D
Gain 18
Step 4E
EQ In/Out 18
Step 4F
Memory 19–22
Step 5
Store Memory 19
Step 5A
Recall Memory 19
Step 5B
Name Memory 20
Step 5C
Assign Presets 20–22
Step 5D
Presets 22–23
Step 6
Recall Preset 22
Step 6A
Name Preset 22–23
Step 6B
Utility 23–25
Step 7
Set System Security Code 24–25
Step 7A
Set Preset Access Code 24–25
Step 7B
APPENDIX 26–28
Specifications Model 4700 26
Specifications Model 4710 27
Trouble Report 28

Unpacking:

Carefully unpack and **inspect** your new equalizer for shipping damage. Save the packing materials to assure safe transit to us in the event your equalizer should ever need factory service. Immediately report any damage to the carrier and to White Instruments. Your equalizer was shipped with full insurance unless we were instructed otherwise. We will assist you in quickly obtaining parts and/or service. The Package Should Contain The Following: One Model 4700 Equalizer (including any internal factory installed options), this Manual, four Rack Mounting Screws, one User Service Card.

Warranty Policy:

Your White Instruments Equalizer is warranted against defects in manufacturing, workmanship and original components for a period of **ONE YEAR** from the date of purchase. During this period White Instruments will repair or replace the equalizer, at our option, so long as it has **not been subjected to abuse**. Abuse may be physical and/or electrical in nature. White Instruments will be the sole judge of this criteria.

White Instruments is the only warranty repair facility in the United States. Outside of the United States, White Instruments' Distributors are authorized to make Warranty Repairs.

How To Obtain Warranty Repairs:

The equalizer should be **securely packed** and shipped, **prepaid**, to White Instruments or one of its Authorized Offshore Distributors. A return authorization is **not** required.

Our U.S.A. shipping address may be found in the *COMMUNICATIONS* section of this manual.

Contact the factory for the name and address of the Offshore Distributor nearest you.

A copy of your **sales receipt** should be included to establish the warranty date. Without it we will have to rely on the serial number, which indicates when we originally shipped the equalizer to a dealer.

A completed **trouble report** or letter detailing the equalizer's malfunction must be included. See the appendix for a copy.

Your **name**, shipping **address** and **telephone number** must be included.

Every effort will be made to complete warranty repairs within five working days of receipt of the unit. Your equalizer will be returned to you via best surface freight, prepaid. **If you instruct us to return your equalizer via air freight, it will be shipped with freight charges collect.**

How To Obtain Out-Of-Warranty Repairs:

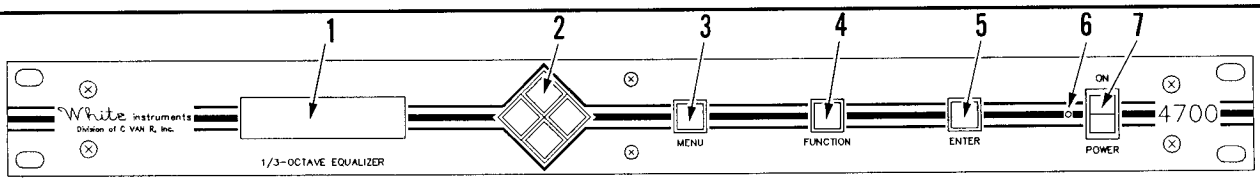
Should the required repairs not be covered by our warranty you will be charged for the parts and labor required to repair the unit. Should you require an estimate of charges prior to repairing the unit you should notify White Instruments of this **when returning** the unit. Every effort will be made to complete the repair within five working days. The unit will be returned **C.O.D.** unless other arrangements have been made.

As a service to our customers we **do not** consider our Repair Department to be a profit center.

Communications:

TELEPHONE:	(512) 389-3800
FAX:	(512) 389-1515
MAILING ADDRESS:	P.O. Box 698, Austin, Texas 78767
SHIPPING ADDRESS:	1514 Ed Bluestein Blvd., Austin, TX 78721, U.S.A.

Front Panel Controls and Features:



1. LCD Display Screen
2. Cursor Diamond: Up-Down-Left-Right Arrow Keys
3. Menu Key
4. Function Key
5. Enter Key
6. Power Indicator
7. Power Switch

Model 4700 - Front Panel

All of the Model 4700 functions are controlled through a system of menus via the front panel controls. The top level menus, each associated with a different group of functions, are selected with the **MENU** key. Once the desired top level menu is selected, various functions within that menu are selected using the **FUNCTION** key. Parameters are adjusted within a given function with the **UP-DOWN-LEFT-RIGHT ARROW** keys. Parameter changes made in functions under the EQUALIZER ADJUSTMENT MENU take effect immediately. Parameter changes under other top level menus require the **ENTER** key to be pressed before they become effective. While in portions of the **E.Q. Adjust Menu** other than the Channel Select Function, the active channel may be toggled at any time by pressing the Enter key.

To avoid confusion, any menus or functions which are of no use because of the present configuration of the equalizer are automatically bypassed. For example, if the unit is a single channel equalizer, the channel selection display under the EQUALIZER ADJUSTMENT MENU will not appear. Or, if the EQ is OUT, the 1/3 octave adjustment function is bypassed.

As an aid to the experienced user some shortcut techniques have been provided. When at the top menu level, the **ARROW** keys will move you forward or backward through the menu selections (the **MENU** key only moves forward). When adjusting the 1/3 octave filter settings, holding down the **UP** and **DOWN** keys simultaneously will set the filter being adjusted to 0dB. Holding down the **LEFT** and **RIGHT** keys simultaneously will cause the EQ to ask if you want to flatten all settings (all 1/3 octave filters to 0dB, high-pass and low-pass filters to their extremes, gain to 0dB). Holding down **LEFT** and **RIGHT** keys simultaneously while setting a security code under the UTILITY MENU will set the code to dashes (no security code). Holding down any key will cause it to repeat.

Overview of Operation:

The Model 4700 is a digitally controlled analog equalizer capable of high performance and programmable flexibility. All settings are retained in non-volatile memory (without batteries) when the power is off.

To aid as a deterrent to tampering, three levels of security are provided:

1. **No Security**

   In this mode, free access is given to all of the EQ functions. This mode is entered by setting the SYSTEM ACCESS CODE to all dashes.

2. **Settings Locked, Presets Freely Accessible**

   No changes can be made to any of the EQ settings, including memories and preset assignments, without knowledge of a programmable four character SYSTEM SECURITY CODE. However, presets can be recalled freely from the front panel by selecting the one desired and pressing **ENTER**.

3. **All Settings and Presets Locked**

   No changes can be made to any settings without knowledge of the SYSTEM SECURITY CODE. Presets can be recalled only with the knowledge of a separate two character PRESET SECURITY CODE.

The equalizer is available in either single or dual channel versions. Each version can store up to ten different sets of settings in its ten **memories**. These memories are then apportioned to each channel by the use of **presets**. A preset assigns a specified memory to a channel of the equalizer. For example, if preset 1A is set to memory 3 and preset 1B is set to memory 8, when preset 1 is recalled the memory 3 settings are transferred to channel A and the memory 8 settings are transferred to channel B. In this way, the ten memories can be apportioned to the different channels in any way desired.

Both memories and presets can be assigned alphanumeric **names** to aid in identifying them. The following characters are allowed in a name definition:

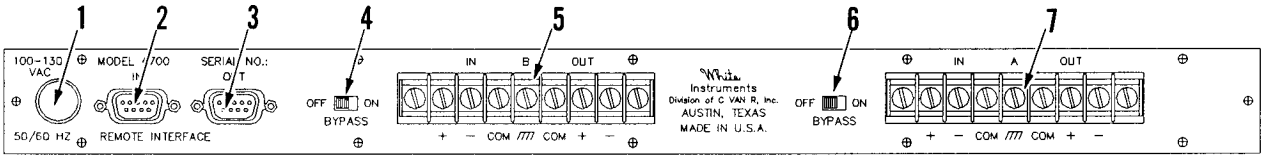
-(dash) (blank) 0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z , / # ( ) &

These characters are selected with the **UP-DOWN ARROW** keys in a repeating sequence which can be traversed in both directions.

The Model 4700 input and output circuitry is differential and fully balanced. It can be used in either balanced or single-ended systems simply by connecting as needed.

A rear panel BYPASS switch enables a hardwire bypass around the equalizer to completely remove the unit from the signal path.

Rear Panel Controls and Features:



1. Power Cable
2. Remote Interface Input (if ordered with option 4701, 4702 or 4703)
3. Remote Interface Output (if ordered with option 4701, 4702 or 4703)
4. Channel B Bypass Switch (if Model 4700-2)
5. Channel B Audio Connectors (if Model 4700-2)
6. Channel A Bypass Switch
7. Channel A Audio Connectors

Model 4700 - Rear Panel

Bypass Switch:	Connects the equalizer's input(s) to its output(s).
Barrier Strip Connectors:	Facilitates connection of audio input(s) and output(s) to the equalizer.
Digital Connectors:	Facilitates connection of remote control devices to the equalizer. Included only with options 4701, 4702 or 4703.
Power Cable:	Facilitates connection of AC mains power to the equalizer.

AC Power and Power Supply:

Mains Voltages:	The Model 4700 or 4700-2 may be ordered in one of two AC voltage ranges as follows: 100 - 130 VAC, 50/60Hz. 200 - 260 VAC, 50/60Hz. The voltage range is **not** user selectable. Contact your dealer for modification.
Power Supply:	The power supply produces regulated voltages for audio processing and digital control. The power transformer is torroidal to minimize noise and hum.

Power Cable — The equalizer is equipped with a captive 5 ft. power cable with a NEMA 5-15P plug molded on the end. This plug may be changed for operation outside of the United States.

Mute Relay — An audio mute relay closes to pass the audio signal when the power supply has had time to stabilize on power up. It opens to interrupt the audio signal on power down before the power supply has had time to decay.

Sound System Connections:

The Model 4700 is connected to the sound system via a barrier strip for each channel. Interface wiring to the equalizer should be high quality, two or three* conductor, shielded cable.

The chassis is bonded to AC ground through the power cable.

It is not the purpose of this manual to provide a dissertation on sound system interfacing, shielding, grounding and safety techniques. However, a few comments seem to be in order.

Grounding Lug: NEVER remove the grounding lug from the AC power cable. To do so is dangerous and unlawful in most jurisdictions! Further it is unnecessary since the audio processed by this unit can be isolated from AC ground.

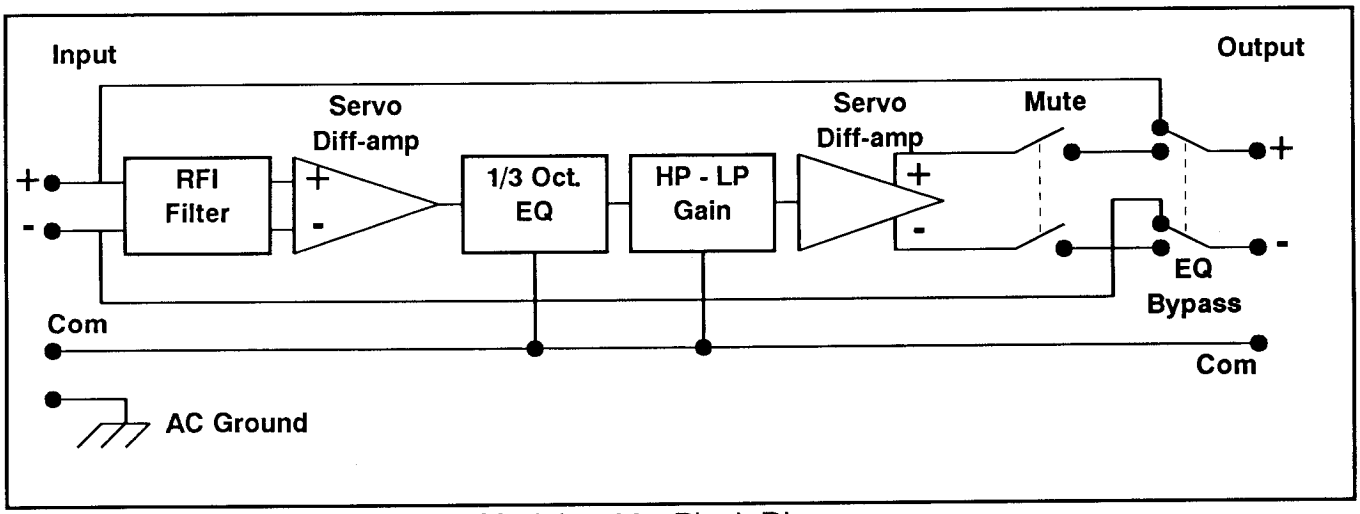
A good technical ground can and should be achieved through the proper design and installation of the AC system.

Shield: The shield should not be thought of as part of the audio circuit. Rather, it simply helps protect the audio circuit from electrostatic and RFI noise.

It is a generally accepted practice to connect the shield to AC ground at only ONE end of the audio cable. The other end should be left open or connected to AC ground through a .01 mfd capacitor.

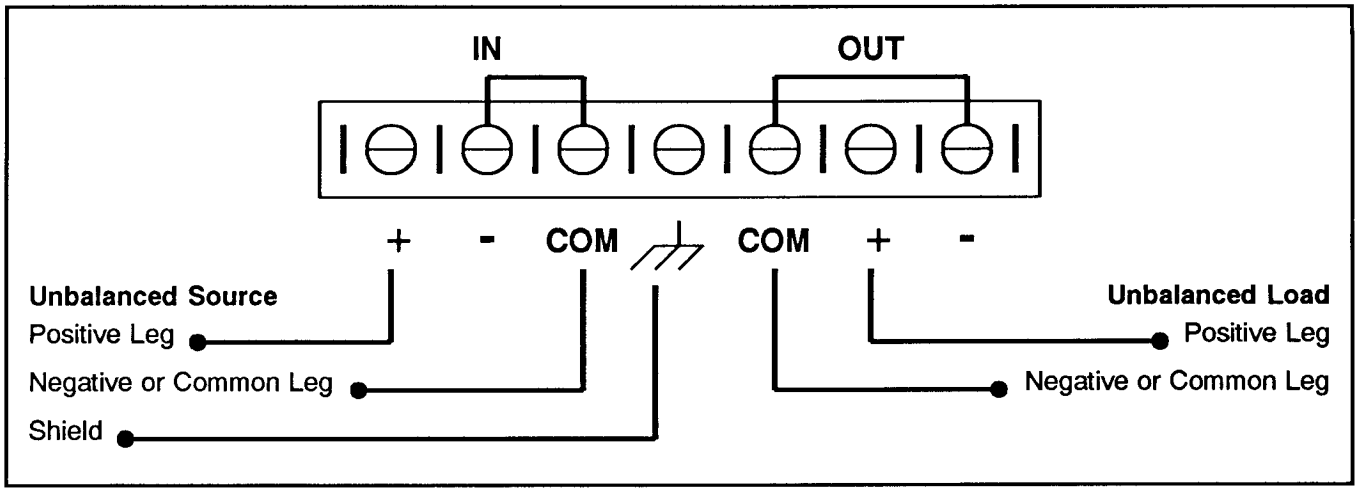
Cables: Interface cables, whether purchased or made, should be of the highest possible quality and treated with the same respect as any other fine audio component.

* See balanced operation diagram.



Model 4700 - Block Diagram

Unbalanced Operation



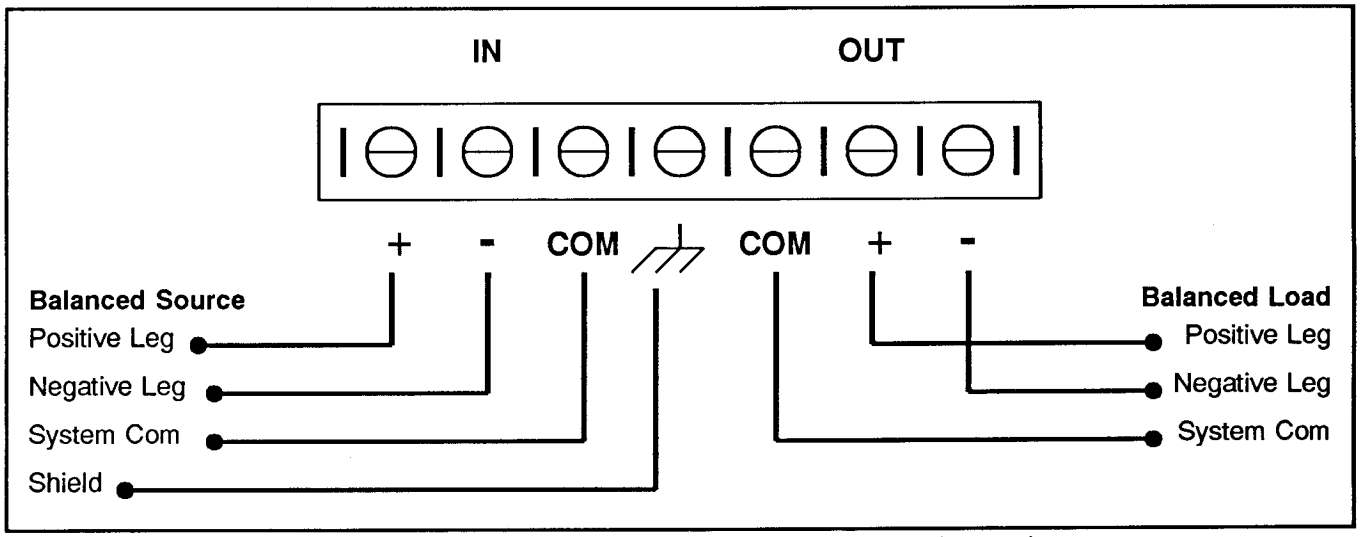
Model 4700 - Input/Output Connections, Unbalanced

Connect the Model 4700 to the sound system according to the above drawing.

Note: When operating this equalizer unbalanced connect the jumpers between **-** and **COM** as illustrated to prevent signal loss and noise.

In unbalanced operation, the input impedance of the Model 4700 is 20k Ohms and the output impedance is 51 Ohms.

Balanced Operation



Model 4700 - Input/Output Connections, Balanced

Connect the Model 4700 to the sound system according to the above drawing.

Note: Com must either be attached to system common or earth terminal.

In balanced operation, the input impedance is 60k Ohms and the output impedance is 102 Ohms.

What is a balanced audio transmission line?

A balanced audio transmission line is a system which, like the shield, provides protection from electrostatic disturbances or RFI noise.

Two assumptions are made...

One The two audio conductors (wires) are in close proximity to each other. This is often accomplished by tightly twisting them together.

Therefore, it is assumed that the electrostatic disturbance is imposed equally on both conductors.

Two Both audio legs (audio high or + and audio low or -) are referenced to a common point in the audio circuit.

Then If the disturbance, in fact, is equally imposed on both audio legs and both audio legs are equally referenced to the common point , then the disturbance component of the signal does not generate an output signal. The amount of cancellation is determined by the common mode rejection ratio.

The fact that the input and/or output of an audio component is balanced is a function of its circuit design, not the audio interface (cable and connectors).

The audio interface cable can be configured to *UN*balance a balanced circuit, but an *UN*balanced circuit cannot be balanced with the audio interface cable.

An *UN*balanced circuit driving or terminating a balanced circuit will *UN*balance the circuit.

High and Low-Pass Filters:

The Model 4700 is bandlimited by variable high and low-pass filters.

These filters attenuate unwanted ultrasonic and subsonic signals which would otherwise be amplified.

The response of each filter is 12dB/octave. The -3dB point of the high-pass filter is adjustable in 8 steps: 10Hz, 32Hz, 51Hz, 62Hz, 75Hz, 100Hz, 130Hz and 160Hz. The low-pass filter is adjustable in 8 steps: 6kHz, 7kHz, 9kHz, 11kHz, 13kHz, 15kHz, 23kHz and 32kHz.

One-Third Octave Filters: (4700/4700-2)

The equalizer features 28 one-third octave filters on standard I.S.O. centers from 31.5kHz to 16kHz (two independent banks of 28 filters on Model 4700-2). The range of each filter is 20dB (±10dB) in 0.5dB steps.

The one-third octave frequency centers are:

31.5Hz, 40Hz, 50Hz, 63Hz, 80Hz, 100Hz, 125Hz, 160Hz, 200Hz, 250Hz, 315Hz, 400Hz, 500Hz, 630Hz, 800Hz, 1000Hz, 1250Hz, 1600Hz, 2000Hz, 2500Hz, 3150Hz, 4000Hz, 5000Hz, 6300Hz, 8000Hz, 10.0kHz, 12.5kHz and 16.0kHz.

One-Sixth Octave Filters: (4710)

The equalizer features 55 one-sixth octave filters on I.S.O. centers from 25 Hz to 12.5 kHz. The range of each filter is 20 dB (±10dB) in 0.5dB steps.

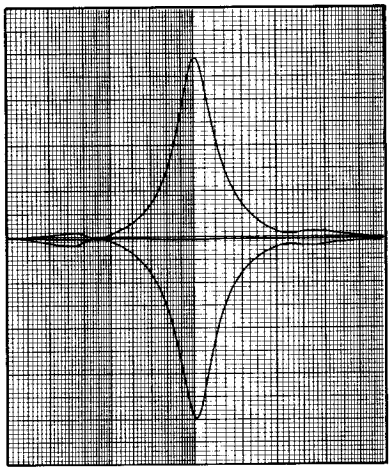
The one-sixth octave frequency centers are:

25Hz, 28Hz, 31.5Hz, 35.5Hz, 40Hz, 45Hz, 50Hz, 56Hz, 63Hz, 71Hz, 80Hz, 90Hz, 100Hz, 112Hz, 125Hz, 140Hz, 160Hz, 180Hz, 200Hz, 224Hz, 250Hz, 280Hz, 315Hz, 355Hz, 400Hz, 450Hz, 500Hz, 560Hz, 630Hz, 710Hz, 800Hz, 900Hz, 1000Hz, 1120Hz, 1250Hz, 1400Hz, 1600Hz, 1800Hz, 2000Hz, 2240Hz, 2500Hz, 2800Hz, 3150Hz, 3550Hz, 4000Hz, 4500Hz, 5000Hz, 5600Hz, 6300Hz, 7100Hz, 8000Hz, 9000Hz, 10.0kHz, 11.2kHz, 12.5kHz, plus a one-third octave filter at 16.0kHz.

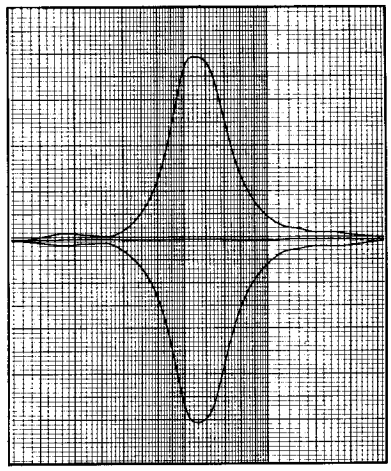
Although the filters are centered on one-third octave or one-sixth frequencies their actual bandwidth is somewhat greater than one-third or one-sixth of an octave. If this were not the case adjacent filters would not sum together gracefully. This would make ripple free shelving responses, for example, impossible to achieve.

The bandwidth of the filters was selected as follows...

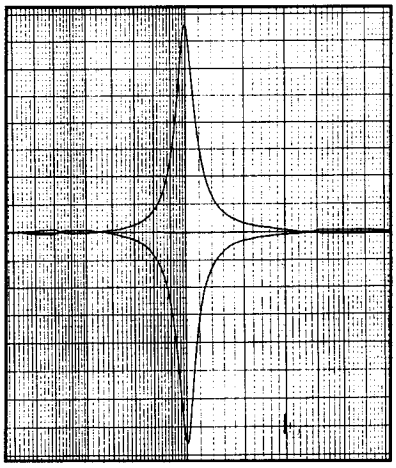
When two adjacent filters were adjusted to create a response centered between them at an amplitude of 10db, there would be less than 0.25dB of ripple.



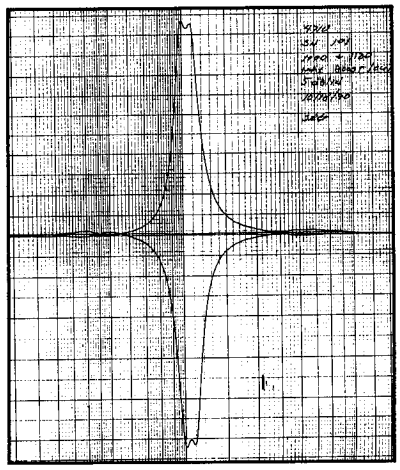
Single Filter Response - 4700



Two Adjacent Filters - 4700



Single Filter Response - 4710



Two Adjacent Filters - 4710

Factory Installed Options:

Three factory installed control interfaces are available. Documentation is covered in separate manuals.

4701 Remote Preset Select Interface

Facilitates remote selection of any of the equalizer's 10 presets with a dry contact closure through a D-9 connector on the rear panel.

4702 RS-232 Control Interface
4703 EIA422 Control Interface

Facilitate networking multiple equalizers. Remote control of a single equalizer or network using either RS-232 or EIA422 protocol. Two D-9 connectors for either protocol.

Other Options:

4704 Interface 9-Conductor, 6ft. Cable

Interface cable for 4702 or 4703 options.

4705 Remote Preset Select Switch Kit

Time saving switch kit for 4701 option.

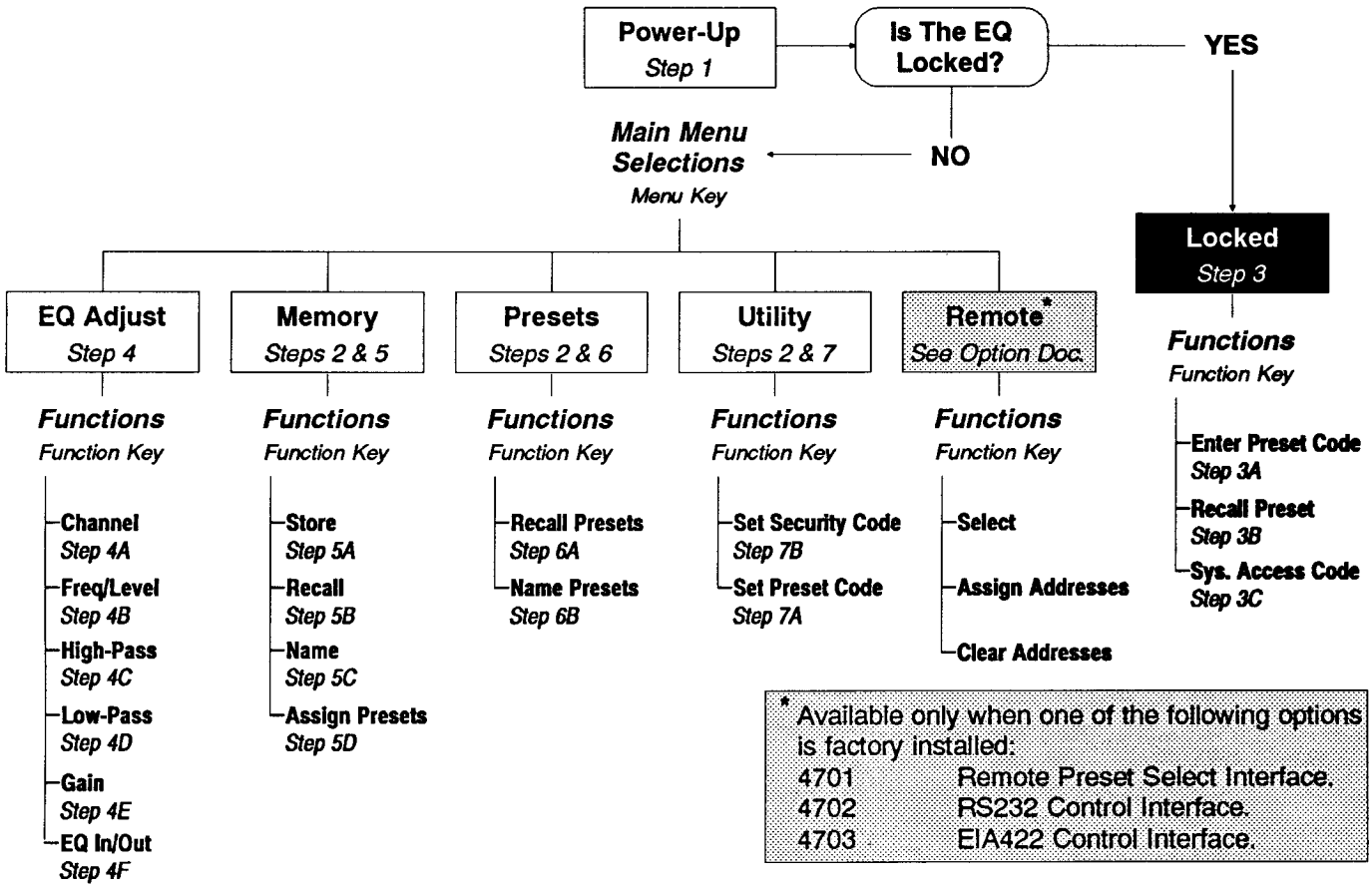
4706 Pink noise generator

4707 Biamp crossover
(specify frequency and shape; Bessel, Butterworth or Linkwitz Riley and slope.

4708 Triamp crossover
Specify two frequencies, shape and slope .

Programming:

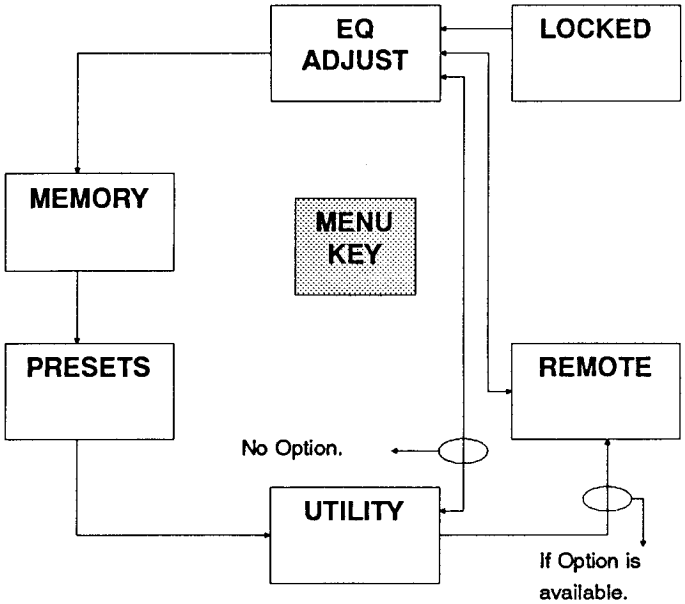
Model 4700 Programming Features - Overview



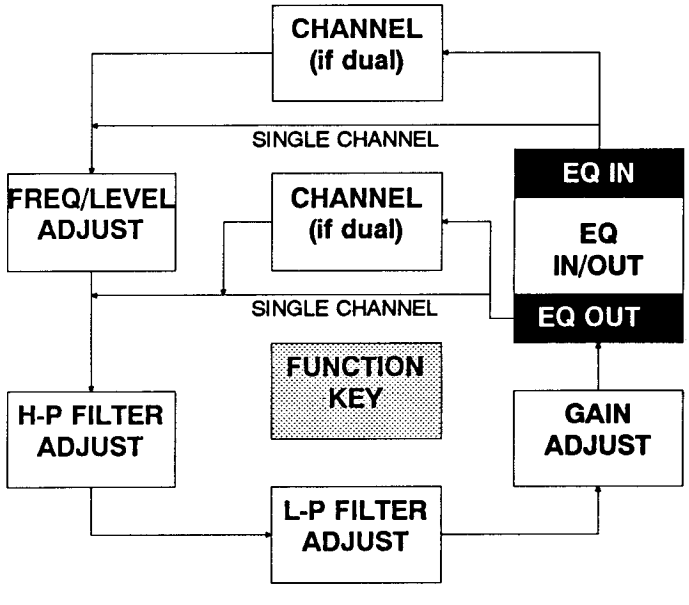
* Available only when one of the following options is factory installed:

4701	Remote Preset Select Interface.
4702	RS232 Control Interface.
4703	EIA422 Control Interface.

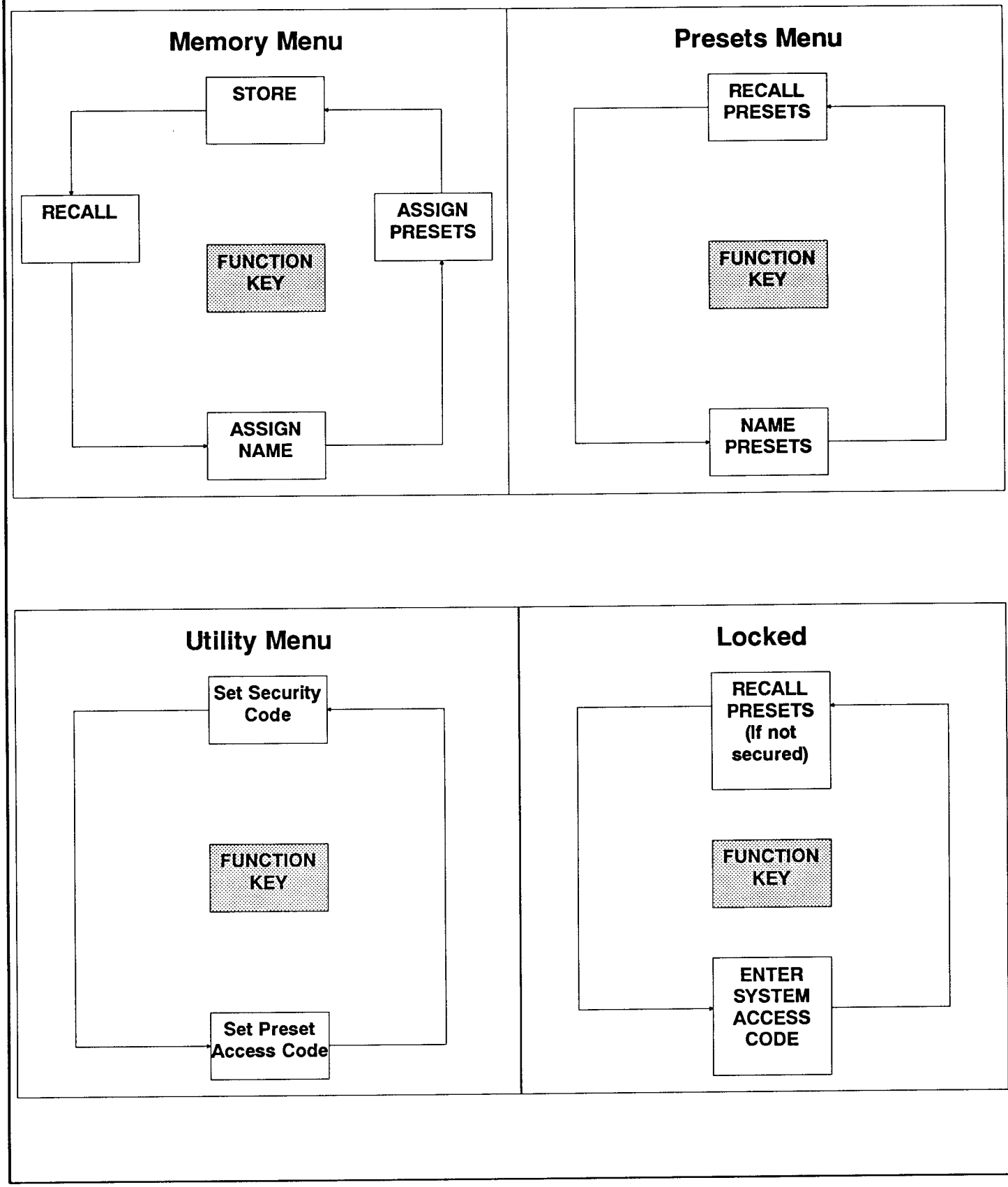
Main Menu Select



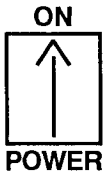
EQ Adjust Menu



Programming Overview Continued:



STEP 1A: Turn on the power



The equalizer will display its Copyright screen for about three seconds.

White 4700 or 4710
Ver X.XX (c)1991

Then it will display its Model screen.

STEP 1B:

single channel

White 4700
1/3 OCTAVE EQ

or

dual channel

White 4700-2
DUAL 1/3 OCT EQ

NOTE: At power-up the equalizer is either ***locked*** or ***unlocked***.

If the equalizer is unlocked the Equalizer Adjustment Menu will appear (Step 2). Otherwise...

Go to Step 3, Pages 11 - 13

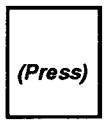
STEP 2 Select Main Menu

EQ is unlocked

The first main menu selection, Equalizer Adjustment, is displayed.

EQ ADJUST MENU

Go to Step 4, Pages 13 - 15



The Memory main menu is displayed.

MEMORY MENU

Go to Step 5, Pages 16 - 19

The System Presets main menu is displayed.

SYSTEM PRESETS MENU

Go to Step 6, Pages 19 - 20

The Utility main menu is displayed.

UTILITY MENU

Go to Step 7, Pages 20 - 22

The Equalizer Adjustment main menu is once again displayed.

EQ ADJUST MENU

Go to Step 4, Pages 13 - 15

STEP 3: The Equalizer is Locked

Step 3A: ***Recall a Preset***
Access Code Required

Step 3B: ***Recall a Preset***
Access Code Not Required

Step 3C: ***Enter System Access Code to Unlock equalizer.***

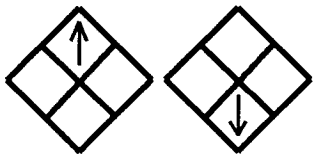
Step 3A: Recall a Preset

Access Code Required

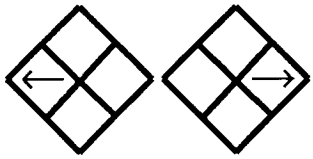
```
ENTER PRESET
ACCESS CODE: - -
```

The Preset Access Code is two characters.

The characters are: –, blank, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, , , /, #, (,), &.



The up and down Cursor keys in the Diamond will scroll through the Preset Access Code characters.

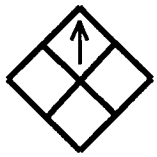


The left and right Cursor keys in the Diamond will shift the Cursor left and right.

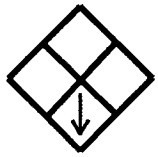
Example: Assume for purposes of illustration that the Preset Access Code has been set to **5 &**.

```
ENTER PRESET
ACCESS CODE: - -
```

Note that the Cursor (underline) is on the first character of the Preset Access Code.



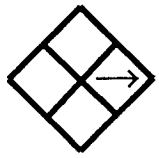
Press the top Cursor key in the Diamond until a **5** appears in the first Preset Access Code position.



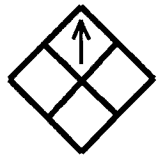
If you overshoot press the bottom Cursor key in the Diamond to get back to the **5**.

Your screen should now look like this.

```
ENTER PRESET
ACCESS CODE: 5 -
```



Move the Cursor to the second Preset Access Code position by pressing the right Cursor key in the Diamond.



Scroll to the **&** character with the up Cursor key in the Diamond.

Your screen should now look like this.

```
ENTER PRESET
ACCESS CODE: 5&
```

(Press)
ENTER

If you entered the correct Preset Access Code the equalizer will display its Recall Presets screen as follows. →

```
RECALL PRESET: 1
[BALLRM A+B]
```

Go to Step 3B, Page 12.

On the other hand if you entered an incorrect Preset Access Code the equalizer will respond with the following screen.

```
ACCESS DENIED
```

(Press)

ANY KEY

The equalizer will display its Version screen as follows.

```
White 4700-2
Dual 1/3 Oct. EQ
```

You are back where you started in this step. You will not be able to select a Preset until the correct Preset Access Code is entered.

Go to Step 3A, Pages 11 - 12 or Step 3C, Pages 12 - 13.

STEP 3B: Recall a Preset

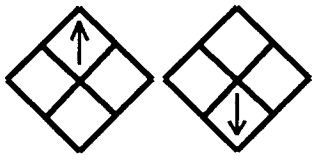
Access Code not Required

```
RECALL PRESET: 1
[BALLRM A B]
```

There are ten Presets numbered 1 - 10.

Each Preset can have a ten character name associated with it (see Step 5).

Note the underlined number 1.



Press the top or bottom Cursor keys in the Diamond until the desired Preset number appears.

(Press)

ENTER

The equalizer will instantly set-up the parameters specified in the Preset and return to one of the screens of Step 1B.

STEP 3C: Enter the System Access Code

From Step 3A

(press)

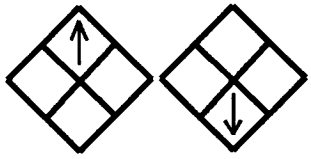
FUNCTION

The equalizer will respond with its System Access Code screen.

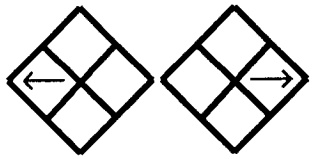
```
ENTER SYSTEM
ACCESS CODE:----
```

The System Access Code has four characters.

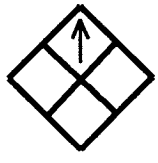
Example: Assume for purposes of illustration that the System Access Code is **1 2 3 4.**



The up and down Cursor keys in the Diamond will scroll up or down between the System Access Code Characters.

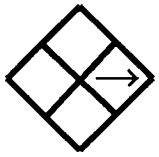


The left and right Cursor keys in the Diamond will shift the Cursor left and right.



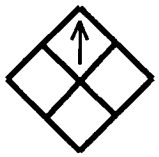
Press the top Cursor key in the Diamond until a 1 is displayed in the first System Access Code position as shown.

```
ENTER SYSTEM
ACCESS CODE:1---
```



Now press the right Cursor key in the Diamond once. The Cursor will move to the second System Access Code position.

```
ENTER SYSTEM
ACCESS CODE:1---
```



Press the top Cursor key in the Diamond until a 2 is displayed in the second System Access Code position.

```
ENTER SYSTEM
ACCESS CODE:12--
```

Continue the process until you have entered all four characters of the System Access Code (**1 2 3 4**).

This is the way the screen should look.

```
ENTER SYSTEM
ACCESS CODE:1234
```

(press)
ENTER

If the correct System Access Code was appropriately entered the equalizer will allow access and respond with the Equalizer Adjustment main menu.

```
EQ ADJUST MENU
```

Go to Step 4, Pages 13 - 15.

OR

If an incorrect System Access Code was entered the Invalid Code screen is displayed.

```
ACCESS DENIED
```

(Press)
ANY KEY

When access is denied any key will take the user back to the Model screen

```
White 4700-2
DUAL 1/3 OCT EQ
```

Go to Step 1B, Page 10.

STEP 4: Equalizer Adjustment

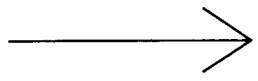
Step 4A:	***Channel (if dual channel - 4700-2)***
Step 4B:	***One-Third Octave Filters (if EQ is In)***
Step 4C:	***High -Pass Filter***
Step 4D:	***Low-Pass Filter***
Step 4E:	***Gain***
Step 4F:	***EQ In/Out***

The Equalizer Adjustment main menu is displayed.

```
EQ ADJUST MENU
```

STEP 4A: Channel Select

(press)
FUNCTION



If the equalizer is a dual channel version (4700-2) it will respond with the Channel Select function screen. If single channel it will respond with the screen in Step 4B.

```
EQ  ADJUST
CHANNEL:  A
```

Any Cursor key in the Diamond will cause the channel to toggle between **A** and **B**.

STEP 4B: One-Third Octave Filters

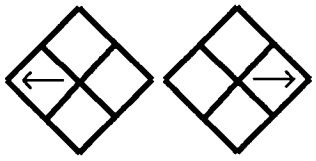
(press)
FUNCTION

The One-Third Octave Filter Adjust function screen is displayed.

```
EQ  ADJUST                    A
   800Hz          0        dB
```

← If dual chan.

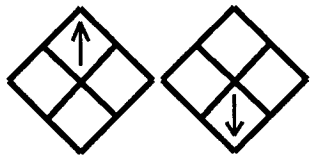
This screen displays the channel selected and allows any of its 28 one-third octave filters to be selected and adjusted in 0.5dB steps over a range of ±10dB.



The left and right Cursor keys in the Diamond will step the frequency of the one-third octave filter to be adjusted between 31.5Hz and 16kHz.

```
EQ  ADJUST                    A
  31.5Hz          0        dB
```

```
EQ  ADJUST                    A
 16.0kHz          0        dB
```



The up and down Cursor keys in the Diamond will change the amplitude of the filter selected in 0.5dB steps between - 10dB and +10dB.

```
EQ  ADJUST                    A
   800Hz        +10.0dB
```

```
EQ  ADJUST                    A
   800Hz        -10.0dB
```

STEP 4C: High-Pass Filter

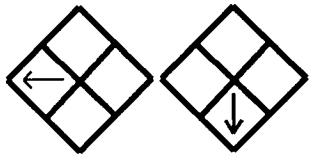
(press)
FUNCTION

The High-Pass Filter Adjust function screen is displayed.

```
EQ  ADJUST                    A
HIGH PASS              10Hz
```

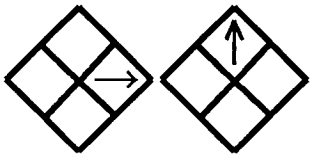
The 12dB/octave High-Pass filter is adjusted in eight steps between 10Hz and 160Hz. These steps are:

10Hz, 32Hz, 51Hz, 62Hz, 75Hz, 100Hz, 130Hz and 160Hz.



The left and down Cursor keys in the Diamond will step the frequency of the High-Pass filter down to its minimum frequency setting of 10Hz.

```
EQ ADJUST          A
HIGH PASS      10Hz
```



The right and up Cursor keys in the Diamond will step the frequency of the High-Pass filter up to its maximum frequency setting of 160Hz.

```
EQ ADJUST          A
HIGH PASS     160Hz
```

STEP 4D: Low-Pass Filter

(press)
FUNCTION

The Low-Pass Filter Adjust function screen is displayed.

```
EQ ADJUST          A
LOW PASS      32kHz
```

The 12dB/octave Low-Pass filter is adjusted in eight steps between 6kHz and 32kHz. These steps are:

6kHz, 7kHz, 9kHz, 11kHz, 13kHz, 15kHz, 23kHz and 32kHz.

The up, down, left and right Cursor keys in the Diamond are used to adjust the Low-Pass filter in the same way they are used to adjust the High-Pass filter.

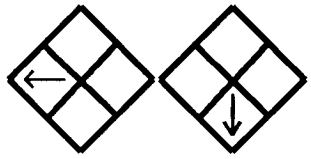
STEP 4E: Gain Adjustment

(Press)
FUNCTION

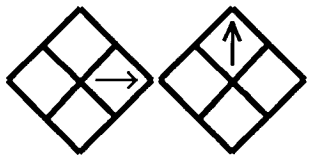
The Gain Adjustment function screen is displayed.

```
EQ ADJUST          A
GAIN:      0     dB
```

Gain is adjusted in 0.5dB steps from 0dB to +12db.



The left and down Cursor keys in the Diamond will step the equalizer gain down in 0.5dB steps from +12.0dB to 0dB.



The right and up Cursor keys in the Diamond will step the equalizer gain up in 0.5dB steps from 0dB to +12dB.

```
EQ ADJUST          A
GAIN:  +12.0dB
```

STEP 4F: EQ IN/OUT

(Press)
FUNCTION

The EQ In/Out function screen is displayed.

```
EQ ADJUST          A
EQ IN/OUT      IN
```

Any Cursor key in the Diamond will toggle the equalizer between EQ In and EQ Out.

```
EQ ADJUST          A
EQ IN/OUT     OUT
```

When the EQ is OUT, only the 1/3 octave bandpass filters are bypassed. The gain, high-pass and low-pass filters remain effective.

STEP 5: Memory

Step 5A: ***Store Memory***
Step 5B: ***Recall Memory***
Step 5C: ***Name Memory***
Step 5D: ***Assign Presets***

The Memory main menu screen is displayed.

```
MEMORY          A
  MENU
```

The equalizer has ten Memories. The Memories are numbered from **1** to **10**.

If the equalizer is a dual channel version (Model 4700-2) the ten Memories are shared between the two channels.

Each of the ten Memories will store the following equalizer parameters.

1. Amplitude of each one-third octave filter.
2. High-Pass filter setting.
3. Low-Pass filter setting.
4. Gain.

STEP 5A: Store

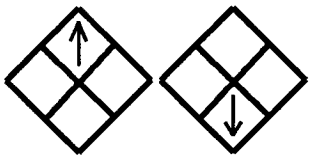
(Press)
FUNCTION

The Store in Memory function screen is displayed.

```
STORE :  1              A
  [ - - - - - - - - - - ]
```

← If Dual Chan.

Note the underlined 1 in the shaded box.



The up and down Cursor keys in the Diamond will step the Memory number up and down between **1** and **10**.

```
STORE :  10             A
  [ - - - - - - - - - - ]
```

(Press)
ENTER

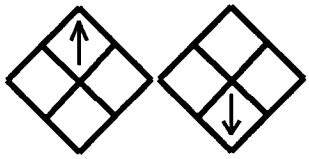
The current parameters of the active equalizer channel will be instantly stored in the Memory number selected.

STEP 5B: Recall Memory

(Press)
FUNCTION

The Recall Memory function screen is displayed.

```
RECALL :  10            A
  [ - - - - - - - - - - ]
```



The up and down Cursor keys in the Diamond will step the Memory number up and down between **1** and **10**.

(Press)
ENTER

The equalizer will instantly retrieve the parameters stored in the Memory number shown to the operating memory.

STEP 5C: Name Memory

(Press)
FUNCTION

The Name Memory function allows the user to attach a label to a Memory number which might help him to remember how a particular EQ setting is used.

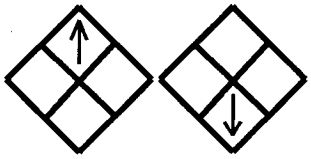
```
NAME :  10
[ - - - - - - - - - - ]
```

A Name can have up to ten characters.

There are two steps to Naming a Memory.

1. Select the Memory number to be named.
2. Enter Name.

1. Select the Memory:



The up and down Cursor keys in the Diamond will step the Memory number up and down between **1** and **10**.

If Memories have been previously Named their Names will be displayed as you step through the Memory numbers.

```
NAME :  6
[ BALLRM - A&B ]
```

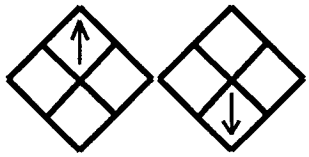
(Press)
ENTER

After selecting the Memory number to be Named press ENTER.

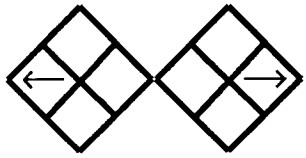
2. Name the Memory:

```
NAME :  3
[ - - - - - - - - - - ]
```

Note that the Cursor is on the first character of the ten character Name.



The up and down Cursor keys in the Diamond will step through the characters available for the Name.



The left and right Cursor keys in the Diamond will step the Cursor in the ten character field.

(Press)
ENTER

The label or Name you created will be Stored with the Memory number you selected.

STEP 5D: Assign Presets

(Press)
FUNCTION

The Assign Presets main screen is displayed indicating the channel (if the equalizer is the dual channel version).

```
ASSIGN
PRESETS      [ENTER]
```

The Assign Presets function allows the user to assign Memories to be recalled by the Presets.

If the equalizer is a dual channel version (Model 4700-2) the user may assign the Presets to both channels.

(Press)
ENTER

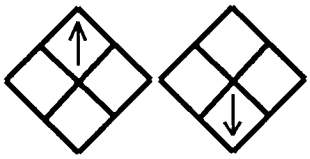
The Assign Presets function screen is displayed. Note the position of the Cursor under the **0** in **PST:10**.

```
PST:10A = MEM:10
   [----------]
```

There are four steps in assigning a Preset.

1. Select the Preset number.
2. Select the channel (if dual channel version).
3. Select the Memory number.
4. Press Enter.

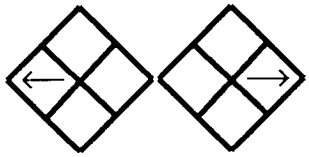
1. Select Preset Number:



The up and down Cursor keys in the Diamond will step through the Preset numbers, **1** to **10**.

```
PST:10A = MEM:10
   [----------]
```

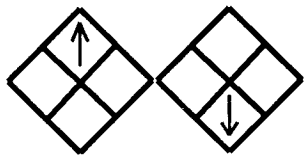
2. Select the Channel:



The left and right Cursor keys in the Diamond will step the Cursor through the three sub-functions.

1. Select the Preset number.
2. Select the channel (if dual channel version).
3. Select the Memory number.

Use the right Cursor key in the Diamond to place the Cursor under the channel **A** or **B**.

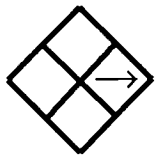


If the equalizer is a dual channel version the up or down Cursor keys in the Diamond will toggle the channel between **A** and **B**.

```
PST:10A = MEM:10
   [----------]
```

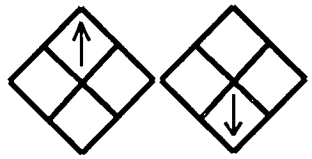
```
PST:10B = MEM:10
   [----------]
```

3. Select Memory Number



Use the right Cursor key in the Diamond to place the Cursor under the Memory number as shown below.

```
PST:10A = MEM:10
   [----------]
```



The up and down Cursor keys in the Diamond will step the Memory number between 1 and 10.

```
PST:10A = MEM:1
   [----------]
```

```
PST:10A = MEM:10
[----------]
```

(Press)
ENTER

After selecting the Preset (PST:) number, the Channel and the Memory (MEM:) number, press the Enter key to store the Preset.

Note that the Cursor disappears at this point.

```
PST:10A = MEM:1
[----------]
```

STEP 6: Presets

Step 6A: ***Recall Preset***
Step 6B: ***Name Preset***

The System Presets main menu is displayed.

```
SYSTEM PRESETS
MENU
```

STEP 6A: Recall Preset

(press)
FUNCTION

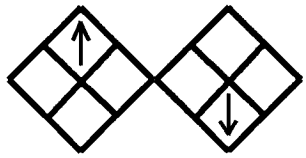
The Recall Preset function of the Preset main menu is entered and the Recall Preset screen is displayed.

```
RECALL PRESET:1
[BALLRM A B]
```

There are ten Presets numbered 1 - 10.

Each Preset can have a ten character name associated with it (see Step 5B).

Note the underlined number 1.



Press the top or bottom Cursor keys in the Diamond until the desired Preset number appears.

(Press)
ENTER

The equalizer will instantly recall the parameters specified in the Preset and update both channels simultaneously (if dual channel).

STEP 6B: Name Preset

(press)
FUNCTION

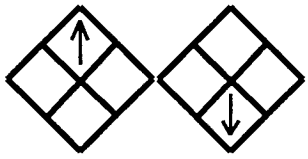
The Name Preset function of the Preset main menu is entered and the Name Preset screen is displayed.

```
NAME PRESET:1
[----------]
```

A preset can have a ten character Name or label associated with it.

There are two steps to Name a Preset.
1. Select the Preset number.
2. Name the Preset.

1. Select the Preset Number.



Press the top or bottom Cursor keys in the Diamond until the desired Preset number appears.

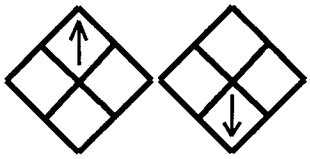
```
NAME PRESET: 3
[BALLRM A B]
```

If a Preset number has previously been named its Name will be displayed as its number is selected.

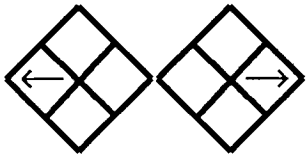
(Press)
ENTER

The Preset number to be Named is selected and the Cursor moves to the first character of the name.

```
NAME PRESET: 1
[ - - - - - - - - - - ]
```



The top or bottom Cursor keys in the Diamond select the character for the name.



The left and right Cursor keys in the Diamond will shift the Cursor left and right from the first character to the tenth character in the Name.

After the Name has been entered or edited press the Enter key to store it.

(Press)
ENTER

```
NAME PRESET: 3
[BALLRM A B]
```

Note that the cursor disappears.

(press)
FUNCTION

At this point the Function key will toggle the display between the Recall Preset and Name Preset function screens.

STEP 7: Utility

Step 7A: Set System Security Code
Step 7B: Set Preset Access Code

The Utility main menu is displayed.

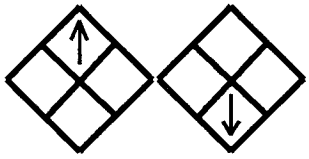
```
UTILITY
MENU
```

(press)
FUNCTION

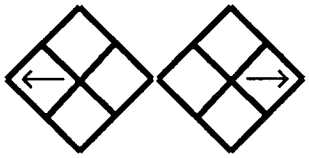
STEP 7A: Set System Security Code

The System Security Code screen is displayed.

```
SET SECURITY
CODE: - - -
```



The top or bottom Cursor keys in the Diamond select the character for the System Security Code.

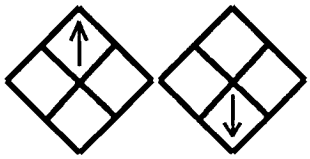


The left and right Cursor keys in the Diamond will shift the Cursor left and right from the first character to the fourth character in the System Security Code.

EXAMPLE: For purposes of illustration assume the System Security Code to be entered is **1 2 3 4.**

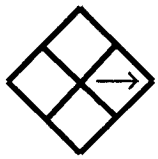
```
SET SECURITY
CODE: - - - -
```

Note: An equalizer with a System Security Code of four dashes [-] is unlocked.



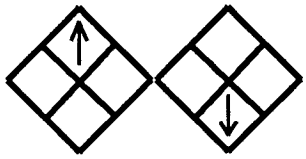
Press the top or bottom Cursor keys in the Diamond until a **1** appears in the first position.

```
SET SECURITY
CODE: 1 - - -
```



Press the right Cursor key in the Diamond to move the Cursor to the second position of the System Security Code.

```
SET SECURITY
CODE: 1 - - -
```



Press the top or bottom Cursor keys in the Diamond until a **2** appears in the second position.

```
SET SECURITY
CODE: 1 2 3 4
```

Repeat the process until all four System Security Code characters, **1 2 3 4**, have been entered.

!!! W A R N I N G !!!

At this point you need to make a written record of the System Access Code and place it in a safe place. If the System Access Code is forgotten or lost you will not be able to adjust the equalizer. In this situation you must contact your White Instruments dealer or contractor for assistance.

(Press)
ENTER

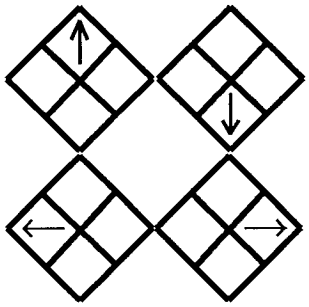
The equalizer is now **locked** and ready to set the Preset Access Code.

Go to STEP 7B

Step 7B: Set Preset Access Code

NOTE: A System Security Code must have been entered before a Preset Access Code can be entered.

```
SET PRESET
ACCESS CODE: - -
```



The up, down, left, and right Cursor keys in the Diamond will manipulate the Cursor in exactly the same way as in the previous Step 7A.

The Preset Access Code is two characters.

If both characters are left as dashes ("--") no Preset Access Code will be required to gain access to the Preset Selection menu. This corresponds to security level 2 on page 4. Any other Preset Access Code will activate security level 3.

Example: For purposes of illustration assume that the Preset Access Code to be entered is **5 &**.

Note that the Cursor is under the first character.

```
    SET  PRESET
ACCESS  CODE :  - -
```

Use the up and down Cursor keys in the Diamond to select the **5**.

```
    SET  PRESET
ACCESS  CODE :  5 -
```

Press the right Cursor key in the Diamond to move the Cursor to the second position.

```
    SET  PRESET
ACCESS  CODE :  5 -
```

Use the up and down Cursor keys in the Diamond to select the **&**.

```
    SET  PRESET
ACCESS  CODE :  5 &
```

The two character Preset Access Code, **5 &**, is selected.

(Press)
ENTER

The equalizer displays its Model screen.

```
White  4700-2
DUAL  1/3  OCT  EQ
```

Access to the equalizer's Presets is secured and the equalizer is now locked.

```
SET LOCAL:247
   Address
```

Trouble Report:

Should your equalizer require either warranty or out-of-warranty factory service, please pack a copy of this Trouble Report with it. Your cooperation will save a great deal of time (and money) processing the repair.

Call Us First: (512) 389-3800 1514 Ed Bluestein Blvd., Austin, TX 78721, U.S.A.

Your White Instruments equalizer was designed to be easily serviced in the field by a competent technician. A telephone call to us might result in a quick fix to your problem, save you down time and the expense of re-equalizing your system.

Service Information:

Model Number _____ Serial Number _____ Date of Purchase _____

Dealer or Contractor _____

Do you consider the service to be performed Warranty Service (Please include a copy of your sales receipt.), or Out-Of-Warranty Service?

Warranty _____ Out-Of-Warranty _____ Is an Estimate Required? _____

What method would you like us to use in returning your unit? UPS (ground) is the default. _____

Date and method of shipment to White Instruments _____ Please list any easily detached accessories included. _____

Your Name _____ Company Name _____

Street Address (Please do not use P.O. Boxes) _____ City _____

State _____ ZIP _____ Business Phone Number _____

Business Hours _____ FAX Number _____

Brand and model of component driving equalizer _____ Brand and model of component loading equalizer _____

Please describe the problem you are having. _____