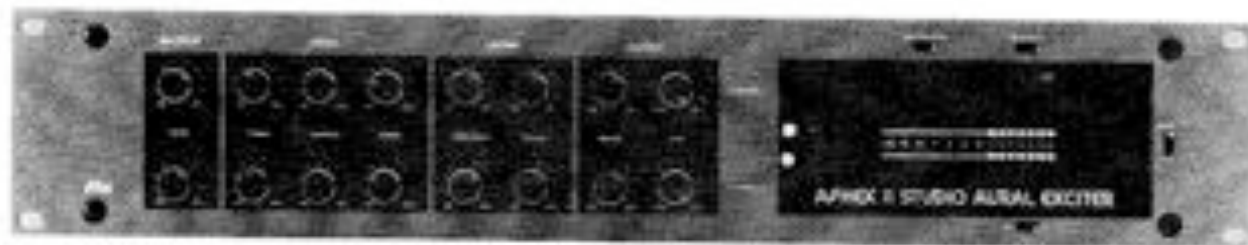


*Aphex II Aural Exciter*  
*Harmonic Audio Enhancer*  
*Model 201*



*Features*

- RESTORES LOST OR MISSING UPPER HARMONICS
- IMPROVES TRANSIENT DETAIL
- INCREASES PRESENCE AND CLARITY
- ADDS INTELLIGIBILITY AND DEFINITION TO ANY SOUND
- ACTUALLY DOUBLES AUDIO BANDWIDTH
- DOES NOT ALTER EQ OR PEAK LEVELS LIKE OTHER 'BRIGHTNESS ENHANCERS'

*Applications*

- RECORDING STUDIO TRACKING AND MIXDOWNS — ADDS AIR, SPARKLE AND PRESENCE TO VOICES AND MUSIC. IMPROVES IMAGING
- SOUND REINFORCEMENT — ADDS CLARITY AND PENETRATION WITHOUT INCREASING CHANCE OF FEEDBACK.
- FILM AND VIDEO — RESTORES CLARITY AND INTELLIGIBILITY TO DIALOGUE TRACKS, SOUND EFFECTS AND MUSIC.

# APHEX II

## A NEW GENERATION OF AURAL EXCITEMENT

FROM  
APHEX SYSTEMS, LTD.  
—THE ORIGINATORS OF  
AURAL EXCITEMENT

### APHEX DRIVE

This controls the amount of drive to the Aphex side chain, and is metered by a tri-color LED on the meter panel. The effect is level dependent and sufficient drive is necessary for proper harmonics generation. The indicator should be yellow most of the time, green on quiet parts, flashing red on signal peaks.

### TUNING

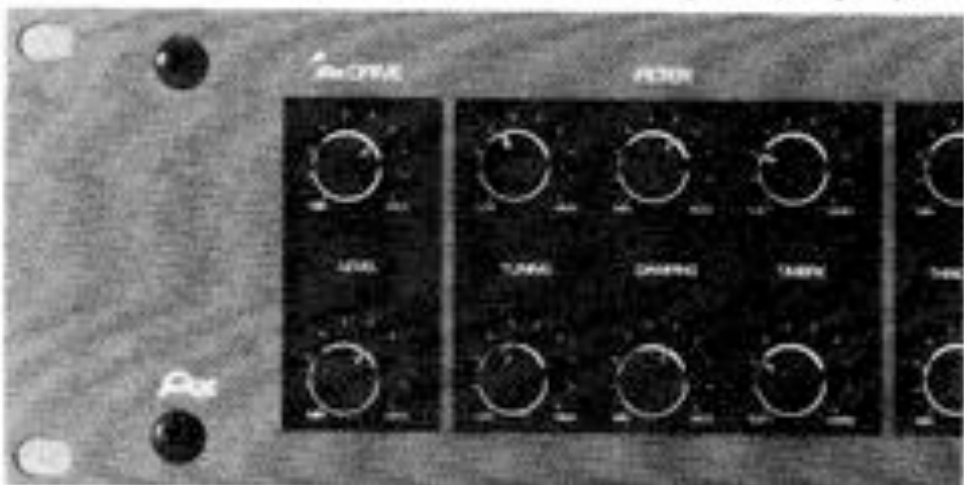
Sets the corner frequency of the high pass network between 700 Hz and 7KHz. Initial setting should be 12 o'clock. A lower setting is suggested for bandwidth limited mediums. A most effective setting may also depend on the program material (e.g. voice overs, a setting tuned to maximize intelligibility on voices.)

### DAMPING

Adjusts the damping ratio of the side chain filter network giving somewhat of an equalizing effect. CCW produces a flatter, more even response, while CW will result in a brighter, more peakier sound. The overall effect will be somewhat interactive with the tuning control. A 12 o'clock setting is suggested for initial set up.

### TIMBRE

The most subtle yet useful control. Timbre varies the spectral quality of the generated harmonics. Pure even (ccw) are warm, round, and musical. Pure odd (cw) are sharper and will greatly enhance the percussive edges of the signal. Settings will depend greatly on



- ALL NEW DESIGN
- COMPLETE CONTROL OF  
ENHANCEMENT PARAMETERS
- FLEXIBILITY TO COMPLI-  
MENT ANY PROGRAM  
MATERIAL
- MOST ADVANCED ELEC-  
TRONIC COMPONENTRY
- FAST, ACCURATE  
ELECTRONIC METERING
- EASILY INTERFACED WITH  
ANY SYSTEM

The Aphex Aural Exciter has become a standard in the music industry and has been used for years on thousands of albums, movies, broadcast productions, commercials and concerts. The Aural Exciter is now accepted as a unique method to achieve clarity, definition and dimensionality in reproduction of sound. The program material literally "opens up", possessing more detail and intelligibility, as well as greater apparent frequency and dynamic range. The sound quality is less subject to degradation through the various generations and transmissions from production to final consumer.

The Aphex Aural Exciter achieves these effects by creating a signal composed of frequency dependent phase shift, amplitude dependent harmonics, and mixing this signal with the original.

In any natural acoustic environment a listener will hear the primary signal as well as slightly delayed, low level reflections. The phase shifted signal, when mixed back into the original signal, provides a simulation of these reflections, thus generating more natural ambient information. Because the phase shift creates time delays too short to be perceived as an echo or reverb, it is perceived as an increase in the impulse

duration. Tests have shown that listeners presented with two signals of equal amplitude and different duration will perceive the signal with longer duration as louder.

The Fletcher-Munson curves show that a listener with normal hearing is most sensitive to changes in the 3 to 5 KHz range. This range is critical for direction perception and intelligibility. Since the Aural Exciter is especially effective in that frequency range, the increase in detail and presence, due to the Aural Exciter, is most dramatic.

The only way a listener can differentiate between instruments is through overtones. The louder the fundamental the greater the amount of these overtones. The Aural Exciter generates harmonics in the same manner. The harmonic structure of each instrument is thus strengthened, allowing it to stand out from the other instruments.

An equalizer can only cut or boost a particular section of the audio spectrum. Therefore, if an equalizer is used to brighten the high end, all the noise & distortion will increase also. The high end of the input to the Aural Exciter can be rolled off and the Aural Exciter will

the harmonic structure of the particular tracks being processed and how prominent the tracks are within the mix. This control will be finally set more by "feel" than by listening.

#### **LI JR**

Because the generated harmonics are level dependent, high signal peaks may cause 'splashiness'. To prevent this, the Limiter is used on the side chain only. The level at which the Limiter is engaged is set by Threshold. T-Release sets the release time of the Limiter from fast CCW to slower CW. If the Limiter is used only to prevent 'splash' T-Release should be set at approximately 11 o'clock. Lengthening the release will cause the Limiter to act more like a compressor.

allowing greater amounts of side chain to be added back into the output. This will concentrate the brightness effect but may tend to diminish overall transparency.

#### **MIX**

Sets the amount of Aphex side chain output added back into the total output. CCW is pure source, moving clockwise adds more effect. At the full CW position there is a clickstop which eliminates source so that the output is only the side chain. The latter position would be used for external mixing (e.g. echo send/return).

#### **LIMIT L.E.D.**

Shows onset of Limiting action.

#### **LEVEL**

Attenuates the level of the total output from unity gain (cal position) to -20dB.

#### **DRIVE LEVEL**

Green/Yellow/Red L.E.D. Shows drive level to Aphex side chain.

#### **PEAK L.E.D.**

Lights when output is 2dB below clipping level.

#### **IN-OUT SWITCH**

Disables side chain for instant comparison between processed and unprocessed signal.

#### **ON-OFF SWITCH**

AC power to unit.



generate a brighter, cleaner, more natural high end.

Another important difference between the Aural Exciter and other processing equipment is, the Aural Exciter will not induce listener fatigue the way large amounts of equalization or other processing will.

In summary, the total effect of the Aural Exciter is directed towards a sound closer to the original acoustic event.

#### **STUDIO USE**

Aphex processing gives the best results and the greatest flexibility in mixdown applications, but can also be used in tracking and mastering.

It is best used in a foldback configuration similar to echo or other external effects, where channel sends can be individually mixed. If separate monitor, echo or cue sends are not available, the mix or stereo busses can be used with reduced flexibility in a "flanging" effect. It sounds best if the Aural Exciter pan follows the original track pan. This is easiest if two output-fader sends are used to Aural Exciter channels A and B.

The send levels must be high enough for proper harmonic generation. The return faders should then be set 10 to 20 dB below the main signal according to the desired effect. The effect is addictive, and discretion is advised so that the unit is not overused.

#### **SOUND REINFORCEMENT**

The Aural Exciter can be used with most public address systems in the same manner as studio equipment. If separate echo or monitor sends are not available, the unit can be connected in series between the mixer and power amp. In this situation, the Aural Exciter mix would be introduced into the chain in the mix pot.

Aphex processing is especially useful in reverberant halls or halls that have "dead spots". It will spread the sound more evenly without adding any level to the total mix. The unit's ability to bring voices and instruments out makes it especially useful for monitor mixing, without increasing feedback.

#### **FILM AND VIDEO USE**

The Aural Exciter has been used on many videotape and motion picture productions to enhance the soundtrack by recapturing the live feeling

often lost or impaired in location. It is unique in its ability to sharpen dialogue, making voices more intelligible while retaining their natural quality. The looping process often required to complete a film or video work is greatly aided by the use of the unit as the Aural Exciter allows the engineering to tie the loop sound much more closely to the live sound. The effect is maintained in transfer from magnetic tape to optical and kept intact through duplication.

Video and film audio are both bandwidth limited and compressed. The Aphex II is especially useful in creating the perception of higher frequencies and greater dynamics, thus bringing more presence and clarity to the final product.

#### **LEVELS**

For best results, establishing correct levels is important. For that purpose, the dynamic range is internally selectable to maximize signal to noise ratio for any particular reference level.

Metering reference level is selectable for 0 VU = 0, +4, +8 dBm, or user definable position.

## Specifications

### Audio Path (Side Chain disabled)

- Frequency Response ... 15Hz to 50kHz  $\pm$  0.2dB
- THD ..... .05% at Max. Rated Input/Output
- I.M. Distortion ..... .05% at Max. Rated Input/Output

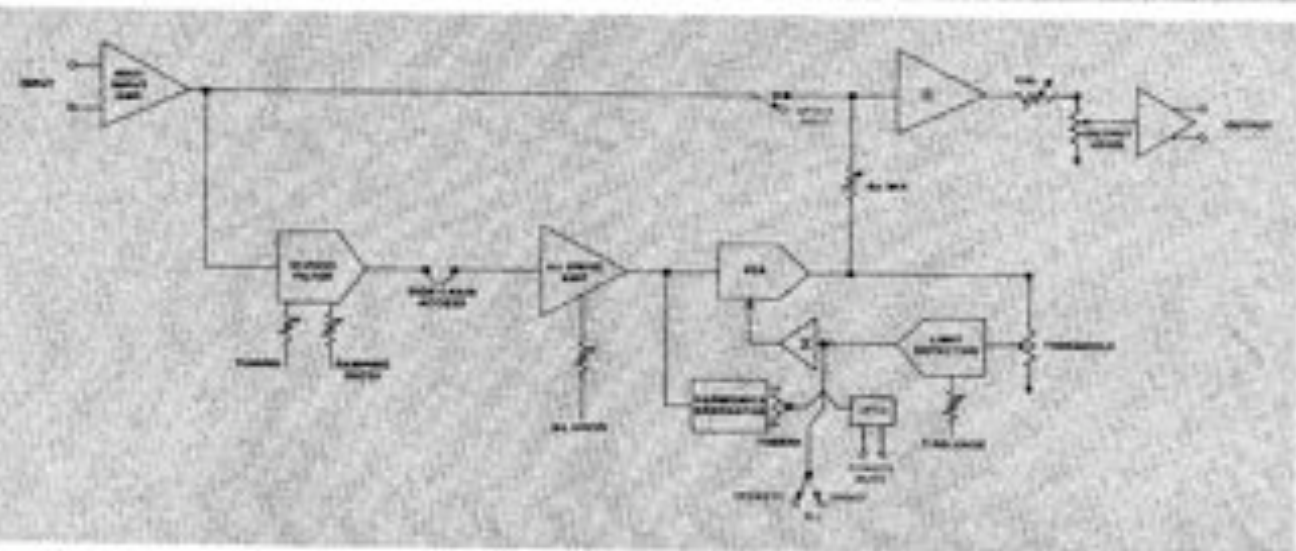
### General

- Maximum Input\* ..... Internal Jumper Selectable:  
Output Level +11dBm, +21dBm, +26dBm,\*  
+27dBm\*
- Meter Reference ..... Internal Jumper Selectable:  
OV.U. = 30dBm, 0dBm,  
+4dBm, +8dBm
- Input Impedance ..... Selectable: 600 $\Omega$  or Bridging  
40k $\Omega$  Balanced  
60k $\Omega$  Unbalanced
- Output Impedance ..... 500 $\Omega$  Balanced Floating or  
Unbalanced
- Input Circuit ..... Standard: Transformerless  
Balanced True Instrumentation  
Circuit  
Optional: Jensen 11-P-9 Input  
Transformer
- Controls ..... See Brochure

\*Balanced Output Only

Size - 3 1/2" x 8" Deep Weight - 19 lbs.

- Output Noise ..... Better Than 110 dB Below Max.  
Rated Input/Output
- Crosstalk ..... Better Than -60dB
- Output Circuit ..... Standard: Electronically Balanced  
Transformerless. May be operated  
single-ended with no level loss,  
limiting maximum output to +21  
dBm  
Optional: Jensen 123A, Nickel  
Core Transformer
- Side Chain Access ..... Nominal +21dBm Max. Level  
Single Ended Input/Output
- External Mute Control ..... 5-15v D.C.
- Indicators ..... Dual VTF Meter with Selectable  
Peak V<sub>u</sub> Characteristic  
(2) Red/Yellow/Green Drive LEDs  
(2) Limiter LEDs  
(2) Peak Indicator LEDs (Indicates  
2dB Below Clipping)  
(3) Meter Input Select Indicator  
LEDs: Input, A<sub>u</sub> Return,  
Output  
(Meter Mode Select Indicator  
LEDs: Peak, V<sub>u</sub>)
- Controls ..... See Brochure
- Power Requirements - 100-240 VAC 50-60 Hz, 12 Watts



APHEX AURAL EXCITER covered by U.S.  
Patent Number 4,150,253 (foreign patents pending)  
VOLTAGE CONTROLLED ATTENUATOR 1537A

U.S. Patent Number 4,155,047 (foreign patents pending)

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