

# out of my head | Stereo equalizer can cure distorted sound frequency

By Ryan Scott

In my last stereo column, it was noted that many regard the speaker as the most critical component in assembling modern stereo systems. Your stereo is only as good as the speaker's sound.

Many people discover that, much to their surprise, the speaker that sounds outstanding in the store sounds altogether different in the home. Others are upset to find the speaker that sounds great on rock sounds terrible on classical. Rarely may these problems be attributed to a defective speaker. The problem is one of equalization.

Sound reaches our ears in the form of sound waves. Sound is comprised of different tones and pitches called frequencies. Frequency is measured by counting the number of sound wave oscillations in a second. Low pitch frequencies oscillate fewer times in one second than high pitch frequencies.

Each frequency has a number referring to the number of sound wave oscillations in a second. Following the frequency number is the abbreviation cps, which stands for "cycle per second," the unit measure of sound. (Cps has been replaced with "Hz" in tribute to German physicist Heinrich Hertz, for his contribution to the study of sound).

The human ear has an effective frequency hearing range of 20 to 20,000 Hz. Speaker manufacturers try to produce speakers that can effectively reproduce this same audible frequency range as flat as possible. (A flat frequency response is one in which every frequency is discerned at the same audible level, called sound pressure level).

### Bass and treble

Equalization allows for contouring of a speaker's frequency response. It also allows for correction of deficiencies inherent in the listening environment, and for personal taste preferences in sound reproduction.

All of us are familiar with some mode of equalization. The bass and treble controls on most stereos are effective equalizers, though they have a very small operating range. Active equalizers then are merely tone controls with a more definite and precise operating range.

The 20 to 20,000 Hz frequency spectrum may be broken down into ten ranges of sound called octaves. Whereas typical bass and treble controls are assigned to cover the highest and lowest octaves, the equalizer assigns one band to each octave or half octave. Each band is assigned a frequency number and given an effective range inside that

number of plus or minus 10 decibels. The result is a box full of knobs or sliders that gives you the thrill of playing sound engineer.

If your ear is sensitive to irregularities in frequency response, like the "bumpy" midrange response mentioned in the last column, a decrease of 2 to 4 decibels in the midrange area of 1,000 to 5,000 Hz will smooth this problem right out the speaker.

Almost any desired sound can be achieved with equalizers, as long as you remember to stay within the design limitations of your speaker (boosts in frequency response, especially in the bass, require a boost in amplifier power as well. It is easy to "cook" (destroy) your speaker through carelessness.)

### Listening environment

The most serious and beneficial area of frequency contouring comes in regard to inherent difficulties in the listening environment. Few people realize that the listening environment can drastically alter a speaker's perceived performance.

Briefly, the type of furnishings in the room have the most effect on a speaker's response. Thick carpets, heavy drapes and heavily upholstered chairs and couches tend to soak up high frequency response and accent bass response. Bare walls, uncarpeted floors and highly reflective sources like windows, picture frame glass and mirrors tend to reverberate and distort sound around the room.

Proper application of an equalizer can reduce these problems to the point of near nonexistence.

The room's layout also alters sound. Sound waves do not turn corners, rather they bounce off the obstruction they run into and radiate back into the listening environment.

Equalizers can adjust for this problem, which should delight owners of L-shaped living/dining rooms.

Tape enthusiasts also will enjoy using an equalizer. The sound of old, scratchy records can be improved greatly when processed through an equalizer before recording.

Many companies are manufacturing equalizers today. BSR/Metrotec offers the least expensive, assembled equalizer in their model FEW-2, a five band equalizer offering two octaves of equalization a band. Soundcraftsmen offers the most popular and reasonably priced ten band (one an octave) equalizer currently on the market. SAE markets a 20 band a channel equalizer, and ALTEC's model 729A offers 24 bands a channel at the "reasonable" price of \$875.00 (both the SAE and ALTEC operate in half octaves). A few companies offer equalizer kits for the do-it-yourselfers.

Equalization is an interesting and complex subject which, once again, deserves more discussion than space allows. Audio buffs, whether novices or confirmed freaks, should look into the addition of an equalizer as a necessary component in the assembly of stereo systems.

# arts & entertainment

## Sheldon presents two Renoir films

By Diane Wanek

The Sheldon Film Theatre presents two classic films by Jean Renoir this weekend. *A Day in the Country*, a "dialogue between Renoir and Nature," and *The Lower Depths*, Renoir's version of Maxim Gorky's play, are the fourth and fifth films the theatre is showing in their Renoir series.

*A Day in the Country* is Renoir's story of an innocent young girl who comes of age in the late 1800s. For Renoir, the making of *A Day in the Country* must have been a labor of love, it is so full of the details of the famous canvasses of his artist father, Auguste.

Even the positions and attitudes of the actors, not to mention the costumes and sets, seem as if an Auguste Renoir canvas has come to life.

*The Lower Depths*, in contrast, is a flophouse at the bottom rung of the ladder, the end of the line. Call it what you will, this trap has ensnared thieves, prostitutes, a baron down on his money and his luck—some trying desperately to crawl out, others to adjust, and others just trying to maintain their illusions.

Pauline Kael, in the book *Kiss Kiss Bang Bang*, said, "The bottom drawer of society is represented in a filthy rooming house for transients—a skid row that has the horror and fascination of looking over a cliff. One might, like the gambler baron or the actor, fall down there—or one might, like the thief, be down there trying to climb up..."

"These people at the lower depths are not very different from people anywhere, except for the loss of human dignity: in a flophouse, gregariousness is the unspeakably ugly fact of life."

Screenings of the films will be at 3, 7 and 9:15 today and Saturday.

## GRAND RE-OPENING

The old 11th St. pool hall

now

Tox Jr.'s Pool Parlor

1733 O St.

Same "ole" game Same "ole" friends

Same "ole" prices

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Open 7-10, Mon.-Sat., 1-10pm Sun.

THE KAPPA CHAPTER OF  
SIGMA ALPHA IOTA  
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"AMERICANS IN MUSIC"  
a benefit concert  
SUNDAY FEB. 29th 8:00  
SHELDON ART GALLERY AUD.  
proceeds go to Sigma Alpha Iota philanthropies

THE STUDENT Y  
2nd Annual Body Awareness Week  
presents  
A film you won't see on television for a long, long time.  
**THE BEST OF THE NEW YORK**  
EROTIC FILM FESTIVAL  
A collection of prize-winning and specially selected films presented at the annual New York Erotic Film Festival.  
The Official Judges included:  
Andy Warhol  
Sylvia Miles  
Terry Southern  
Milos Forman  
Xaveria Hollander  
Holly Woodlawn  
Gore Vidal.  
Executive Director of the Festival:  
Ken Gaul.  
In color from Saliva Films.  
Rated X. Under 17 not admitted.  
Friday, Feb. 27 and Saturday, Feb. 28  
7:00 & 9:30 p.m. Nebr. Union Ballroom - \$1

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FIRST LINCOLN SHOWING!  
Renee La difference!  
Rated X — 18 I.D. Required  
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DOUGLAS 3  
MATINEES DAILY  
at 2:15 4:45 7:15 9:40  
Adults \$2.50  
**9 ACADEMY AWARD NOMINATIONS**  
including  
**BEST PICTURE**  
Best Actor - JACK NICHOLSON  
Best Actress - LOUISE FLETCHER  
Best Director - MILOS FORMAN  
Best Supporting Actor - BRAD DOULIF  
Best Screenplay Editing Cinematography  
**JACK NICHOLSON**  
**ONE FLEW OVER THE CUCKOO'S NEST**  
A MILOS FORMAN FILM JACK NICHOLSON as ONE FLEW OVER THE CUCKOO'S NEST  
Starring LOUISE FLETCHER and WILLIAM BERTHOLD. Screenplay LAWRENCE HUSON and ROGERIMAN

DOUGLAS 2  
MATINEES DAILY  
1:00 3:10 5:20 7:30 9:50  
**NOMINATED FOR 4 ACADEMY AWARDS** INCLUDING  
Best Actor  
Walter Matthau  
Best Supporting Actor  
George Burns  
Released thru United Artists  
**Shine Boys**