

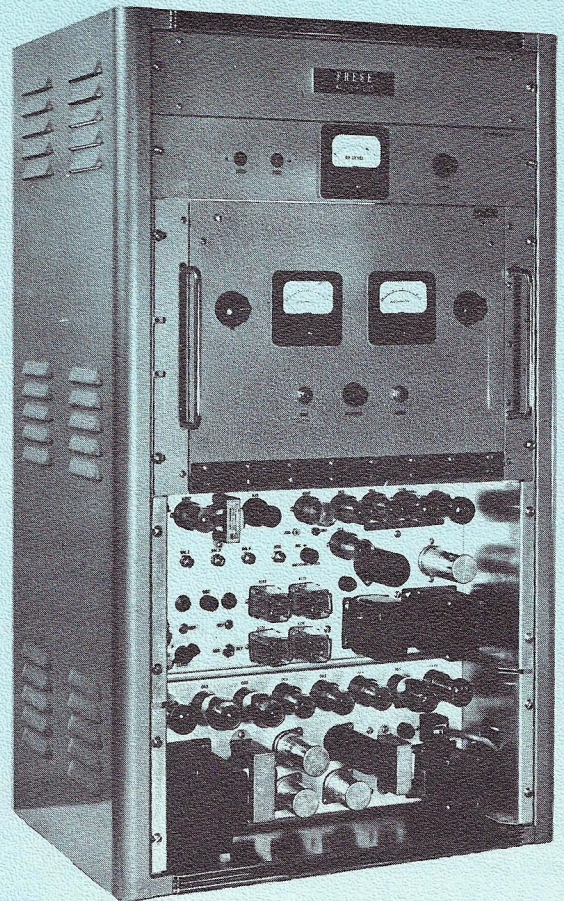
Model AP-6

Frese Audio Pilot

"IN YOUR AREA —

Dominate the Radio Dial with the
Highest Volume regardless of
Licensed Power"

- DUAL PRECISION A.G.C. SYSTEM
- AUTOMATIC SWITCHING ON ASYMMETRICAL WAVES
- TRANSMITTER R.F. OUTPUT PROVIDES AUTOMATIC CONTROL
- MEETS RULE 73.55 AND ALL FCC LEGAL REQUIREMENTS
- GAIN ACTIVATES ON PROGRAM MATERIAL ONLY
- AUDIO QUALITY IS ENHANCED BY THE EMPHASIS RESPONSE NETWORK
- COVERAGE AREA IS APPRECIABLY INCREASED
- PRESENT FRINGE AREAS BECOME ASSET SERVICE AREAS
- ELIMINATES NEED FOR ANY OTHER LIMITER, COMPRESSOR, A.G.C. UNIT, WAVE SHAPER, CLIPPER, ETC.



Manufactured by:

Frese and Kaping

1011 DENIS COURT
EAST WENATCHEE, WASHINGTON 98801
(509) 884-4558

THE REVOLUTIONARY DESIGN OF THE FRESE AUDIO PILOT INCORPORATES AN ENTIRE FAMILY OF AUDIO CONTROL FEATURES THAT ACHIEVE THE ABSOLUTE MAXIMUM MODULATION POWER FROM A STANDARD AM BROADCAST TRANSMITTER. FOR THESE AND OTHER YEARS-AHEAD TECHNICAL ADVANTAGES CHECK THE FOLLOWING FEATURES:

IMPROVED FEATURES —

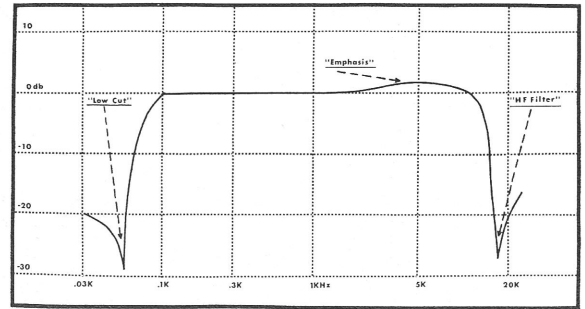
1. **Overmodulation is permanently prevented.** Negative peak modulation level is controlled by a transmitter r-f negative audio trough call out automatic feedback control system. This function is independent of the board operator, a limiter output adjustment, program material, transmitter power, or line voltage variations.
2. **Audio level is always the maximum possible** in keeping with the program material being transmitted. There can never be a period of undermodulation. This also relieves the operator from exacting gain riding duties.
3. **Subjective relative level balance** between material changes has the unique sensation of equal audio levels in any order of program events, such as, music to commercials, announcer to commentator, speech to music, etc. This feature does existing in complete compatibility with feature number 2.
4. **A sudden high amplitude shot, pop, snap, clap, etc** will not poke a hole in the high average audio level, nor can it pass to the transmitter, produce overmodulation or damage parts.
5. **During silent or redundant periods** the gain change is not active, and therefore the process does not pump up studio background noise, crowd response, hum, etc.

EXCLUSIVE FEATURES —

1. **The maximum peak to peak audio level** available on your r-f carrier has been appreciably increased. The wave diagram on the right briefly illustrates how this is possible by asymmetrical wave switching, precision negative AGC control, float clipping, and negative loading.
2. **Frequencies below 80 Hz** are filtered out eliminating turntable and tape motor rumble, and giving the amplitude range over to the more productive frequencies.
3. **Mid high frequencies around 3900 Hz** are boosted 2 db which results definately in a more alive, crisp, clear and natural sound.
4. **Frequencies above 13 kHz** are filtered out to remove needless high frequency material producing little other than wide side bands of interference to adjacent channels.
5. **There are four important transmitter protection features:**
 - One,** Since negative overmodulation can not occur, the modulation transformer is protected from this common source of serious overload.
 - Two,** Audio is immediately removed from the transmitter during an r-f kick-off, thus program material can not enter the transmitter until the r-f carrier is restored.
 - Three,** Instantaneous high-shot amplitude greater than the normal operating float amplitude can not reach the transmitter on either positive or negative peaks.
 - Four,** The input positive peak control takes over should the negative r-f callout system fail. This condition usually is caused by a flat modulator tube or an improperly neutralized transmitter.

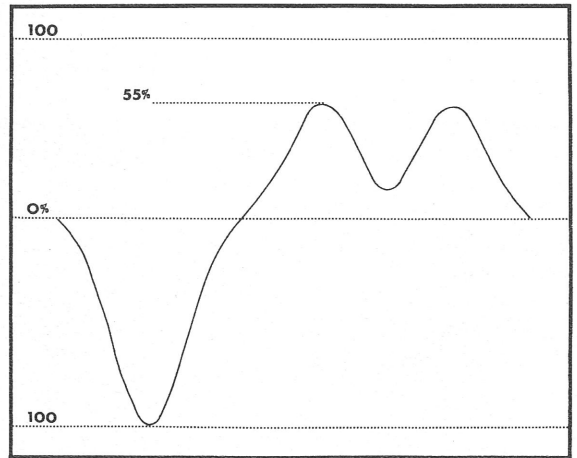
MAINTENANCE FEATURES —

1. A built in test system has been provided to check the asymmetrical wave switcher performance on all program material.
2. An internal test oscillator allows for fast, easy adjustment of the balancing circuits. No external equipment is required.
3. All automatic controls can be disabled by switches to allow the running of a proof of performance.
4. All parts operate at voltage and current ratings appreciably below normal (usually below half rating) to assure highest possible reliability, dependability, and stability.
5. Unusual attention has been given to physical layout to facilitate testing and repair.
6. A sixty page instruction manual provides detailed operating and maintenance information.



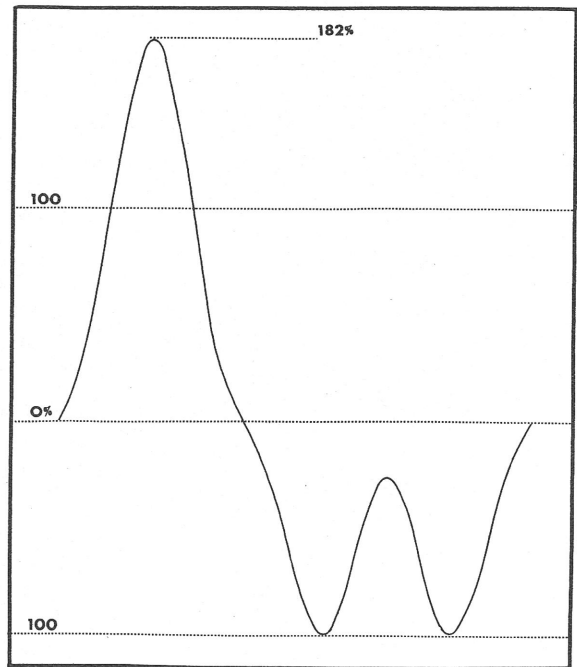
FRESE AUDIO PILOT:

Typical frequency response curve.



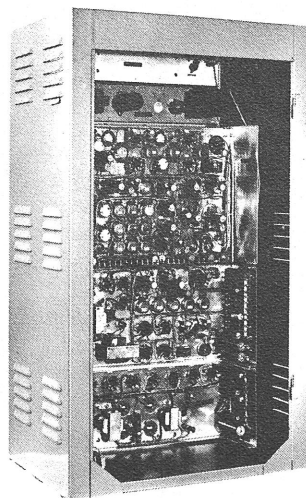
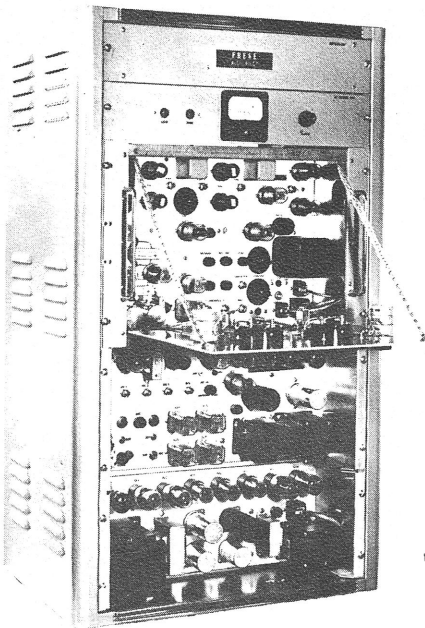
STANDARD AGC LIMITER SYSTEM:

Typical periodic wave containing fundamental (full P) second harmonic (P/2), and fourth harmonic frequencies (P/4). NOTE: Amplitude is 155% peak to peak.

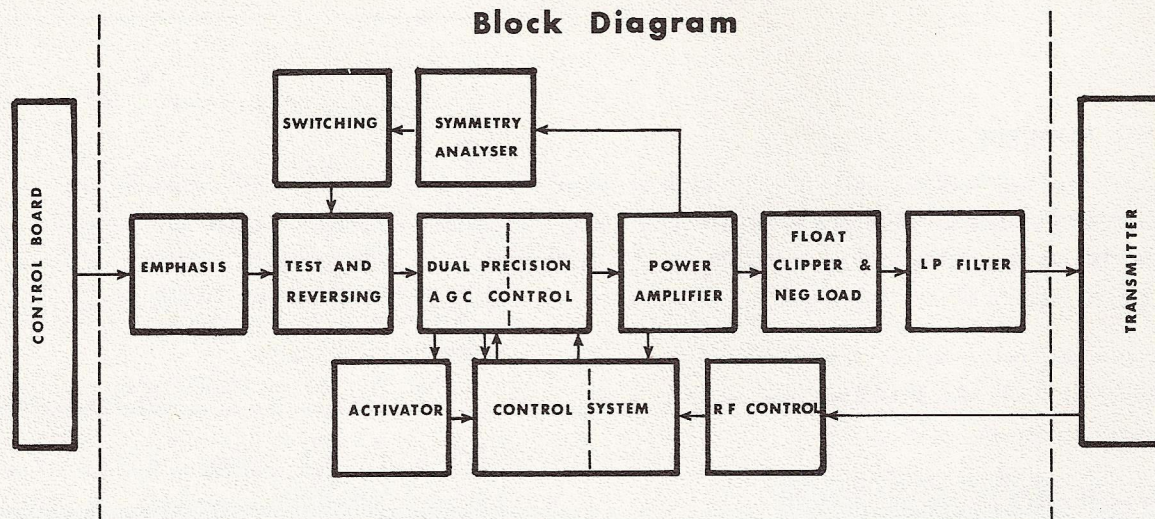


FRESE AUDIO PILOT:

The asymmetrical wave switcher has reversed polarity of the above wave. NOTE: Amplitude is now 282% peak to peak. Average wave power has increased 178%. "Float Clipping" and "Negative Load" features (not illustrated) further increase peak to peak amplitude (325% is common) and average wave power (200% is common).



Block Diagram



SPECIFICATIONS

MANUAL FREQUENCY RESPONSE: Flat within .5 db, 30 to 15,000 Hz.

AUTOMATIC FREQUENCY RESPONSE: Flat Within .25 db, 30 to 15,000 Hz.

HARMONIC DISTORTION: Below 1% for all conditions of operation.

INTERNAL INPUT NOISE: Below -100 dbm.

OPERATING INPUT LEVEL: -25 dbm to plus 10 dbm. Low passages may be as low as -50 dbm for full level output.

OPERATING OUTPUT LEVEL: Plus 10 dbm. Can deliver up to 25 dbm without exceeding the distortion ratings.

MAXIMUM GAIN: 80 db.

AUTOMATIC OUTPUT VERSUS INPUT LEVEL: Output level is constant with input signal of -40 dbm to plus 5 dbm. Output signal is constant with -.8 db with input signals between -60 dbm and plus 10 dbm.

INPUT AND OUTPUT IMPEDANCE: 600 ohms, balanced or unbalanced.

ATTACK TIME: Instantaneous.

RECOVERY TIME: Less than 3 milliseconds for shot attack. 1 to 5 seconds on sustaining material.

ACTIVATOR SENSITIVITY: Exceeds -60 dbm.

REVERSE SWITCHING: Less than 1% undesirable asymmetrical wave continuous for 100 milliseconds.

AUTOMATIC OUTPUT LEVEL CONTROL: Controlled on negative r-f trough and audio input positive peaks, 100 to 200%.

EMPHASIS NETWORK RESPONSE: 0 db from 100 to 12,000 Hz, 3900 Hz midrange variable rise adjustable to plus 2 db, -24 db at 50 Hz, -26 db at 17 kHz.

R-F UNIT INPUT IMPEDANCE: 75 ohms.

R-F UNIT INPUT VOLTAGE: 7.5 r-f carrier volts r.m.s.

LINE VOLTAGE: 117 plus or minus 10%

LINE CURRENT: 1.8 Amps.

TEST OSCILLATOR: Self contained balancing test unit.

PHYSICAL REQUIREMENTS: Assembled in standard 19 inch half rack. Outside dimensions 22 x 37 x 14 $\frac{3}{4}$ inches.

Distributed by: