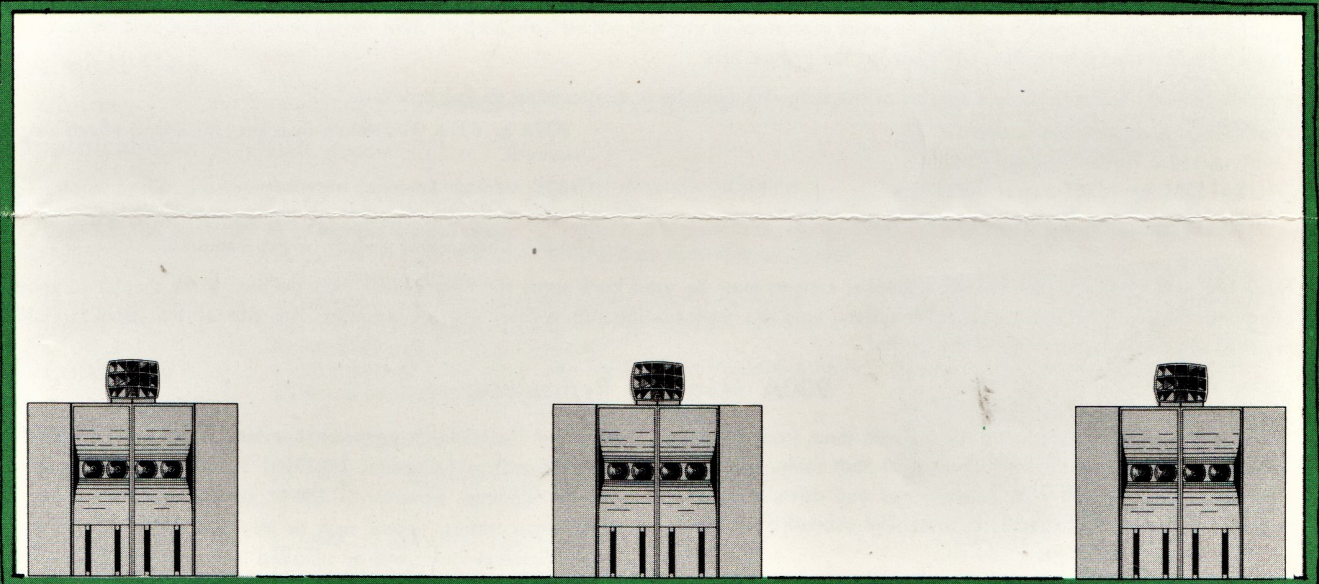


BRITISH FILM INSTITUTE
INFORMATION DEPARTMENT



ALTEC LANSING HIGH QUALITY

STEREOPHONIC SOUND EQUIPMENT

FOR THEATRES



STEREOPHONIC SOUND EQUIPMENT

The advent of stereophonic sound in connection with the showing of three-dimensional pictures promises a new sensation of realistic listening pleasure to the motion picture patrons of this country.

This innovation, however, brings with it a number of factors which are not encountered in the present day conventional sound pictures. Unlike conventional sound, which is recorded on a single track and is reproduced through a single amplifier and horn system, the recording and reproduction of stereophonic sound becomes more complex. At the present time stereophonic sound is being recorded with three magnetic sound tracks on separate 35 mm. film, and to reproduce the sound from these tracks requires a three channel magnetic reproducer, three separate amplifier systems and three loud speaker systems. The three amplifier systems used for stereophonic reproduction must be identical in every respect. The two projector motors and the motor driving the magnetic reproducer must be synchronized by an electrical interlock system. On the last page of this brochure is a block schematic of a typical stereophonic sound system which illustrates in general the function of the various components.

Altec Lansing is proud to announce its newly designed high quality stereophonic sound equipment for theater use. The Magnetic Reproducer as described in this bulletin is for use only with a separate three-track magnetic film. However, the Amplifier and Speaker Systems are adaptable for use with various types of magnetic reproduction and will not be obsoleted if future developments make it possible to record magnetic sound tracks for stereophonic use on the picture film.

Basically, this stereophonic system consists of the following equipment as described in this brochure:

- | | |
|---|---|
| 1—900A Magnetic Reproducer. | 629A or 631A Auditorium Speakers for sound effects (as required). |
| 1—A-150A Three Channel Amplifier. | 1—625 Monitor Speaker. |
| 3—1530T or 1520T Power Amplifiers. | 1—5371 Switching Panel. |
| 3—"Voice of the Theatre" Speaker Systems. | 1—5377 Changeover Switch (where required). |

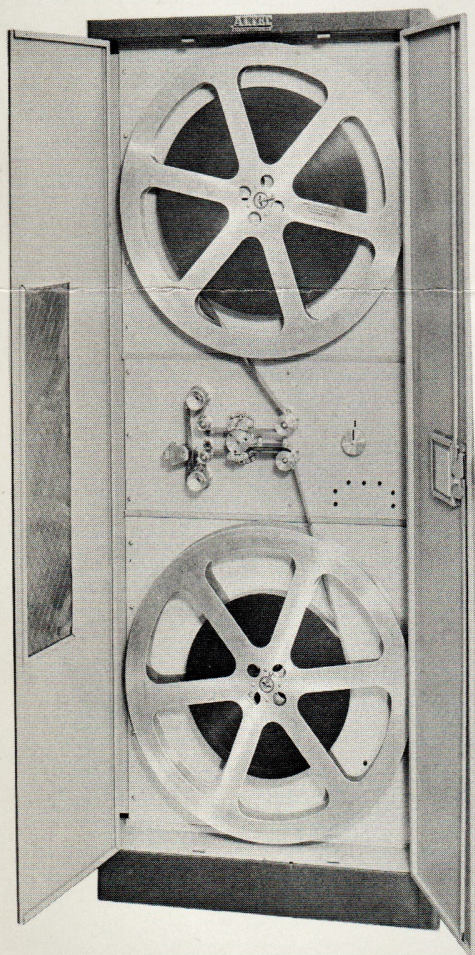
Three identical "Voice of the Theater" speaker systems must be used back stage for stereophonic reproduction. If the theater already is using one "Voice of the Theater" speaker system, only two similar additional systems will be required. The size of the speaker systems required will depend on the size of the theater.

900A Magnetic Reproducer

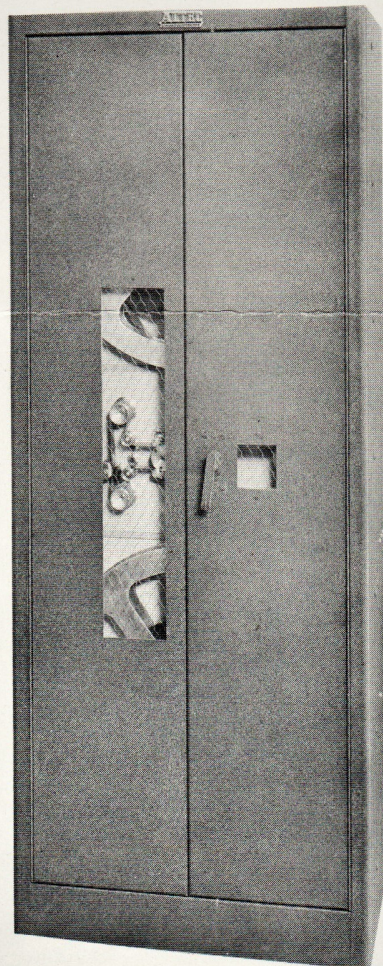
The 900A Reproducer is designed for use with three track 35 mm. magnetic film and will accommodate 5000 foot reels. The complete mechanism, including the selsyn motor and drive, is housed in a cabinet having front and rear doors. The cabinet is 67" high by 28" wide and 18" deep.

The Reproducer includes a single phase selsyn which provides electrical interlock operation between the magnetic reproducer

and the two theater projector interlock systems. It is normally supplied with a GE model 2JA33BB1 selsyn motor having 55 V. control windings. However, if 110 V. control circuit is used in an installation having selsyns such as Minitape R1 or R2, an Arma type 6G selsyn motor can be supplied to fit this requirement. Both the GE and Arma type selsyns are designed to operate at 1440 R.P.M.



900A Reproducer—Doors Open



900A Reproducer—Doors Closed

In addition to the selsyn motor which drives the reproducer, there is a separate take-up drive and motor which isolates the reel load irregularities from the sprocket drive. The addition of a separate take-up drive and motor reduces flutter to a minimum.

The reproducer mechanism and each of the reel bearings are mounted on heavy anodized aluminum plates which are in turn securely bolted to the frame of the housing to provide rigidity in operation.

As will be seen from the illustration, the film path is a tight loop system which incorporates two sound drums, one 32 tooth driven sprocket and two idlers damped by rotary oil dash pots. All bearings in this stabilized film loop are precision type ball bearings. In addition to the film path stabilized mechanism, both take-up and feed reels have spring loaded and oil damped idler rollers to prevent the 5000 foot reels from hunting. The two pad rollers which are also equipped with ball bearings are of the snap-lock type.

The reproducer incorporates a magnetic head mount which has azimuth and track placement adjustments. The maximum total flutter is less than 0.15% R.M.S. and the maximum 96 cycle flutter is 0.08% R.M.S. The weight of the complete unit without reels and film is 265 lbs.

A-150A Amplifier

The A-150A Amplifier, designed especially for use with three track stereophonic sound systems, consists of three 1512A preamplifiers, one 531A power supply and three stepped-type volume controls geared together and operated by a single knob. All of this equipment is housed in a wall mounting type cabinet which may be installed at any convenient location in the booth.

The 1512A preamplifiers have three gain stages and cathode follower outputs. The three gain stages use low noise non-microphonic tube types which insures low noise level. Each amplifier channel has provision for about 8 db of gain adjustment to allow for balancing of channels. Equalization for magnetic recording is provided in the preamplifiers and individual adjustment of this equalization can be made as required. The input transformers have 90 db of magnetic shielding which minimizes the possibility of hum pickup. A self contained power supply contributes to ease of installation making it unnecessary to install wires and conduit to the main amplifier rack for a power source.

Technical Data

General: Three channel equalized amplifier with ganged volume controls.

Specifications:

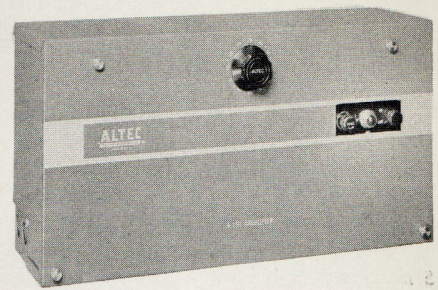
Each channel:

Frequency Response: Adjusted and equalized for pickup of magnetic recordings.
 Source Impedance: 30/50, 125/150, 250/300, 500/600 ohms.
 Load Impedance: Not less than 20,000 ohms.
 Gain: 64 db max. at 1000 c.p.s. (Additional 6 db available by change in transformer strapping.)
 Channel Balance: Locking-type, screw-adjusted attenuator with 8.5 db range.
 Noise Level: Less than -53 dbm measured over 20-20,000 c.p.s. band across 20,000 ohm load. (At min. fixed gain.)
 Output Level: + 12.5 dbm at 1,000 c.p.s. and 1% total harmonic distortion (19 V. across 20,000 ohm load.)

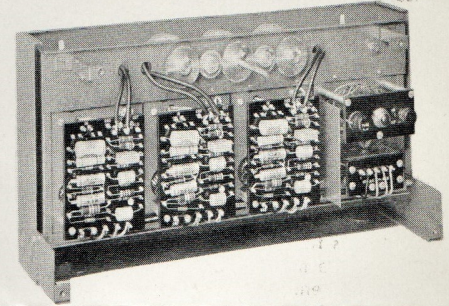
Specifications:

A-150A Amplifier:

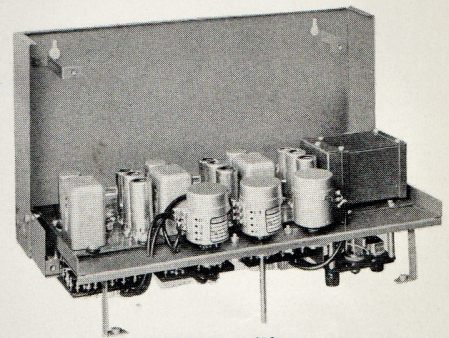
Dimensions: 18" long x 9" high x 5 5/8" deep.
 Weight: 26 lbs.
 Complete Tube Complement: 3-5879, 3-12AY7, 3-6C4, 1-6X4.
 Power Required: 117 V., 50/60 cycles, 35 watts.
 Color: Blue Gray.



A-150A Amplifier—Cover on



A-150A Amplifier—Cover off



A-150A Amplifier—Hinged Mounting Frame Lowered

Power Amplifiers

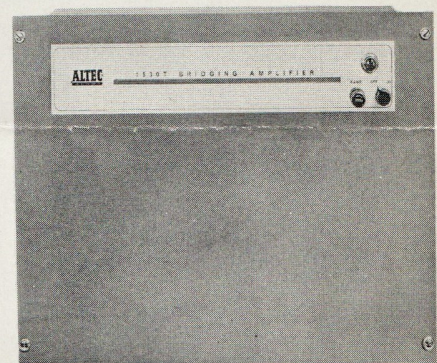
The Power Amplifiers are of two sizes. The 1530T is a 70 watt amplifier, and the 1520T is a 35 watt amplifier. Both of these amplifiers are high quality units of recessed pan construction and designed for rack mounting. They have a frequency response of ± 1 db from 20 to 20,000 cycles and are capable of delivering full rated power with low distortion. The size of the amplifier to be provided will be dependent upon the size and seating capacity of the theater. It is recommended that theaters having seating capacity exceeding 1600 seats used the 70 watt amplifier, and those having less than 1600 seats use the 35 watt amplifier.

Technical Data 1530T Amplifier

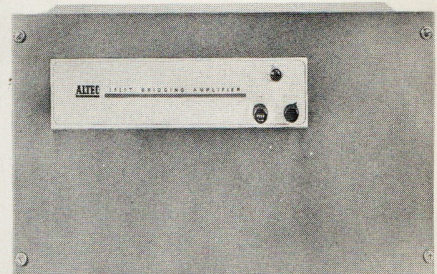
Gain: 73 db from 10,000 ohm source.
 Gain Control: Continuously variable, screw adjust, locking type.
 Frequency Response: ± 1 db, 20 to 20,000 cycles.
 Power Output: 70 watts nominal at 2% total harmonic distortion.
 Noise Level: -43 dbm (.001 watt reference).
 Input Impedance: 10,000 ohms bridging.
 Output Impedance: Less than 15% of nominal load impedance.
 Load Impedance: 4, 8, 16 ohms and 70 volt line (70 ohms).
 Power Supply: 105-125 V.A.C., 60 cycles.
 Tubes: 1-12AY7, 1-6SN7, 2-6146, 2-5R4GY, 1-OA3, 1-OC3.
 Dimensions: 19" x 14" x 9".
 Color: Blue Gray.
 Weight: 60 lbs.

Technical Data 1520T Amplifier

Gain: 73 db from 10,000 ohm source.
 Gain Control: Continuously variable, screw adjust, locking type.
 Frequency Response: ± 1 db, 20 to 20,000 cycles.
 Power Output: 35 watts nominal at 2% total harmonic distortion.
 Noise Level: -43 dbm (.001 watt reference).
 Input Impedance: 10,000 ohms bridging.
 Output Impedance: Less than 20% of nominal load impedance.
 Load Impedance: 4, 8, 16 ohms and 70 V. line (140 ohms).
 Power Supply: 105-125 V.A.C., 60 cycles.
 Tubes: 1-12AY7, 2-6SN7, 2-6L6G, 1-5U4G.
 Dimensions: 19" x 10 1/2" x 9".
 Color: Blue Gray.
 Weight: 55 lbs.



1530T Amplifier



1520T Amplifier

629A & 631A Auditorium Speakers

Sound effects are presently being recorded on the photographic sound track located on the picture film. These sound effects are transmitted to the speakers located in the auditorium through the existing theater sound system. A 16168E Matching Transformer is normally required to change the output impedance of the existing amplifier system to a 70 V. line to match the auditorium speakers.

Two types of auditorium speakers are available for this use. The 629A consists of an Altec 600B, 12 inch Diacone speaker and a 70 V. line transformer (Code #16166X) mounted in an attractive sloping front cabinet especially designed for wall mounting. The front of this cabinet is removable to give access to the speaker and transformer. The 631A is similar to the 629A except that it includes an Altec 603C 15 inch speaker and has a larger cabinet which provides better bass response. The number of these auditorium speakers required in each instance will vary greatly. It is expected that the minimum requirement will be at least ten speakers. The use of the 70 V. line transformer insures constant matching impedance regardless of the number of speakers used and allows individual volume adjustment.

625 Monitor Speaker

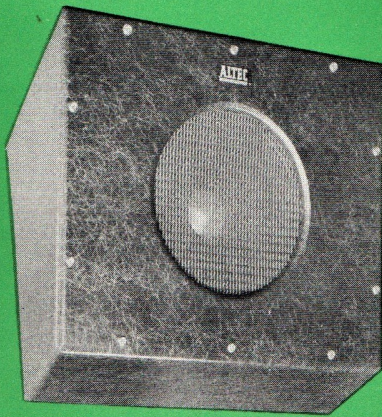
The 625 Monitor Speaker, used in monitoring the output from each stereophonic sound channel, consists of an Altec 400B, 8 inch Diacone speaker and volume control mounted in the 625 metal cabinet.

5371 Switching Panel (Not Illustrated)

The 5371 Switching Panel has two major functions. It provides the means for connecting the 625 Booth Monitor to the output of each of the magnetic sound tracks and also makes it possible to switch the entire system from Stereophonic sound, including the auditorium speakers, to single channel sound.

5377 Changeover Switch (Not Illustrated)

The 5377 Changeover Switch is available for those installations where two magnetic reproducers are installed for continuous performance. The use of this switch provides for an immediate sound changeover from one reproducer to another at the end of a reel.



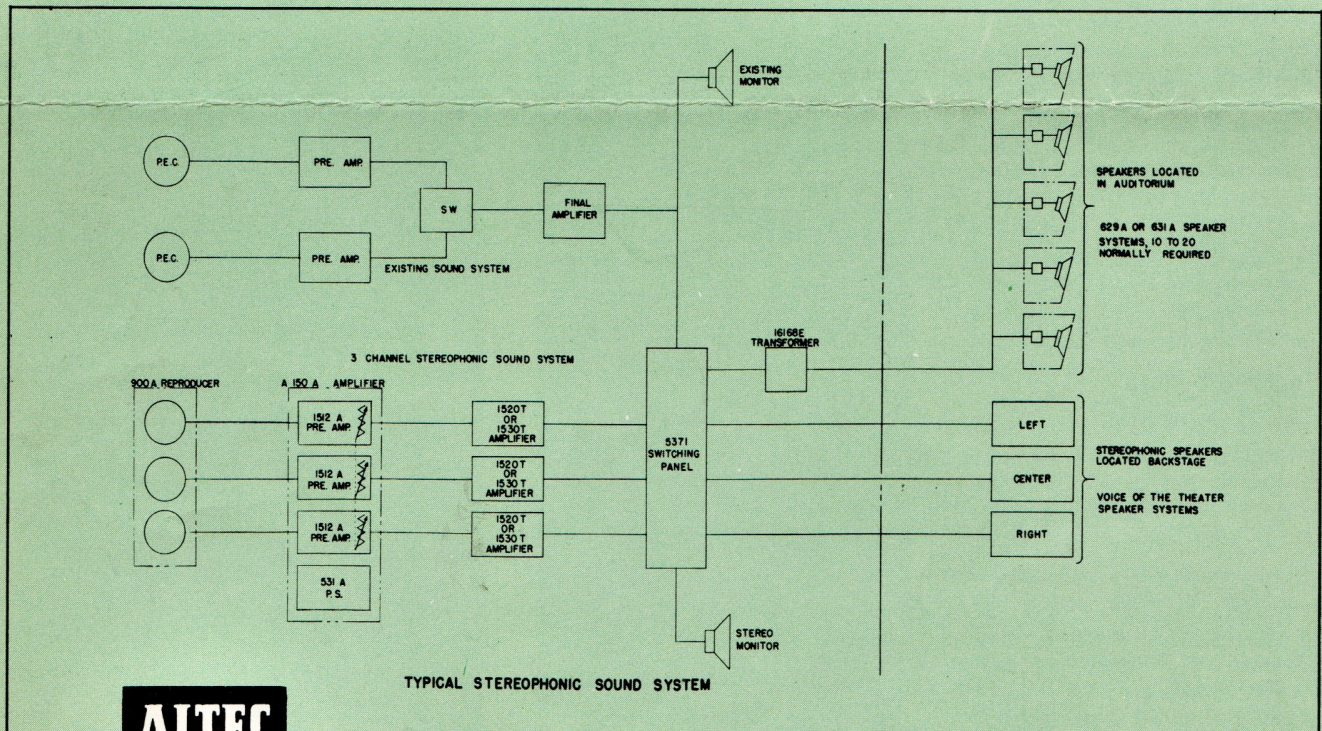
629A Auditorium Speaker

Dimensions: 22" wide; 17" high; Depth Top: 13 $\frac{1}{4}$ "; Bottom: 7 $\frac{1}{16}$ ".
Finish: Splatter web—Brown and gold.
Weight (including Speaker and transformer): 33 lbs.



625 Monitor Speaker

Dimensions: 12 $\frac{3}{16}$ " wide; 16 $\frac{1}{8}$ " high; 9 $\frac{3}{16}$ " deep.
Color: Blue Gray.
Weight with Speaker: 24 lbs.



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