

KLIPSCH



SHORTHORN
TRADE MARK

CORNER HORN LOUDSPEAKER SYSTEM



Designed and
manufactured by Paul
W. Klipsch, creator of
the famous KLIPSHORN
system.



KLIPSCH

SHORTHORN
TRADE-MARK

**CORNER HORN
LOUDSPEAKER SYSTEM**

**KLIPSCH
QUALITY**

**... at
moderate
cost**

The SHORTHORN system employs the same general principles as the unparalleled KLIPSCHORN* system to bring you exceptional range, depth and realism in music reproduction. Rich full bass without artificial resonance or boom; clear crisp treble without unnatural exaggeration; well defined midrange which preserves the individuality of original instruments and voices — these are the characteristics which make the SHORTHORN second only to the KLIPSCHORN system.



KLIPSCH CORNER HORN DESIGN

Like the KLIPSCHORN, the SHORTHORN system employs a corner of your room to give a big full sound of the original instruments and add over an octave to the range.

The principle of the corner horn is really the combination of two principles: that of the horn to provide a load for the diaphragm, and that of the corner to provide mirror images of the radiating system, permitting handling of longer wave lengths.

THE HORN PRINCIPLE is most simply explained by comparison with a piston pump. A piston, sloshing up and down in the middle of a lake by itself fails as an effective pump. An open cone speaker, sloshing the air in a room, fails as a sound generator especially at wave lengths larger than the diameter of the cone. But put a cylinder around the piston and it becomes effective as a pump; properly match a horn to the vibrating diaphragm and it becomes an effective speaker. The resulting increase in efficiency minimizes distortion. The advantage of utilizing a corner as part of the horn is that it provides a large radiator area to propagate long wave lengths.

THE PRINCIPLE OF MIRROR IMAGES employs reflections of sounds from the walls and floor (or ceiling) of a corner. The reflections produced by two walls doubles the wavelength capability, adding an octave to the bass range. And the floor or ceiling increases the range by still another half octave.

This is how the SHORTHORN corner horn design permits propagation of the long sound waves of deep bass notes.

FIG. 1

To visualize the function of a room corner as part of a speaker system, first picture a lamp and a mirror so disposed that the mirror image doubles the amount of light in the wanted region.

FIG. 2

Next, imagine a horn speaker with one flat side against a mirror wherein the radiating area is effectively doubled and consequently enabled to handle longer wavelengths.

FIG. 3

Finally, look at the actual speaker in the corner of a room, and imagine the appearance if the walls and floor were optical mirrors; there would be three mirror images of the real speaker above the floor and four more below the floor. This is how the KLIPSCHORN and SHORTHORN systems handle 32-foot and 24-foot wavelengths. The SHORTHORN housing, for example is only three feet high, but its mirror images lend it the six feet needed to propagate the 6 x 4 or 24-foot wavelengths of a 50-cycle tone.

*Trade mark registered in U. S. Patent Office

KLIPSCH ORTHO* 3-WAY DRIVE SYSTEM

Three separate speakers, or drive units, are employed for bass, mid-range and upper treble tones. An electrical crossover network feeds into each speaker only those frequencies which it can reproduce best. This results in clear, well defined sound reproduction throughout the entire range of tones which the ear can hear.

The combination of drive units has been selected from among principal foreign and domestic makes as the result of thorough laboratory and listening tests. In listening tests, accepted as a criterion, a reproduced recording is compared with a live performance of the recording artist to determine how closely reproduced sound approaches identity with original sound.

The bass driver is either a Stephens or Electro-Voice fifteen inch or twelve inch cone. The mid-range driver is the University MA-25 and the high frequency unit is a University 4401. Effective range is from below 50 cycles to over 16,000 cycles.

Crossover frequencies are 1000 and 5000 cycles.

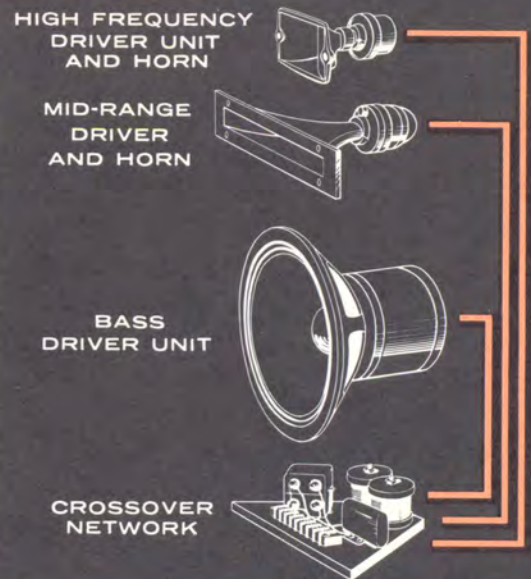


FIG. 4

AVAILABLE AS COMPLETE SPEAKER SYSTEMS, FINISHED OR UNFINISHED, OR AS DO-IT-YOURSELF KITS.



FIG. 1

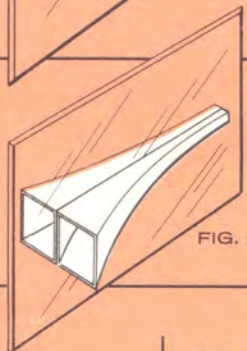


FIG. 2

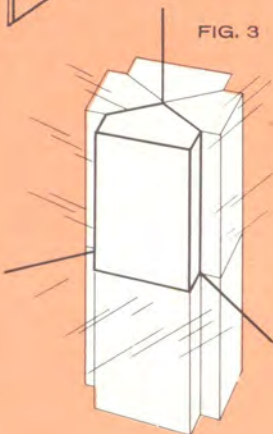


FIG. 3



FIG. 6

FIG. 7

FIG. 6. The SHORTHORN system is offered in mahogany or prima vera, with front and side grill cloths. Equipped with Klipsch K-ORTHO-15 3-way drive system, including 15" bass driver, or Klipsch K-ORTHO-12 3-way system including 12" driver.

FIG. 7. Utility model (without cabinet, functional horn only) has front panel and top made of gum plywood, sanded and finished with one coat of clear lacquer sealer.

The acoustic elements of the SHORTHORN system are available in kit form. All parts are pre-cut for easy assembly with only the simplest tools. An easy-to-follow instruction sheet is included.

While no drive system is included in the kit, either the K-ORTHO-15 or K-ORTHO-12 3-way drive system is recommended for optimum sound reproduction. However, any good drive system will give notably improved performance when mounted in the assembled SHORTHORN kit.

CROSSOVER NETWORK

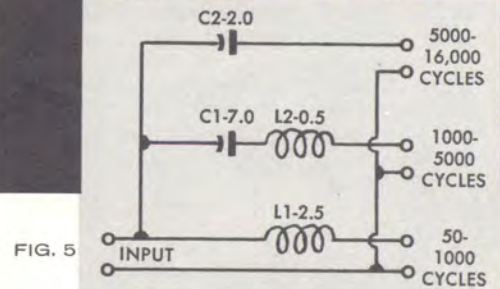


FIG. 5

ASSOCIATED EQUIPMENT

The same recommendations regarding amplifiers, pick-ups, tape recorders, etc., for the KLIPSCHORN system apply to the SHORTHORN system. Although the SHORTHORN system is more tolerant, permitting the use of less expensive associated equipment, one should guard against false economy. We suggest that you consult Klipsch and Associates or your SHORTHORN dealer for recommendations on immediate needs and long range planning.

PATENT NOTICE

The SHORTHORN corner horn is specifically covered by U. S. patent 2,731,101 issued 17 January, 1956, and broadly by the patent structure, developed by Paul W. Klipsch, as follows:

2,238,023	2,373,692
2,310,243	2,537,141

D153,700
Canadian patent: 434,947
and pending applications

Electro-Voice, Inc., of Buchanan, Michigan, builds the "Regency," "Aristocrat," "Baronet" and other models under license. The Northern Electric Company of Montreal, Canada, affiliate of the Western Electric Company, enjoys Canadian manufacturing rights.

The G & H Wood Products Company of 75 N. 11th Street, Brooklyn 11, N. Y., manufactures a series of horns, designed specifically for them by Paul W. Klipsch. These are under license, both as to design and name and are produced under the registered trademark REBEL.

*Trade mark



SHORTHORN
TRADE MARK

**CORNER HORN
LOUDSPEAKER SYSTEM**

**IDEAL FOR
MANY APPLICATIONS**

The SHORTHORN system, while designed primarily for home use, is also ideal for public halls, schools, churches, libraries, studios, audition rooms, laboratories.

FREQUENCY RANGE

50 cycles to over 22,000 cycles, with substantial efficiency from 60 to over 16,000 cycles. (Low C on the organ is 32.7 cycles and 16,000 cycles is above the top of the range of most human hearing.) The SHORTHORN system has been designed to approach fidelity of sound reproduction – not to create such bizarre “hi-fi” effects as unnatural exaggerated treble or boomy resonant bass.

POWER INPUT RATING

A 10-watt amplifier is adequate for home use and has served audiences up to 900 people.

Rating, continuous below 500 cycles – 15 watts

Rating, continuous above 500 cycles – 2 watts

Complex wave, instantaneous peak – 100 watts

Complex wave, momentary – 50 watts

Power input required to render sound at original loudness for most subject matter is of the order of from one to 10 milliwatts average, and from 0.1 to 2.0 watt instantaneous peak. This level is arrived at by recording various subjects including a jazz band, a set of jazz traps, etc., and playing them back at original loudness.

IMPEDANCE: 16 ohms

**PLACE IN BEST
AVAILABLE CORNER**

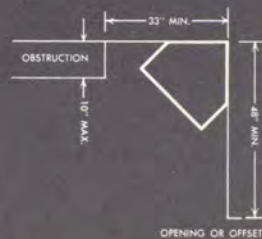


FIG. 8

For best results, install your SHORTHORN system in a corner which affords the most unobstructed wall space. Irregularities should not exceed those shown in diagram. Recommended maximum and minimum spacing may be violated with resultant loss in performance, depending upon degree of violation.

Keep the corner of the top pushed into the corner of room walls. Draperies, if any, should be pushed flat. They are entirely permissible so long as they leave sound passageways clear. It is recommended that nothing be set on top of the system, such as vases, bric-a-brac, ash trays, etc.

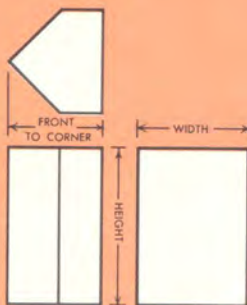


FIG. 9

DIMENSIONS

	Cabinet Model Finished	Utility Horn or Assembled Horn Kit
Height	37"	36 3/4"
Width	25 1/2"	24"
Front to corner	23 1/4"	22"

TECHNICAL BIBLIOGRAPHY

The scientific background of the KLIPSCHORN and SHORTHORN systems is well established. The following bibliography contains the more important papers by Paul W. Klipsch pertaining to it. References include an extensive bibliography of the related arts.

1. "A Low Frequency Horn of Small Dimensions," Journal of the Acoustical Society of America, Vol. 13, No. 2, Oct., 1941, pp. 137-144.
2. "Improved Low Frequency Horn," Jour. Acous. Soc. Am., Vol. 14, No. 3, Jan., 1943, pp. 179-182.
3. "A High Quality Loudspeaker of Small Dimensions," Jour. Acous. Soc. Am., Vol. 17, No. 3, Jan., 1946, pp. 254-258.
4. "The Klipsch Sound Reproducer," FM and Television, Sept., 1947.
5. "Progress in Klipsch Speakers," FM and Television, Nov., 1948.
6. "Developments in Corner Horn Systems," FM and Television, Aug., 1949.
7. "Response and Distortion," FM and Television, April, 1950.
8. "How to Get Best Results from a KLIPSCHORN," High Fidelity, Summer, 1951.
9. "Loudspeaker Developments," Transactions IRE-Prof. Group on Audio, Vol. 1, No. 3, May-June, 1953, pp. 16-21.
10. "Small Corner Horn Systems," Radio Electronics, July, 1955, pp. 72-74.
11. "Experiences in Stereophony," Audio, July, 1955.
12. "Making Stereophonic Tapes," Hi-Fi Music at Home, November-December, 1955.



KLIPSCH AND ASSOCIATES
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YOUR SHORTHORN DEALER

TELEPHONES: PROSPECT 7-3395; 7-4538; 7-5575; 7-5514