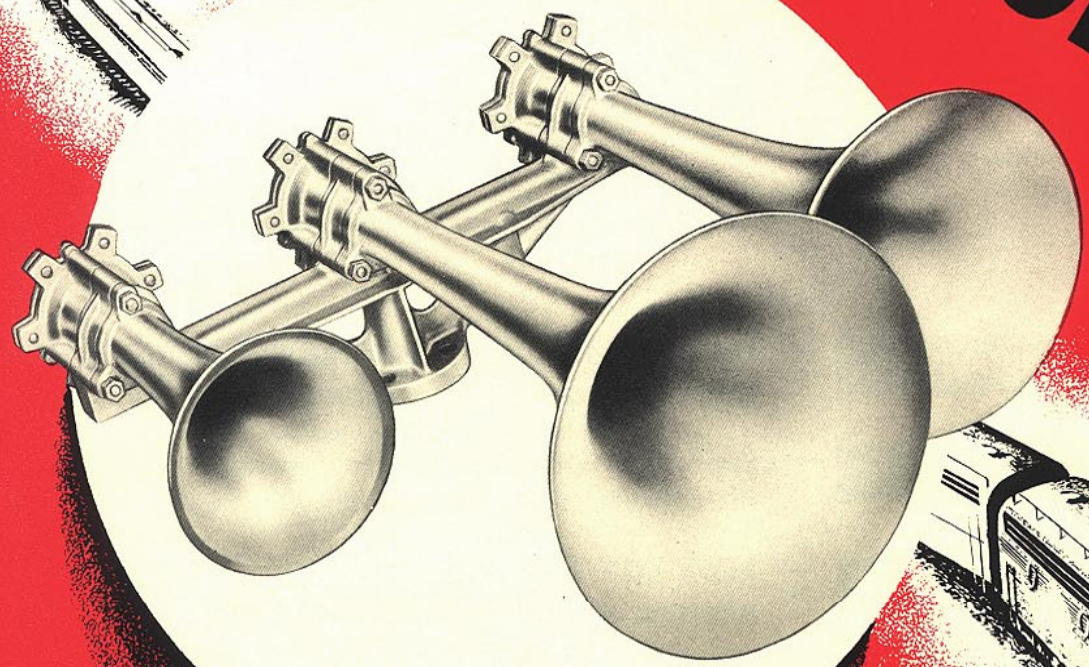
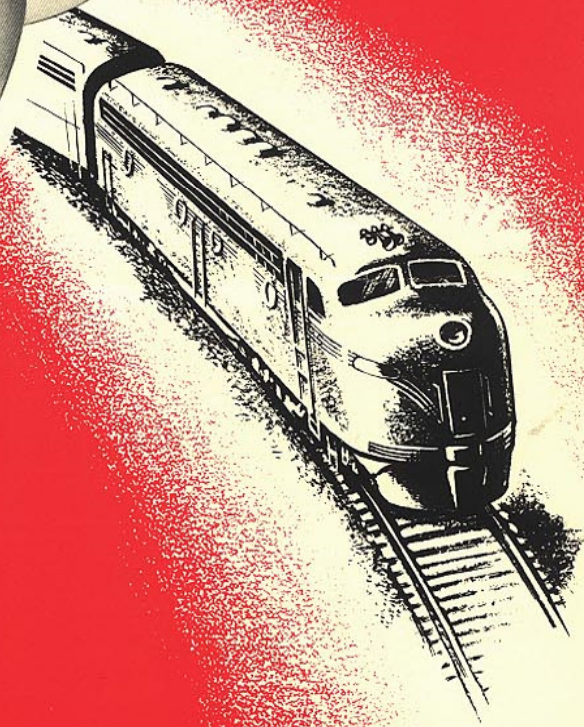
TRADE LESLIE MARK

BULLETIN R-512

SUPERTYFON CHIME HORNS





LESLIE® SUPERTYFON

PRESSURE REDUCING VALVES • PRESSURE CONTROLLERS
FLOATLESS LEVEL CONTROLS • PUMP GOVERNORS • TEMPERATURE REGULATORS
SELF CLEANING STRAINERS • AIR HORNS • STEAM WHISTLES

LESLIE CO., LYNDHURST, NEW JERSEY

LESLIE®
SUPERTYFON
TRADE MARKS REG. U.S. PAT. OFF.

Why LESLIE-SUPERTYFON?

Patented Power Chamber

Here is the Air Horn that satisfies the most exacting railroad requirements. Designed specifically for railroad service the LESLIE-SUPERTYFON is the product of years of LESLIE research and experience. Its patented power chamber is the first basic change in air horn design in over 30 years.

Powerful enough for the most adverse conditions, melodious enough to satisfy public opinion, economical for the most limited air supply, and yet of unequalled simplicity—Yes, a contribution to railroading of which we are proud—

Compare THESE FEATURES WITH ANY AIR HORN

Lowest Air Consumption — *Uses only 50% of air required by other horns for same or greater sound output.*

Maximum Power Output — *Produces more sound output with only half the air consumption of any other horn.*

Maximum Diaphragm Life — *More than double the life of any previous diaphragms of any material.*

Permanent Fixed Adjustment — *No difficult or time-consuming adjustments. Diaphragm is automatically and permanently adjusted at time of assembly.*

True Modulation — *From a melodious whisper to an arresting shout—can be varied at will to meet any signal requirements.*

Pleasing Steam Whistle Tones — *Musical instrument-shaped horns give truer musical tones.*

Compact Lightweight Construction — *Made of high strength aluminum alloy construction ideally suited to railroad service.*

Simple One Sized Diaphragm — *All horns use same size single leaf flexible diaphragm for all tones and frequencies—no multi-leaf diaphragm—no complicated assemblies. Minimum spare parts.*

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APPLICATION DATA

The choice of the proper single or chime-horn for an application depends upon the service, the topography of the area along the right of way, and many other influencing factors which are different for each railroad. In the following table general recommendations are given, as well as specific engineering data which should permit the selection of the proper unit to fit each and every requirement. The combinations listed are standard units generally found to satisfy most railroad requirements. Other combinations may be furnished for special applications.

3-TONE

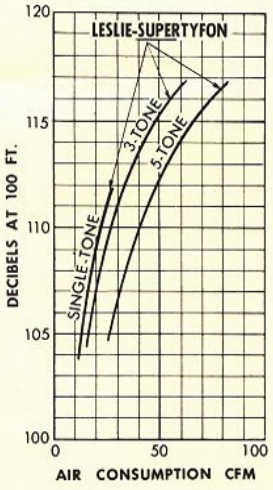
CHART OF MODELS

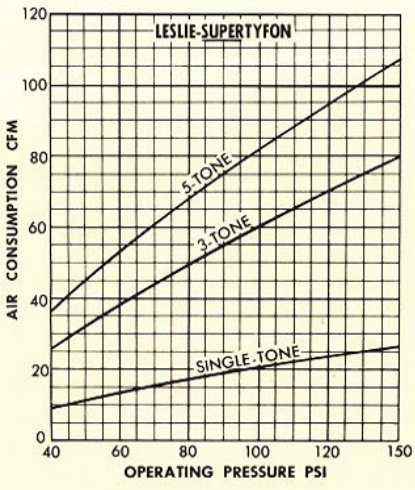
TYPE	FREQUENCY	SERVICE	APPROXIMATE WEIGHT LBS.
SINGLE TONE S-247 S-277 S-311 S-330 S-370 S-392 S-440 S-554	 247 277 311 330 370 392 440 554	YARD OR ROAD SWITCHERS	10
CHIME TONE S-3E S-3J	247, 311, 370 277, 330, 440	PASSENGER OR FREIGHT LOCOMOTIVES AND ROAD SWITCHERS	26
CHIME TONE S-5A S-5D	247, 277, 311, 370, 440 277, 330, 440, 392, 554	MAINLINE PASSENGER AND FAST FREIGHT LOCOMOTIVES	40

SOUND OUTPUT AND AIR CONSUMPTION

The sound output of a signalling device should be as high as possible in keeping with the available air supply. Although a signal may be modulated when desired, in an emergency maximum power output is needed and it should not come at the expense of loss of the effectiveness of other air operated safety devices. The LESLIE-SUPERTYFON has been designed with this in mind and the accompanying graph, the result of actual tests, indicates how the LESLIE-SUPERTYFON provides greater power output with less than half the air consumption of any other horn. This is a long forward step in the design of up to date economical railroad equipment which will permit present air compressors to continue to supply more safety devices.

5-TONE





SINGLE-TONE

When comparing the decibel ratings of horns and their sound patterns it should be remembered that direct comparison cannot be made because the decibel is a logarithmic unit. In other words if one horn has an output of 110 decibels and another 100 decibels it is not a reduction of 10% but actually 60% less power output than the 110 decibel signal. One decibel above 110 decibels actually represents a 9.3% increase.

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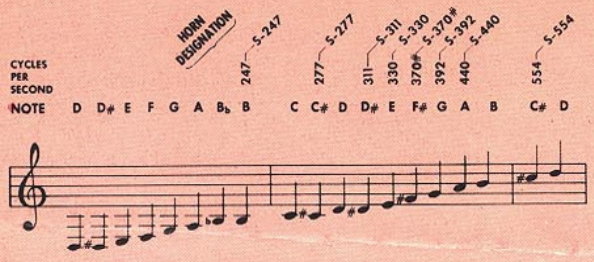
Musical Scale of LESLIE-SUPERTYFON
Single or Chime Horns



The following Standard Chords are available in the Leslie-Supertyfon Chime Horns

CHORD	NOTE	FREQUENCY
	A	440
	E	330
	C#	277

TYPE S-3J

CHORD	NOTE	FREQUENCY
	C#	544
	A	440
	G	392
	E	330
	C#	277

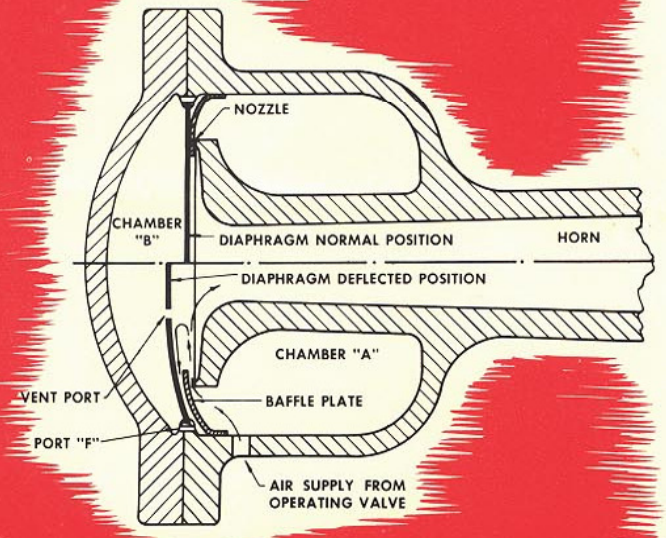
TYPE S-5D

	F#	370
	D#	311
	B	247

TYPE S-3E

	A	440
	F#	370
	D#	311
	C#	277
	B	247

TYPE S-5A



OPERATION OF POWER CHAMBER

FOR PROMPT SERVICE CALL YOUR LESLIE CO. REPRESENTATIVE

(SEE RAILWAY POCKET LIST FOR NAMES AND LOCATIONS)

LITHO IN U.S.A. 11515

LEGEND FOR LESLIE-SUPERTYFON
SINGLE AND CHIME HORNS

SINGLE-TONE S — 277

CHIME HORN S — 3 J

- S — SUPERTYFON
- 3 — FREQUENCY FOR SINGLE HORN OR NUMBER OF HORNS FOR CHIME HORN.
- J — CODE FOR APPLICABLE CHORD IN CHIME HORN.

"LESLIE-SUPERTYFON" PATENTED POWER CHAMBER

The "LESLIE-SUPERTYFON" patented power chamber is a device for vibrating a diaphragm to produce a high sound output.

Generally, when high sound outputs are generated by a vibrating diaphragm type unit, high stresses are experienced within the diaphragm and the constant flexing and reversal of the stresses causes the diaphragm to fail from fatigue. In the power chamber of the LESLIE-SUPERTYFON a unique valving arrangement formed by the diaphragm itself as it vibrates, permits the use of the operating air to move the diaphragm in both directions. As a result it is possible to use a much lighter diaphragm, of more flexible character, than would normally be employed in such a device.

The principle of operation is as follows:

When the air horn operating valve is opened to blow the horn, high pressure air is admitted to chamber "A", building up the pressure in "A". This pressure exerts a force on the diaphragm through the flexible baffle plate, tending to force it away from the nozzle, and, at the same time, away from baffle plate. As soon as the diaphragm moves away from the nozzle and baffle plate, air is permitted to escape past the diaphragm into the horn and at the same time through port "F" to the back of the diaphragm (chamber "B"). The build-up in pressure in "B" exerts a force on the diaphragm, resisting further travel and by virtue of the greater effective diaphragm area exposed to chamber "B" as compared to chamber "A", tends to restore it to its original position.

At the same time as the air pressure is being fed into "B" and out through the horn, the pressure in "A" tends to fall, which also reduces the tendency for the diaphragm to travel away from the nozzle and allows the pressure in "B" to exert its restoring force. Pressure in "B" also leaks off through vent port to horn so that when the diaphragm has returned to its normal position against the nozzle and against the baffle plate, cutting off the supply to "B", the pressure in "B" will fall and the pressure in "A" will again rise to the point where the diaphragm can be deflected and repeat the cycle outlined above. It is this unique and patented principle that keeps the diaphragm deflection and stress low and permits the use of a very thin flexible member which always operates at stresses well within its proportional limit and as a consequence gives long diaphragm life.

The use of the air in this new principle is extremely efficient.

There are no adjustments to be made or go out of order as the LESLIE-SUPERTYFON is entirely self-adjusting.