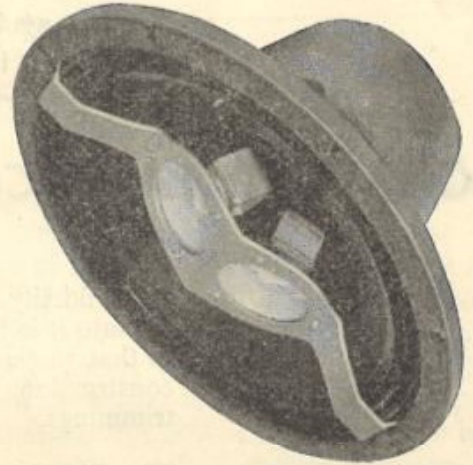


**SUPER HIGH FIDELITY THIS YEAR**



**EXPAND AND IMPROVE  
ANY SOUND SYSTEM**

**A BRAND NEW  
EXPERIENCE IN  
LISTENING**

Let your ears be your judge . . . crisp, clear, natural, true reproduction without colouration with the TSL LORENZ speaker units.

WORLD FAMOUS QUALITY

**SPEAKERS, TWEETERS, CROSS-OVERS**

ADD THE MIRACLE OF LIFE TO THE MAGIC OF MUSIC

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TELEPHONE: SHEPHERDS BUSH 2581/4794

# A BRAND NEW EXPERIENCE IN LISTENING

Let your ears be your judge . . . crisp, clear, natural true reproduction without colouration with the TSL LORENZ speaker units.

Now available in the United Kingdom and Commonwealth the TSL LORENZ speakers are world renowned for their brilliant reproduction and clarity. Ten years ahead in engineering and design they are the result of a continuous research programme combined with unequalled laboratory standards of manufacture and assembly. The craftsmanship embodied in TSL LORENZ speaker systems enable you to design and build up a sound system in your home with the assurance that it will never become inadequate and, through the years, will remain the apex of high fidelity reproduction.

## LABORATORY BALANCED AND MATCHED FOR PERFECT TONE

High fidelity loudspeakers are intended to reproduce faithfully the sound which is fed into it in the form of electrical signals. The TSL Lorenz loudspeakers are dedicated to that single purpose and there is nothing extraneous or unnecessary in the design or construction. You are buying only excellent sound reproducing equipment without trimmings.

The TSL Lorenz ratings are conservative and are not advertising figures. The figures quoted apply to the speakers you buy under the Lorenz name.

To help you in the future choices of speakers and accessories, the following information and guide data may be useful:

### HOW MUCH POWER?

Choose a speaker which has at least the total power rating of your amplifier system. If you expect to use a number of speakers, then the total power rating should be used as the guide. Note that it takes more power to produce and reproduce low tones, less power for tones of the middle range, and little power to supply high frequency tones. The tweeter or high frequency speaker carrying sounds above, say 5,000 cycles need not exceed 2-3 watts in power rating for normal home use. Consider bird power or baby crying power both for range and for penetration.

### EFFICIENCY

If one speaker produces more output power over the *entire* frequency range than another when the same power is fed to each one, then the speaker producing more output sound is more efficient. This efficiency helps reduce speaker distortion, reduces amplifier distortion, produces greater volume without strain, and means cleaner sound at all listening sound levels. Because efficiency has not generally been measured on a reasonably comparable basis, it is not easily evaluated by the loudspeaker buyer. However, other things being equal, a fair criterion of probable efficiency is the weight of the magnet used in the speaker. This is magnet weight, not shipping weight which includes the speaker frame, etc. Compare the TSL Lorenz LP312 and its 61 ounce magnet with other 12 or even 15 inch speakers. The TSL Lorenz speakers were originally designed as professional theatrical speakers where high efficiency is required, and, as a result, you benefit.

### FREQUENCY RANGE

A good speaker system (assuming the rest of the equipment is as good) should be capable of reproducing the normal range of tones which the listener would hear if he were listening to the original sound source. As the speakers are bought primarily for listening, *this is the final test*, curves and charted claims, notwithstanding. Curves are made under conditions which are rare in homes. As a result, the curve does not carry the required information. In general, curves may not even be compared if they relate to speakers made by different manufacturers. The listening test, if at all practicable, should be the guide.

## TRANSIENT RESPONSE

A speaker with good transient response will sound more natural, and will be clearer in "colour" and texture". A drum roll will sound like a drum roll, not like a buzz. The speaker cone should stop moving when the signal stops, but if the transient response is poor, the cone will continue to vibrate from the last signal when the next signal arrives and the resulting mixture of sound will be "muddy" rather than clear. A wide range response heavy magnet and coupling are needed in a speaker before it can have good transient response. TSL Lorenz speakers have all these and more and, for this reason, among others, the TSL Lorenz speakers produce amazingly natural sound.

## LOUDSPEAKER SYSTEMS

Speaker systems are of two general types, i.e., distributed sound systems in which a number of one type of speakers are grouped to spread the sound over an area, and the multiple speaker system in which one or more speakers are allocated a given frequency range, the sum of all the speakers covering the entire sound range. Both types are used and have merit when properly designed and applied. There are few speakers made which can be used in either arrangement as the requirements on the speakers are severe requiring wide range, tonal compatibility, production uniformity, and wide angle sound distribution. The TSL Lorenz speakers have these characteristics and therefore they may be used as desired without compromise.



# TSL LORENZ

## LP 312-2

### LOUDSPEAKER

### SYSTEM

This 12 inch loudspeaker has been designed to meet every requirement placed on it. It will comfortably span the musical range from below 20 cycles in a suitable enclosure to above 17,000 cycles. It is an all-new sound reproducing instrument from its precision ground 61.5 ounce ALNI magnet (compare this with any 12" and most 15" speakers) to its non-resonant cast metal girder constructed frame. A longer magnet core coupled with tighter quality controlled air-gap and larger voice coil increases the efficiency, lowers distortion, improves damping of internal resonances, improves the transient response and, most important, produces superlative sound. The new multi-parameter cone shape improves the sound distribution and minimises high frequency directivity. The design of the high frequency fall-off rate produces a tonal quality free from the "metallic" effects which result from the usual sharp cut-off.

Used as a superb wide range speaker you will be pleased by its quality and by its freedom from obsolescence.

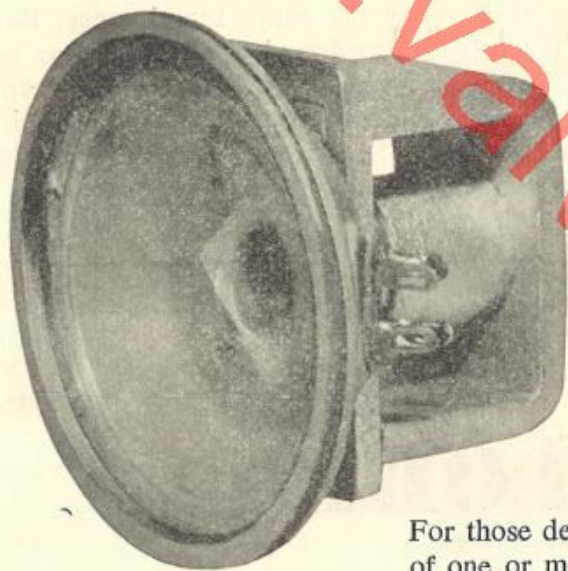
## TECHNICAL SPECIFICATION

### LP 312-2

(Combined Unit)

Impedance at 800 cycles	15 ohms
Frequency range in suitable enclosure	20 cycles to above 17,000 cycles
Power rating	29 watts, 40 watts peak
Magnet	61.5 oz. Giant size ALN 1
Voice Coil diameter	1.5 inches
Overall diameter	12.25 inches
Baffle opening	10.675 inches
Front to back depth	6.75 inches
Frame	Cast metal heavy girder construction

The LP 312-2 has four voice coil connections, two for the bass unit and two for the treble combination. Connection is made directly from amplifier to the bass unit, the treble unit is parallel wired across the bass unit through a high pass filter consisting of a 2 Mfd. paper capacitor. Diagrams on page 7 of this brochure clearly show how these connections should be made. Alternatively and for finest results connection between amplifier and the LP 312-2 system should be by means of the TSL cross-over unit type **HP 1**.



## TSL LORENZ

### TREBLE SPEAKER

### LPH 65

For those devotees of high fidelity who already possess bass speakers the introduction of one or more LPH 65 Speakers into their existing sound system will give them the benefit of a greatly extended range of reproduction. Two of these speakers form an integral part of the TSL LORENZ LP 312-2 Sound System and contributes to its world renowned standard of excellence.

The TSL LORENZ LPH 65 is, without a doubt, the most sensitive and most efficient treble reproducer that laboratory research has been able to produce to date. This is due to a number of features which include a super high flux density magnet of ALNI with precision controlled assembly, plus the use of a non-metallic special plastic cone impervious to all weather conditions and fully tropicalised, round in shape for even sound dispersion, thereby ensuring smooth, melodious sound, rather than the often heard shrill, harsh tinny overtones of other tweeters and treble units.

Due to the use of a non-perforated back plate, this speaker can also be placed in any enclosure with other speakers irrespective of make or type, without interaction taking place.

This speaker may be used either with a simple 2 or 4 Mfds. capacitor in series with its speech coil, and then paralleled across the main bass speaker. When used in conjunction with a 15 ohm bass unit it is suggested that two **LPH 65's** wired in series should be used and the entire combination fed from the main amplifier by means of the TSL crossover unit type **HP 1**.

*TSL LORENZ LPH 65 is the only electro-magnetic speaker which has these unique features.*

# TECHNICAL SPECIFICATION

## LPH 65

Impedance measured at 800 cycles	5.5 ohms
Frequency range	2,000 to above 17,000 cycles per second
Sound dispersion	120 degrees in all directions (the round design permits this)
Power rating	2 watts
Outside diameter	2- $\frac{1}{2}$ inches
Cone diameter	2- $\frac{1}{4}$ inches
Mounting hole in baffle	2- $\frac{1}{8}$ inches flared to 2- $\frac{1}{2}$ inches or more

## ENCLOSURES OR BAFFLES

A cone type loudspeaker produces sound from both sides of the cone as it moves forward and back under the influence of the sound signal. At lower frequencies, the wave of sound from the back of the cone cancels the equivalent wave from the front of the cone, and the result is a lower level of sound output diminishing to complete silence as the frequency is lowered. As this is not what is wanted, a means of stopping this natural action is required. The correctly designed speaker baffle accomplishes this, by "baffling" the two sound waves so that they do not meet, hence the name. A good baffle must not only look presentable in the house as a piece of furniture, it must primarily do its job of helping the speaker produce good sound in the lower frequency part of the sound spectrum. It may be understood that the violin with its small sounding box cannot produce the low frequency tones of the bass viol. Similarly, the small enclosure is at a disadvantage compared to a similar but larger one when it comes to reproducing the lower tones. The speaker will do its best in an enclosure which gives it the proper assistance. This is not important for high frequencies where a small baffle or no baffle at all is often perfectly suitable.

The baffle chosen must be of good construction because often puzzling buzzes and other non-musical noises are heard seemingly from the loudspeaker which actually come from loose or insufficiently rigid construction of the baffle or enclosure. Box type baffles should be made of at least  $\frac{3}{4}$ " Timber while horn types may be made of  $\frac{1}{2}$ ". Joints should be rigid and tight. Large surfaces of box type enclosures should be reinforced to prevent their moving, and when tapped with the knuckle, no two accessible panels should have the same tone and pitch. A box baffle (not the horn types) should not have an open back but must be closed on all six sides, except for intentional openings, i.e., parts in the bass reflex.

The full capabilities of the TSL LORENZ Speaker system will not be realised unless it is housed in a properly dimensioned and constituted cabinet.

A most important factor is the ratio of the cabinet volume to the size of the second opening, the so called port, which should be constructed beside or beneath the Speaker unit itself.

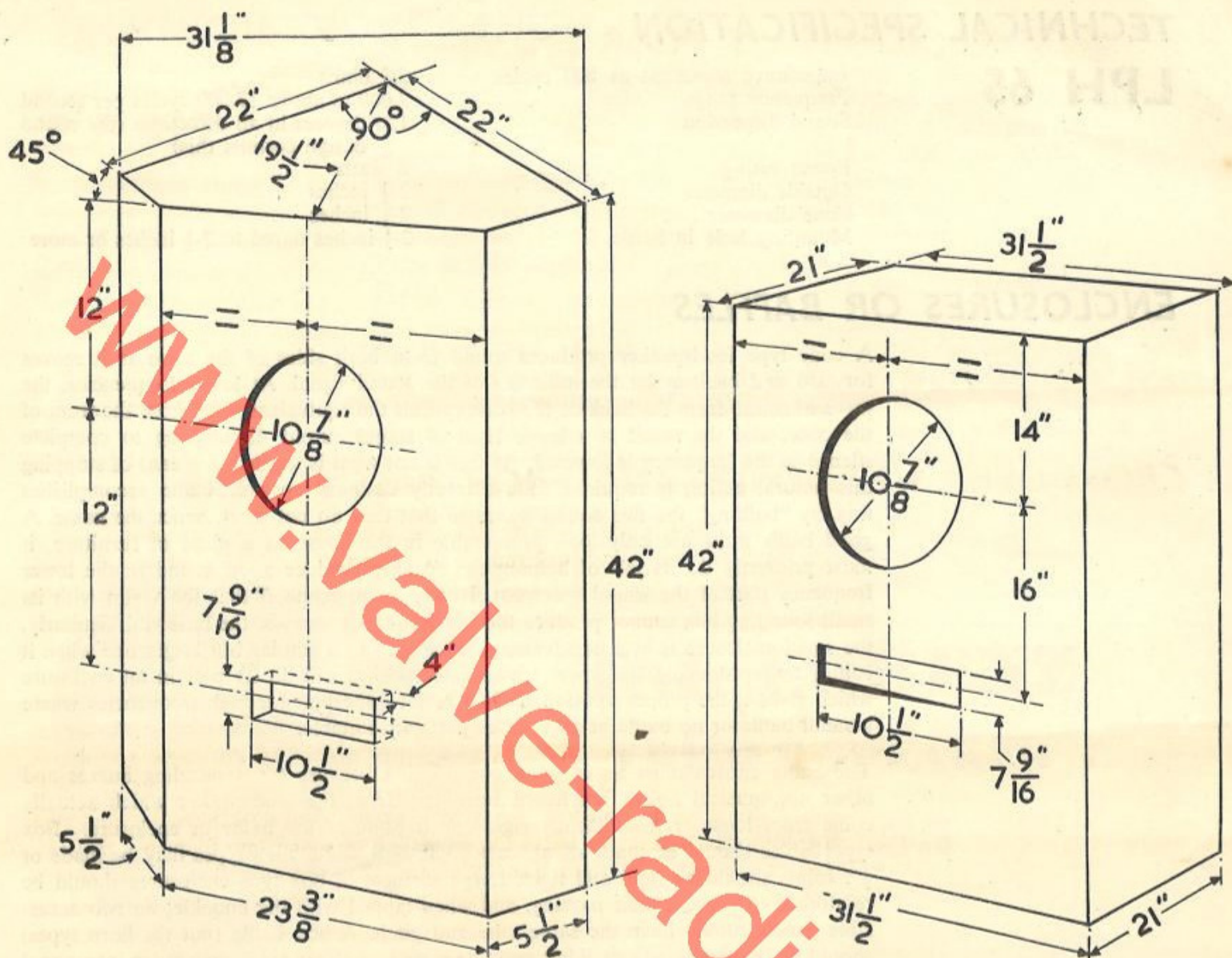
The cabinet dimensions relative to frequency and volume for the LP 312-2 sound systems are given on page 6 and represent the most suitable enclosures for this system.

Enclosures should be of solid and rigid construction. A  $\frac{7}{8}$ " wall thickness is adequate but if double walls are used they may then be considerably thinner. Then, however, the space between the double walls should be filled with dry sand to reduce vibration.

At least three of the walls, at right angles to each other, should be lined with sound absorbing felt or plastic foam.

The standard mounting arrangements provided in the TSL Lorenz speakers permit ready assembly in standard enclosures. Whether bolt or screw method of speaker mounting is provided in the enclosure, adjust the tightness so that the felt of the speaker is compressed firmly but evenly around the speaker rim.

If the baffle opening requires cutting out, use the baffle opening values provided, i.e., 10 $\frac{1}{8}$ " for the 12" speakers. If possible, it is useful to flare the openings outward for the speakers as this increases the spread of the high and middle frequencies.



SUGGESTED ENCLOSURES FOR THE TSL LORENZ LP 312-2

You get these  
**EXTRA FEATURES**  
 but at  
**NO EXTRA COST**  
 with every  
**TSL LORENZ**  
 sound system

- Greater output
- Greater sensitivity.
- Heavy duty oversize speech coil.
- Super high flux magnets.
- Minimum air gap.
- Permanently flexible self-damped cone.
- Multi-parameter cone fully tropicalised.
- Longer magnetic path.
- Super strength rigid girder design frame.
- Sealed-in air gaps.
- Greater Frequency range.
- Built-in centring device for perfect gap alignment.
- All parts specially treated with anti-corrosion proofing.

## SPEAKER LOCATION IN YOUR HOME

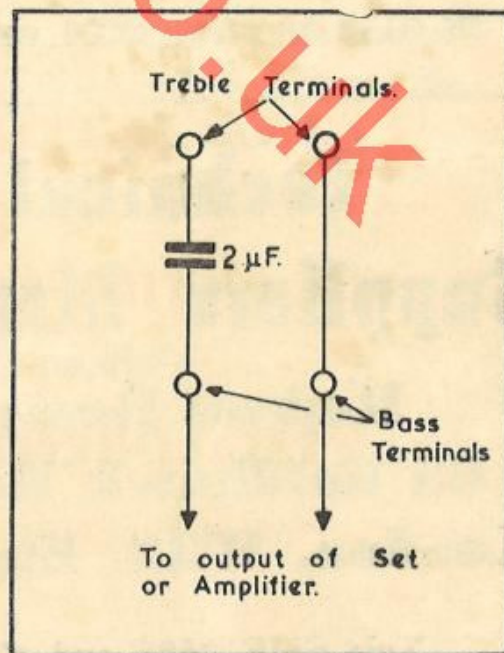
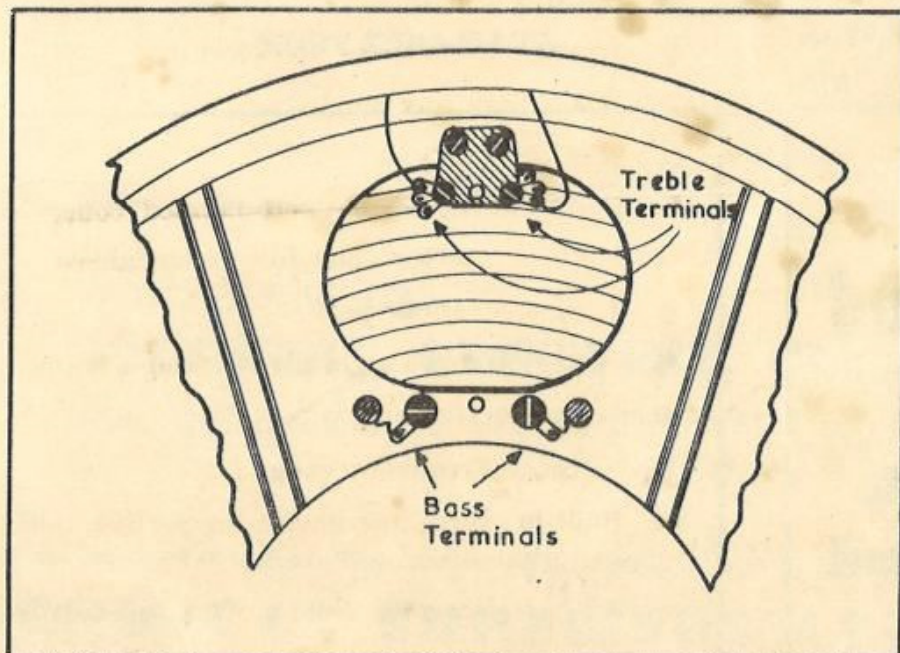
Locating a speaker system in the home is normally a compromise at best. Try to locate it so that when you are seated in your preferred location, the sound will come to you as it would were you in your usual location in the concert hall. It is preferable that the enclosure is placed so that the sound is aimed over the longest dimension of the room as this improves the bass results. Bass output is assisted when the speaker is mounted either close to the floor or close to the ceiling, and more so when the speaker is in a corner. While deep bass is not particularly directional, the higher frequencies are increasingly so. Therefore mid-range and high frequencies should come from speakers aimed to reach ear level when you are in your usual listening position.

## CROSS-OVER NETWORKS AND HIGH PASS FILTERS

When using a multiple speaker system which, by definition, involves speakers handling different bands of the sound spectrum, it is important that there be a controlled amount of frequency overlap between speakers. The device which takes care of the distribution is called the cross-over network, if one type, or high pass filter, if another type.

The general purpose of a multiple speaker system is to permit each speaker to handle a specialized and limited frequency range. The TSL Lorenz speakers, because of their wide range, can be used either as specialized speakers for particular portions of the sound spectrum or as single speakers handling the entire sound requirement, either alone, if the power requirement is met or in multiple, as in distributed source sound systems mentioned earlier. To effect the separation of sound into frequency sections, a Cross-over network is required. The TSL model HP-1 is an excellent quarter section unit manufactured with high grade components and has been specially developed for use with the LP-312-2. High frequency sound separation can be effected by using a 2 Mfd. paper capacitor as a high-pass filter, this permits the LPH 65 units to take up at about 5 kc/s.

## INSTALLING THE LP 312-2



# PRICE LIST

- TSL LORENZ LP 312-2 COMBINED LOUDSPEAKER SYSTEM..£14. 19s. 6d. (not subject to P.T.)
- TSL LORENZ LPH 65 TREBLE REPRODUCER.....£1. 8s. 6d. plus 11s. P.T.
- TSL LORENZ LP 215 CONCERT LOUDSPEAKER.....£4. 19s. 6d. plus £1. 18s. 4d. P.T.
- TSL CONCERT SOUNDCORNER "CARLTON".....£9. 19s. 6d. plus £3. 16s. 9d. P.T.
- TSL CONCERT SOUNDCORNER "WALDORF".....£9. 19s. 6d. plus £3. 16s. 9d. P.T.
- TSL CROSSOVER NETWORK TYPE HP 1.....£2. 2s. 0d. (not subject to P.T.)
- TSL HIGH STABILITY FM TUNER.....£12. 12s. 9d. plus £4. 17s. 3d. P.T.
- TSL HIGH STABILITY AUDIO AMPLIFIER.....£13. 13s. 0d. (not subject to P.T.)

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