CORRESPONDENCE

PREFERRED NUMBERS

To the Editor.   15th May, 1946.

It is to be hoped that designers of components will give Mr. Conway's " Note on the Use of Preferred Number Series in Aircraft " (published in the May Journal) the attention which it merits. It is to be deplored that it is still normal for ranges of component sizes to be determined on a purely arbitrary basis, in spite of the fact that the Electric Lamp Industry gave the example to follow so very many years ago.

There is one aspect of the preferred number series, which follows automatically from the method of derivation, which I feel is not stressed sufficiently in the note. It is that, from any given preferred number series, a user can always select a size which is within a known tolerance of the value actually required. This tolerance is approximately 25 per cent. in the case of the 5-series, and 12 per cent. in the case of the 10-series (more exact values being 22.6 per cent. and 11.5 per cent. respectively).

A disadvantage of the 5- and 10-series is that for some purposes a 25 per cent. departure from the actual value required is greater than can be permitted, but 12 per cent. is closer than necessary. When preferred lists of Resistors were prepared for the use of the Radio Industry a few years ago it was desired that any value should be obtainable within 20 per cent. and in this case the 6-series was adopted, with the 12- and 24-series for use when greater accuracy was required.

The 6-series and 12-series are as follows:—

6-series	... ...	10		15		22		33		47		68	
12-series	... ...	10	12	15	18	22	27	33	39	47	56	68	82

In view of the widespread knowledge of these particular series which has resulted from their use by the Radio Industry it would be necessary for them to be considered as possible alternatives to the 5-series and so forth, if it was decided to prepare a British Standard dealing with this subject.

It is to be regretted that Mr. Conway quoted, with apparent approval, the " rounded-off " table adopted by the A.S.A. This gives, in the 80-series, the following consecutive values: 28, 29, 30, 30.7, 31.5, 32.5. . . . It is difficult to reconcile these with a regular percentage increment, or, indeed, with any logical basis at all. The 40-series quoted has similar defects. If high order series are to be used it is essential that they be evaluated with appropriate accuracy if any advantages are to be gained from their use.

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J. SPINKS, B.Sc.(Eng.), A.M.I.E.E.,

Associate Fellow.

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