VACUUM TUBES

Marking and Dating

CONTENTS

1. GENERAL

1.01 This Section of Practices describes the methods employed to mark the codes of the vacuum tubes more generally used in the Bell System plant and to indicate their date of manufacture. Several methods have been employed from time to time for these purposes and individual tubes designated in accordance with any one of these methods may still be in active use. Consequently, the description which follows includes information on previous as well as current practices.

1.02 Prior to the year 1936 practically all tubes had their code and other pertinent information stamped on the base of the tube. In addition, some types of tubes had their code but no other details stamped on the end or side of the glass bulb as well as on the base. Beginning about July 1936 additional symbols were added to the base markings to indicate the date of manufacture.

1.03 With the advent of the dome type tubes, such as the 101F, for example, a new method of marking and dating was adopted. With this method the code, manufacturer's name, date indications and other information are stamped on the end of the glass bulb. This type of marking is therefore referred to for the purposes of this section of practices as "bulb marking" to distinguish it from the "base marking" previously employed. A detailed description of these two kinds of markings follows.

2. BASE MARKING

2.01 Fig. 1 shows a 101F vacuum tube of the spherical bulb type. As indicated, the manufacturer's name, place of origin and code are stamped on the tube base. In addition, two letters (AP in the example shown in Fig. 1) have been stamped on the base to indicate the date of manufacture. As shown below the first letter signifies the year and the second letter the month in which a given tube of this general type was produced.

Letter	Significance of First Letter	Significance of Second Letter
A	Year 1936	Jan.
B	" 1937	Feb.
C	" 1938	March
D		April
E		May
H		June
K		July
L		August
M		Sept.
N		Oct.
P		Nov.
S		Dec.

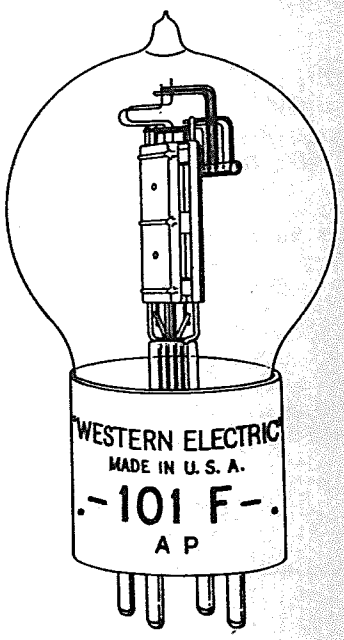

Fig. 1 - Typical Example of Base Marking

2.02 In accordance with the above scheme, the letters shown in Fig. 1 indicate a tube manufactured during the month of November 1936. This type of marking was applied to the 101F, 102F, 102D, D86326 and D86327 vacuum tubes and was continued in effect until these types of tubes were superseded by corresponding dome type tubes.

3. BULB MARKING

3.01 With the advent of the dome type tube, such for example as the 101F vacuum tube, the code and other markings were placed on the end of the bulb. The general appearance of the markings at present employed for a 101F dome type vacuum tube is shown perspectively in Fig. 2 and in more detail in Fig. 3.

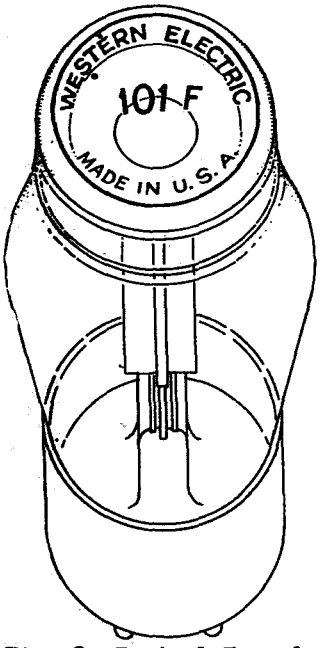

Fig. 2 - Typical Example of Bulb Marking

Fig. 3 - Detailed Marking On End of Bulb

3.02 As may be noted there are two indices, namely, a small radial line attached to the circle shown in Fig. 3 and a dot placed under one of the letters in the name "WESTERN ELECTRIC" (under the letter S in this case). The position of these indices with respect to the letters in Western Electric indicate the date of manufacture in accordance with the following scheme.

LETTER	INDEX UNDER LETTER — YEAR	INDEX OVER LETTER — MONTH
W	1938	JAN.
E	1939	FEB.
S	1940	MAR.
T	1941	APR.
E	1942	MAY
R	1943	JUNE.
N	1944	JULY
E	1945	AUG.
L	1946	SEPT.
E	1947	OCT.
C	1948	NOV.
T	1949	DEC.

3.03 In accordance with the above scheme, the date of manufacture of the tube shown in Fig. 2 would be May 1940. This type of marking is now being applied to the following types of vacuum tubes and is expected to be applied to other codes as the occasion arises.

101D	102L
101F	104D
101FA	205F
101L	269A
101M	373A
102D	374A
102F	375A

3.04 When the dome tubes were first produced and until about the middle of the year 1941 a slight variation in the marking shown in Fig. 3 was employed. In this case both indices were attached to the circle shown in that figure, one inside and one outside. The outside and inside indices indicated the year and month, respectively, by their positions with respect to the letters in the name WESTERN ELECTRIC, being interpreted in accordance with the table given above in Paragraph 3.02. This type of marking has been superseded by that shown in Figs. 2 and 3.

3.05 The bulb marking described above is also applied to tubes, such as the 310A in which an external grid cap protrudes through the center of the dome. However, in the case of such tubes the circle shown in Fig. 3 is omitted for manufacturing reasons and the outer index takes the form of a dot placed over one of the letters in "WESTERN ELECTRIC" as shown in Figs. 4 and 5.

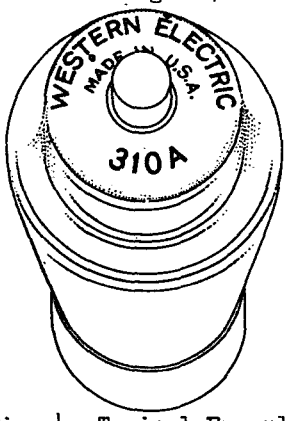

Fig. 4 - Typical Example of Bulb Marking for Tubes Having External Grid Caps

Fig. 5 - Detailed Marking for Tubes Having External Grid Caps

3.06 The date indications shown in Figs. 4 and 5 are interpreted in accordance with the information given above in Paragraph 3.02. From this it may be seen that the date of manufacture of a tube marked, as shown in these figures, would be August 1941. The following

tubes, all of which have external grid caps, are being marked in accordance with the scheme shown in Figs. 4 and 5 and other codes of tubes of a similar character are expected to be marked likewise as the occasion arises.

310A	336A
310B	337A
311A	348A
328A	349A
329A	

4. SPECIAL MARKINGS

4.01 During an interim period and until about the middle of the year 1941 a special marking, in the form of a red dot, was placed on the grid cap of the 310A, 311A, 328A and 329A vacuum tubes to indicate improved characteristics. This type of marking has been discontinued since bulb marking is now being applied to these tubes.