

**BELL SYSTEM PRACTICES**  
**Private Branch Exchange**  
**Installation and Maintenance**

**SECTION B502.016**  
**Issue 2, April, 1953**  
**AT&T Co Standard**

## PLACING SWITCHBOARD LAMPS

### 1. GENERAL

SEE ADDENDUM

1.01 This section describes methods of placing No. 2 and similar type switchboard lamps in order to obtain such increase or decrease in the effective illumination as is afforded by variation of the position of the lamps in their sockets.

1.02 It is reissued to clarify information on the types of lamps having lucite lamp caps and the use of the No. 319B lamp cap extractor.

1.03 The standard lamp socket mountings used with No. 2 and similar type switchboard lamps are so designed that when a lamp is fully inserted (the base of the lamp against the base of the socket) there is a considerable clearance between the tip of the lamp and the back surface of the lamp cap or designation strip. When lamps are placed well down in their sockets, there is a large reduction in their effective illumination, as shown below:

<b>Distance between Tip of Lamp and Rear of Lamp Cap</b>	<b>Effective Illumination</b>
0"	100%
1/16"	58%
1/8"	40%
3/16"	28%
1/4"	20%

1.04 When placing lamps, consideration shall be given to securing the degree of illumination best suited to existing conditions. In determining the effective illumination desired, the depth each lamp is placed in its socket shall be governed by the brilliance of the particular type of lamp, the color and translucency of the lamp cap and lighting conditions on the face of the switchboard. It is desirable that adjacent lamps associated with circuits of the same kind be of approximately the same brilliance.

1.05 In cases where sufficient effective illumination can not be obtained by positioning the lamp, considerable improvement may be obtained by selection of lamp caps having a greater translucency.

1.06 When acting in response to a report of a dim switch-board lamp or when following the procedures of this section for any other reason, see that prior to installation each lamp and lamp cap is clean and free from dust.

## 2. TOOLS

2.01 No. 553A Lamp Extractor.

2.02 No. 319B Lamp Cap Extractor. (See note under Paragraph 3.06.)

2.03 KS-6320 Orange Stick.

## 3. METHOD

### Placing Lamps for Maximum Effective Illumination

3.01 **Mountings Equipped with Glass Lamp Caps:** With the types of lamp socket mountings in general use, partially insert the lamp into its socket. Place the lamp cap over the lamp and push the lamp and lamp cap firmly into position. In so doing, the tip of the lamp remains in contact with the cap.

Note: It is important that the cap be firmly seated, as otherwise lamps and lamp caps are more apt to be broken if struck by plugs. If, in any particular location an appreciable amount of lamp breakage seems to have resulted from this cause, a slight clearance should be left between the lamp and cap. Provision of the necessary clearance may be afforded if the lamp is first set in position by using a cap, the back surface of which is covered with paper (or other material), of suitable thickness and the regular lamp cap is then substituted for the one used in placing the lamp.

3.02 **Combined Lamp Socket Mounting and Designation**

**Strip:** Insert the lamp into its socket far enough so that the tip of the lamp will be close to or just touch, the designation strip when the latter is in position.

3.03 **No. 8AW Lamp Cap Used with No. 93A Designation**

**Strip:** Since the metallic shell of the No. 8AW lamp cap projects relatively deeply into the lamp socket mounting, contact between the lamp terminals and this shell must be avoided. It is therefore necessary, where this type of cap is used, to insert the lamps sufficiently far to insure avoidance of such contact.

3.04 **Mounting Equipped with Lucite Lamp Caps:** When using lucite lamp caps the procedure in Paragraph 3.01 can not always be followed due to the concaved inner surface of the cap. To insure electrical contact, insert the lamp flush with the front of the strip of lamp socket before placing the cap.

3.05 These lucite caps should not be used in switchboard circuits employing high-wattage lamps such as the 2G, A2 and C2 because of damage to the caps from excessive heat. Glass lens caps should be used.

3.06 Circuits using 2F, 2C, 2U, A1, K1 and E1 low-wattage lamps are satisfactory with lucite lamp caps.

Note: Due to the increased height of the lenses in the lucite lamp caps, sufficient internal clearance is not present in all No. 319B tools used for extracting lamp caps. It is suggested that the existing No. 319B tools, particularly those with worn tips, be modified locally by grinding the jaws, to provide the needed clearance.

#### **Placing Lamps for Other than Maximum Effective Illumination**

3.07 In normal cases where the maximum obtainable effective illumination is not desired or where the requirements are not critical, insert the lamp into its socket and push it into position with the thumb.

3.08 For those cases where less illumination is desired than would be obtained under the conditions of Paragraph 3.07, push the lamp farther into its socket with an orange stick.

PLACING SWITCHBOARD LAMPS

This addendum modifies Section B502.016 Issue 2, as follows:

3. METHOD

3.04 Lucite Lamp Caps

Disregard paragraph 3.05 of the section. Lucite lamp caps are now approved for cord circuit supervisory lamps on all P.B.X's. The restriction in the section against the use of lucite lamp caps on high wattage lamps should be disregarded.