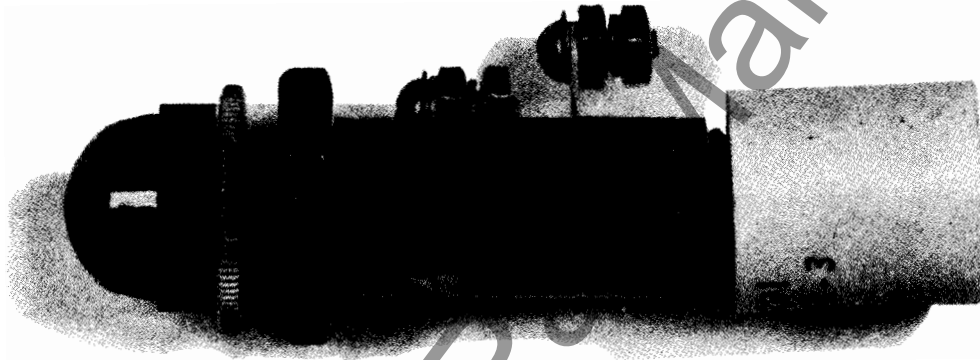




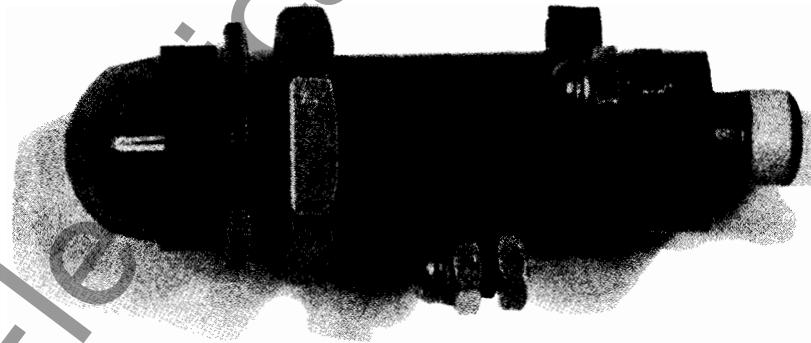
INSTRUCTIONS

GEH-3500D

INDICATING LAMPS TYPE ET-16 and ET-17



ET-16 INDICATING LAMP



ET-17 INDICATING LAMP

GENERAL  ELECTRIC

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INTRODUCTION

The ET-16 (incandescent) and ET-17 (neon) indicating lamps consist of a common receptacle, plug in type resistors and lamps, escutcheon and color cap. Available for mounting on switchboard panels up to and including 1/4 inch thickness.

APPLICATION

These lamps can be used whenever a panel mounted signal or indicating lamp is desired.

The ET-16 is available for either one brilliance, or dim bright operation. The ET-17 can be used when extra long life is a factor and brilliance is not. It also can be used when low current is desired.

FEATURES

1. The simple "push-twist" type plug has been adopted for both the bulb and the resistor. This was accomplished by incorporating a bayonet base on both components.
2. A common receptacle for both the ET-16 and ET-17 coupled with the plug-in resistor and bulb makes it easy to change on the panel without disassembling.
3. The resistor is in series with the bulb, and the ohmic value for the different circuit voltages is designed at 80% of the rated bulb voltage to give it longer life. Changing voltages is easily accomplished by changing the series resistor. (See listed tables for the proper resistor).
4. A short circuit plug is available when a series resistor is not required or if an external resistor is to be used.
5. Standard GE extra-long-life bulbs are specified for all lamps. The ET-16 uses GE Cat. No. 1819 for the 24 DC lamp and GE Cat. No. 1835 for the balance of the ratings. ET-17 uses GE Cat. No. B1A.
6. Terminals are readily available. They are designed for either AMP "FASTON" type connectors, solder, or screws.
7. Nine basic color caps designed for maximum visibility are available for ET-16: Translucent-red, green, yellow, white. Transparent-amber, red, green, blue, and clear.

ET-17: Because of the special properties of neon, only amber, transparent red, and clear lenses are suitable.

The color caps have a knurled OUTSIDE DIAMETER FOR EASY REMOVAL.

8. The ET-16 is also available for dim bright applications.
9. When special voltages or resistance is required other than those listed, a special lamp may be ordered with the proper design, or designated series resistor.
10. A two inch insulating washer is supplied with each indicating light. It should be mounted on the inside of the panel as illustrated in Figs. 2,3,and 4. The function of this washer is to provide additional insulation between the terminal and ground (panel) if a surge were to be induced on one of the potential leads.

If a bulb other than those listed above is required, the lamp will be furnished less the bulb.

Listed tables give some of the specials made available.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

To the extent required the products described herein meet applicable ANSI, IEEE and NEMA standards; but no such assurance is given with respect to local codes and ordinances because they vary greatly.

RATINGS

Resistors ET-16 12.5 Watts
 ET-17 1 Watt

BULB	DESIGN VOLTAGE	DESIGN AMPS	CANDLE POWER	AVERAGE LIFE (HOURS)
1819	28	.04A	Approx. .34	2500
1835	55	.05A	Approx. 1.1	5000
B1A	105-125	.3 MA	-	15,000

CONNECTIONS

See Figure 1A and 1B for typical tell-tale and dim-bright connections.

RECOMMENDED PANEL ASSEMBLY

Thread the panel nut against the shoulder of the receptacle. Install the two inch insulating washer on the front of the receptacle against the panel nut. Insert the receptacle thru the panel and thread escutcheon nut against panel. Install color cap; hand tighten (do not force). Turn escutcheon nut back up against color cap, then back off 1/2 to 3/4 turn (recommend 3/4 turn) to give at least 1/64 inch clearance but not more than 1/32 inch clearance between color cap and escutcheon nut (for up to 3/16 inch panel). For 1/4 inch panel, color cap will be flush with escutcheon nut. Tighten the panel nut against panel to 10-12 inch-pounds torque.

TABLE 1

ET-16 - INDICATING LAMP

CIRCUIT VOLTAGE			CAT. NO. (IN- CLUDES LAMP, COLOR CAP, & RESISTOR	RESISTOR 0165A7844		BULB GE CAT. NO	RECEP- TACLE	COLOR CAP +	CAR- TON	OUT- LINE
RATED	MIN.	MAX.		PART NO.	OHMIC VALUE					
24 D-c	22	28	0116B6708G1	1	10	1819	0116B6709G1	SEE ORDER- ING TABLE 6	0165A9257P1	0165A7859
48 D-c	44	56	0116B6708G2	2	200					
125 D-c	110	140	0116B6708G3	3	2000					
250 D-c	220	280	0116B6708G4	4	5100	1835				
120 A-c	95	130	0116B6708G5	5	1900					
240 A-c	195	260	0116B6708G6	6	4800					

TABLE 2

ET-16 - FOR DIM-BRIGHT APPLICATION

CIRCUIT VOLTAGE			CAT. NO* (IN- CLUDES LAMP, COLOR CAP, AND RESISTOR)	RESISTOR 0165A9217			BULB GE CAT. NO.	RE- CEP- TACLE	COLOR CAP +	CAR- TON	OUT- LINE
RATED	MIN.	MAX.		PART NO.	RESISTANCE						
					OHMS						
					TOTAL	TAP					
48 D-c	44	56	0127B8108G1	1	450	50	1835	0116B6709 G3	SEE ORDER- ING TABLE 6	0165A9257 P2	0165A9216
125 D-c	110	140	0127B8108G2	2	2550	1700					
250 D-c	220	280	0127B8108G3	3	6000	4400					
120 A-c	95	130	0127B8108G4	4	2450	1600					
240 A-c	195	260	0127B8108G5	5	5700	4200					

TABLE 3

ET-17-INDICATING LAMP

VOLTAGE RANGE A-c/D-c	CAT. NO.* (INCLUDES LAMP, COLOR GAP, AND RESISTOR)	RESISTOR 0165A7956		BULB GE CAT. NO.	RECEP- TACLE	COLOR CAP †	CARTON	OUTLINE
		PART NO.	OHMIC VALUE					
110-139	0116B6734G1	1	200-K	B1A	0116B6709G1	SEE ORDER- ING TABLE 7	0165A9257P3	0165A7955
140-219	0116B6734G2	2	560 K					
220-299	0116B6734G3	3	750 K					
300-374	0116B6734G4	4	1 MEG					
375-449	0116B6734G5	5	1.2 MEG					
450-600	0116B6734G6	6	1.6 MEG					

† Specify color cap from Table 6 or 7.

TABLE 4

ET-16 SPECIAL 127B8177

INDICATING LAMP COMPLETE

GROUP NUMBER*	VOLTS	1 REQ'D. OF GR. OR PT.NO. LISTED BELOW					COLOR CAP	CARTON	OUTLINE
		RESISTOR				BULB G.E. CAT. NO.			
		RECEPTACLE	DRG. NO.	PART NO.	OHMIC VALUE				
1	70	0116B6709 G-1	0165A7844	7	750 Ω	1835	** SEE ORDERING TABLE 6	0165A9257 P-1	0165A7859
2	17			8	50 Ω	756			
3	140			9	2500 Ω	NONE			
4	220			10	4300 Ω	1835			
5	32			2	200 Ω	1819			
6	125			11	3300 Ω	1835			
7	277			12	5900 Ω	1835			
8	140			9	2500 Ω	1835			
9	130			13	2300 Ω	1835			

**756 Bulb Furnished By Customer

TABLE 5

ET-17 SPECIAL 128B1654

INDICATING LAMP COMPLETE

INDICATING PART COMPLETE										
GROUP NO. **	VOLTS	RECEPTACLE	1 REQ'D. OF GR. OR PT. NO LISTED BELOW				COLOR CAP	CARTON	OUTLINE	
			DRG. NO.	PART NO.	OHMIC VALUE	BULB G.E. CAT. NO.				
1	210-250 AC/DC	0116B6709GR-1	0165A7956	1	56K	NE51H**	SEE ORDERING TABLE 7	0165A9257	0165A7955	
2	67-120 AC			8	80K	NE51 OR B1A				

** NE51H BULB
Furnished By Customer

TABLE 6

COLOR CAP

CAT. NO.	COLOR CAP	
	COLOR	CAT. NO.
0116B6708G	NONE	NONE
0116B6708G*C	CLEAR π	208A3768P1
0116B6708G*R	RED \emptyset	208A3768P2
0116B6708G*G	GREEN \emptyset	208A3768P3
0116B6708G*Y	YELLOW \emptyset	208A3768P4
0116B6708G*W	WHITE \emptyset	208A3768P5
0116B6708G*B	BLUE π	208A3768P6
0116B6708G*A	AMBER π	208A3768P7
0116B6708G*D	GREEN π	208A3768P8
0116B6708G*E	RED π	208A3768P9

ORDERING TABLE 7COLOR CAP

CAT. NO.	COLOR CAP	
	COLOR	CAT. NO.
0116B6734G*	NONE	NONE
0116B6734G*C	CLEAR π	208A3768P1
0116B6734G*E	RED π	208A3766P9
0116B6734G*A	AMBER π	208A3768P7

*=Group No. per Voltage Selected
 For Other Voltages Refer to Company
 Group No. with No. Suffix=Color Cap Omitted
 π Transparent
 \emptyset Translucent

HOW TO ORDER

Order by complete Cat. No. and specify color cap.

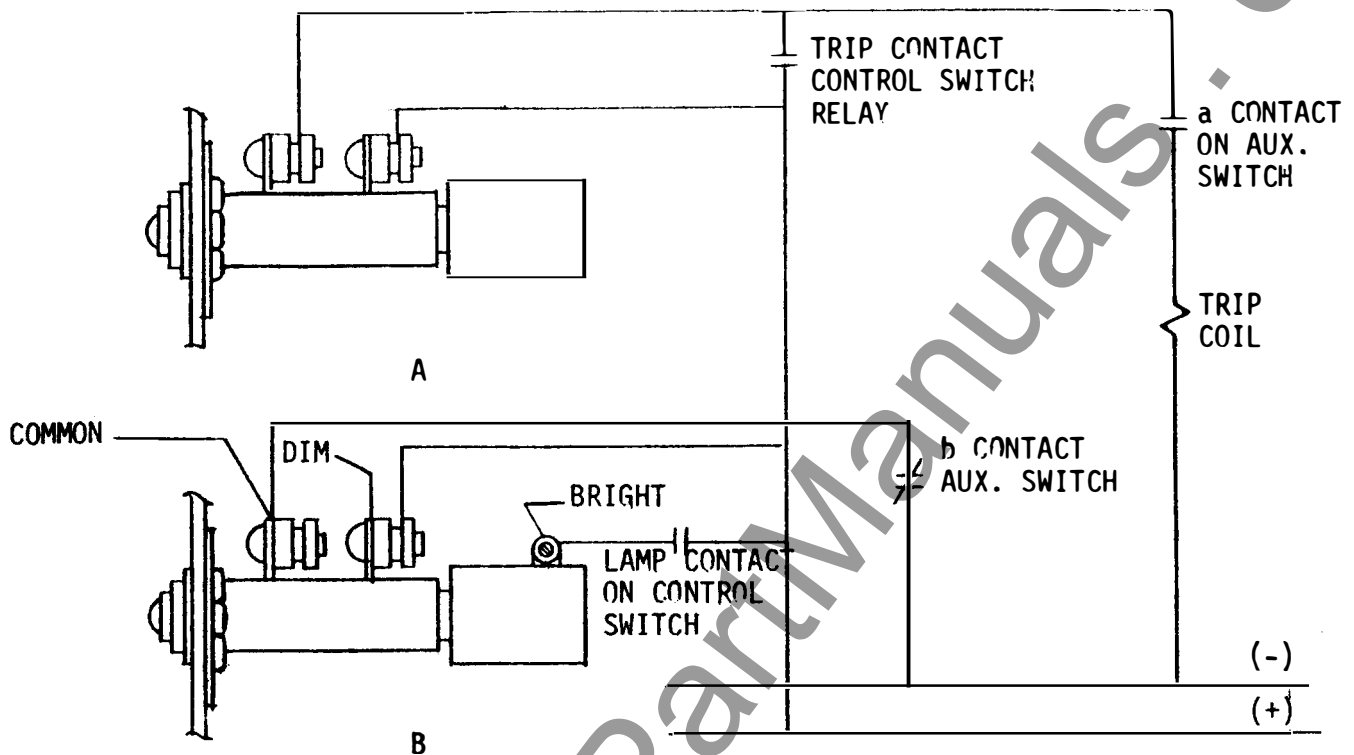
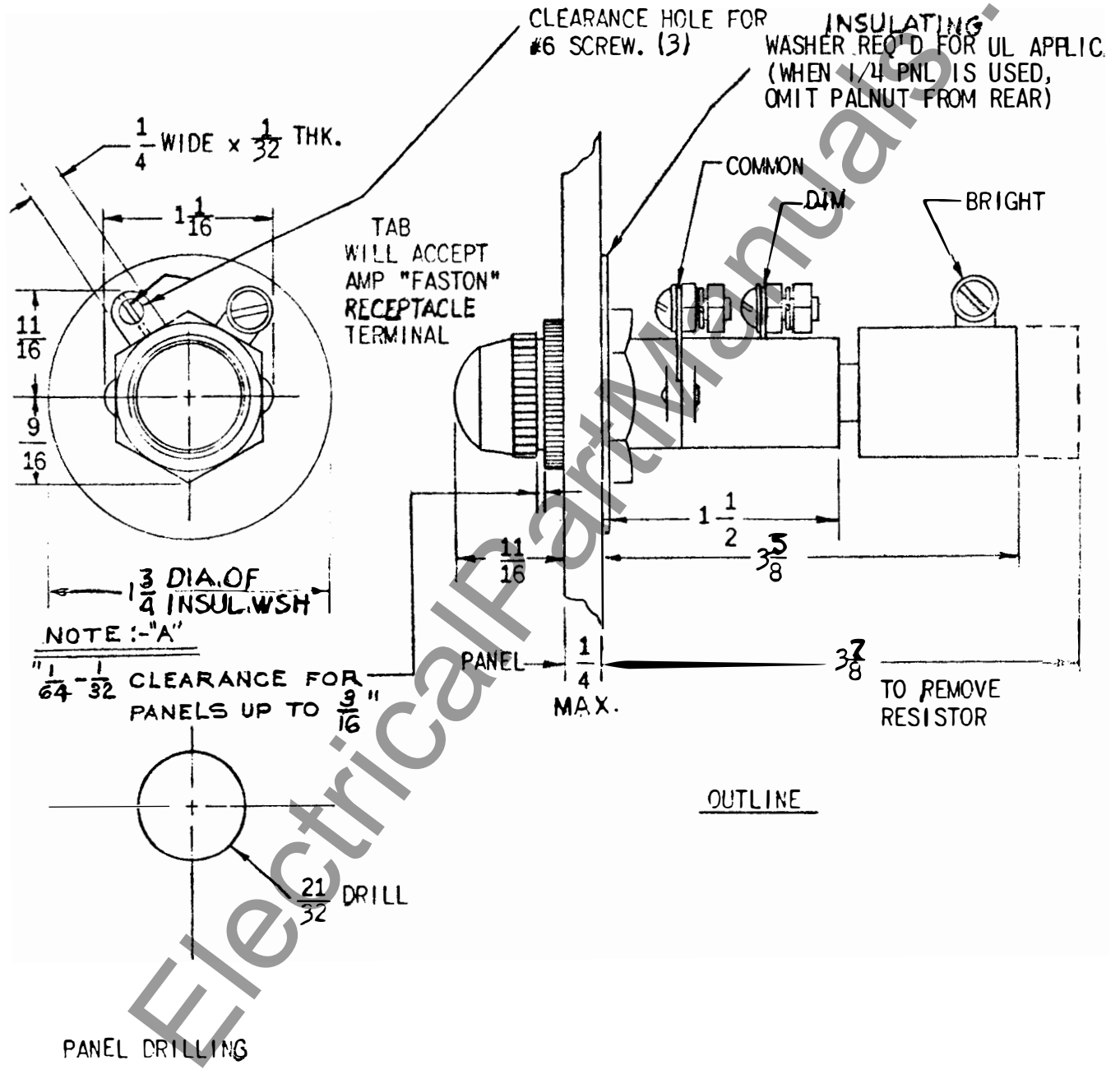


FIG A - SHOWS A TELL-TALE CIRCUIT FOR A CIRCUIT BREAKER CLOSE INDICATION. WHEN THE BREAKER IS CLOSED, THE LIGHTED (RED) LAMP SHOWS NOT ONLY THE BREAKER POSITION, BUT ALSO THAT THE TRIP CIRCUIT IS COMPLETE.

FIG B - FOR CIRCUIT BREAKER OPEN INDICATION, THE DIM-BRIGHT CONNECTION IS OFTEN DESIRABLE, ESPECIALLY WHEN A LARGE NUMBER OF LAMPS ARE LOCATED ON ONE PANEL. A LAMP UNIT WITH TAPPED RESISTOR IS REQUIRED, TOGETHER WITH A CONTROL SWITCH HAVING A LAMP CONTACT WHICH REMAINS CLOSED IN THE NORMAL POSITION, EXCEPT AFTER THE SWITCH HAS BEEN TURNED TO THE TRIP POSITION. A WHITE COLOR CAP ON THE LAMP IS CUSTOMARY. WHEN THE BREAKER IS TRIPPED WITH THE CONTROL SWITCH, THE SWITCH CONTACT IS OPENED, AND THE LAMP GLOWS WITH LOW BRILLIANCY. IF THE BREAKER IS TRIPPED AUTOMATICALLY, THE CONTROL SWITCH CONTACT SHORT-CIRCUITS PART OF THE LAMP RESISTOR SO THE LAMP GLOWS BRIGHTLY, AND THE NON-MANUAL OPERATION CAN BE EASILY LOCATED ON THE PANEL.

FIG. 1 (0246A3685-1) Typical Tell-Tale And Dim-bright Connec



* FIG. (0165A9216 [4]) Outline And Panel Drilling For Type ET-16 Indicating Lamp With Tap Resistor For Dim Bright Operations

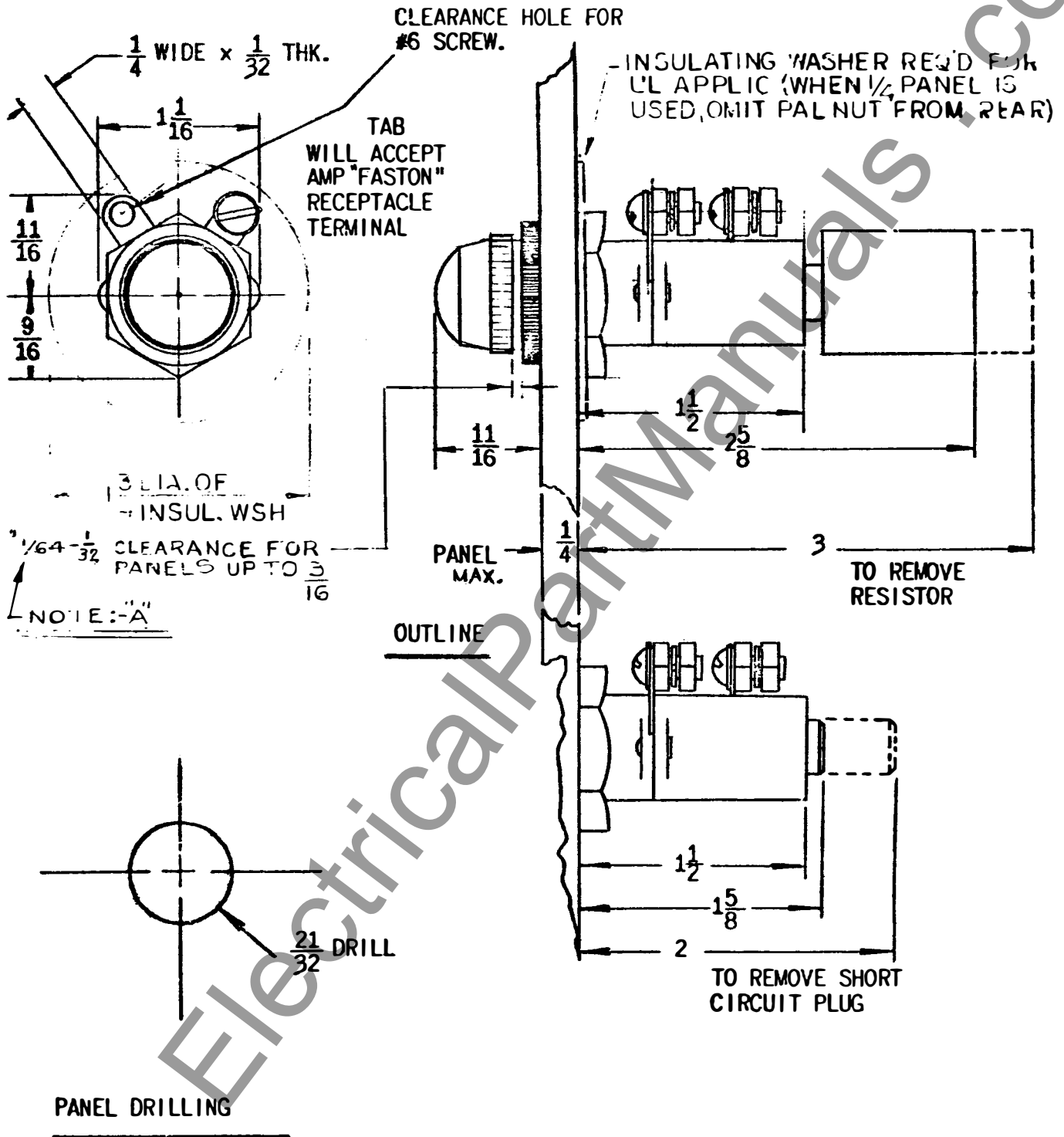


FIG.3 (0165A7859-6) Outline And Panel Drilling For Type ET-16 Indicating Lamp

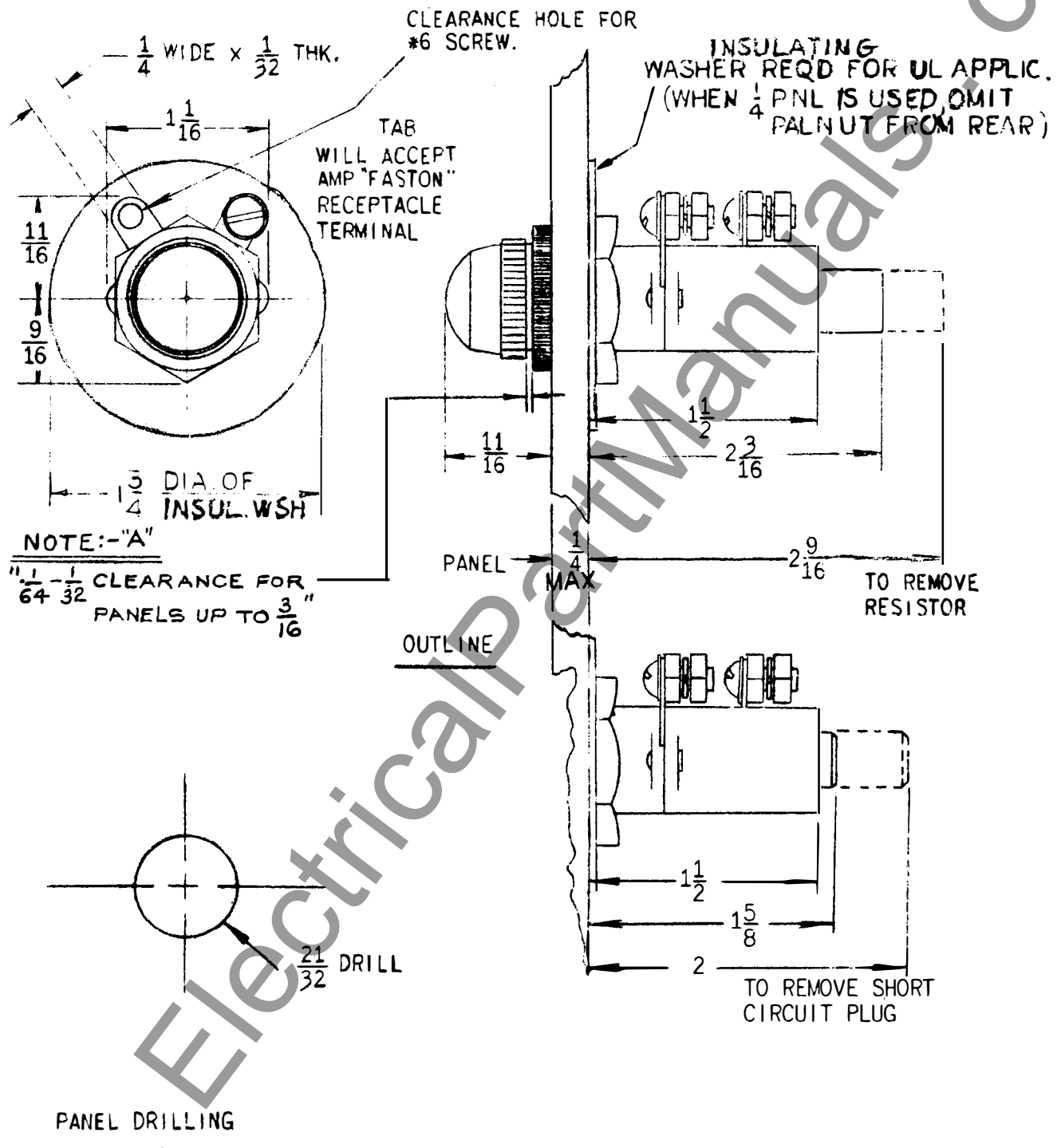


FIG.4 (0165A7955-6) Outline And Panel Drilling For Neon Indicating Lamp Type ET-17

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