

Meets requirements of MIL-S-22885



ACTUAL SIZE

The MSC Series 800 & 820 are rack mounted, plug-in type 4-lamp lighted pushbutton switch or indicator light assemblies with display face for up to four lines of legend. Both series offer a completely modular approach to developing modern, human-engineered, lighted-switch/indicator panel layouts for commercial, industrial, military and aerospace applications.

The Series 800 offers a 3/4 inch square display face and the Series 820 offers a 3/4 inch high by one inch wide display face. All other features of both the switch-lite and indicator-lite units in each series are identical. The versatility afforded by their small size, close center-to-center spacing, 4-lamp illumination, and plug-in connectors make them ideal for almost any requirement from a single-unit mounting all the way up to multi-matrix configurations. You can procure a complete system, tailored to your needs, and ready to wire with crimp-type insertable terminals.

The switch-lite units are available with alternate or momentary action in 2PDT or 4PDT. A choice of holding coils (momentary action) is available to provide electrical interlock. The front lens is available as a full display or as a split display for more than one message indication. Each of the four lamps may be individually controlled to provide selected illumination and the use of different colors.

Each switch-lite or indicator-lite unit plugs into a pre-wired terminal block in the back of each channel in the mounting rack. The mounting rack itself is a modular assembly that can be made to accommodate anything from a single unit to multiple unit matrices. Each rack assembly mounts through a single panel cutout for a simple and economical installation.

## 800A1C1E2J3L2M1N2(RG)16 ON/OFF

Series  
Number  
(800 or  
820)  
Pages  
4 & 5

Lamp  
Type  
Page 8

RFI  
Screen  
(Optional)  
Page 9

Color  
Filter  
Page 9

Legend  
Wording  
Page 10

Basic  
Unit  
Type  
Pages  
6 & 7

Lens  
Type  
Page 9

Display  
Screen  
Arrangement  
Page 9

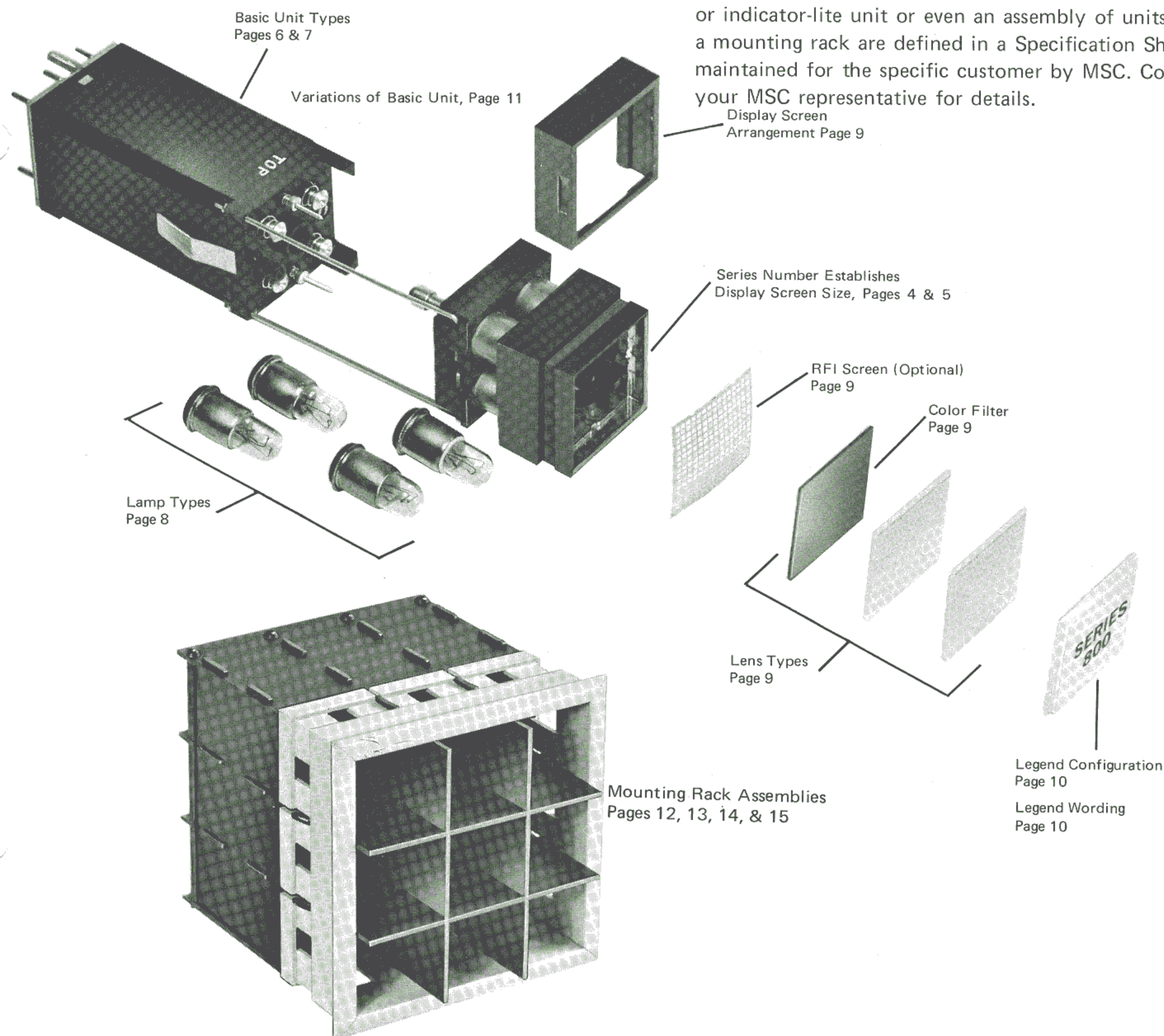
Legend  
Configuration  
Page 10

The pages of this catalog describe each element of the Series 800 or 820 switch-lite or indicator-lite units and mounting rack assemblies. To determine the units you need, simply select the codes that define your choice of each element. The selected codes, written together (without dashes; dashes are only shown in examples for clarity), become the part number you will use for ordering. A sample of a typical part number is shown on the left with callouts identifying what each of the codes mean.

A sample part number appears at the top of each page describing the code you are selecting from that page.

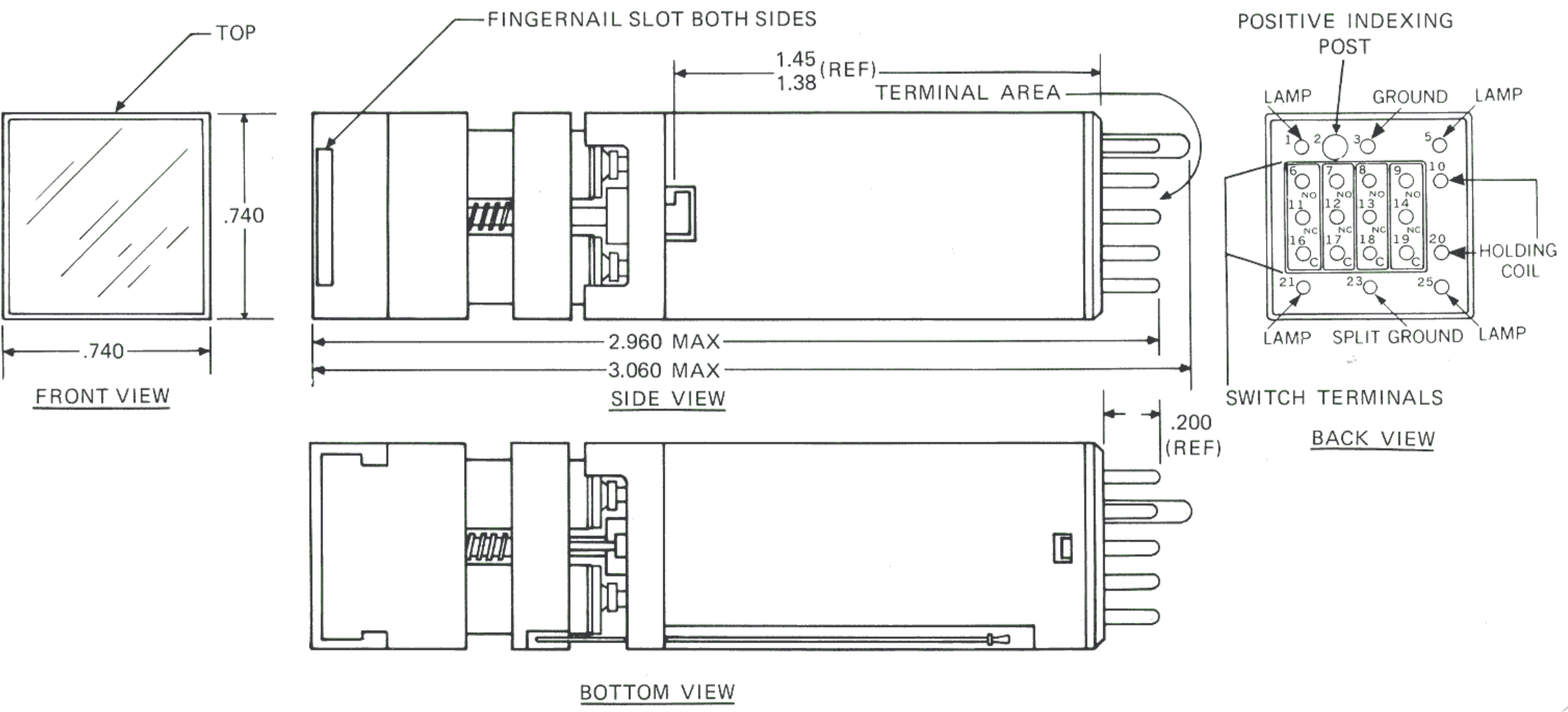
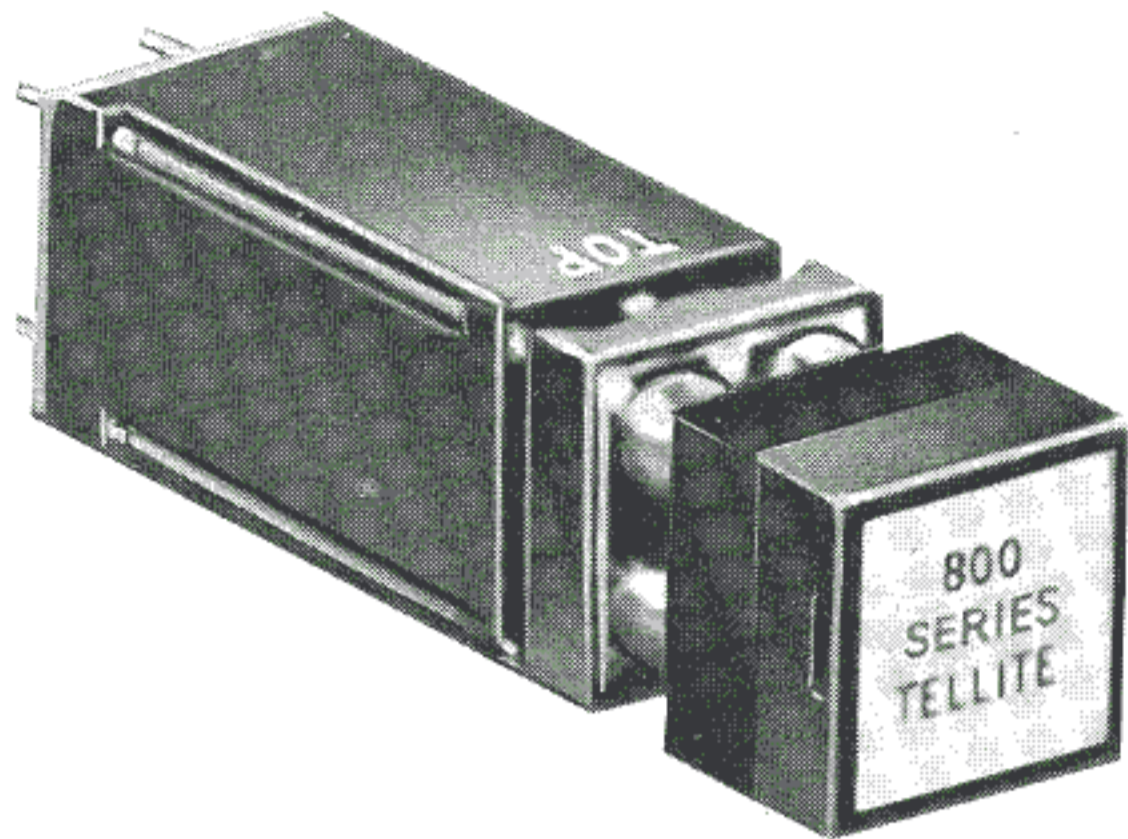
The illustrations below identify the elements you can specify and the pages of the catalog that describes each element.

An alternate simplified ordering method is available; wherein items required for a complete switch-lite, or indicator-lite unit or even an assembly of units in a mounting rack are defined in a Specification Sheet maintained for the specific customer by MSC. Consult your MSC representative for details.



Series 800

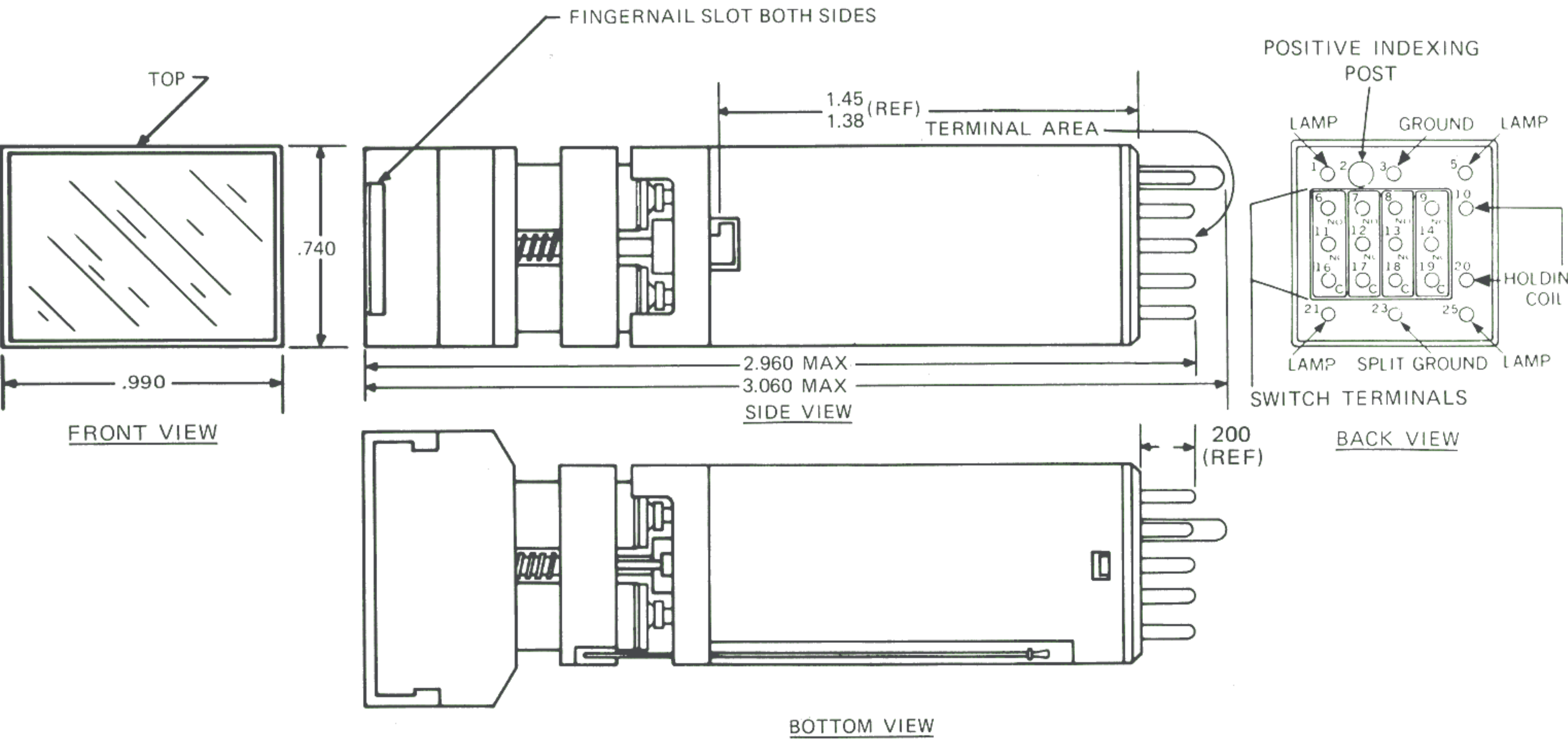
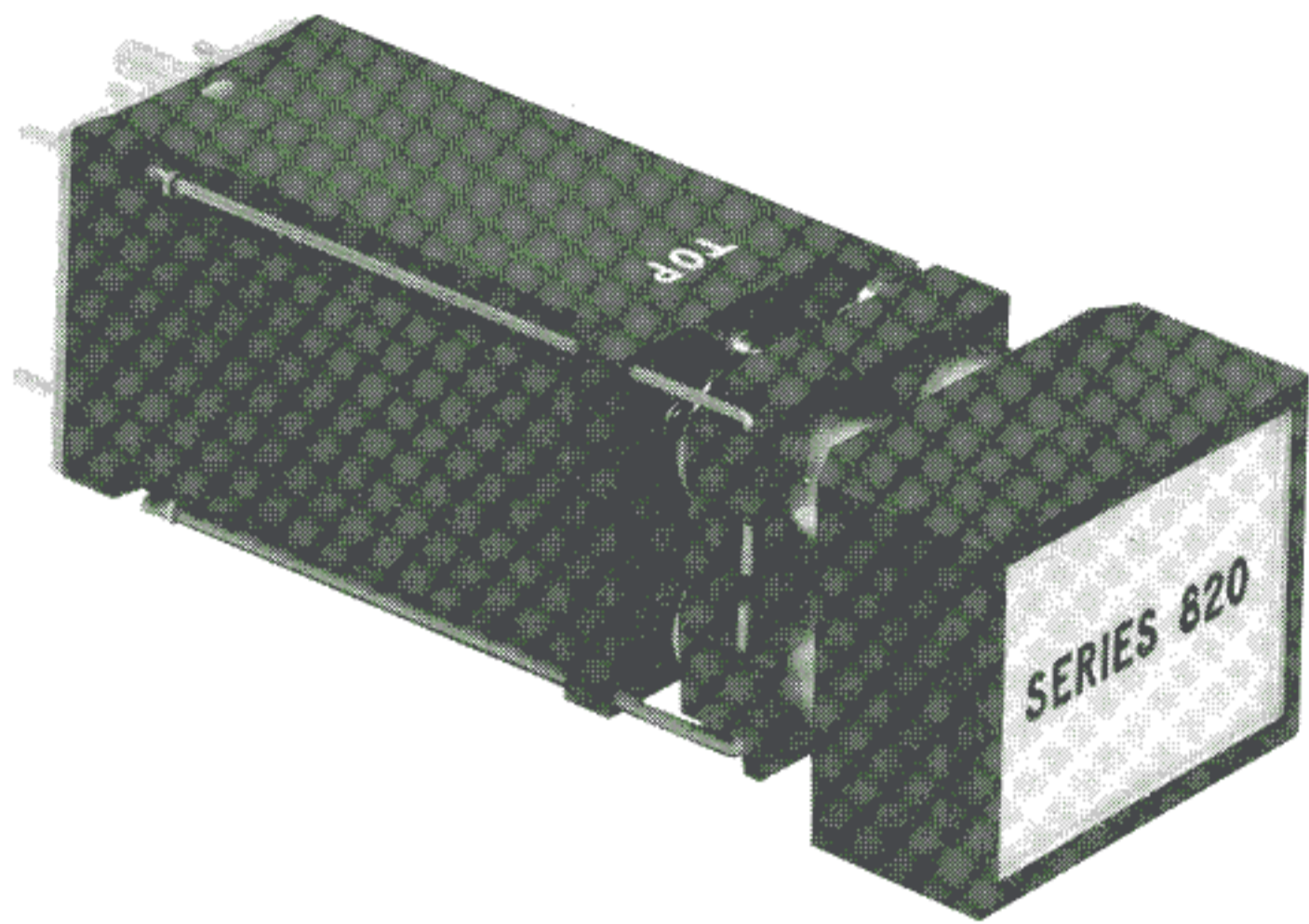
The Series Number, for this particular product line, establishes the display screen size. The Series 800 provides a 3/4 inch square display screen face. All other elements of the unit are identical to the Series 820, which provides a 3/4 inch high by one inch wide display screen face. Both units are available as either a switch-lite or indicator-lite. The drawings below show the overall outline dimensions for the Series 800.



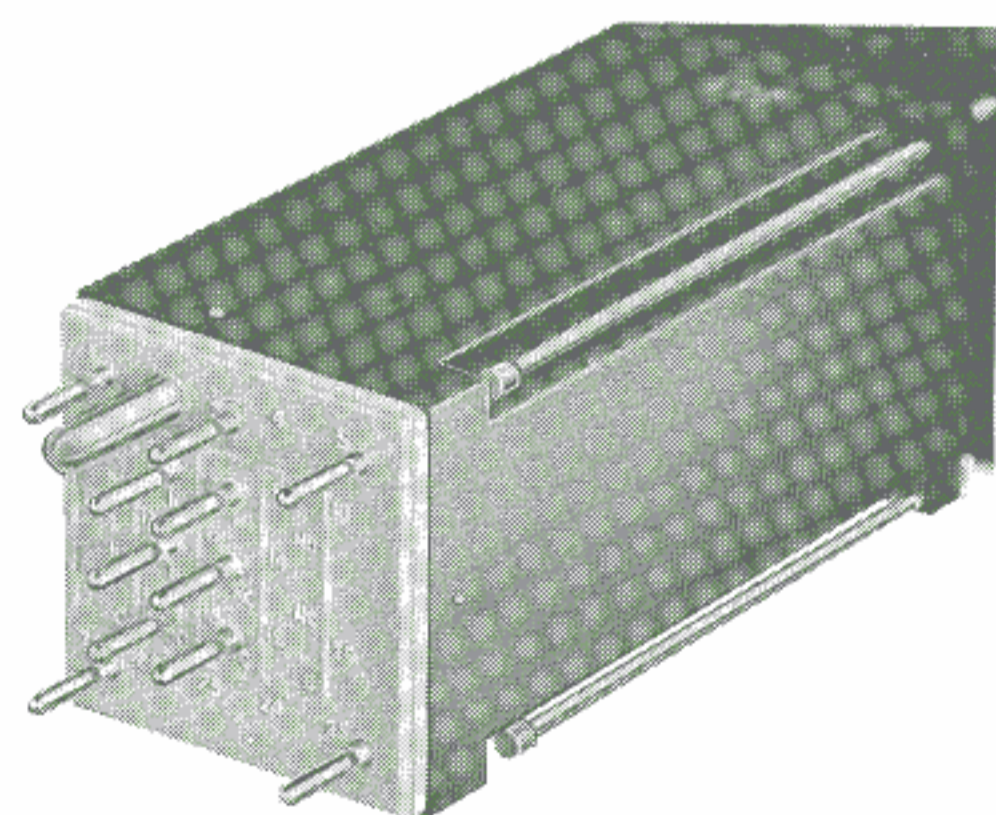
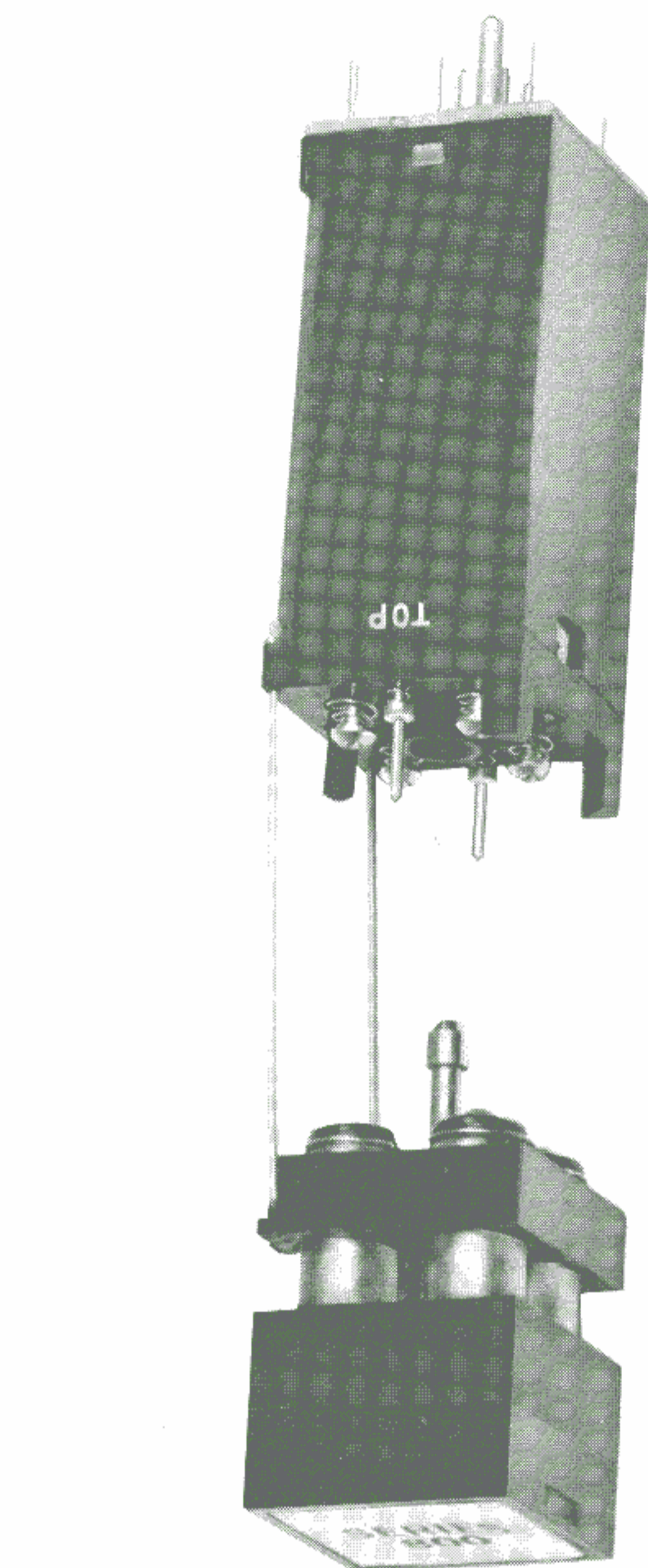
TOLERANCES .XX ± 0.030 .XXX ± 0.010

SERIES 820

The Series Number, for this particular product line, establishes the display screen size. The Series 820 provides a 3/4 inch high by one inch wide display screen face. All other elements of the unit are identical to the Series 800, which provides a 3/4 inch square display face. Both units are available as either a switch-lite or indicator-lite. Although the sample codes at the top of the following pages reference the Series 800, all elements are also applicable to the Series 820. The drawings below show the overall outline dimensions for the Series 820.



TOLERANCES .XX ± 0.030 .XXX ± 0.010



SWITCH CIRCUIT NO. 1  
2PDT



SWITCH CIRCUIT NO. 2  
4PDT



SWITCH CIRCUIT NO. 3  
2PDT MOMENTARY WITH HOLDING COIL  
Consists of Switch Circuit No. 1  
with Holding Coil Utilizing Pins 10 & 20

SWITCH CIRCUIT NO. 4  
4PDT MOMENTARY WITH HOLDING COIL  
Consists of Switch Circuit No. 2  
with Holding Coil Utilizing Pins 10 & 20

## FOUR TYPES AVAILABLE

Series 800 / 820 is available in four types of basic units with either an integral switch or without any switch mechanism as an indicator only. Each type of basic unit is described below:

### SWITCH-LITE (MOMENTARY ACTION/2PDT OR 4PDT)

Combines capability of both indication and switching.

Depressing front lens transfers switch contacts so long as the front lens is held down. Removing actuating force returns switch contacts to their normal position and front lens returns to its retracted position. Switch contacts are completely isolated from the lamp circuit, allowing independent control of illumination.

### SWITCH-LITE (ALTERNATE ACTION/2PDT OR 4PDT)

Combines capability of both indication and switching.

Depressing front lens transfers switch contacts, and they remain transferred even after the actuating force is removed and the front lens has returned to its retracted position. Depressing the front lens again returns the switch contacts to their normal position. Switch contacts are completely isolated from the lamp circuit, allowing independent control of illumination.

### SWITCH-LITE WITH HOLDING COIL (MOMENTARY/2PDT OR 4PDT)

Numerous electrical interlock, lock-in and lock-out circuits are made possible with the inclusion of a magnetic, holding coil to the momentary action switch-lite. Prior to energizing holding coil, operation is same as momentary action switch-lite. Once holding coil is energized, it will hold the contacts in their actuated position. Removing power from the holding coil will cause the contacts to return to their normal position. Available in 6, 12, 28, or 48 V.D.C.

### INDICATOR-LITE ONLY

The basic unit may be ordered without a switch mechanism for applications requiring indication only.

### FULLY IDENTIFIED TERMINALS

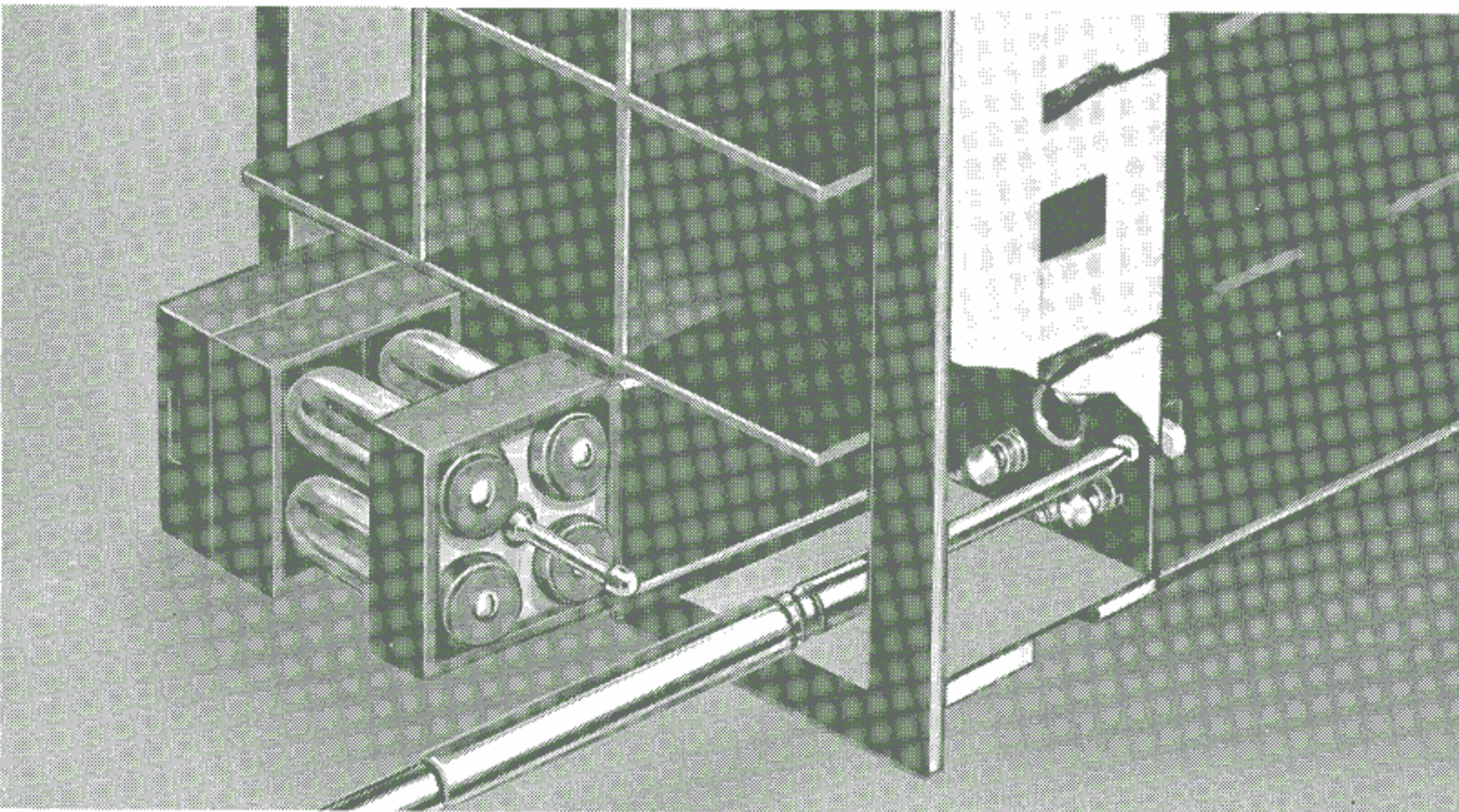
All terminals are clearly marked by number. Terminals 1, 5, 21, and 25 in each of the four corners are for each of the four lamps. Terminal 3 is a common lamp ground. Switch terminals provide capacity for up to 4PDT. All switch terminals are grouped within a rectangular marked area on the terminal block. 2PDT switching utilizes terminals 7, 12, 17, and 8, 13, and 18. Each terminal is marked for normally open, normally closed, and common.

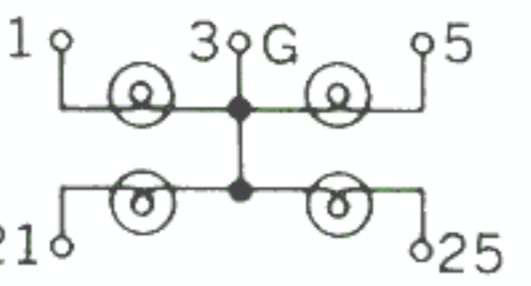
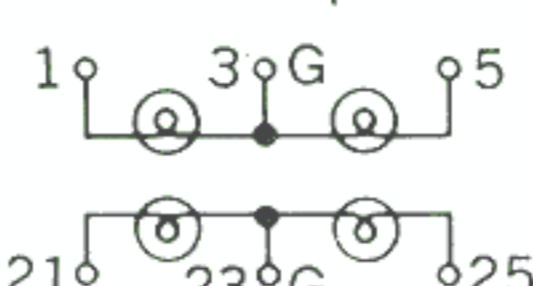
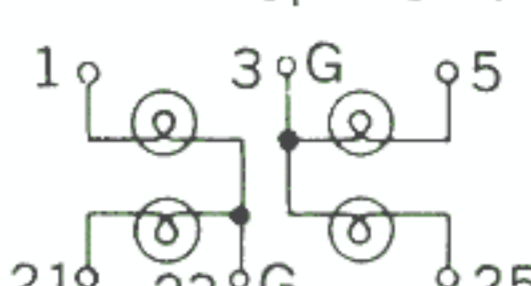
### POSITIVE INDEXING ASSURES PROPER ORIENTATION

A large post on the terminal end of the switch-lite unit mates with a hole in the connector block at the rear of each channel in the mounting rack. Since the post is too large to fit the standard terminal holes, the switch-lite can only be plugged in when properly oriented.

### EASILY LOCKS INTO MOUNTING RACK ASSEMBLY

After the unit has been plugged into the mounting rack, simply pull the display screen/lamp capsule out and to one side. Then, rotate the small screw on the face of the switch housing. It will turn a locking arm which mates with a slot in the mounting channel, thus locking the switch-lite unit firmly in place.



TYPE OF BASIC UNIT  (Switch Action & Number of Poles)	PART NUMBER CODE BY LAMP CIRCUIT		
	Common Grd.  (Most commonly used) Lamp Circuit 1	Horizontal Split Grd.  Lamp Circuit 2	Vertical Split Grd.  Lamp Circuit 3
INDICATOR-LITE	A2C1	A2C2	A2C3
SWITCH-LITE  2PDT ALTERNATE 4PDT ALTERNATE 2PDT MOMENTARY 4PDT MOMENTARY	A1C1D2 A1C1D4 A1C1E2 A1C1E4	A1C2D2 A1C2D4 A1C2E2 A1C2E4	A1C3D2 A1C3D4 A1C3E2 A1C3E4
SWITCH-LITE WITH HOLDING COIL (MOMENTARY)  6 Volt: 2 PDT 4 PDT  12 Volt: 2 PDT 4 PDT  28 Volt: 2 PDT 4 PDT  48 Volt: 2 PDT 4 PDT	A4C1E2 A4C1E4  A5C1E2 A5C1E4  A3C1E2 A3C1E4  A6C1E2 A6C1E4	A4C2E2 A4C2E4  A5C2E2 A5C2E4  A3C2E2 A3C2E4  A6C2E2 A6C2E4	A4C3E2 A4C3E4  A5C3E2 A5C3E4  A3C3E2 A3C3E4  A6C3E2 A6C3E4
SWITCH-LITE WITH HOLDING COIL (MOMENTARY)  Has 1N645 supression diode across pins 10 & 20 6 Volt: 2PDT 4PDT 12 Volt: 2PDT 4PDT 28 Volt: 2PDT 4PDT 48 Volt: 2PDT 4PDT	A8C1E2 A8C1E4 A9C1E2 A9C1E4 A10C1E2 A10C1E4 A11C1E2 A11C1E4	A8C2E2 A8C2E4 A9C2E2 A9C2E4 A10C2E2 A10C2E4 A11C2E2 A11C2E4	A8C3E2 A8C3E4 A9C3E2 A9C3E4 A10C3E2 A10C3E4 A11C3E2 A11C3E4
SWITCH-LITE WITH LOW-ACTUATION FORCE (MOMENTARY) Includes Moisture-Proof 1PDT 2PDT 3PDT 4PDT	A12C1E1 A12C1E2 A12C1E3 A12C1E4	A12C2E1 A12C2E2 A12C2E3 A12C2E4	A12C3E1 A12C3E2 A12C3E3 A12C3E4

**SPECIFICATIONS**

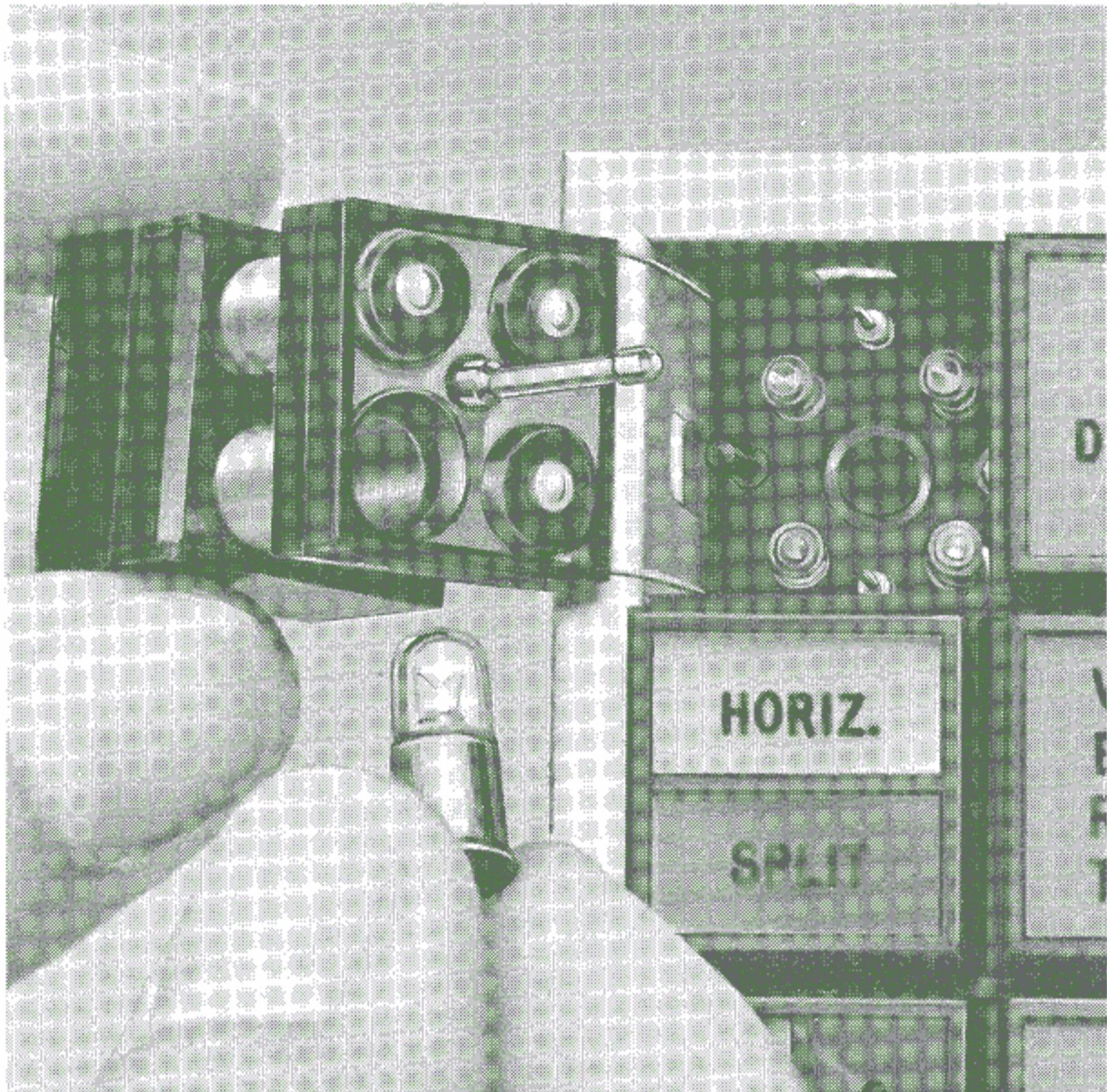
**SWITCH SPECIFICATIONS:**

Switch Action: Snap action  
 Actuation Force: 4.0 lbs. maximum  
 Actuation Travel: 3/16" Nominal  
 Switch Contacts: Gold plated silver  
 Total Transfer Time (including Bounce): 2 millisec., max.  
 Simultaneity: All contacts transfer within 3 millisec.  
 Mechanical Life: 100,000 cycles  
 Electrical Life: 25,000 cycles

**ELECTRICAL SPECIFICATIONS:**

Resistive Load: 5 Amps @ 115 VAC/28 VDC\*  
 Inductive Load: 2.5 Amps @ 115 VAC/28 VDC\*  
 Lamp Load: 1.5 Amps @ 115 VAC/28 VDC  
 Low-Current Switching Capability: 10 mA @ 1 VDC  
 (@ room temperature)  
 Switch Contact Resistance: 25 milliohms, max.  
 (per MIL-S-22885)  
 Lamp Contact Resistance: 1 Ohm, max. (per  
 MIL-S-22885)

Holding Coil: Nominal Voltage: 6 VDC, 12 VDC, 28 VDC  
 and 48 VDC. Minimum "hold-in" voltage is  
 50% of nominal rating.  
 Dielectric Withstanding Voltage: 1,000 V RMS  
 (per MIL-S-22885)  
 Insulation Resistance: 1,000 megohms, min.  
 (per MIL-S-22885)  
**ENVIRONMENTAL SPECIFICATIONS:**  
 Vibration: 10 G's to 500 Hz (per MIL-STD-202,  
 Method 204, Cond. A)  
 Shock: 75 G's (per MIL-STD-202, Method 213, Cond. B)  
 Operating Temperature Range: -55°C to +71° C  
 (per MIL-S-22885)  
 Salt Spray: 96 Hrs. (per MIL-STD-202, Method 101) Cond. A  
 Moisture Resistance: 10 days (per MIL-STD-202,  
 Method 106)  
 Explosion: (per MIL-STD-202D, Method 109A)  
 \*With electrical life at 25,000 cycles, the switch is rated  
 for 7.0 Amps—resistive loads, and 4.0 Amps—Inductive  
 loads.



EASY LAMP REPLACEMENT FROM PANEL FRONT WITHOUT TOOLS

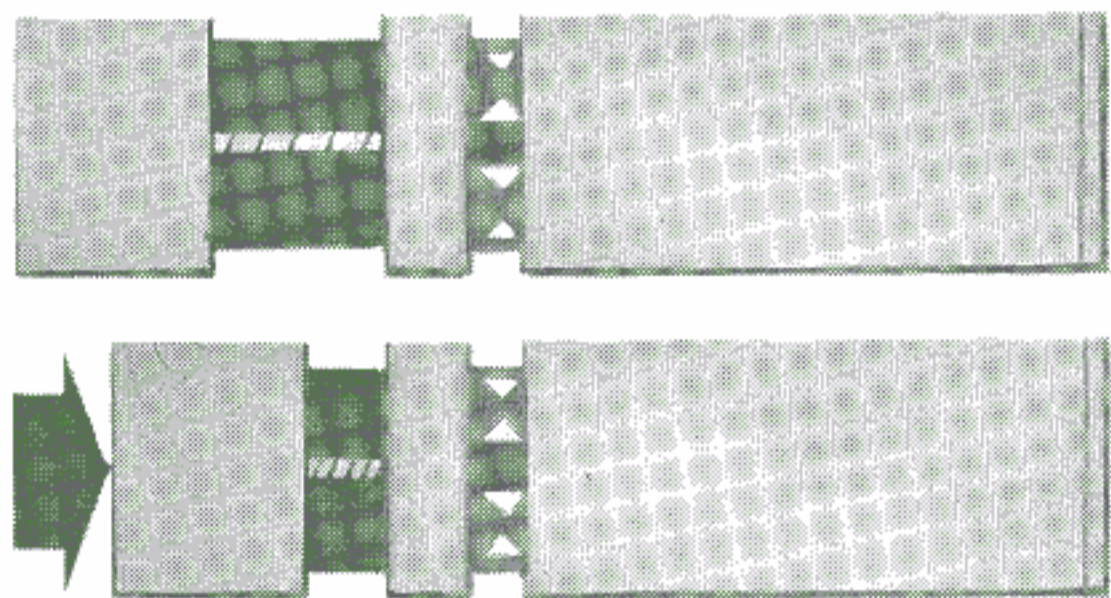
Replace lamps quickly without having to remove the unit from its mounting. Slots on the sides of the display housing allow lamp-carrier assembly to be easily pulled out and swung to the side, exposing the back of the housing for complete access to the lamps. This is accomplished from the panel front without the use of any tools.

ATTACHED LAMP CAPSULES PREVENT TRANSPOSITION

The display screen/lamp-capsule assembly is permanently connected to the basic unit by two stainless steel wires. This prevents the capsule from being accidentally transposed into an adjacent switch unit when relamping or replacing legend lenses and color filters.

LAMPS REMAIN STATIONARY; AVOID SHOCK; LAST LONGER

When the switch-lite display face is depressed during switch actuation, it travels back over the lamp barrels, so that the lamps remain stationary at all times. This feature helps to extend lamp life by eliminating any shock the lamps might otherwise receive during switch actuation.



LAMP TYPES

T-1¾ midget flange base incandescent lamps are available in 6, 12, and 28 volts. A special neon lamp with or without a built-in current limiting resistor is also available for 115 V.A.C. applications, but it is only recommended for use with red or amber colors. See the accompanying table for part number ordering codes. Note: neon lamps without a built-in resistor require external current limiting resistance.



INCANDESCENT



NEON

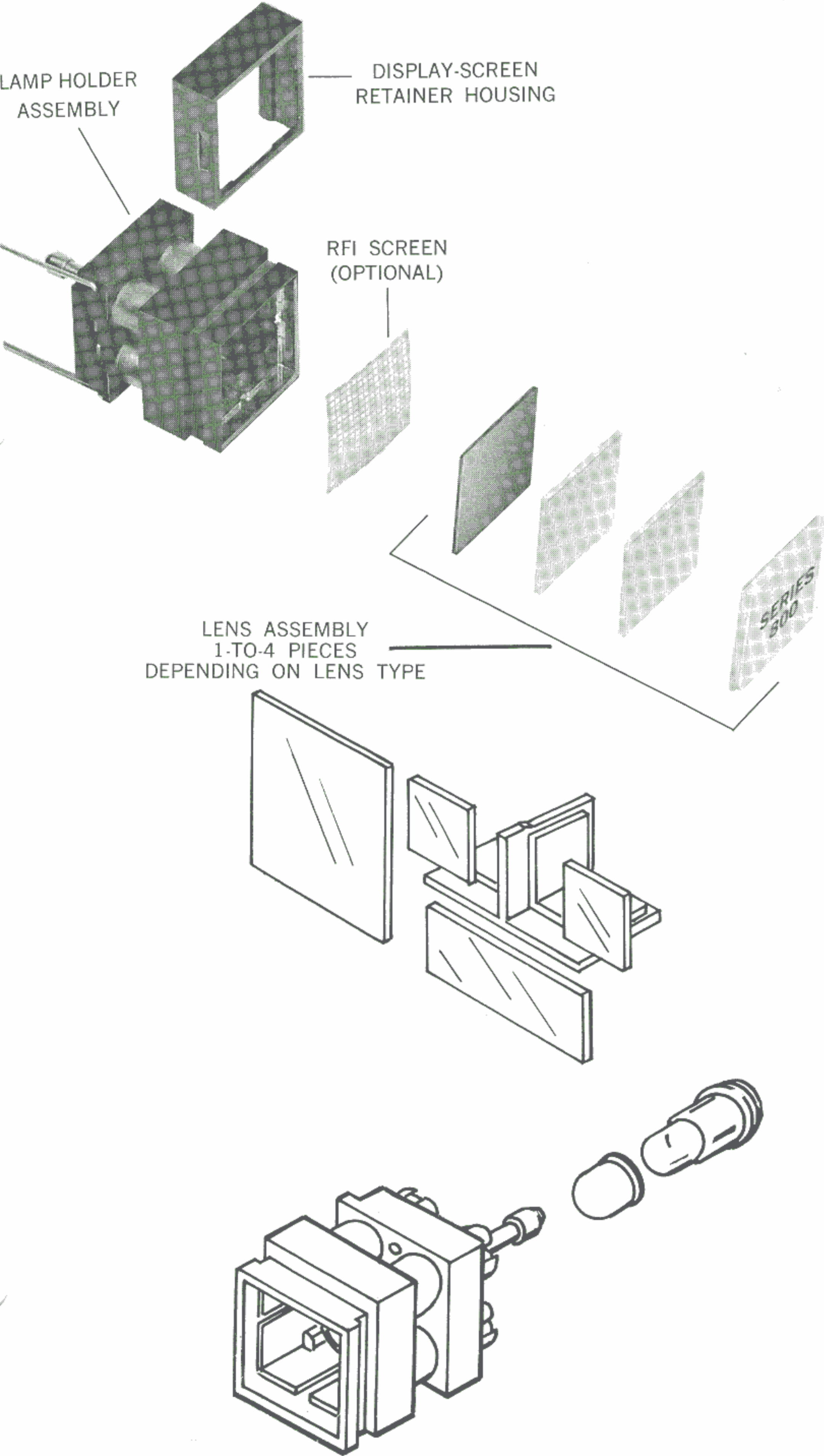
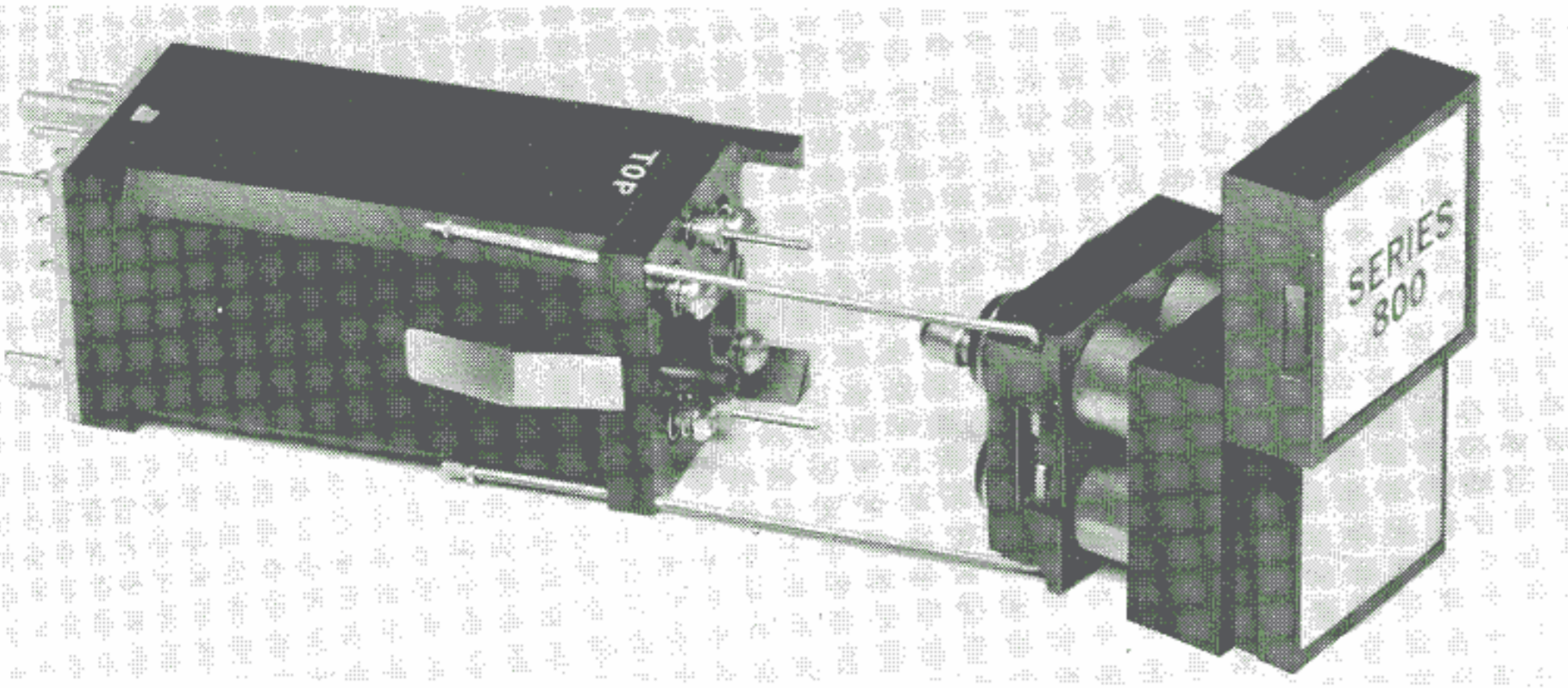
PART NUMBER CODE FOR TYPE OF LAMP				
6 Volt Lamps	12 Volt Lamps	28 Volt Lamps	115 V.A.C. Neon Lamps with Resistor	115 V.A.C.* Neon Lamps Without Resistor
J1	J2	J3	J4	J10

\* Recommended for use with red or amber colors only

L.E.D. TYPE LAMPS

PART NUMBER CODE FOR TYPE OF LAMP					
ANODE @ BASE			CATHODE @ BASE		
3.6 v TO 6 v	5 v TO 15 v	15 v TO 28 v	3.6 v TO 6 v	5 v TO 15 v	15 v TO 28 v
J70(*)	J71(*)	J72(*)	J90(*)	J91(*)	J92(*)

\* Red, Green or Yellow



**EASY LEGEND/COLOR FILTER REPLACEMENT FROM PANEL FRONT WITHOUT TOOLS**

You can replace legends/colors filters easily from the panel-front without tools allowing easy cleaning and/or changes. After pulling out the display screen lamp capsule assembly, a simple upward sliding motion frees the lens retainer housing, permitting the removal of the lens and filters.

**LENS TYPES**

There are four types of lenses available, each producing a different type of legend display, as described below. The numbers preceding each lens type are the part number codes.

**L1-LENS TYPE 1-LIGHTED LETTERS:** Letters appear white on a black background until illuminated and then letters appear in color, background remains black.

**\*L2-LENS TYPE 2-LIGHTED BACKGROUND:** Letters appear black on a white background until illuminated and then background appears in color, letters remain black.

**L3-LENS TYPE 3-LIGHTED LETTERS:** Letters are not legible until illuminated and then letters appear in color, background is black.

**L4-LENS TYPE 4-LIGHTED BACKGROUND:** Letters are not legible until illuminated then background appears in color, letters are black.

\*This is the most commonly used and preferred type of lens for most applications.

**RFI SCREEN**

An RFI Screen may be specified by using the code "MI". This is an optional item and should only be specified in applications where radio frequency interference is a problem. The screen will minimize RFI entrance through panel cutout.

**DISPLAY SCREEN/COLOR FILTER ARRANGEMENT**

Select the number above the illustrations below that describes the display screen arrangement you desire. Use the letters in brackets below the illustrations to indicate the required color filters. The sequence in which the letters for the color filters must be written in the brackets is in order of viewing from upper left, upper right, lower left, lower right, as shown in the diagrams.

N1	N2	N3	N11	N12	N13	N14	N15
R	R G	R G	A G R	Y G R	A B R	G Y B	R A B G
(R)	(RG)	(RG)	(AGR)	(YGR)	(ABR)	(GYB)	(RABG)

The letter codes for colors are:  
(A)mber (B)lue (G)reen (R)ed (W)hite (Y)ellow  
NOTE: WHITE is produced by a light blue colored filter

**TWO-COLOR FULL DISPLAY**

Colored silicone bulb-boots that are mounted over the lamps may be specified for use when two colors are required for a full-display (N1). This makes it possible to project one color over the full-display for one condition and then a second color over the full-display for a different condition.  
To order the bulb-boots for the two color display, place a "T1" between the "N1" code and the color designation in the display screen code: e.g., L1-N1-T1(RG). Bulb-boot color codes are same as shown above for lenses.

HORIZONTAL ROWS OF LETTERS 7 LETTERS OR SPACES PER ROW	FULL DISPLAY				HORIZONTAL SPLIT			
VERTICAL SPLITS HORIZONTAL ROWS OF LETTERS 3 LETTERS OR SPACES PER ROW								
3-WAY SPLITS HORIZONTAL ROWS OF LETTERS 3 AND 7 LETTERS OR SPACES PER ROW								
4-WAY SPLITS HORIZONTAL ROWS OF LETTERS 3 LETTERS OR SPACES PER ROW								
ROWS OF VERTICAL LETTERS	FULL DISPLAY 5 LETTERS OR SPACES PER ROW				VERTICAL SPLITS 5 LETTERS OR SPACES PER ROW			
	3-WAY SPLITS VERTICAL: 5 LETTERS PER ROW HORIZONTAL: 3 LETTERS PER ROW							

**NOTE:** For Series 820 the same code numbers for legends apply, however, you can use more letters and spaces across the display face due to the wider width of the display face. The following number of letters and spaces can be used for the Series 820:

**HORIZONTAL ROWS OF LETTERS**  
Full Display & Horizontal Split Display: 10 letters or spaces per row  
Vertical Split Display: 4 letters or spaces per row  
3-Way Splits: 4 letters or spaces in segments using 1/2 screen width  
10 letters or spaces in segments using full screen width  
4-Way Splits: 4 letters or spaces per row

**VERTICAL ROWS OF LETTERS**  
Full Display & Vertical Split Display; 5 letters or spaces per row vertically  
3-Way Splits: 5 letters or spaces per row vertically; 4 letters or spaces per row horizontally

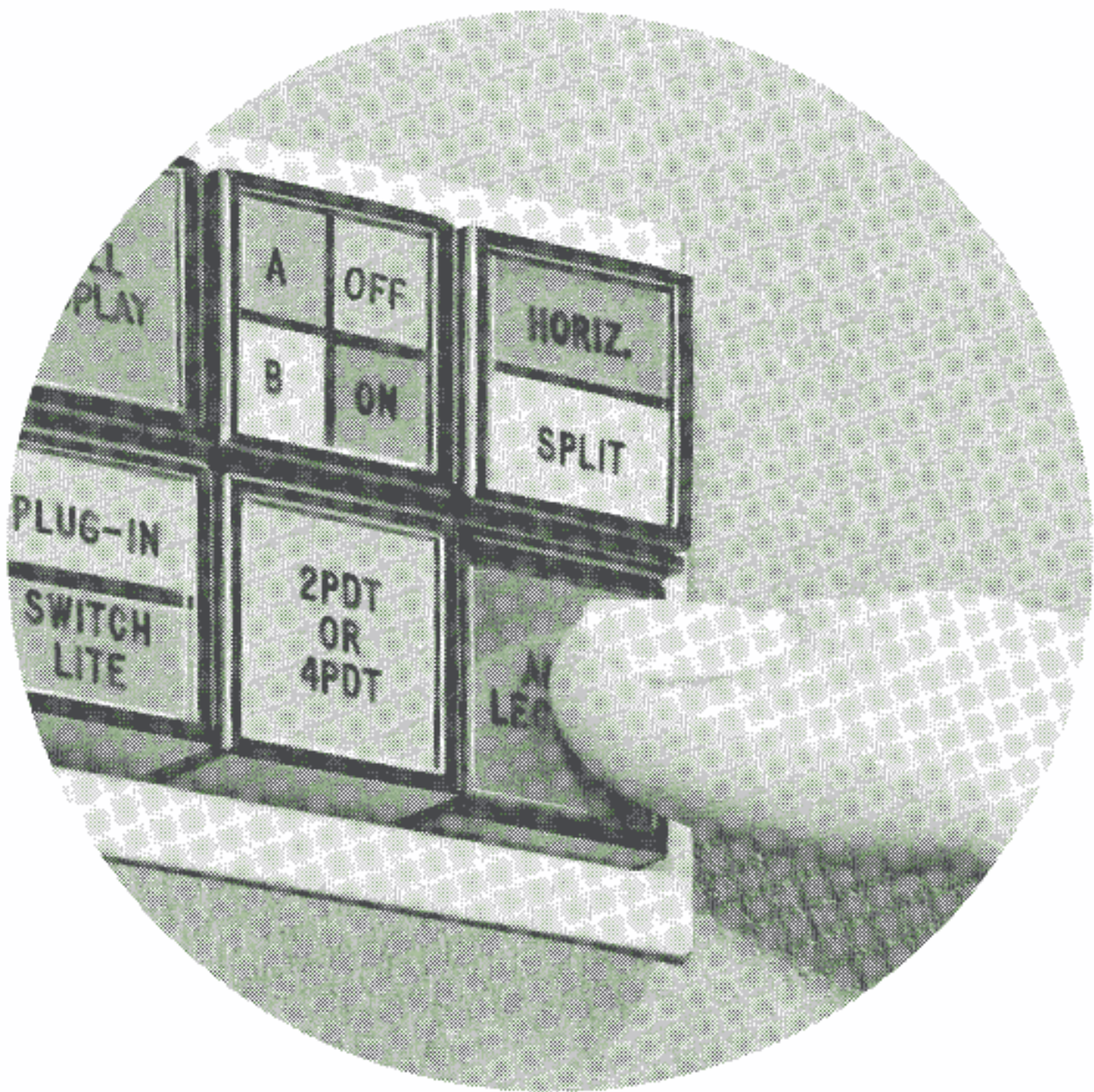
The part number code for the legend should always follow the Display Screen Arrangement code, since it indicates the legend configuration and the actual legend wording, which goes on the lens. The legend is ordered by using the legend configuration number and following it with the actual wording, using commas between rows of letters and a diagonal slash line between splits. Priority for legend wording for segments of split displays, when viewed from the panel front is upper left, upper right, lower left, lower right. Examples of legend ordering are shown below.

Note: Display screen will accept up to four rows of .093" high letters.

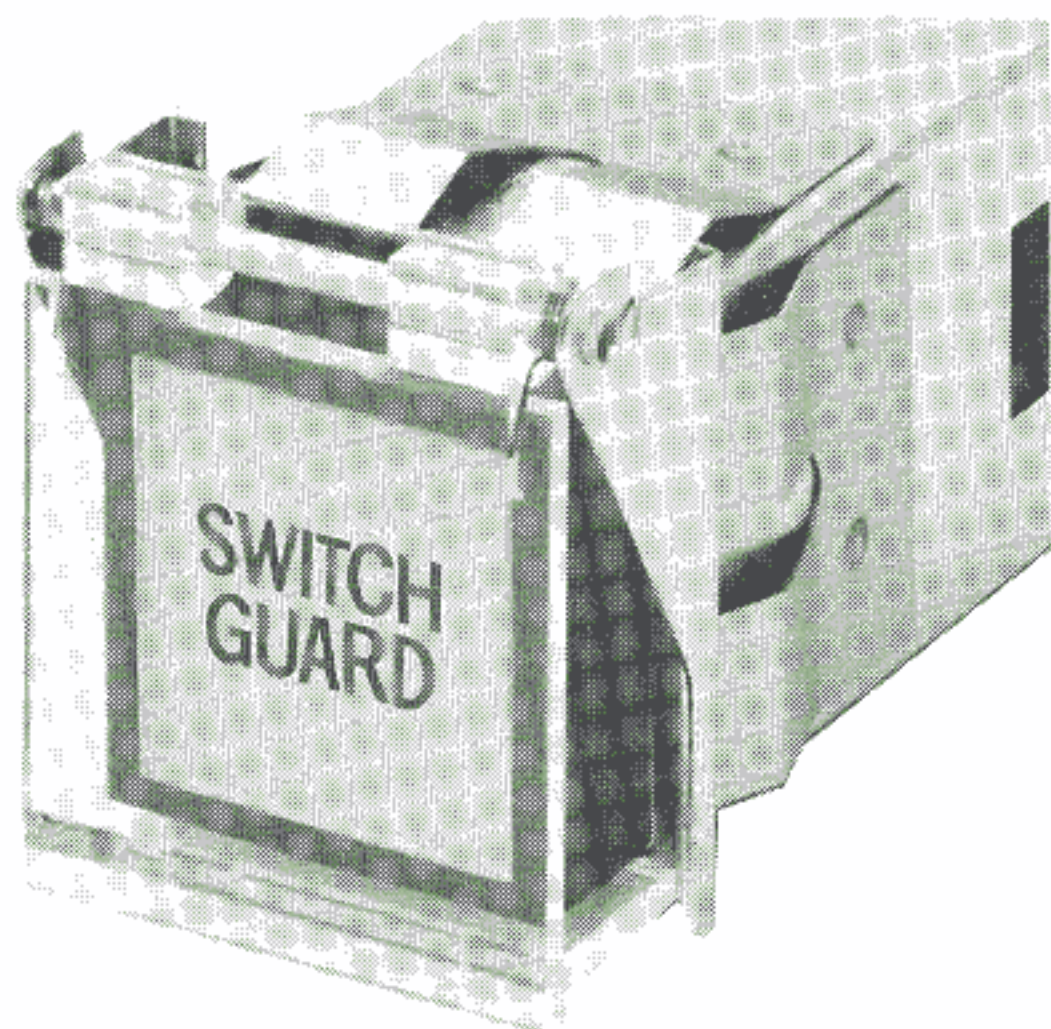
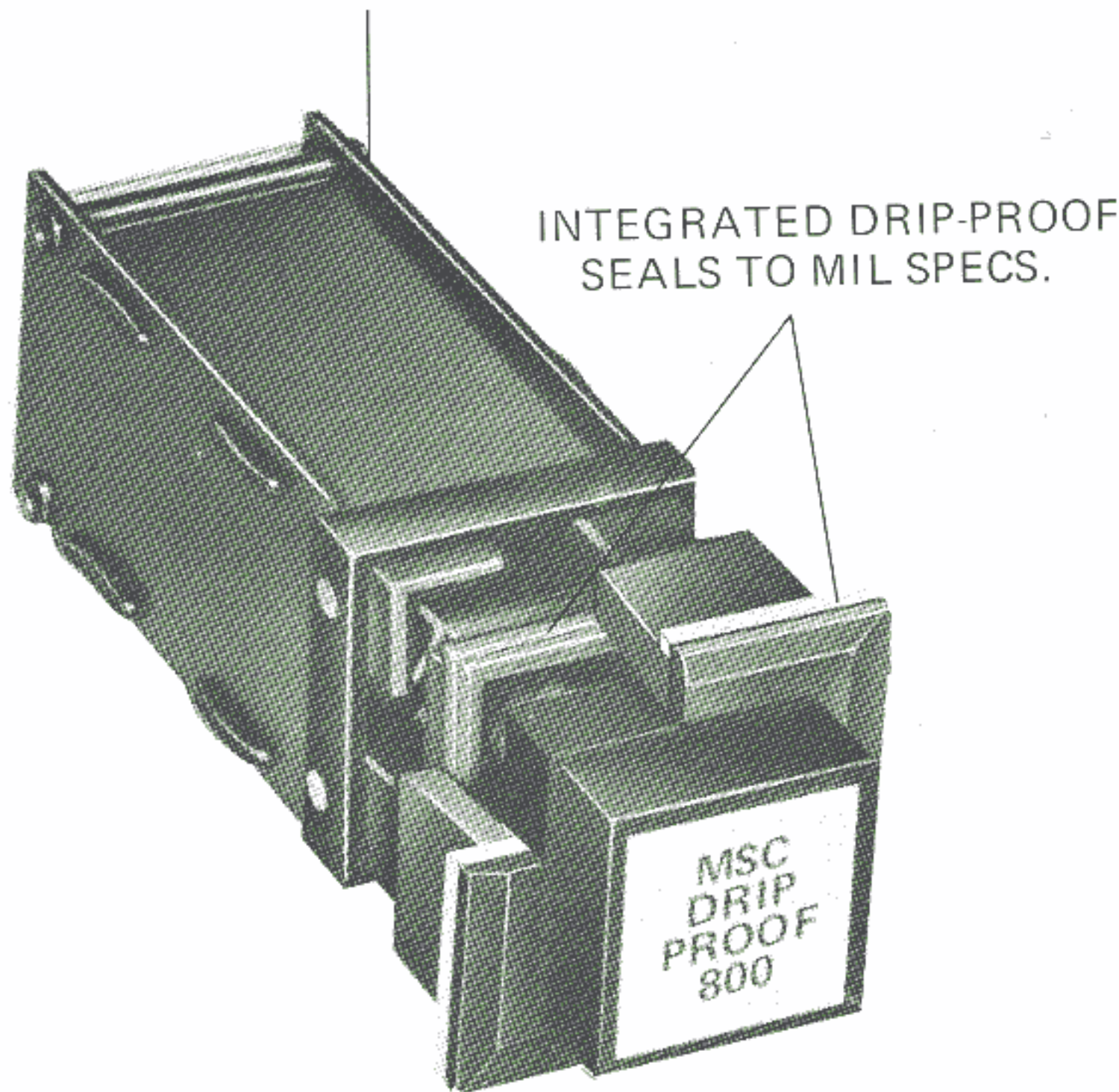
 12 ON	 14 READY, TO, GO
 17 OIL, PRESS/ALL, OK	 204 PUMP/GO/SET

Legend 219 is a matrix mount legend with a 3x3 grid of segments. The segments contain the following text:

- Top row: SERIES 800, FULL DISPLAY, ANY COLOR
- Middle row: HORIZ. SPLIT, VERT SPLIT, 3 WAY SPLIT
- Bottom row: 1 2 3 4, 2PDT OR 4PDT, MATRIX MOUNT



SINGLE-UNIT HOUSINGS—  
in 3 mounting styles



The following are descriptions of variations of the basic unit that offer particular capabilities for special requirements. Code numbers for most of these items are to be written into the part number following the Series Number and preceding the Basic Unit Code.

**LOW ACTUATION FORCE (A12)**

The standard actuation force for Series 800 and Series 820 switch-lite units is 4.0 lbs. maximum. Units may also be ordered with a low force actuation of less than 16 oz. This is ideal for keyboard type arrangements or other applications where light-pressure actuation is desired. To order low force actuation units, change the "A1" in the basic unit code to "A12", e.g. A12C1E2.

Note: these units are standard with moisture-proof requirement, as described below, but are not available with high-shock requirement or as alternate action or holding coil units.

**MOISTURE PROOF REQUIREMENT (10)**

The Series 800 and Series 820 units can be modified to meet the special moisture-proof requirements of MIL-S-22885C Paragraph 4. 8. 17.2, seal (drip-proof); and MIL-STD-108E, Paragraph 4.3, seal (drip-proof). To order units with this capability, insert the number "10" as the part number code between the Series Number and the Basic Unit Number, e.g. 800-10-A1C1E2 . . . These units must be used with appropriate moisture-proof mounting racks (see page 13).

**HIGH-SHOCK & MOISTURE-PROOF (8)**

The Series 800 and Series 820 units can be modified to meet both the special high-shock and moisture-proof requirements detailed above. To order units with both of these capabilities, insert the number "8" as the part number code between the Series Number and the Basic Unit Number, e.g. 800-8-A1C1E2 . . . These units must be used with the appropriate high-shock and moisture-proof mounting racks (see page 13). Note: these units are not available as alternate action, holding coil, or low-force actuation units.

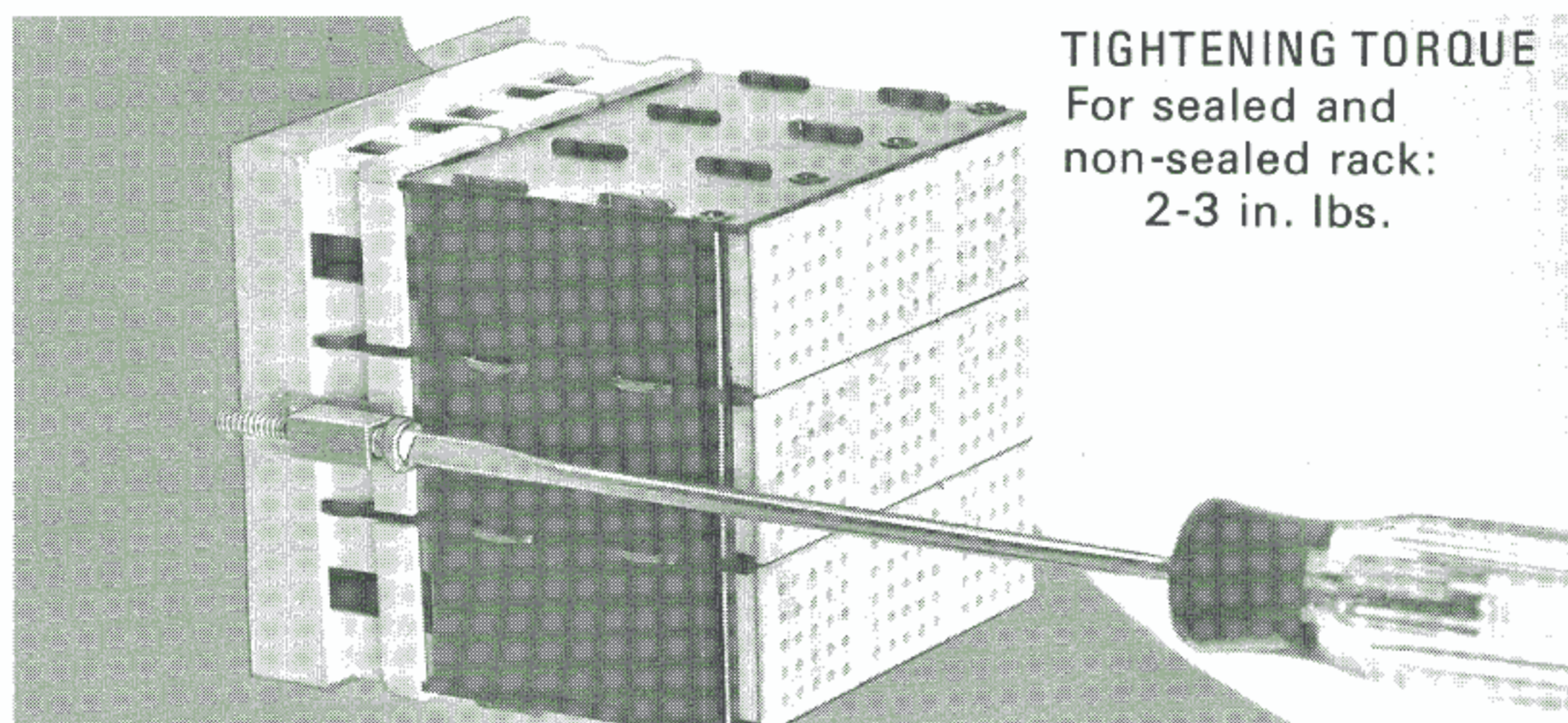
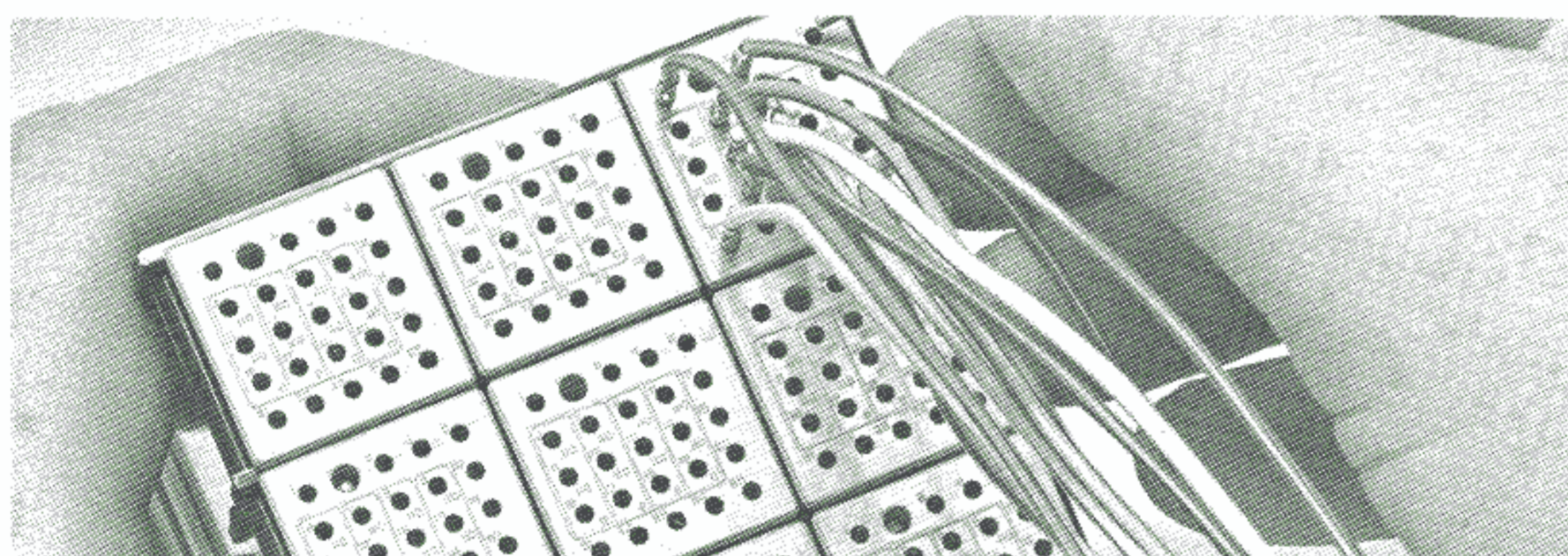
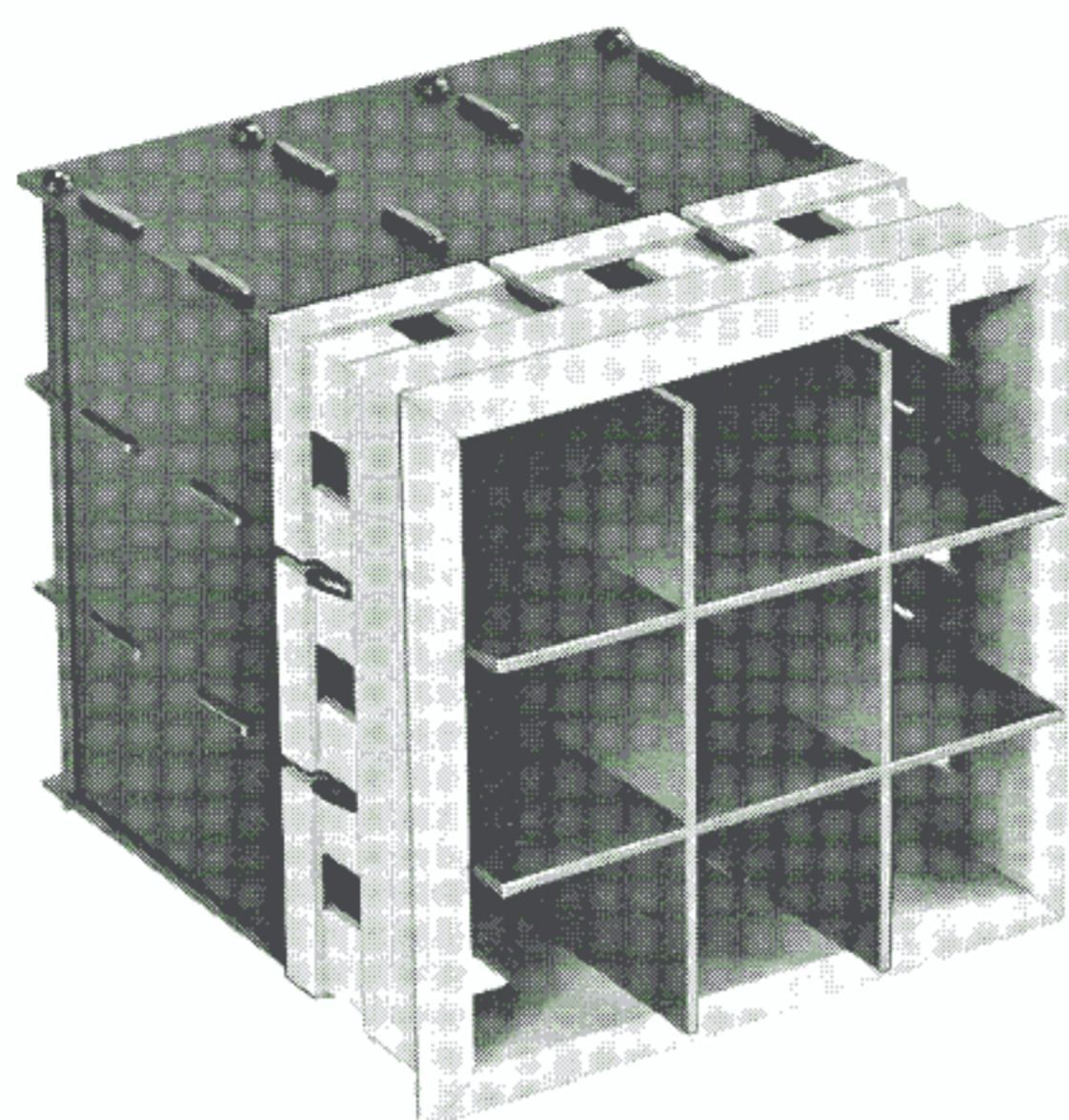
**SWITCH GUARD**

A special switch-guard accessory is available to protect the face of switch-lite units against accidental actuation. To order the switch guard accessory, use the part number 800-508. This accessory is only available on switch-lite units used in single-unit mounting cans 800-R1 and 800-R2 (see page 15).

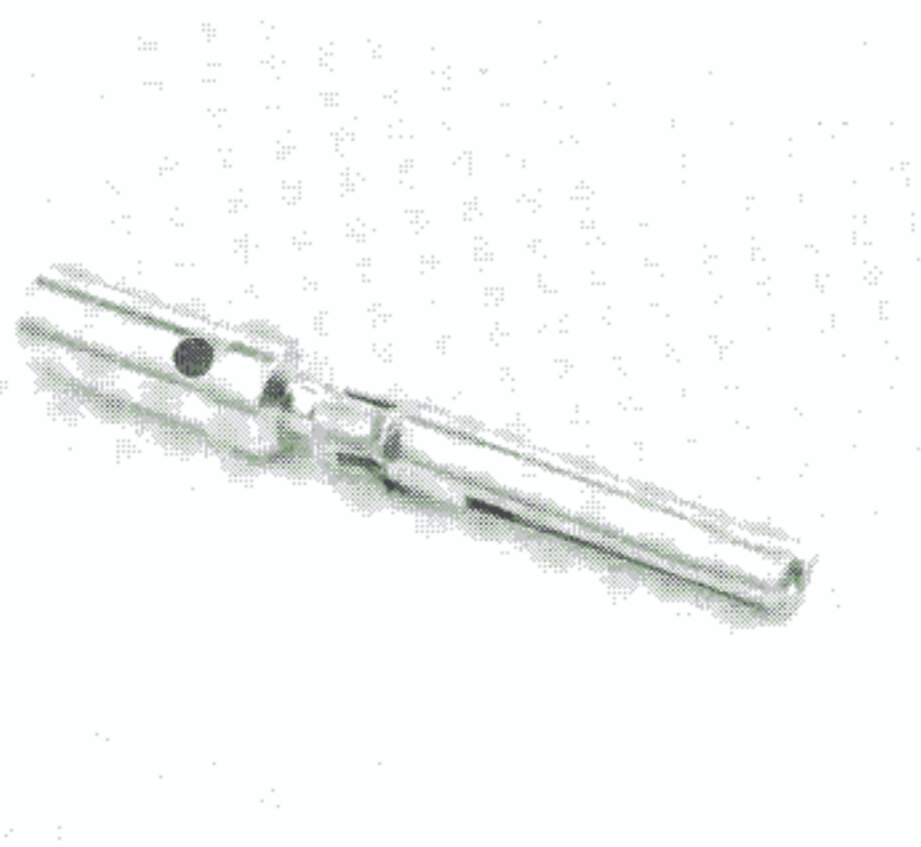
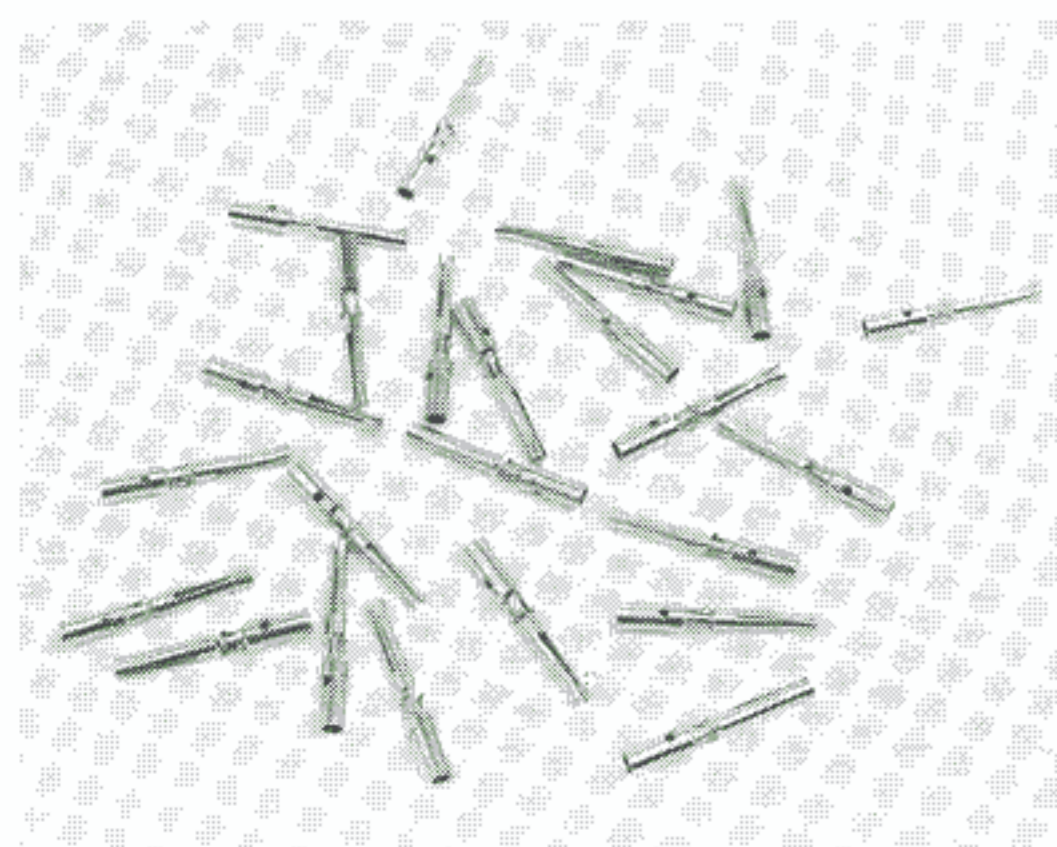
Other switch-guard accessories available are the 800-540 and 820-530 "flip-type" switch guards. These are available for use on the modular aluminum mounting racks (see top of page 12).

**DUMMY UNITS**

Dummy units are available to fill empty mounting rack channels reserved for future use. The part number for the standard black dummy unit is 800-G.



**TIGHTENING TORQUE**  
For sealed and non-sealed rack:  
2-3 in. lbs.



The mounting rack and terminal block assembly is a modular unit that can have any number of desired channels into which the switch-lite or indicator-lite assemblies are inserted for plug-in installation. Maximum square matrix is 12 x 12; maximum rectangular matrix is 5 x 20. Mounted in the panel through a single panel cutout, this assembly provides significant advances in mounting style, wiring, maintainability and building block capability. Complete mounting hardware is supplied with each assembly. And, the customer can purchase the mounting rack in advance of the switch-lite units to expedite the panel installation and inter-wiring of assemblies. These racks are available with moisture-proof and high-shock requirements. This type of rack is available for both Series 800 and 820 units.

## READY TO WIRE WITH CRIMP-TYPE INSERTABLE TERMINALS

Crimp-type, solderless, insertable terminals are used to wire the terminal blocks located at the rear of each channel in the mounting rack. This type of terminal is crimped onto the end of each wire using a M22520/1-01 crimping tool with M22520/1-02 head or a standard MS3191 crimp tool and the MSC locator, that fits in this tool.

Three type of terminals are available that will accomodate AWG stranded wire, sizes #18 thru #28. The terminals are then inserted into the proper holes in the terminal block and held firmly in place by integral locking tabs.

## CHANNEL DIVIDERS FORM BARRIERS TO PREVENT INADVERTENT ACTUATION

Dividers in the mounting rack extend out slightly beyond the face of the mounting rack itself to form a natural barrier between units. To actuate a particular switch-lite, the display face must be depressed below the level of the barrier. If two adjacent units are accidentally depressed simultaneously with one finger, the barrier will prevent actuation.

## POSITIVE MOUNTING TO PANEL; NO SCREW HOLES REQUIRED

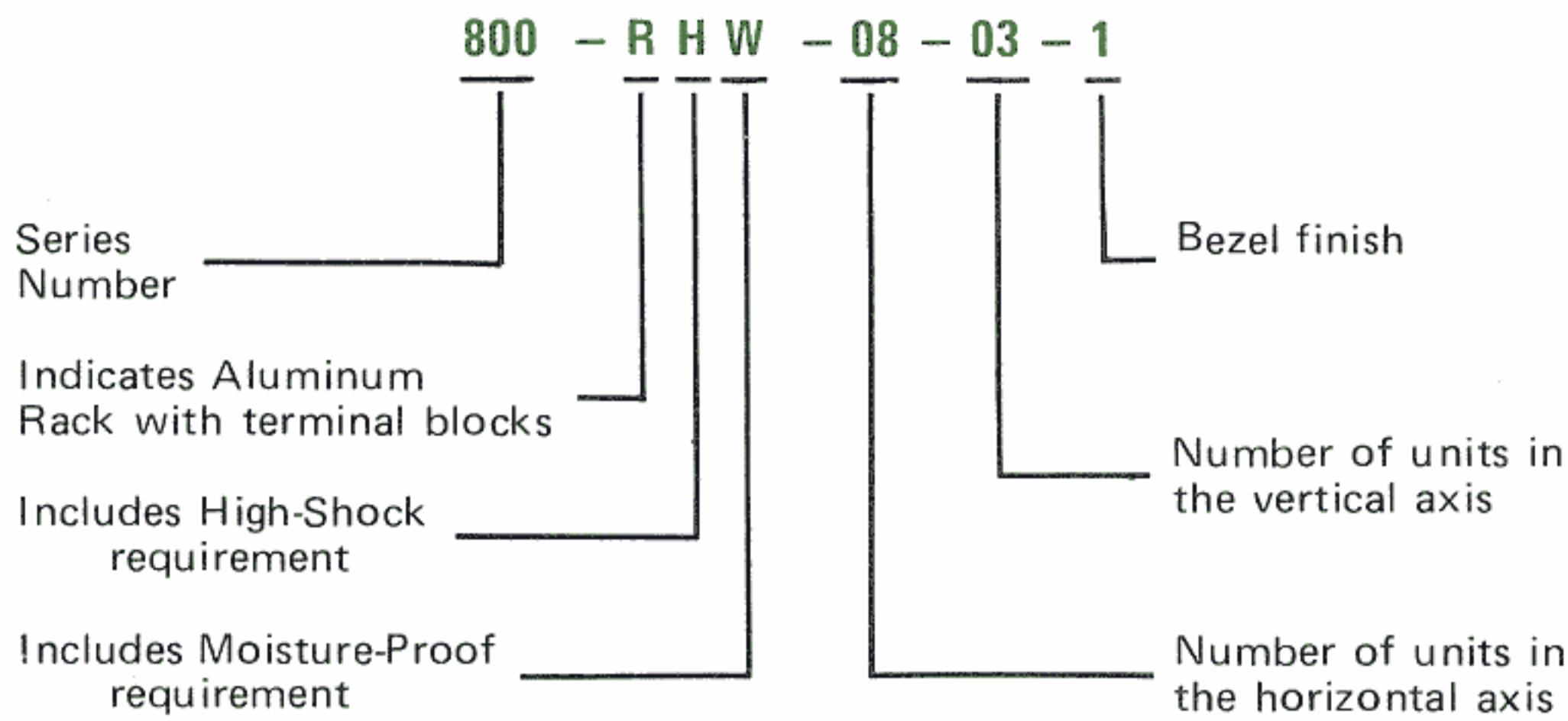
Once the mounting rack has been inserted through the panel cutout from the front, mounting fasteners are slipped into slots on the rack frame and tightened against the back of the panel to secure the entire rack assembly to the panel. This provides a simple, economical installation that leaves no mounting hardware visible from the panel front. As many fasteners may be used on the frame as desired, up to one per channel around the perimeter of the rack, depending on the requirements of the application.

## M22520 CRIMP TOOL OR MS3191

To crimp the terminals onto the end of each wire, either of two types of crimp tools can be ordered. One type of crimp tool is the 800-22520/1-01 with 800-22-520/1-02 turret head. The other is the standard MS 3191 crimp tool, which can be ordered using part number 800-3191. To use the MS3191 crimp tool, you will need a terminal locator. To order the applicable MSC terminal locator, use the following part numbers: 800-3191-L20 for terminals 800-CT20 or 800-CT20-3 and 800-3191-L20-2 for terminals 800-CT20-2.

## CRIMP-TYPE TERMINAL PACKET

Specially fabricated crimp-type terminals, which lock into place in the terminal blocks by us of a unique built-in spring-action, are required and must be ordered separately. They come packaged 25 to a plastic bag. Terminal packets can be shipped prior to the mounting racks to facilitate advance attachment to wires. To order terminal sockets use the applicable part number: 800-CT20 accepts one #20, #22, or #24 gauge wires. 800-CT20-2 accepts one #26 or #28 gauge wire. 800-CT20-3 accepts one #16, one #18, 2 #20 or 2 #22 gauge wires. MSC removal tool—part number 800-P7.



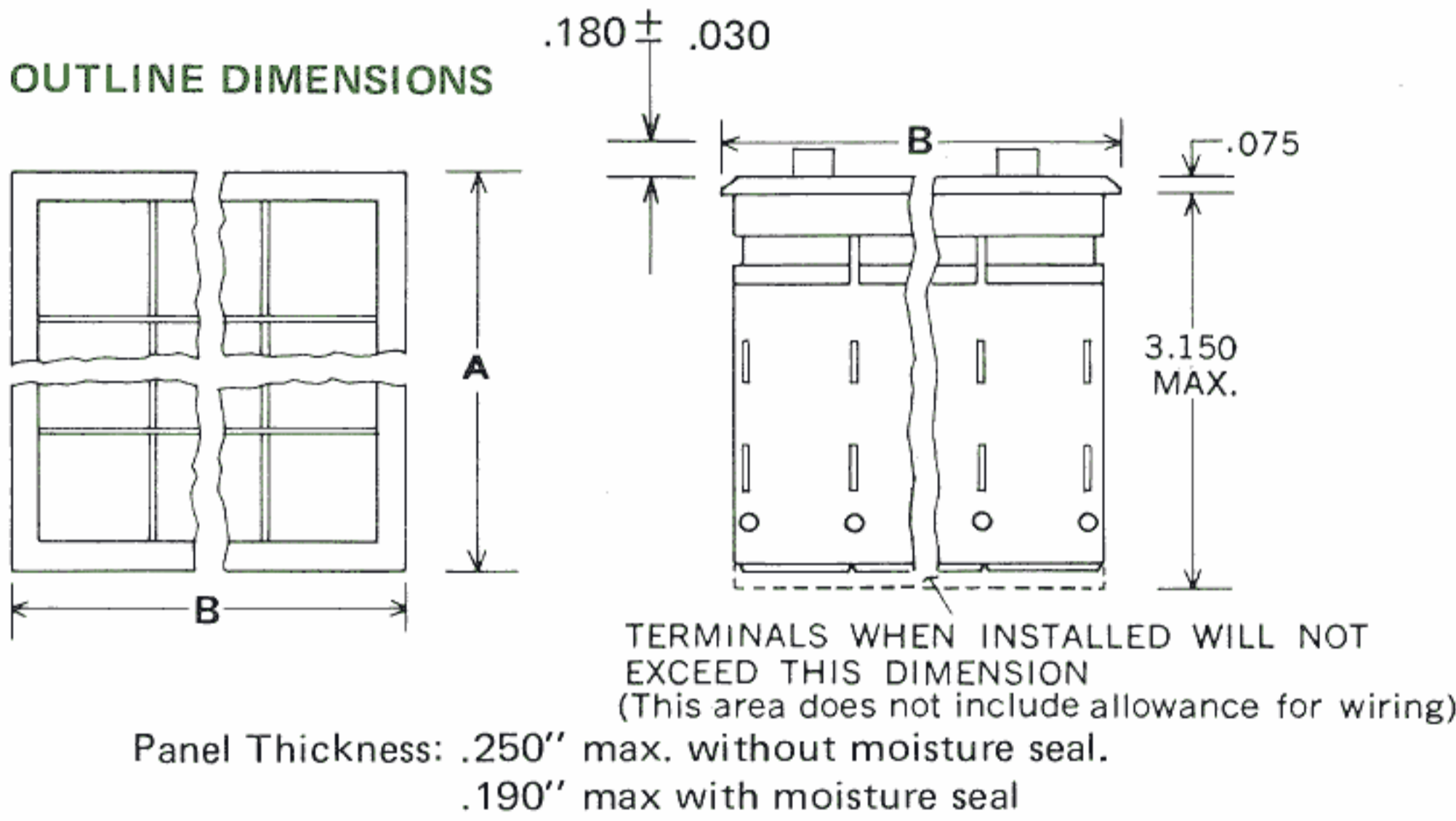
CAUTION

BEFORE INSTALLING UNITS INTO HOUSING, A LIGHT COATING OF DOW CORNING FS 3451 LUBRICANT, OR EQUIVALENT, MUST BE APPLIED TO MOISTURE GASKET AND INTO EACH RACK OR HOUSING OPENING FOR A DISTANCE OF APPROX. 1/2 INCH.

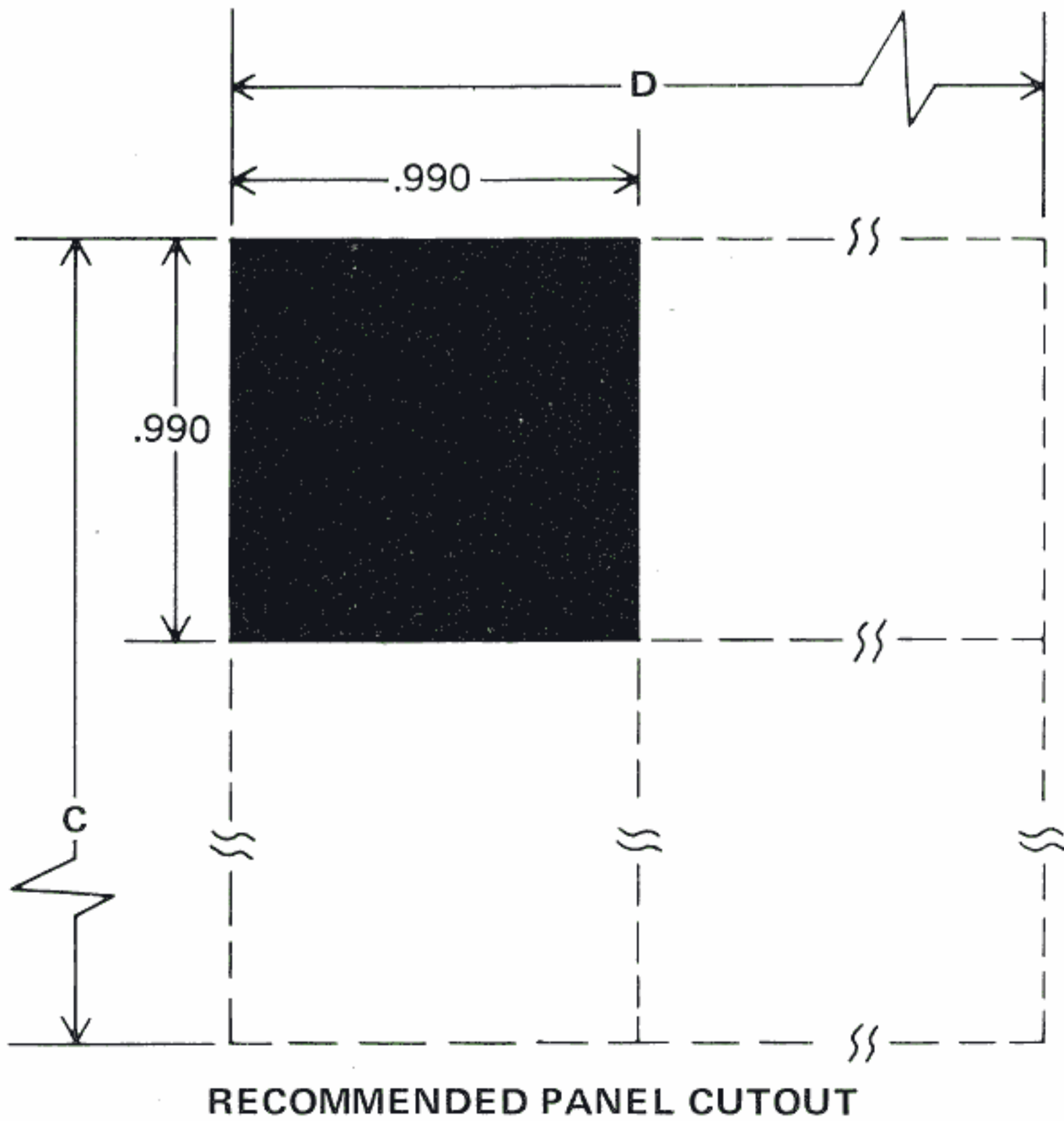
Dash No.	Bezel Finish
-1	Clear Anodized
-2	Gray Anodized
-3	Black Anodized
-4*	Gold Irridite

\*Note: For RFI applications "-4" must be used. Rack is supplied with special RFI gasket.

OUTLINE DIMENSIONS



PANEL CUTOUT DIMENSIONS FOR VARIOUS MOUNTING RACKS



Mounting racks are ordered separately from the switch-lite or indicator-lite units. To order, specify 800-R followed by two digits to identify the number of units in the horizontal axis and then two more digits for the number of units in the vertical axis. Finally a dash number, which gives the bezel finish desired, is added at the end. Special capabilities for high-shock and moisture-proof may be added to the rack by adding the appropriate code designation after the "R" and before the two digits indicating the horizontal number of units. A typical part number is illustrated at the left, including these special capabilities.

HIGH-SHOCK REQUIREMENTS (H)

This type of mounting rack can be modified to meet the special high-shock requirements of MIL-S-22885 C, Method II, Paragraph 4. 8. 13. 2/3. 6. 13. 2; MIL-STD-202D, Method 207A; and MIL-S-901C, Amendment 1, Grade A, deck mounted sub-assembly, Class I, lightweight, Type C. To order racks with this capability, insert the letter "H" after the "R" and before the two digits indicating the horizontal number of units, e.g. 800-RH-08-03-1. Maximum size matrix is 2 x 10 or 10 x 2.

MOISTURE-PROOF (W)

This type of mounting rack can be modified for use with Series 800 or 820 switch-lite or indicator-lite units that meet the special moisture-proof requirements of MIL-S-22885C, Paragraph 4.8.17.2, seal (drip-proof); and MIL-STD-108E, Paragraph 4.3, seal (drip-proof).

To order racks with this capability, insert the letter "W" after the "R" and before the two digits indicating the horizontal number of units, e.g. 800-RW-08-03-1.

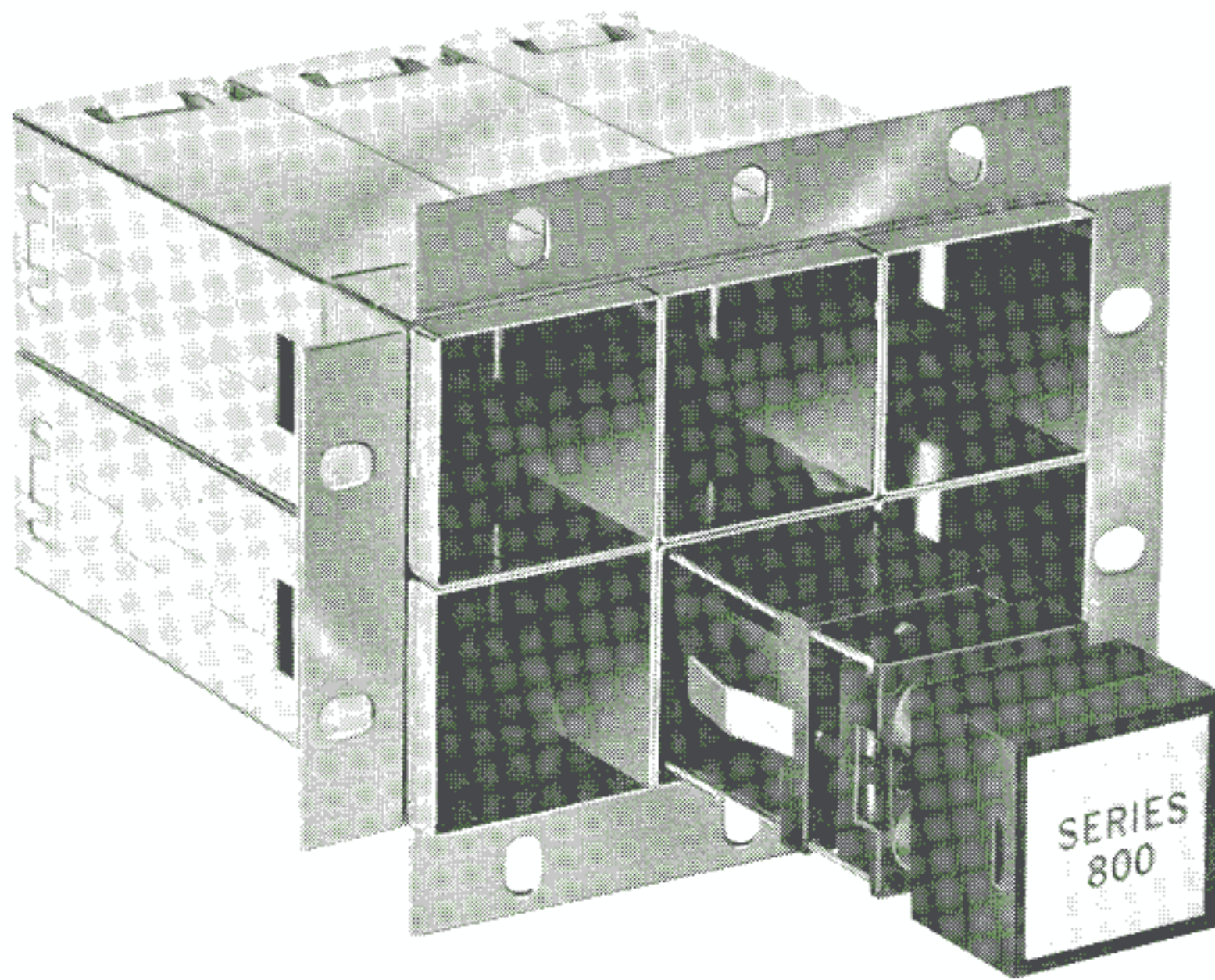
MOUNTING FASTENERS

The recommended number of special mounting fasteners are included with shipment of the rack. If additional fasteners are desired or for replacement, they can be ordered by using the part number 800-H1.

Number of Modules	* Recommended * Minimum No. of Fasteners Per Side				Series 800				Series 820			
	Standard		High-Shock		DIM A +0.015	DIM B +0.015	DIM C +0.020 -0.000	DIM D +0.020 -0.000	DIM A +0.015	DIM B +0.015	DIM C +0.020 -0.000	DIM D +0.020 -0.000
	Series 800	Series 820	Series 800	Series 820								
	1	2	3	4								
1	1	1	1	1	1.150	1.150	.990	.990	1.150	1.410	.990	1.250
2	1	1	2	2	1.950	1.950	1.790	1.790	1.950	2.460	1.790	2.300
3	1	2	3	3	2.750	2.750	2.590	2.590	2.750	3.510	2.590	3.350
4	2	2	4	4	3.550	3.550	3.390	3.390	3.550	4.560	3.390	4.400
5	2	3	5	5	4.350	4.350	4.190	4.190	4.350	5.610	4.190	5.450
6	2	3	6	6	5.150	5.150	4.990	4.990	5.150	6.660	4.990	6.500
7	3	4	7	7	5.950	5.950	5.790	5.790	5.950	7.710	5.790	7.550
8	3	4	8	8	6.750	6.750	6.590	6.590	6.750	8.760	6.590	8.600
9	3	4	9	9	7.550	7.550	7.390	7.390	7.550	9.810	7.390	9.650
10	4	5	10	10	8.350	8.350	8.190	8.190	8.350	10.860	8.190	10.700
11	4	5	11	11	9.150	9.150	8.990	8.990	9.150	11.910	8.990	11.750
12	4	5			9.950	9.950	9.790	9.790	9.950	12.960	9.790	12.800
13	5	5			10.750	10.750	10.590	10.590	10.750	14.010	10.590	13.850
14	5	6			11.550	11.550	11.390	11.390	11.550	15.060	11.390	14.900
15	5	6			12.350	12.350	12.190	12.190	12.350	16.110	12.190	15.950
16	6	6			13.150	13.150	12.990	12.990	13.150	17.160	12.990	17.000
17	6	6			13.950	13.950	13.790	13.790	13.950	18.210	13.790	18.050
18	6	7			14.750	14.750	14.590	14.590	14.750	19.260	14.590	19.100
19	7	7			15.550	15.550	15.390	15.390	15.550	20.310	15.390	20.150
20	7	7			16.350	16.350	16.190	16.190	16.350	21.360	16.190	21.200

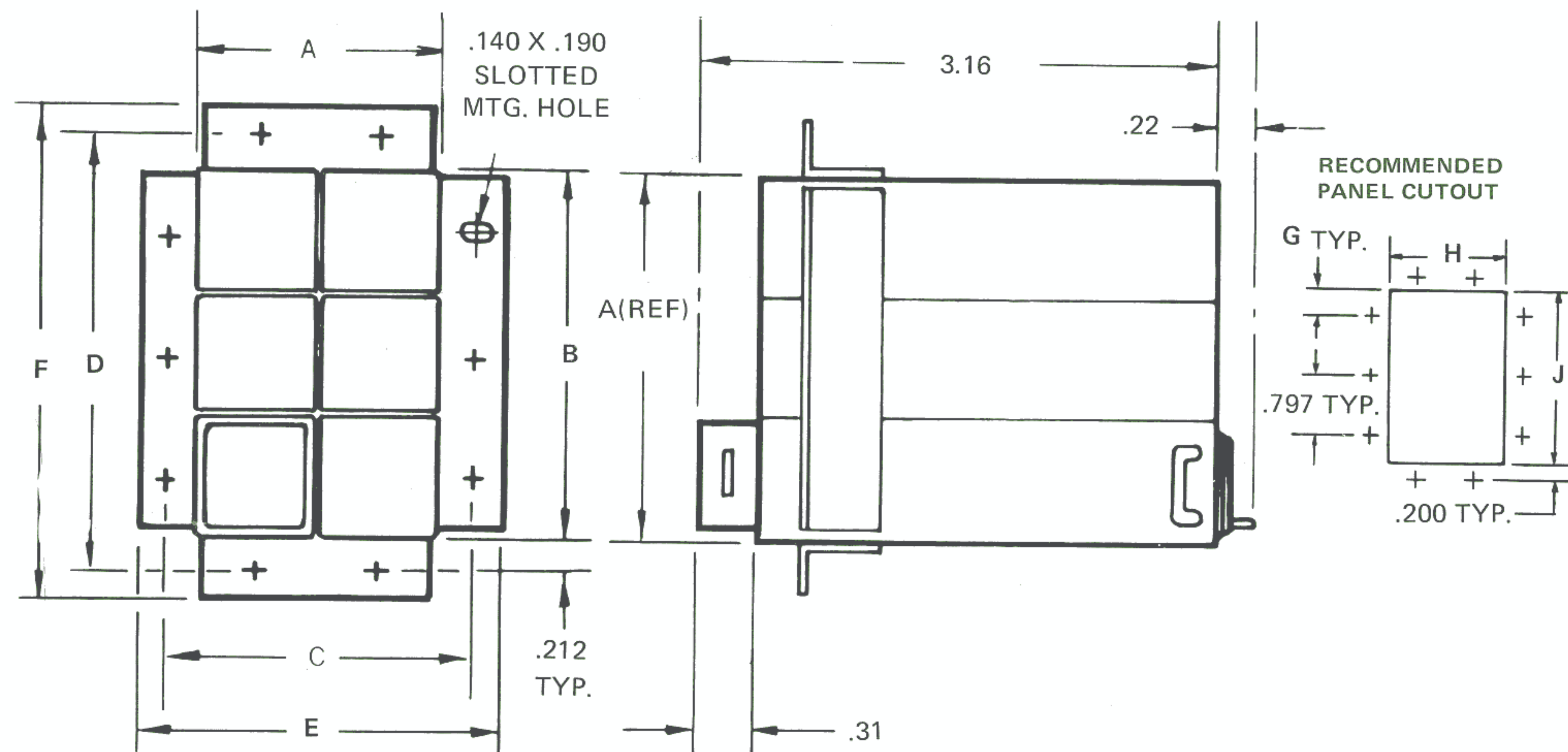
# WELDED MATRIX, STAINLESS-STEEL MOUNTING RACKS

14

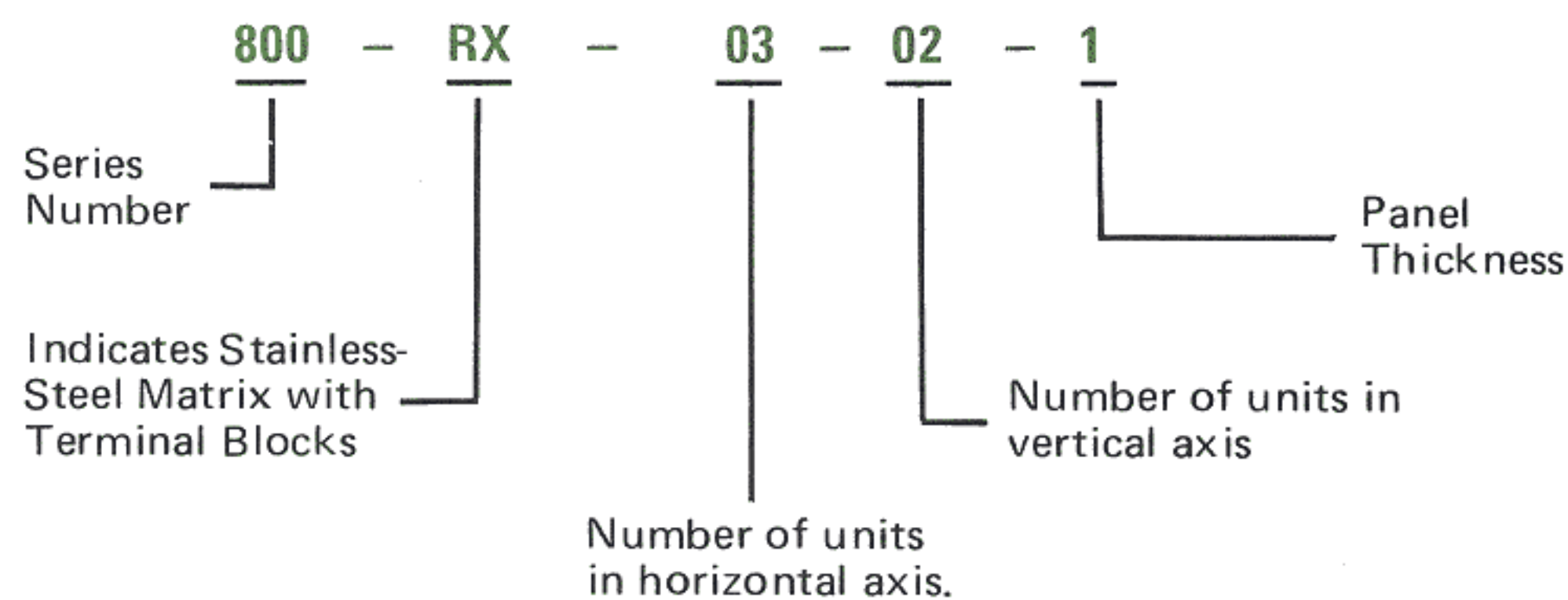


Welded matrix, stainless-steel mounting racks are available for Series 800 units only. These assemblies are available in pre-assembled matrices in sizes up to 6 x 6 modules as standard. Larger modules and/or other matrices can be fabricated to customer specification. Individual unit mountings are also available in either spring-clip retainer or sleeve-mount versions. All types are supplied with integral plug-in terminal blocks at the base of each individual unit channel, ready for quick, easy wiring

## OUTLINE DIMENSIONS



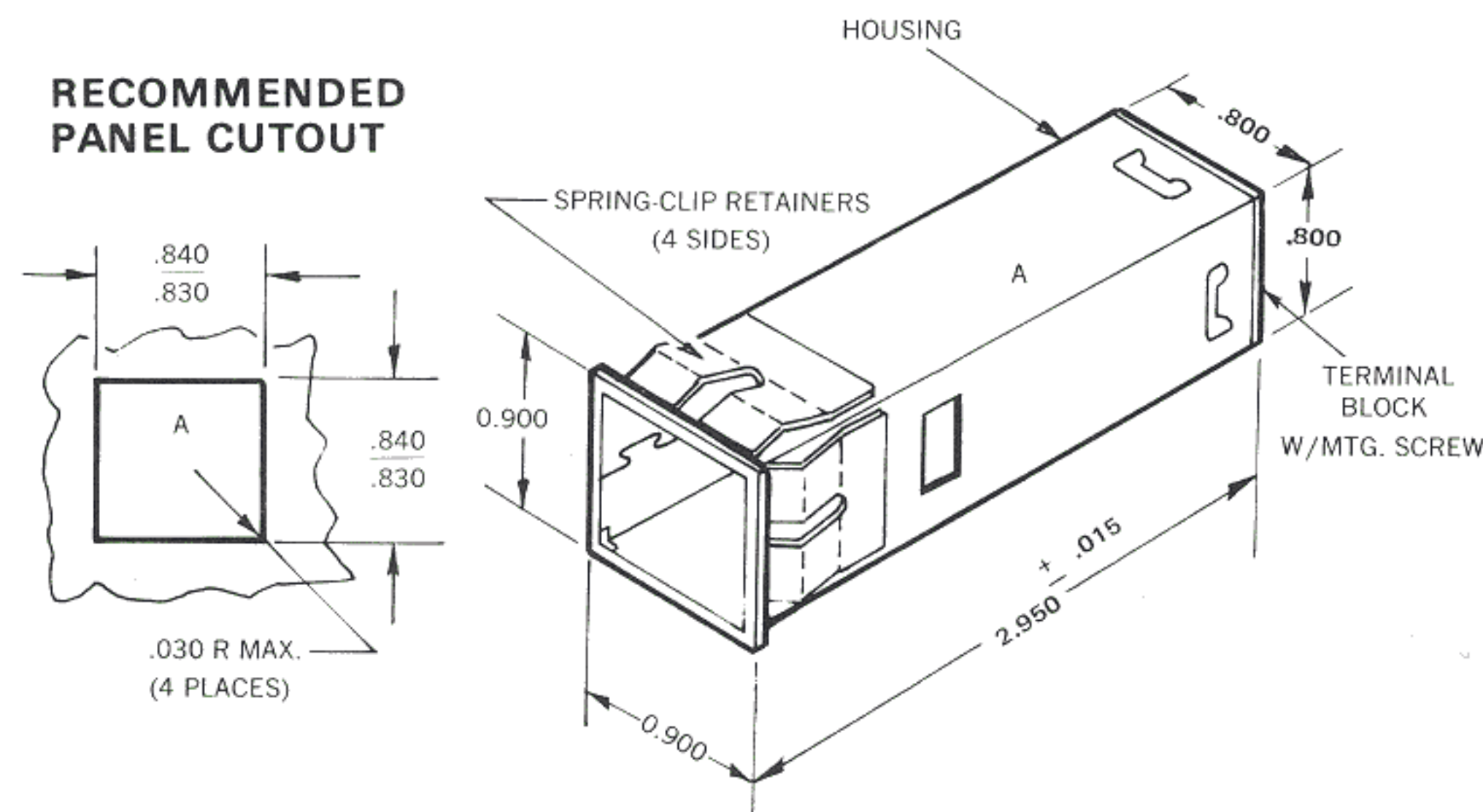
NUMBER OF UNITS ON A SIDE	DIM. A,B MAX.	DIM. E,F MAX.	DIM. C,D	DIM. G ±0.010	DIM. H,J
1	.804	1.580	1.215 – 1.230	.413	.810 – .830
2	1.610	2.385	2.015 – 2.035	.413	1.615 – 1.645
3	2.415	3.190	2.815 – 2.840	.413	2.420 – 2.480
4	3.220	3.995	3.615 – 3.645	.425	3.225 – 3.285
5	4.025	4.795	4.410 – 4.450	.425	4.030 – 4.090
6	4.825	5.600	5.210 – 5.250	.425	4.830 – 4.890



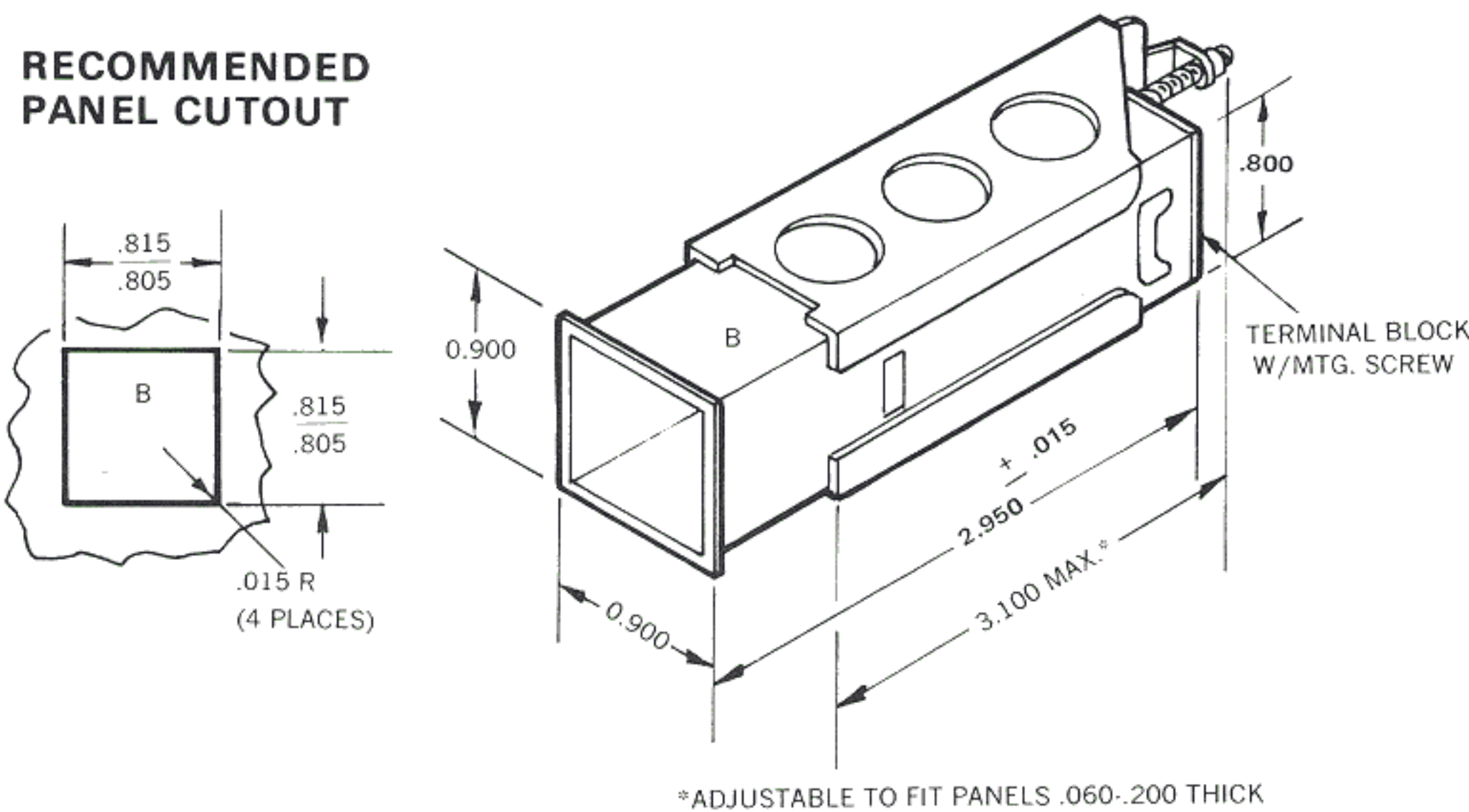
A sample part number for how to order the stainless-steel welded matrix mounting racks described on page 14 is shown on the left.

DASH NO.	PANEL THICKNESS	DASH NO.	PANEL THICKNESS
-1	1/32"	-5	5/32"
-2	1/16"	-6	3/16"
-3	3/32"	-7	7/32"
-4	1/8"	-8	1/4"

RECOMMENDED  
PANEL CUTOUT



RECOMMENDED  
PANEL CUTOUT



INDIVIDUAL UNIT  
STAINLESS-STEEL MOUNTING CANS

SPRING-CLIP-RETENTION TYPE MOUNTING

Features spring clip retainers on all four sides of the stainless steel frame, which can be specified to fit panel thicknesses from 0.100" to 0.250". To properly order this unit, use **800-R1-** followed by a dash number denoting the proper placement of springs for required panel thickness:

- 1 for panel thickness from 0.100 to 0.150
- 2 for panel thickness from 0.150 to 0.200
- 3 for panel thickness from 0.200 to 0.250

SLEEVE-RETENTION TYPE MOUNTING

Fits any panel thickness requirement from 0.060" to 0.200". To mount, first remove sleeve and insert unit into panel cutout from front. Replace the sleeve at the rear of the panel and tighten the integral mounting screw to draw sleeve up against back of panel and secure unit in place. To order, simply use code number **800-R2-1**.

OPTIONAL SLIDE-ON BEZELS

Optional bezels to fit R1 and R2 cans can be specified using the following code:

- 800-506-1 . . . . . Clear Anodized Finish
- 800-506-2 . . . . . Gray Anodized Finish
- 800-506-3 . . . . . Black Anodized Finish

