

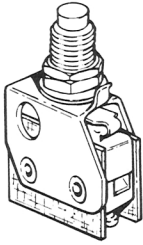
# LA/LB/LJ/LR SERIES MANUALLY OPERATED SWITCHES



**F**

## SECTION F

LB/LJ/LR Series Pushbutton, Roller and Toggle Switches .....	F-2 thru F-4
LA/LJ Series Pushbutton Switches .....	F-5 thru F-7
LB Series Toggle Switches.....	F-8 thru F-12



### SPECIFICATIONS

SWITCH RATING: 10 A, 250 VAC.  
 ELECTRICAL LIFE: 75,000 cycles at 10 A, 250 VAC.  
 MECHANICAL LIFE: 200,000 cycles average.  
 CONTACT RESISTANCE: 25 milliohms max. initial @ 6 VDC, 100 mA.  
 INSULATION RESISTANCE: 1000 megohms min.  
 DIELECTRIC STRENGTH: 1000 VRMS min. @ sea level.  
 OPERATING TEMPERATURE: - 67°F to 185°F (- 55°C to 85°C).

### MATERIALS

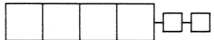
SWITCH HOUSING: Molded heat resistant phenolic.  
 SWITCH ACTUATOR BUTTON: Molded polyester.  
 CONTACT SPRING: Beryllium copper CDA alloy C17200.  
 PIVOT: Brass CDA alloy 260.  
 MOVABLE CONTACT: Fine silver.  
 STATIONARY CONTACT: Fine silver welded on copper base CDA alloy C10200.  
 TERMINALS: Brass CDA alloy C26000.  
 BRACKET: Stainless steel.  
 BUSHING: Stainless steel or plated brass.

**Note:** Specifications and Materials listed above are general specifications for switches with standard options. Specifications available for specific models, consult factory.

### INTRODUCTION:

LB/LJ/LR SERIES MANUALLY OPERATED SWITCHES are bracket-style switches using LM Series 10 AMP basic switches. Pushbutton, plunger, toggle and roller plunger actuators and various terminal styles are available. Other ratings and contact materials are

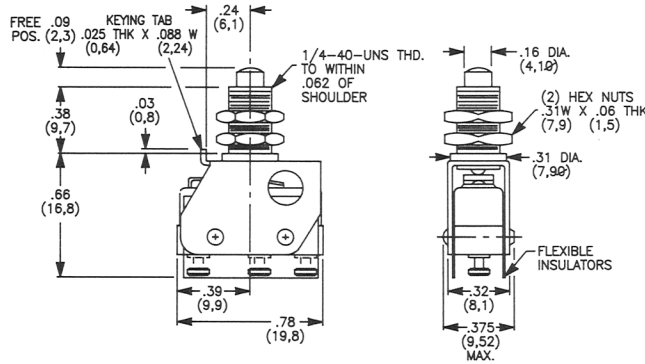
available, see Catalog Section D and consult factory. These switches are ideally suited for panel-mounted applications and are available with or without locating keying tab. Mounting hardware is supplied standard, in bulk.



### 1LJ1 OVERTRAVEL PLUNGER



### MODELS

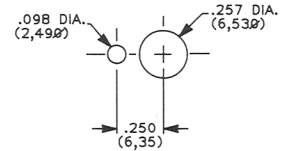


MODEL SHOWN: 1LJ1-1-C

### SWITCH CHARACTERISTICS

OPERATING FORCE (MAX)	oz	12
	grams	340
RELEASE FORCE (MIN)	oz	1
	grams	28
TOTAL TRAVEL	in	.031
	(mm)	(0,79)

### PANEL MOUNTING

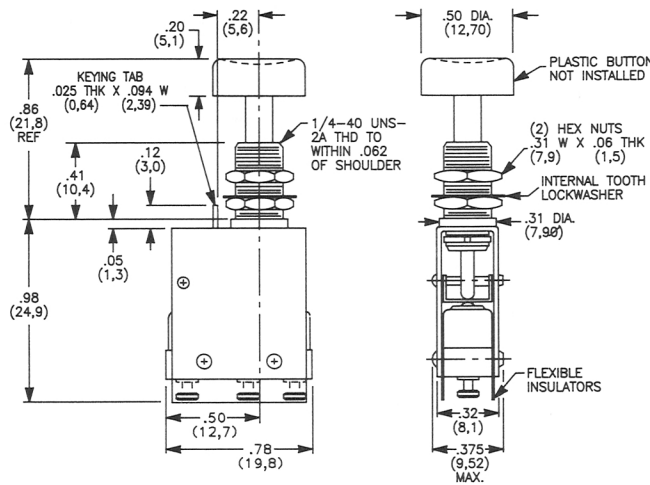
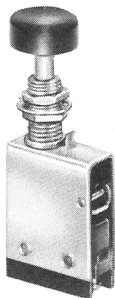


### SPDT - MOMENTARY

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

ACTUATOR MATERIAL:  
Stainless steel plunger.

### 1LJ5 MOMENTARY PUSHBUTTON

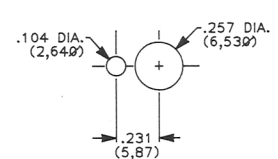


MODEL SHOWN: 1LJ5-1-C

### SWITCH CHARACTERISTICS

OPERATING FORCE (MAX)	oz	3
	grams	85
TOTAL TRAVEL	in	.250
	(mm)	(6,35)

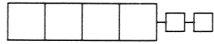
### PANEL MOUNTING



ACTUATOR MATERIAL:  
Brass plunger with thermoplastic button.

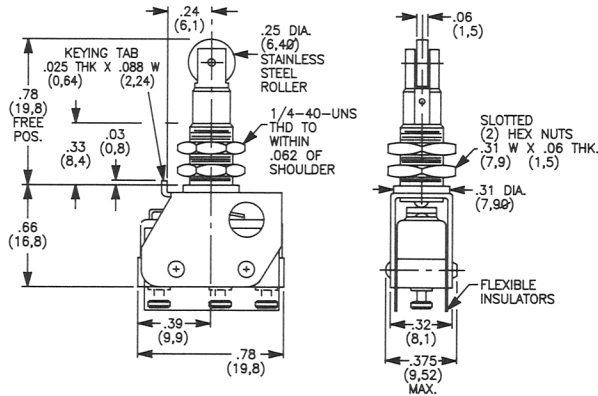
### SPDT - MOMENTARY

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

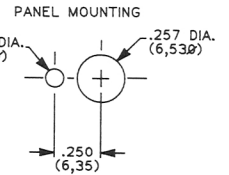


## MODELS (Cont'd.)

### 1LR1 OVERTRAVEL ROLLER PLUNGER



SWITCH CHARACTERISTICS		
OPERATING FORCE (MAX)	oz grams	10 284
RELEASE FORCE (MIN)	oz grams	1 28
DIFFERENTIAL TRAVEL (MAX)	in (mm)	.010 (0,25)
PRETRAVEL (MAX)	in (mm)	.035 (0,89)
OVERTRAVEL (MIN)	in (mm)	.031 (0,79)



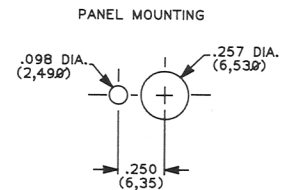
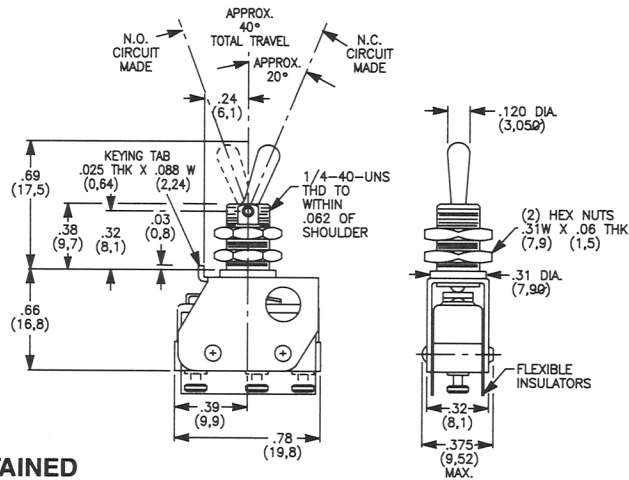
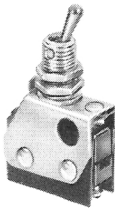
### SPDT - MOMENTARY

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

MODEL SHOWN: 1LR1-1-C

ACTUATOR MATERIAL:  
Stainless steel roller

### 1LB1 MINIATURE TOGGLE



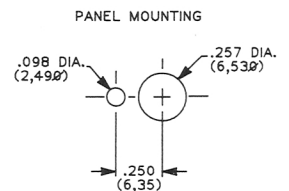
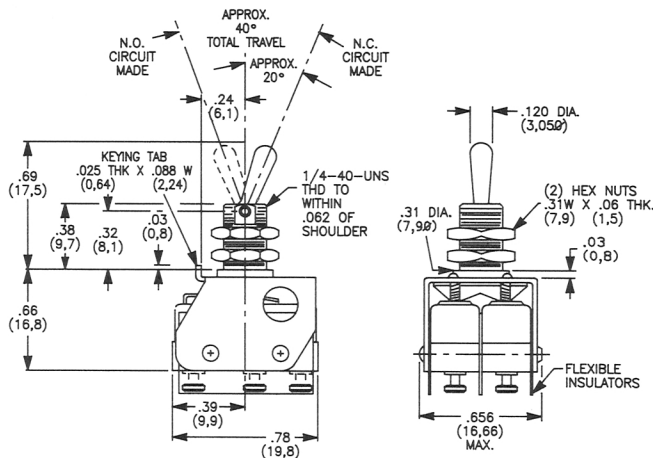
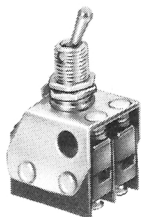
### SPDT - 2 POSITION - MAINTAINED

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

MODEL SHOWN: 1LB1-1-C

ACTUATOR MATERIAL:  
Stainless steel

### 2LB1 MINIATURE TOGGLE

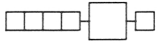


### DPDT - 2 POSITION - MAINTAINED

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

MODEL SHOWN: 2LB1-1-C

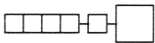
ACTUATOR MATERIAL:  
Stainless steel



**KEYING TABS**

(See model illustrations, pages F-2 and F-3.)

- 1 WITH KEYING TAB
- 2 NO KEYING TAB
- 5 WITH KERFED BUSHING AND KEYING WASHER  
(Available with 1LJ5 model only.)



**TERMINAL STYLES**

- A QUICK CONNECT: .058 DIAMETER
- C SINGLE TURRET: WRAP-AROUND SOLDER
- D DOUBLE TURRET: WRAP-AROUND SOLDER
- E SOLDER: .058 DIAMETER HOLE
- H QUICK CONNECT: .110 x .020


See Page D-7 for terminal style illustrations.

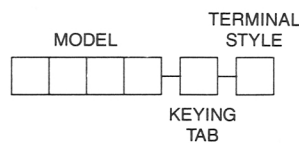
**HOW TO ORDER**

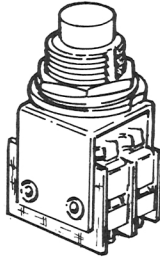
Complete the order number below by selecting the desired model, keying tab and terminal style. Place the option codes in the appropriate boxes of the ordering format. All boxes must be filled.

Example:     -  -  specifies an overtravel plunger switch with keying tab and quick connect terminal style.

Special ratings, actuators and terminal styles are available,  
Consult factory.

 See agency approvals, page III.





### SPECIFICATIONS

SWITCH RATING: 10 A, 250 VAC.  
 ELECTRICAL LIFE: 75,000 cycles at 10 A, 250 VAC.  
 MECHANICAL LIFE: 200,000 cycles average.  
 CONTACT RESISTANCE: 25 milliohms max. initial @ 6 VDC, 100 mA.  
 INSULATION RESISTANCE: 1000 megohms min.  
 DIELECTRIC STRENGTH: 1000 VRMS min. @ sea level.  
 OPERATING TEMPERATURE: -67°F to 185°F (-55°C to 85°C).

### MATERIALS

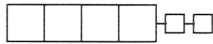
SWITCH HOUSING: Molded heat resistant phenolic.  
 SWITCH ACTUATOR BUTTON: Molded polyester.  
 CONTACT SPRING: Beryllium copper CDA alloy C17200.  
 PIVOT: Brass CDA alloy 260.  
 MOVABLE CONTACT: Fine silver.  
 STATIONARY CONTACT: Fine silver welded on copper base CDA alloy C10200.  
 TERMINALS: Brass CDA alloy C26000.  
 BRACKET: Stainless steel.  
 BUSHING: Stainless steel or plated brass.

**Note:** Specifications and Materials listed above are general specifications for switches with standard options. Specifications available for specific models, consult factory.

### INTRODUCTION

LA/LJ SERIES MANUALLY OPERATED SWITCHES are bracket-style switches using LM Series 10 AMP basic switches. Pushbutton actuators, various terminal styles and alternate action and momentary switching functions are available. Other ratings and contact

materials are available, see Catalog Section D and consult factory. These switches are ideally suited for panel-mounted applications, and mounting hardware is supplied standard, in bulk.



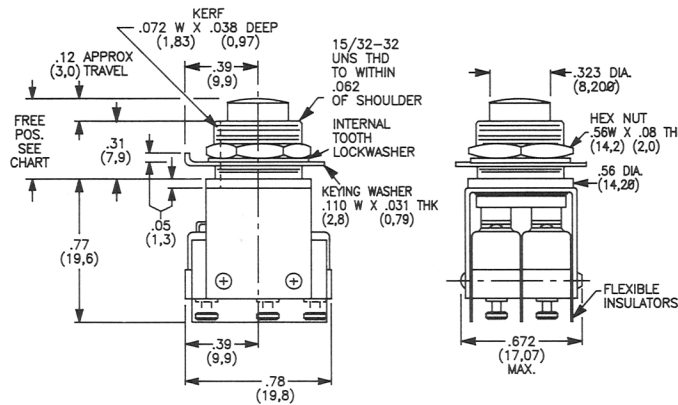
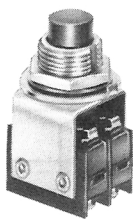
### MODELS

**2LJ3** PLASTIC MOMENTARY PUSHBUTTON

**2LJ4** ANODIZED ALUMINUM MOMENTARY PUSHBUTTON

### SWITCH CHARACTERISTICS

	2LJ3	2LJ4
OPERATING FORCE (MAX)	1.5 lbs 0.7 kg	
FREE POSITION APPROX.	.47 in (11.9 mm)	.55 in (14.0 mm)
PRETRAVEL (MIN)		.005 in (0.13 mm)
OVERTRAVEL (MIN)	.06 in (1.5 mm)	.19 in (4.8 mm)

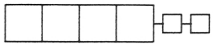


MODEL SHOWN: 2LJ3-1-C

**DPDT - MOMENTARY**

ACTUATOR MATERIAL: Phenolic plunger, 2LJ3 model.  
 Anodized aluminum plunger, 2LJ4 model.

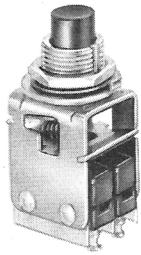
DIMENSIONS SHOWN ARE FOR REFERENCE ONLY



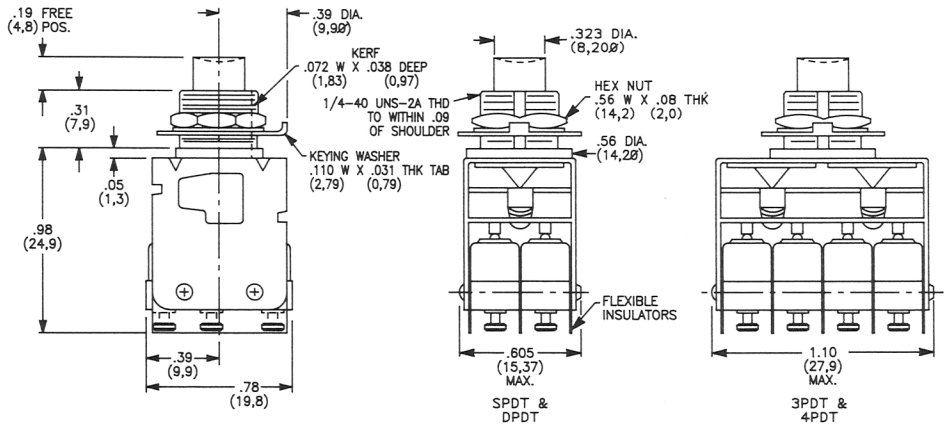
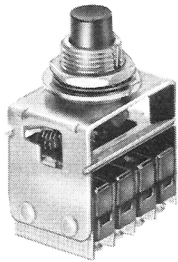
## MODELS (Cont'd.)

### PLASTIC MOMENTARY PUSHBUTTON

- 1LJ6 - SPDT    3LJ6 - 3PDT
- 2LJ6 - DPDT    4LJ6 - 4PDT



### SPDT AND DPDT - MOMENTARY

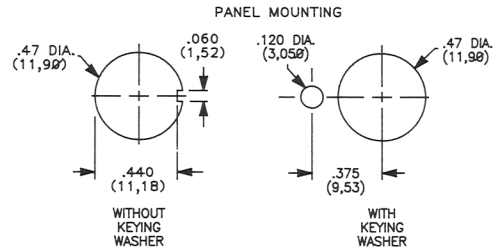


MODELS SHOWN: 2LJ6-1-C (DPDT)  
4LJ6-1-C (4PDT)

ACTUATOR MATERIAL: Phenolic plunger.

#### SWITCH CHARACTERISTICS

NO. OF POLES	1	2	3	4
OPERATING FORCE (MAX)	30 oz 850 grams	35 oz 995 grams		

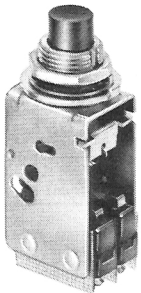


### 3PDT AND 4PDT - MOMENTARY

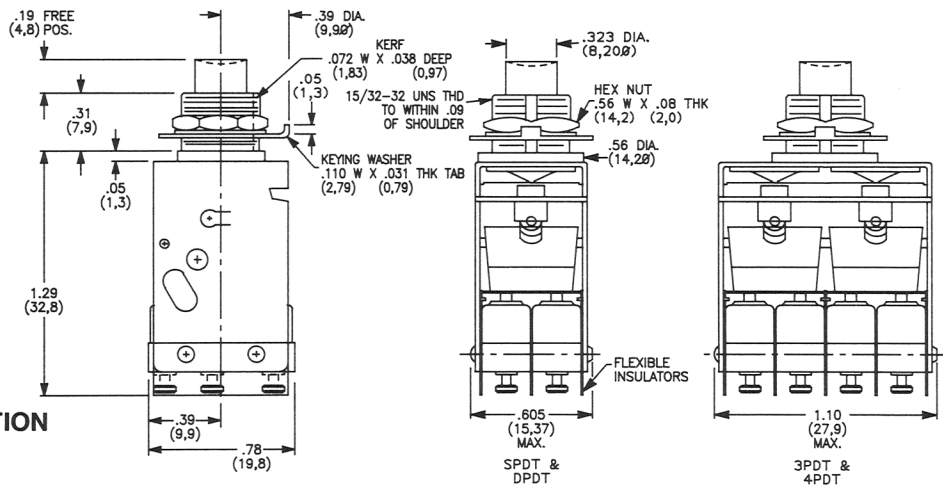
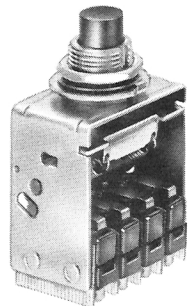
DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

### PLASTIC ALTERNATE ACTION PUSHBUTTON

- 1LA6 - SPDT    3LA6 - 3PDT
- 2LA6 - DPDT    4LA6 - 4PDT



### SPDT AND DPDT - ALTERNATE ACTION

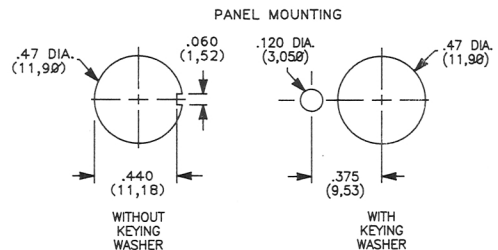


MODELS SHOWN: 2LA6-1-C (DPDT)  
4LA6-1-C (4PDT)

ACTUATOR MATERIAL: Phenolic plunger.

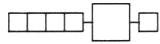
#### SWITCH CHARACTERISTICS

NO. OF POLES	1	2	3	4
OPERATING FORCE (MAX)	5.5 lbs 2.49 kg	6.5 lbs 2.95 kg		



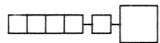
### 3PDT AND 4PDT - ALTERNATE ACTION

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY


**PUSHBUTTON COLORS**

- |   |  |
|---|--|
| 1 | Black  |
| 2 | Red  |
| 3 | Green (Available with XLJ6 and XLA6 models only) |

Other colors available, consult factory.


**TERMINAL STYLES**

- |   |                                   |
|---|-----------------------------------|
| A | QUICK CONNECT: .058 DIAMETER      |
| C | SINGLE TURRET: WRAP-AROUND SOLDER |
| D | DOUBLE TURRET: WRAP-AROUND SOLDER |
| E | SOLDER: .058 DIAMETER HOLE        |
| H | QUICK CONNECT: .110 × .020        |



See Page D-7 for terminal style illustrations.

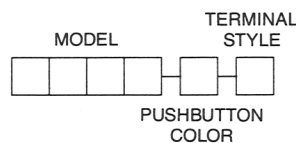
**HOW TO ORDER**

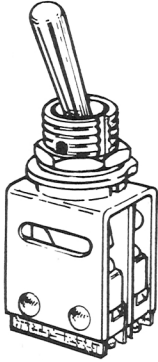
Complete the order number below by selecting the desired model, pushbutton color and terminal style. Place the option codes in the appropriate boxes of the ordering format. All boxes must be filled.

Example: 2LA61A specifies a plastic alternate action pushbutton switch with black pushbutton color and quick connect terminal style.

Special ratings, actuators and terminal styles are available, consult factory.

  See agency approvals, page III.





### SPECIFICATIONS

SWITCH RATING: 10 A, 250 VAC.  
 ELECTRICAL LIFE: 75,000 cycles at 10 A, 250 VAC.  
 MECHANICAL LIFE: 200,000 cycles average.  
 CONTACT RESISTANCE: 25 milliohms max. initial @ 6 VDC, 100 mA.  
 INSULATION RESISTANCE: 1000 megohms min.  
 DIELECTRIC STRENGTH: 1000 VRMS min. @ sea level.  
 OPERATING TEMPERATURE: -67°F to 185°F (-55°C to 85°C).

### MATERIALS

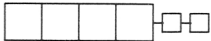
SWITCH HOUSING: Molded heat resistant phenolic.  
 SWITCH ACTUATOR BUTTON: Molded polyester.  
 CONTACT SPRING: Beryllium copper CDA alloy C17200.  
 PIVOT: Brass CDA alloy 260.  
 MOVABLE CONTACT: Fine silver.  
 STATIONARY CONTACT: Fine silver welded on copper base CDA alloy C10200.  
 TERMINALS: Brass CDA alloy C26000.  
 BRACKET: Stainless steel.  
 BUSHING: Stainless steel or plated brass.

**Note:** Specifications and Materials listed above are general specifications for switches with standard options. Specifications available for specific models, consult factory.

### INTRODUCTION

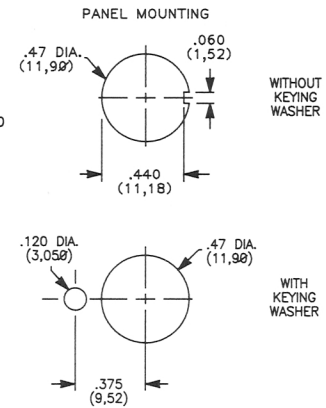
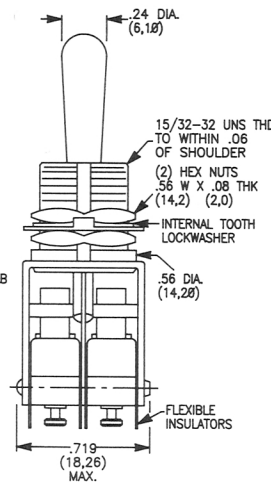
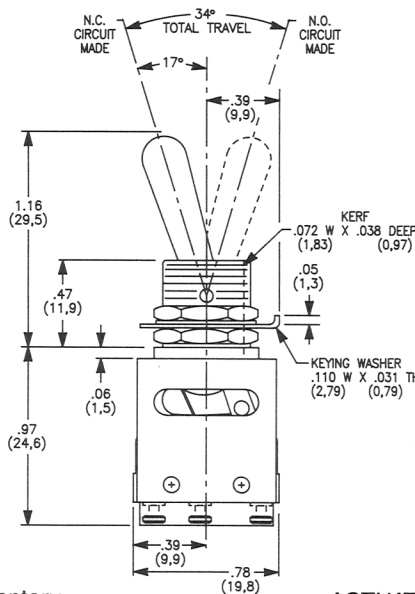
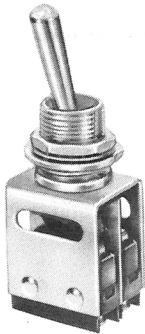
LB SERIES MANUALLY OPERATED SWITCHES are bracket-style switches using LM Series 10 AMP basic switches. Toggle actuators and various terminal styles are available. Other ratings and contact materials

are available, see Catalog Section D and consult factory. These switches are ideally suited for panel-mounted applications, and mounting hardware is supplied standard, in bulk.



### MODELS

#### 2LB3 TOGGLE



ACTUATOR MATERIAL: Stainless steel

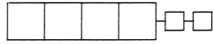
#### DPDT—2 POSITION

Maintained and maintained-momentary switching functions available, see SWITCHING FUNCTIONS, page F-12.

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

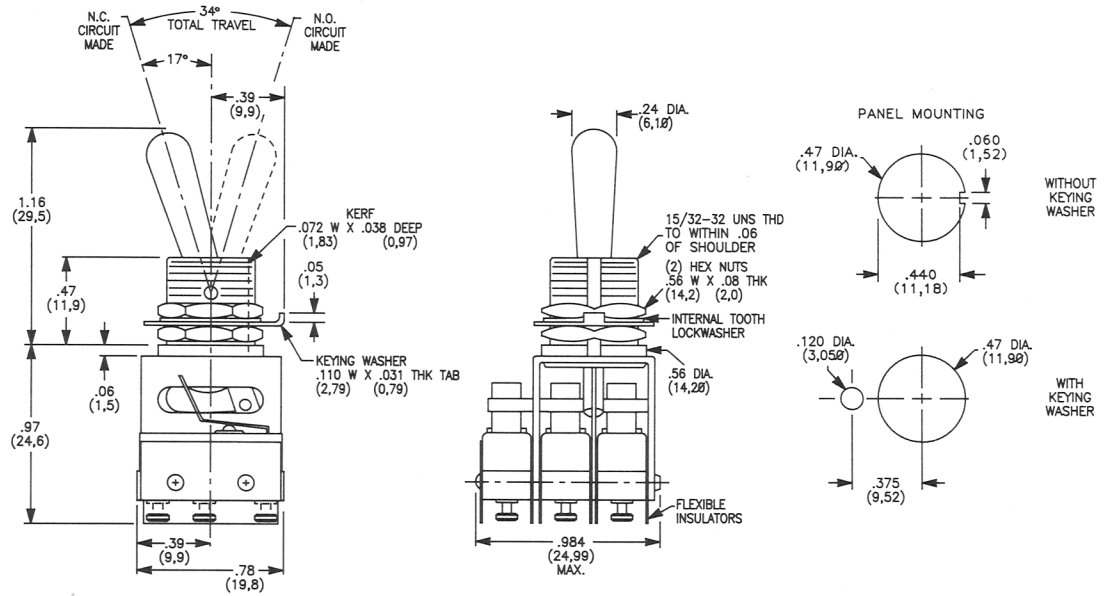
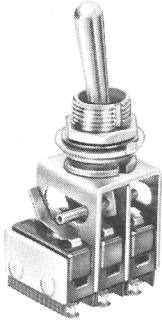
MODEL SHOWN: 2LB3-1-C





MODELS (Cont'd.)

3LB3 TOGGLE



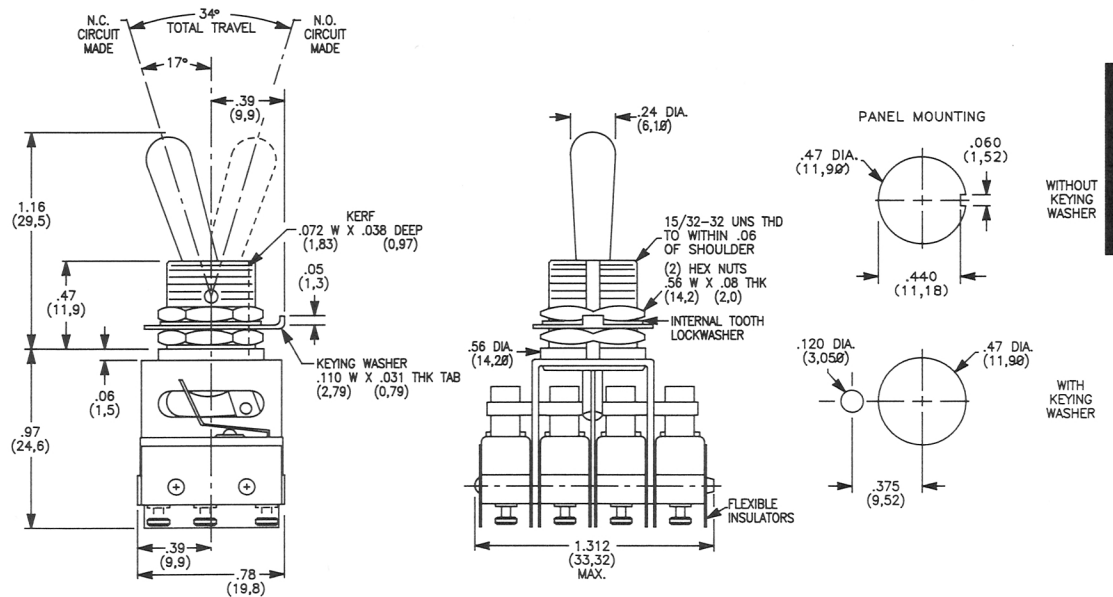
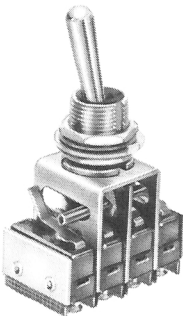
ACTUATOR MATERIAL: Stainless steel.

3PDT — 2 POSITION

MODEL SHOWN: 3LB3-1-C

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

4LB3 TOGGLE

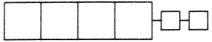


ACTUATOR MATERIAL: Stainless steel.

4PDT — 2 POSITION

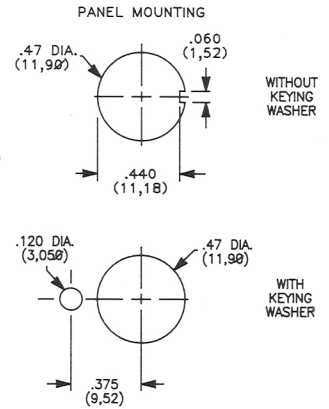
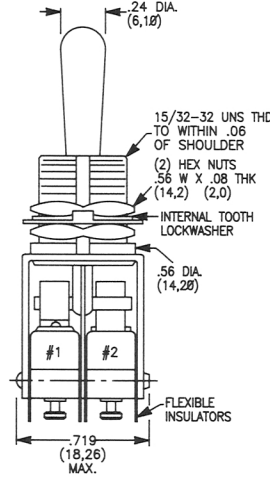
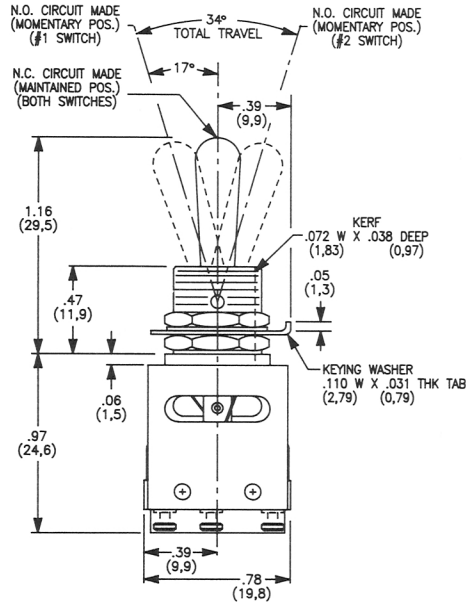
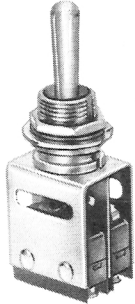
MODEL SHOWN: 4LB3-1-C

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY



MODELS (Cont'd.)

2LB4 THREE-POSITION TOGGLE

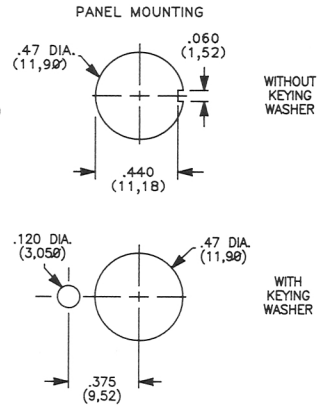
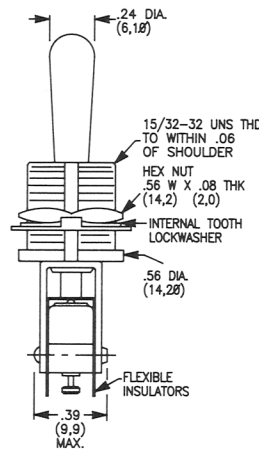
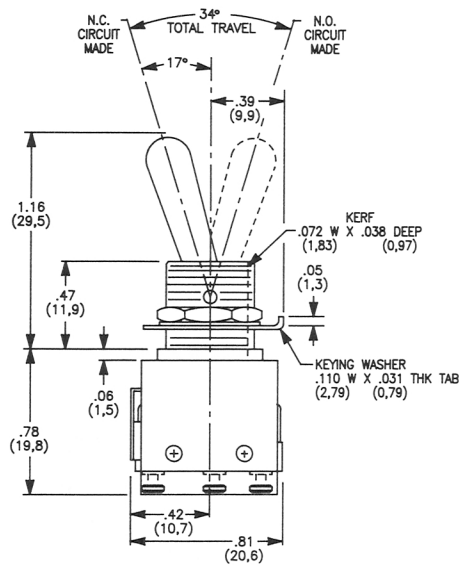
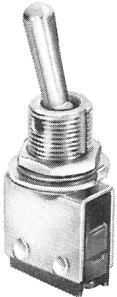


ACTUATOR MATERIAL: Stainless steel.

MODEL SHOWN: 2LB4-1-C

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

1LB5 TOGGLE

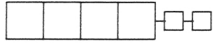


ACTUATOR MATERIAL: Stainless steel.

MODEL SHOWN: 1LB5-1-C

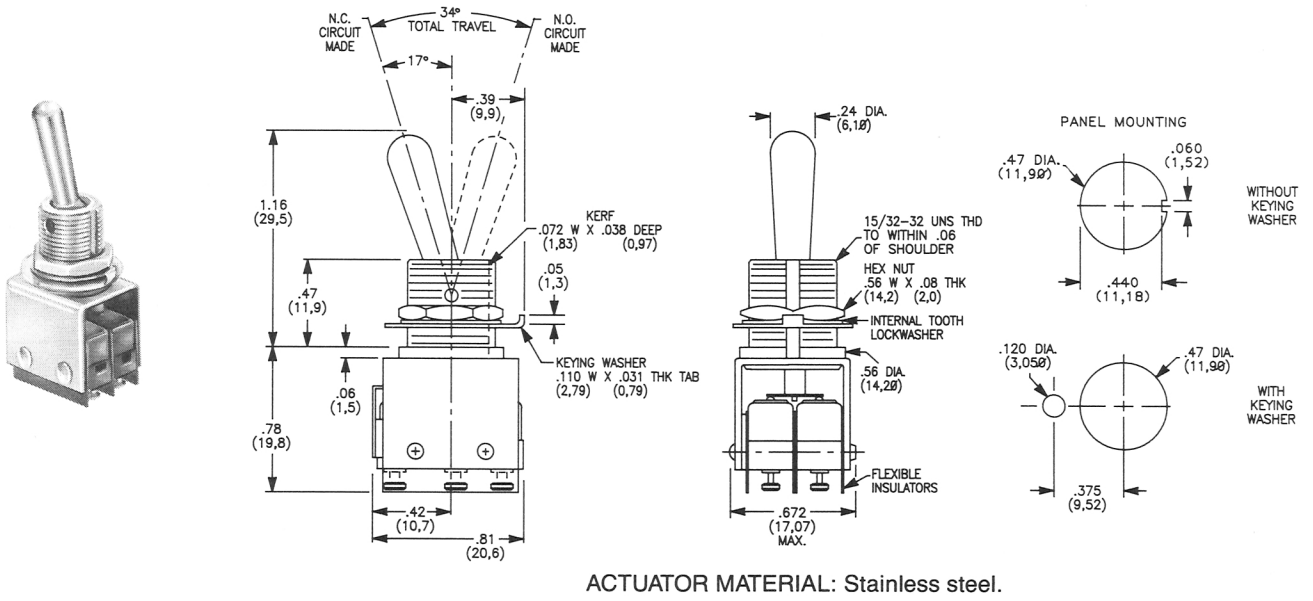
SPDT — 2 POSITION — MAINTAINED

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY



**2LB5 TOGGLE**

## MODELS (Cont'd.)

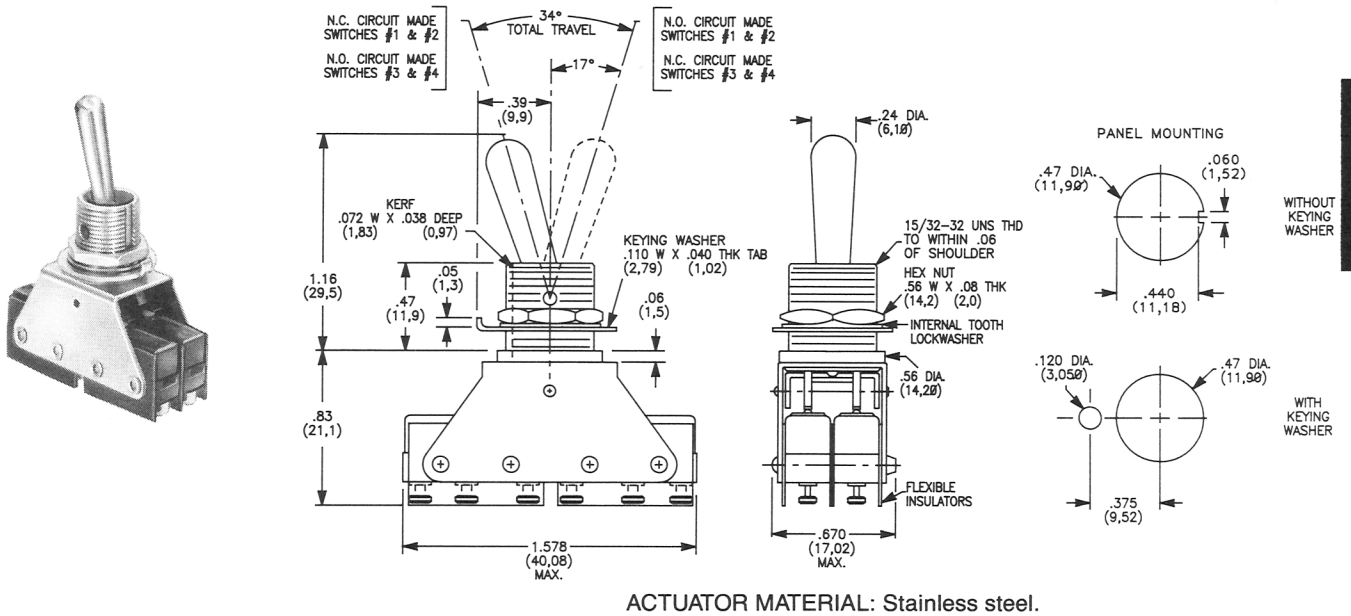


**DPDT — 2 POSITION — MAINTAINED**

MODEL SHOWN: 2LB5-1-C

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY

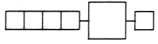
**4LB6 TOGGLE**



**4PDT — 2 POSITION — MAINTAINED**

MODEL SHOWN: 4LB6-1-C

DIMENSIONS SHOWN ARE FOR REFERENCE ONLY



**SWITCHING FUNCTIONS**

**FOR 2LB3, 3LB3, 4LB3 MODELS**

- 1 Two position, maintained in each position.
- 2 Two position, maintained in normally closed position, momentary in normally opened position.

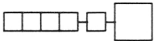
**FOR 1LB5, 2LB5, 4LB6 MODELS**

- 1 Two position, maintained in each position.

**FOR 2LB4 MODELS**

- 1 Three position — momentary — maintained — momentary (see chart).
- 2 Three position — maintained in all positions (see chart).
- 3 Three position — maintained — maintained — momentary (see chart).

SWITCHING FUNCTION	HANDLE POSITION	TOGGLE ACTION	SWITCH #1	SWITCH #2
1	TOWARD SLOT NEUTRAL AWAY FROM SLOT	MOMENTARY MAINTAINED MOMENTARY	NOT OPERATED NOT OPERATED OPERATED	OPERATED NOT OPERATED NOT OPERATED
2	TOWARD SLOT NEUTRAL AWAY FROM SLOT	MAINTAINED MAINTAINED MAINTAINED	NOT OPERATED NOT OPERATED OPERATED	OPERATED NOT OPERATED NOT OPERATED
3	TOWARD SLOT NEUTRAL AWAY FROM SLOT	MAINTAINED MAINTAINED MOMENTARY	NOT OPERATED NOT OPERATED OPERATED	OPERATED NOT OPERATED NOT OPERATED



**TERMINAL STYLES**

- A** QUICK CONNECT: .058 DIAMETER
- C** SINGLE TURRET: WRAP-AROUND SOLDER
- D** DOUBLE TURRET: WRAP-AROUND SOLDER
- E** SOLDER: .058 DIAMETER HOLE
- H** QUICK CONNECT: .110 x .020


See Page D-7 for terminal style illustrations.

**HOW TO ORDER**

Complete the order number below by selecting the desired model, switching function and terminal style. Place the option codes in the appropriate boxes of the ordering format. All boxes must be filled.

Example:     -  -  specifies a toggle switch with 4PDT, 2-position, maintained switching function and quick connect terminal style.

Special ratings, actuators and terminal styles are available, consult factory.

 See agency approvals, page III.

