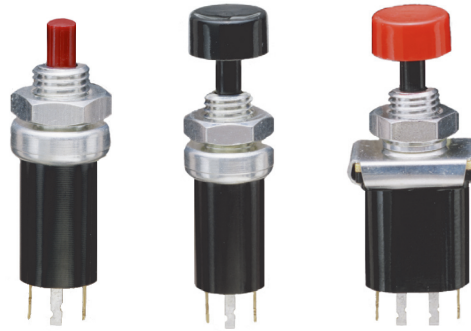


## SERIES 46 SPST and DPDT, 1/4 Amp

### FEATURES

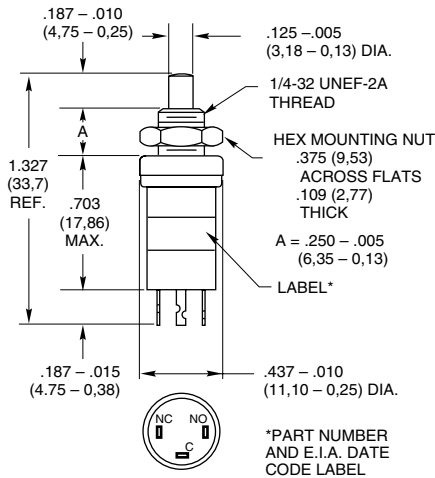
- Long Wipe Contact Assures High Reliability
- 250,000 Cycles of Operation



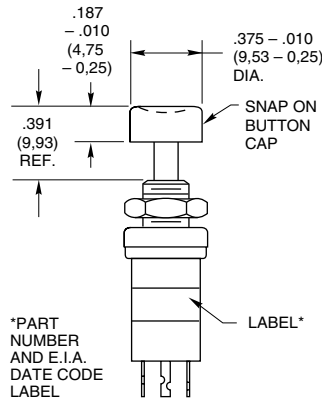
### DIMENSIONS in inches (and millimeters)

#### Single Pole/Double Throw

46-101\* (BBM)  
46-110\* (MBB)

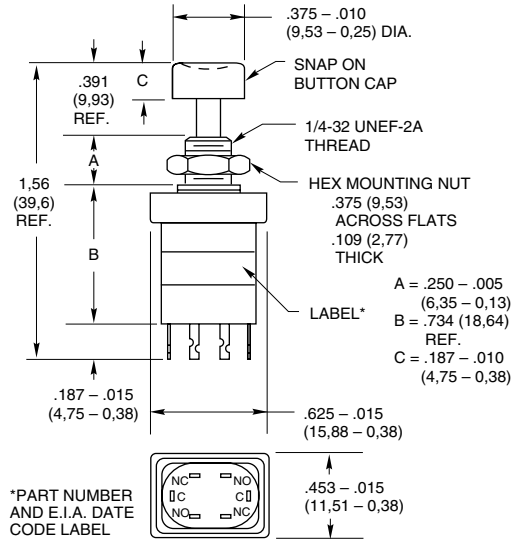


46-102\* (BBM)  
46-111\* (MBB)



#### Double Pole/Double Throw

46-200\* (BBM)  
46-201\* (MBB)



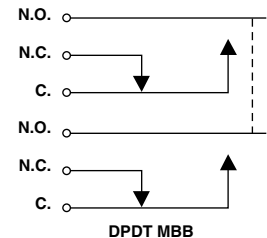
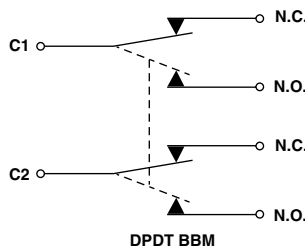
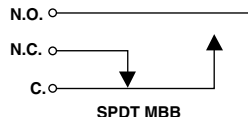
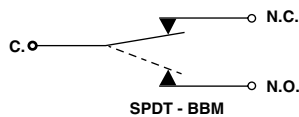
Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Button or Cap Color
1/4 Amp	1/8 Amp	250,000	46-101 RED	Red
			46-101 BLK	Black
			46-102 RED	Red
			46-102 BLK	Black
			46-110 RED	Red
			46-110 BLK	Black
46-111 RED	Red			
46-111 BLK	Black			

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	17 ± 5	17/64" (6,75)

Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	250,000	46-200 RED	Red
			46-200 BLK	Black
			46-201 RED	Red
			46-201 BLK	Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	35 ± 9	17/64" (6,75)

### CIRCUITRY



**SERIES 46**  
SPST and DPDT, 1/4 Amp

**FEATURES**

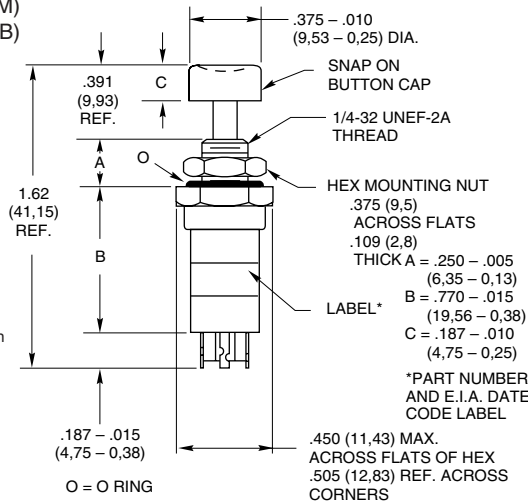
- Bushing and Button Seal
- Environmentally Sealed



**DIMENSIONS** in inches (and millimeters)

**Sealed Bushing and Button Single Pole/Double Throw**

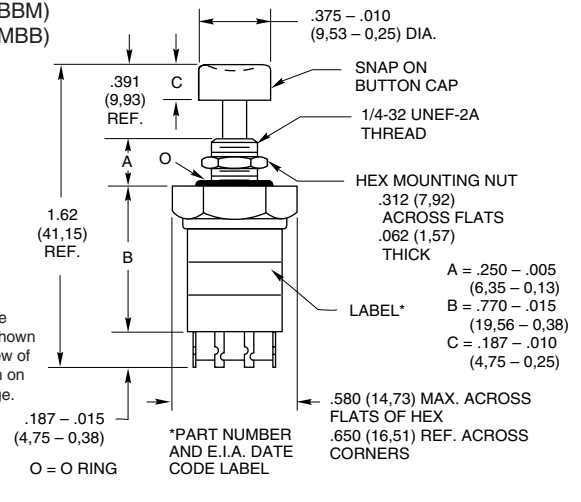
46-150\* (BBM)  
46-151\* (MBB)



Terminals are marked as shown in bottom view of SPDT switch on previous page.

**Sealed Bushing and Button Double Pole/Double Throw**

46-270\* (BBM)  
46-271\* (MBB)



Terminals are marked as shown in bottom view of DPDT switch on previous page.

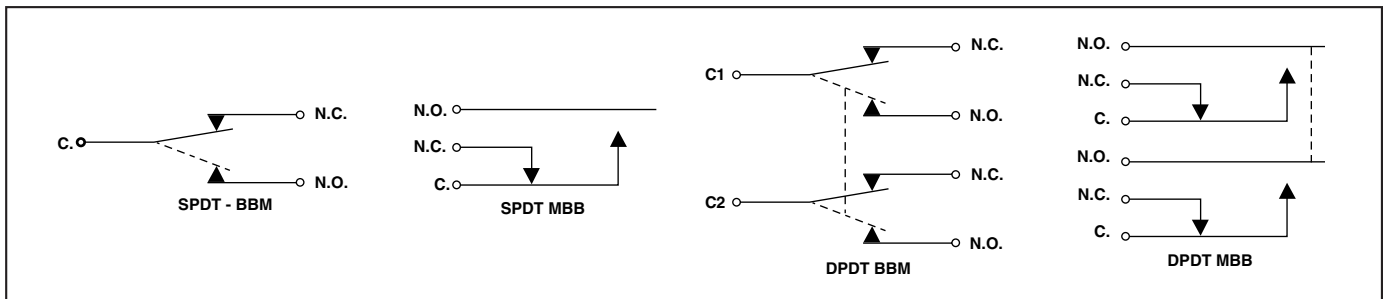
Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	100,000	46-150 RED 46-150 BLK 46-151 RED 46-151 BLK	Red Black Red Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	24 ± 4	17/64" (6,75)

Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	100,000	46-270 RED 46-270 BLK 46-271 RED 46-271 BLK	Red Black Red Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	48 ± 4	17/64" (6,75)

**CIRCUITRY**



Pushbutton Switches

## DIMENSIONS in inches (and millimeters)

**Environmentally Sealed Double Pole/Double Throw**  
46-260\* (BBM)

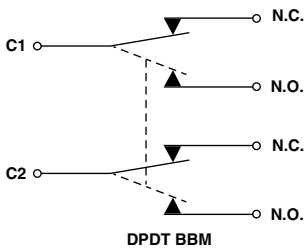
Dimensions:  
 .375 - .010 (9,53 - 0,25) DIA.  
 .390 - .010 (9,90 - 0,25)  
 .281 - .010 (7,14 - 0,25)  
 .641 - .005 (16,28 - 0,13)  
 .812 - .005 (20,62 - 0,13) DIAMETER  
 .250 - .010 (6,35 - 0,25)  
 A = 1.14 (29,0) MAX.  
 B = 22.00 (558,8) MAX.  
 C = .187 - .010 (4,75 - 0,25)  
 D = .125 - .005 (3,18 - 0,13)

Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	250,000	46-260 RED 46-260 BLK	Red Black

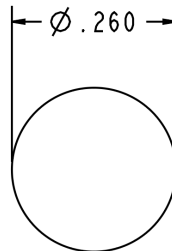
Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	Approx. 45	25/64" (9,92)

Pushbutton Switches

## CIRCUITRY



## RECOMMENDED PANEL CUTOUT



## ACCESSORY



**Decorative Mounting Nut**  
Part No. 30C1023-1  
Fits .250" (6,35) Bushing

## ORDERING INFORMATION

Description	Part No.
SPDT, BBM, Red Button	46-101 RED
SPDT, BBM, Black Button	46-101 BLK
SPDT, BBM, Red Cap	46-102 RED
SPDT, BBM, Black Cap	46-102 BLK
SPDT, MBB, Red Button	46-110 RED
SPDT, MBB, Black Button	46-110 BLK
SPDT, MBB, Red Cap	46-111 RED
SPDT, MBB, Black Cap	46-111 BLK
SPDT, BBM, Red Cap	46-150 RED
SPDT, BBM, Black Cap	46-150 BLK
SPDT, MBB, Red Cap	46-151 RED
SPDT, MBB, Black Cap	46-151 BLK
DPDT, BBM, Red Cap	46-200 RED
DPDT, BBM, Black Cap	46-200 BLK
DPDT, MBB, Red Cap	46-201 RED
DPDT, MBB, Black Cap	46-201 BLK
DPDT, BBM, Red Cap	46-270 RED
DPDT, BBM, Black Cap	46-270 BLK
DPDT, MBB, Red Cap	46-271 RED
DPDT, MBB, Black Cap	46-271 BLK
DPDT, BBM, Sealed, Red	46-260 RED
DPDT, BBM, Sealed, Black	46-260 BLK

ACCESSORY	
Decorative Nut	30C1023-1

## SPECIFICATIONS

### Rating Criteria

**Contact Resistance:** Less than 25 milliohms at the switch initially. Less than 4 milliohms/inch of wire.

**Voltage Breakdown:** 1,000 Vac between mutually insulated parts

**Insulation Resistance:** 1,000 megohms minimum

### Materials and Finishes

**Cover, Bushing, Mounting Nut:** Brass, tin zinc

**Shorting Bar:** Phosphor bronze, silver-plated.

**Terminals:** Phosphor bronze, silver contact surface. Terminal ends are tin/silver

**Base or Potting Shell:** Phenolic per MIL-M-14, type CFG

**Spring:** Tinned music wire

**Button Cap:** Polyethylene

**Button:** Polyphenylene sulfide (PPS) for 46-200 and 46-201. Polycarbonate for all other unsealed versions. Aluminum for all sealed versions.

**O-Ring Seal:** Nitrile per MIL-P-5516, class B

**Seal Adapter and Hex Nut (46-260):** Brass, zinc trivalent chromate-plated

**Wire Leads (46-260):** Per MIL-W-16878 type E. #26 AWG, insulated teflon, copper stranded wire

### Operating Features

**Break-Before-Make:** Rest position to N.C. break .020" (0,51) minimum. Rest position to N.O. Make .140" (3,35) maximum.

**Make-Before-Break:** Rest position to N.O. make .065" ± .015 (1,65 ± 0,38). Rest position to N.C. break .130" ± .015 (3,30 ± 0,38).

**Operating Temperature:** -40°C to +85°C

## STANDARD OPTIONS

Epoxy sealed terminals and wire leads

Decorative mountings

## SEALED TERMINAL AND WIRE LEAD OPTIONS OPTION -E AND -EW

### FEATURES

- 1/4, 1/2, and 1 Amp
- Limit, Overtravel, or Panel Seal
- Butt or Wiping Contact
- Normally Open or Normally Closed
- Momentary or Push/Pull
- Series 23, 30, 39 and 46



**Option -E**  
Epoxy-Sealed  
Terminals



**Option -EW,**  
Potted Base & 6"  
Wire Leads

### SPECIFICATIONS

#### Rating Criteria

**Make and Break Current Rating:** See page for standard part number

**Contact Resistance:** 25 milliohms maximum on a new switch. Less than 4 milliohms per inch of wire for wire lead option styles.

**Insulation Resistance:** 1,000 megohms minimum between mutually insulated parts

**Voltage Breakdown:** 1,000 Vac minimum between mutually insulated parts

#### Materials and Finishes

**Potting Sleeve (Series 39):** Thermoset Plastic

**Wire Leads:** #26AWG, (.99mm diameter) insulated Teflon, Copper stranded wire, per MIL-W-16878, Type E. Ends are stripped 0.250" (6.35) and solder dipped. For other specifications, see Page References.

Standard Part Number Red Button	Standard Part Number Black Button	Choices of Suffix	Length Behind Panel In inches (and millimeters)	
			Standard Switch & Terminals	-EW Style Body
23-1	23-4	-E	0.665 (16,89)	—
30-1	30-3	-E, -EW	0.592 (15,04)	0.645 (16,38)
30-15	30-37	-E, -EW	0.679 (17,25)	0.728 (18,49)
30-17 RED	30-17 BLK	-E, -EW	0.958 (24,33)	1.007 (25,58)
30-16 RED	30-16 BLK	-E, -EW	0.958 (24,33)	1.007 (25,58)
30-251 RED	30-251 BLK	-E, -EW	0.632 (16,05)	0.685 (17,40)
30-252 RED	30-252 BLK	-E, -EW	0.645 (16,38)	0.700 (17,78)
30-32 RED	30-32 BLK	-E, -EW	0.867 (22,02)	0.896 (22,76)
30-6	30-2	-E, -EW	0.605 (15,37)	0.640 (16,26)
30-601 RED	30-601 BLK	-E, -EW	0.592 (15,04)	0.645 (16,38)
39-1*	39-3*	-EW**	0.315 (8,00)	0.440 (11,18)
39-12*	39-2	-E, -EW	0.490 (12,45)	0.575 (14,61)
39-101	39-24*	-EW**	0.455 (11,56)	0.575 (14,61)
39-351 RED	39-351 BLK	-EW**	0.650 (16,51)	0.775 (19,69)
39-352 RED*	39-352 BLK*	-E, -EW	0.350 (8,89)	0.450 (11,43)
39-601 RED	39-601 BLK	-E, -EW	0.529 (13,44)	0.630 (16,00)
39-701***	—	-EW*	0.315 (8,00)	0.440 (11,18)
39-702***	—	-EW**	0.800 (20,32)	0.925 (23,50)
46-101 RED	46-101 BLK	-E, -EW	0.510 (12,95)	0.750 (19,05)
46-102 RED	46-102 BLK	-E, -EW	0.890 (22,61)	0.957 (24,31)
46-110 RED	46-110 BLK	-E, -EW	0.890 (22,61)	0.957 (24,31)
46-111 RED	46-111 BLK	-E, -EW	0.890 (22,61)	0.957 (24,31)
46-150 RED	46-150 BLK	-E, -EW	0.890 (22,61)	0.957 (24,31)
46-151 RED	46-151 BLK	-E, -EW	0.957 (24,31)	1.024 (26,01)
46-200 RED	46-200 BLK	-E	0.957 (24,31)	1.024 (26,01)
46-201 RED	46-201 BLK	-E	0.921 (23,39)	—
46-270 RED	46-270 BLK	-E	0.921 (23,39)	—
46-271 RED	46-271 BLK	-E	0.957 (24,31)	—
		-E	0.921 (23,39)	—
		-E	0.957 (24,31)	—

\*Epoxy potting sleeve enlarges the diameter of the -EW style to 0.300 (7,62).

\*\*Sealed terminal (-E) option is not necessary; terminals have sealed construction.

\*\*\*Natural Color Button

†Adjustable from 1.214 (30,84) to 1.334 (33,88) dependent on button height, see switch pages.

**ORDERING INFORMATION**

Use the Selector Charts at the beginning of the section to select a series. Use the pages listed there or referenced here to select a switch.

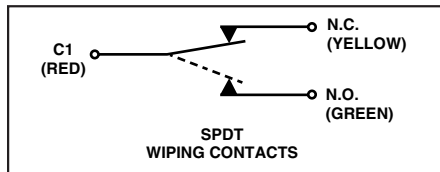
To order epoxy sealed terminals, add the suffix -E to the selected part number as allowed in the chart. **Example:** 30-1-E.

To order the epoxy-potted version with 6-inch wire leads, use the suffix -EW as allowed in the chart. **Example:** 39-1-EW

**Available From Your Local Grayhill Distributors.** For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.

Standard Part Number Without Options Choice of Button Color (see switch pages)	Standard Part Number Choice of Button Color (see switch pages)	Choices of Options	Length Behind Panel In inches (and millimeters)	
			Standard Switch & Terminals	-EW Style Body
—	30-001-A-XX	-E, -EW	1.119 (28,42)	1.172 (29,77)
—	30-002-A-XX	-E, -EW	1.132 (28,75)	1.167 (29,64)
—	30-015-A-XX	-E, -EW	1.204 (30,58)	1.253 (31,83)
—	30-017-A-XX	-E, -EW	Adjustable†	Adjustable†
30-01-01-500-XX	30-1-1-50-XX	-E, -EW	1.100 (27,94)	1.153 (29,29)
30-01-04-500-XX	30-1-4-50-XX	-E, -EW	1.257 (31,93)	1.310 (33,27)
30-05-01-502-XX	30-5-1-52-XX	-E, -EW	0.930 (23,62)	0.983 (24,97)
30-05-04-502-XX	30-5-4-52-XX	-E, -EW	1.130 (28,70)	1.183 (30,05)
—	30-601-A-XX	-E, -EW	1.119 (28,42)	1.172 (29,77)
46-01-05-500-XX	46-1-5-50-XX	-E, -EW	1.361 (34,57)	1.428 (36,27)
46-01-07-500-XX	46-1-7-50-XX	-E, -EW	1.451 (36,86)	1.518 (38,56)
46-01-08-500-XX	46-1-8-50-XX	-E	1.381 (35,08)	—
46-01-09-500-XX	46-1-9-50-XX	-E	1.381 (35,08)	—
46-05-05-502-XX	46-5-5-52-XX	-E, -EW	1.179 (29,95)	1.246 (31,65)
46-05-07-502-XX	46-5-7-52-XX	-E, -EW	1.465 (37,21)	1.532 (38,91)
46-05-08-502-XX	46-5-8-52-XX	-E	1.188 (30,18)	—
46-05-09-502-XX	46-5-9-52-XX	-E	1.317 (33,45)	—
—	46-102-A-XX	-E, -EW	1.417 (35,99)	1.484 (37,69)
—	46-111-A-XX	-E, -EW	1.417 (35,99)	1.484 (37,69)
—	46-200-A-XX	-E	1.448 (36,78)	—
—	46-201-A-XX	-E	1.448 (36,78)	—

**CIRCUITRY: Series 46**



\*Epoxy potting sleeve enlarges the diameter of the -EW style to 0.300 (7,62).  
 \*\*Sealed terminal (-E) option is not necessary; terminals have sealed construction.  
 \*\*\*Natural Color Button  
 †Adjustable from 1.214 (30,84) to 1.334 (33,88) dependent on button height, see switch pages.

Pushbutton Switches

## ACCESSORIES

### For Pushbutton Switches



Decorative Mounting Nuts



Button Caps

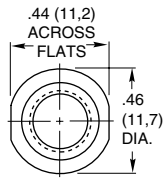
Button Guard



Pendant Housing

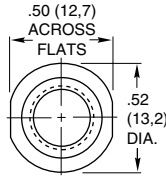
## DIMENSIONS In Inches (and millimeters)

### Decorative Mounting Nuts



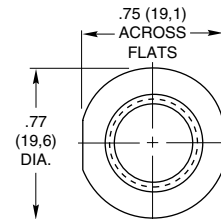
30C1023-1

Brass, nickel-plated for 1/4" (6,35) bushing.



23C1024-1

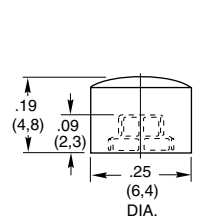
Brass, nickel-plated for 5/16" (7,93) bushing.



07C1040-1

Brass, nickel-plated for 15/32" (11,9) bushing.

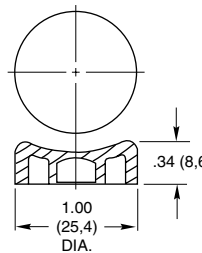
### Button Caps and Guard



30B1012

Thermosetting plastic (Fasten to button with cyanoacrylate adhesive) black, red or white.

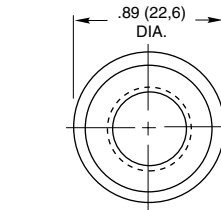
For use with all Series 30 and 39 switches except part number 39-101. See switch pages.



07Z1047

Thermoplastic, black or red color.

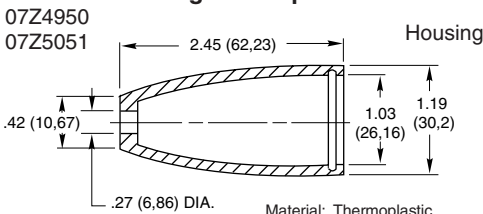
For use with Series 2000 and Series 7 switches. See switch pages.



10C1015-1

Brass, zinc trivalent chromate-plated for 15/32" (11,9) bushing.

### Remote Switching Accessories Pendant Housing and Caps

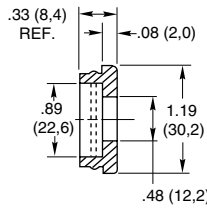


07Z4950

07Z5051

Housing

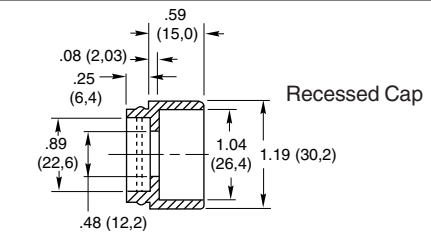
Material: Thermoplastic  
Specials: other colors available on special order.



Flat Cap

Application:

All grayhill pushbutton switches with 15/32-32 bushings: catalog numbers 2201, 2202, 07-7, 07-8, 07-21, 07-22, 07-26, 4001, 4002, 10-9, 10-10, 10-100, 10-101, 30-16, 30-17 and 30-32. any other switch with 15/32-32 bushing if it fits housing.



Recessed Cap

## ORDERING INFORMATION:

### Mounting Nuts, Button Caps, and Guards

Part Number	Color
07C1040-1	Decorative Nut
23C1024	Decorative Nut
30C1023-1	Decorative Nut
07Z1047-1 BLK	Black Button Cap
07Z1047-2 RED	Red Button Cap
10C1015-1	Button Guard
30B1012-5	Red Cap
30B1012-8	White Cap
30B1012-9	Black Cap

### Pendant Housing and Caps

Part Number	Description
07Z4950 RED	Red Flat Cap & Housing
07Z4950 BLK	Black Flat Cap & Housing
07Z5051 RED	Red Rcstd Cap & Housing
07Z5051 BLK	Black Rcstd Cap & Housing

Sold only as sets of one housing and one cap.

### Available from your local Grayhill Distributor.

For prices and discounts, contact a local Sales Office, an authorized local Distributor, or Grayhill.