

5 March 1976

SUPERSEDING

MIL-F-3786/32A(USAF)

15 January 1969

MILITARY SPECIFICATION SHEET

SWITCH, ROTARY, OPEN CONSTRUCTION, 1/5 AMPERE,
STYLE SR32

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for procuring the switch described herein shall consist of this document and the latest issue of Specification MIL-S-3786.

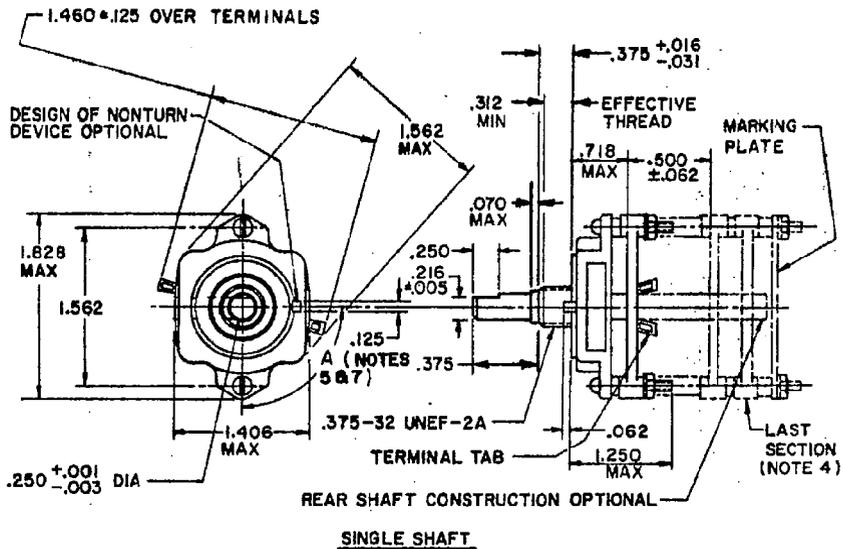
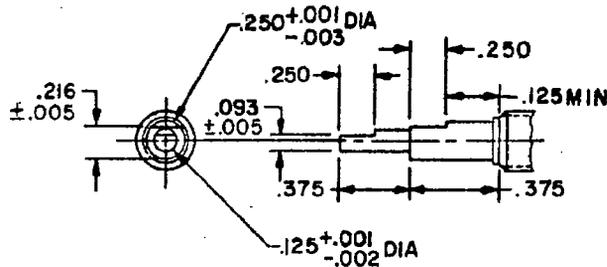
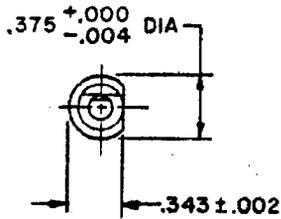


FIGURE 1. Styles SR32-1 and SR32-2 switches.

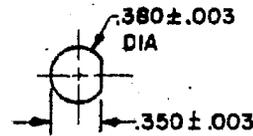
MIL-S-3786/32B(USAF)



CONCENTRIC SHAFT
(ALTERNATE CONSTRUCTION
ALLOWED ON SR 32-2 SWITCHES)



**BUSHING FLAT FOR
S CONSTRUCTION**



**RECOMMENDED
PANEL PIERCING FOR
S CONSTRUCTION**

INCHES	MM	INCHES	MM	INCHES	MM
.001	.03	.093	2.36	.500	12.70
.002	.05	.125	3.18	.718	18.24
.003	.08	.216	5.49	1.250	31.75
.004	.10	.250	6.35	1.406	35.71
.005	.13	.312	7.92	1.460	37.08
.016	.41	.343	8.71	1.562	39.67
.031	.79	.350	8.89	1.609	40.87
.062	1.57	.375	9.53	1.828	46.43
.070	1.78	.380	9.65		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.
3. Unless otherwise specified, tolerance is $\pm .015$ (.38 mm).
4. The number of sections is indicated in table II.
5. Nonturn device as shown is not applicable to S construction switches.
6. Shaft shown in maximum counterclockwise position for switches with stop and with switch in position No. 1 for switches without stop.
7. Angle "A" is formed by two lines radiating from the shaft center, and in the mounting plane of the switch. One line is parallel to a radial line perpendicular to the shaft flat with the switch in position 1. The other line passes through the center of the nonturn device. Angle "A" is 90°.
8. Unless otherwise specified, tolerance on angles is $\pm 3^\circ$.

FIGURE 1. Styles SR32-1 and SR32-2 switches - Continued.

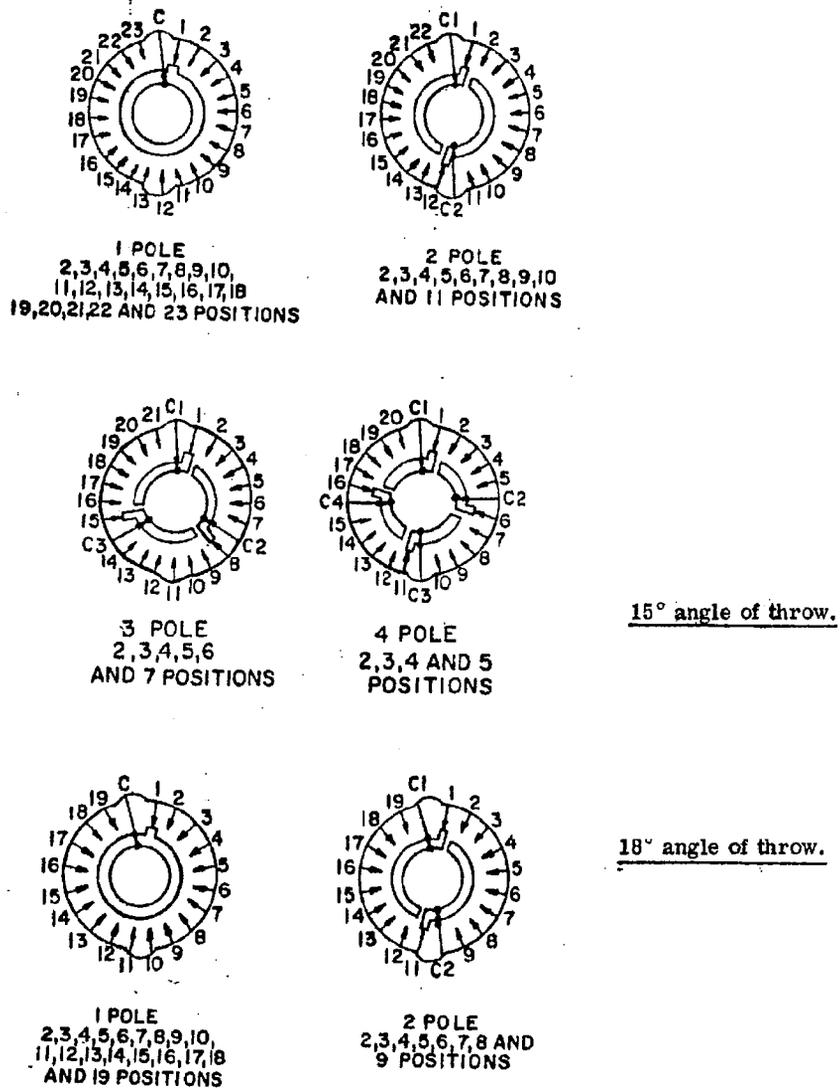
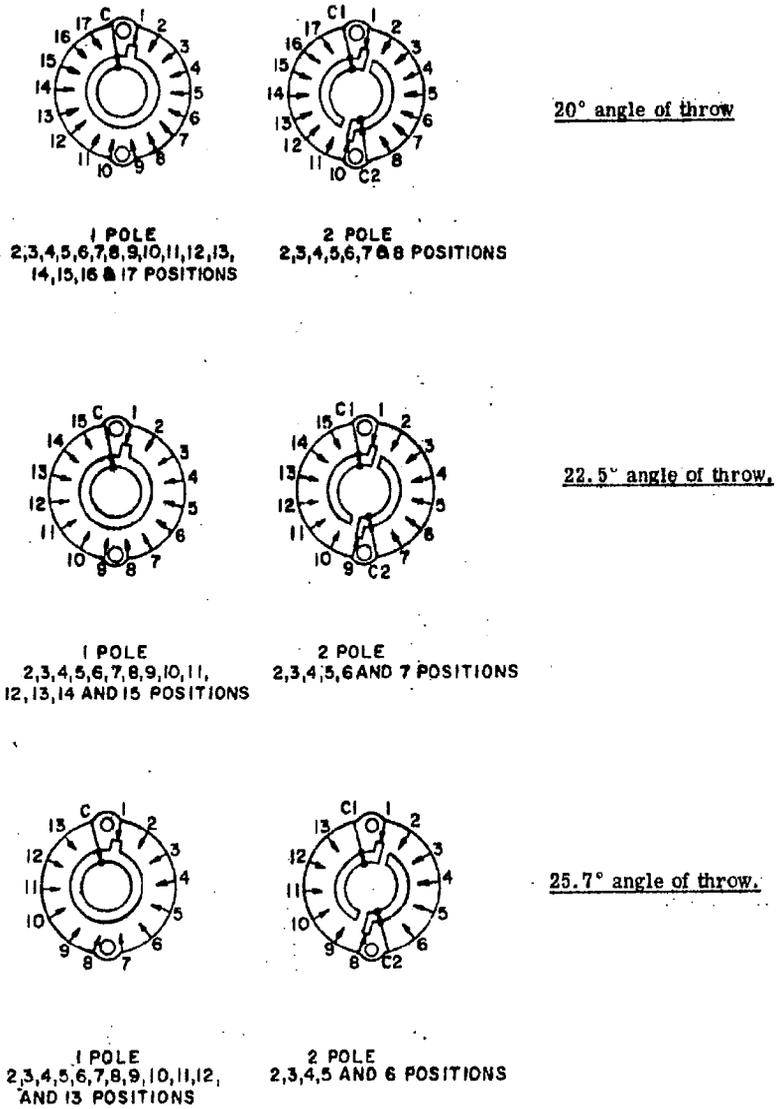


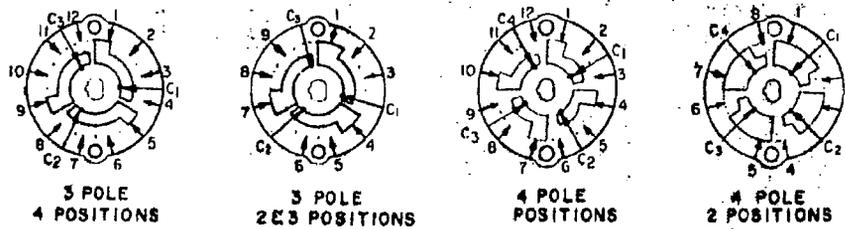
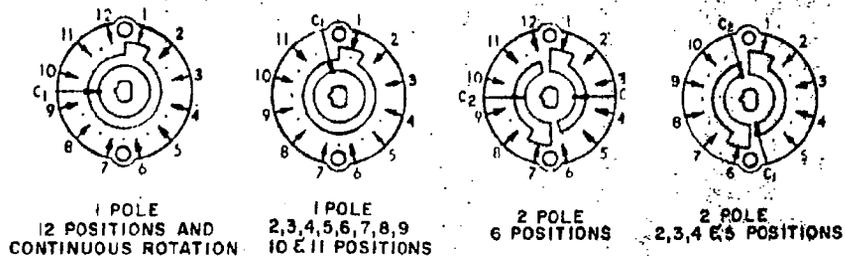
FIGURE 2. Circuit diagrams - viewed from front or knob end with switch in extreme counterclockwise position.

MIL-S-3786/32B(USAF)

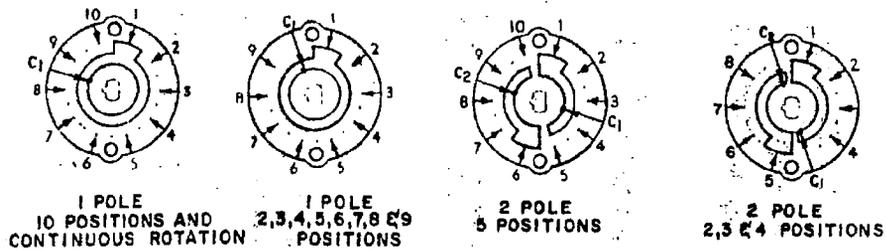


NOTE: For switches with fewer than maximum number of positions,
short clips will be omitted from clockwise end of rotation.

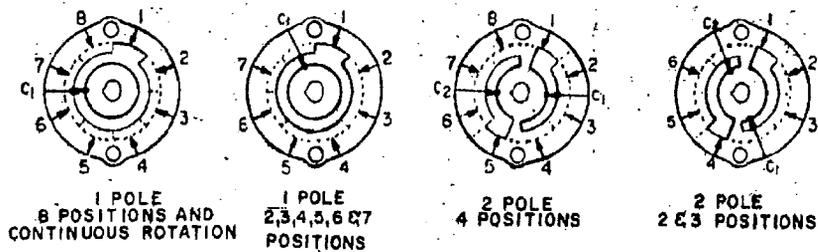
FIGURE 2. Circuit diagrams - viewed from front or knob end with switch in
extreme counterclockwise position - Continued.



30° angle of throw.



36° angle of throw.



45° angle of throw.

FIGURE 2. Circuit diagrams - viewed from front or knob end with switch in extreme counterclockwise position - Continued.

REQUIREMENTS

Dimensions and configuration: See figures 1 and 2.

Construction style: N or S, see table II.

Angle of throw: 15°, 18°, 20°, 22.5°, 25.7°, 30°, 36°, and 45°, (see table III).

Terminals: The terminal tabs shall be bent at an angle of 60 +30, -15 degrees.

Temperature-life characteristic: Symbol B (25,000 cycles, -65°C and 85°C).

Vibration grade: Symbol 3 (10 to 2,000 Hz).

Shock type: Symbol H (high impact).

Insulation material: Symbol P (plastic).

Altitude: Symbol C (70,000 feet).

Rotational-torque limits:

1.0 lb-in. minimum, 6 lb-in. maximum at room temperature.

1.0 lb-in. minimum, 8 lb-in. maximum at minimum temperature.

Terminal strength (pull): A force of 2-1/2 pounds shall be applied to the terminals.

Life (rotational): The test loads for the applicable circuit conditions shall be as specified in table I. Each of the loads, specified for the applicable environmental condition, shall be switched by at least one rotor contact of the switch.

TABLE I. Electrical loads.

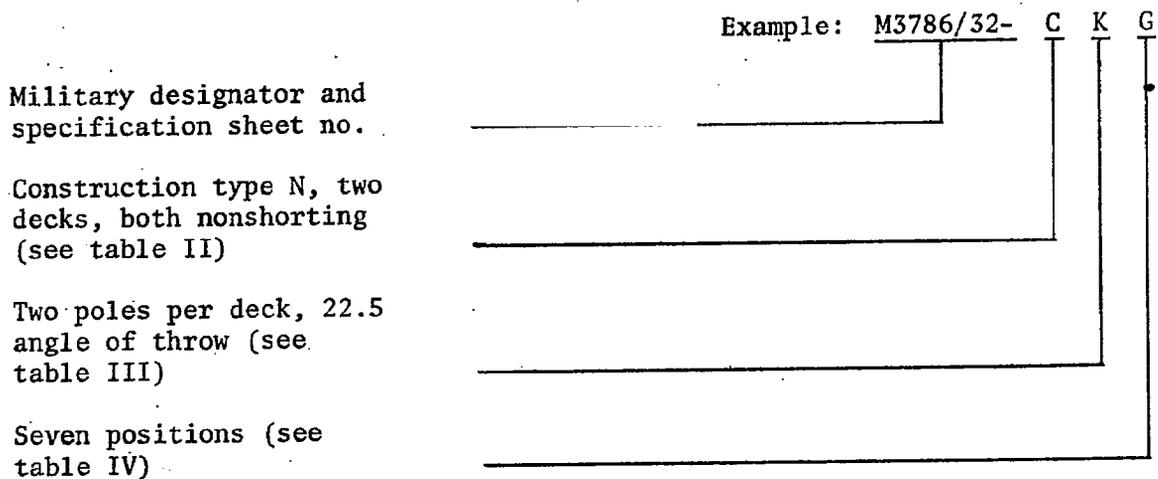
Environmental condition	Inductive load (2.8 Henries)		Resistive loads	
	Milliamperes	Volts, dc	Milliamperes	Volts
At atmospheric pressure	20	28	200 50	28 dc 115 Vrms
At reduced barometric pressure	---	---	100 25	28 dc 115 Vrms

Dielectric withstanding voltage: 750 volts rms at atmospheric pressure; 375 volts rms at reduced barometric pressure.

Mounting brackets: A switch with more than five sections or with more than 3-1/2 inches in length from the mounting surface may use mounting brackets.

Mounting hardware: Each switch shall be supplied with one hexagon nut in accordance with MS25082, and one internal-tooth lockwasher in accordance with MS35333.

Part number 1/: The military part number shall consist of the prefix "M3786/32-" followed by one character each from tables II, III, and IV, as applicable. An example is shown below:



1/ Part numbers shall be used to identify only switches shown in figure 2. Switches not identified by part numbers shall be procured in accordance with the ordering data of MIL-S-3786.

APPLICATION NOTE: To conserve material, space, and weight, the following is suggested:

- (a) Two-, three-, four-, five-, six-, seven-, eight-, nine-, ten-, eleven-, and twelve-position switches with 15° angle of throw should be two poles per deck.
- (b) Two-, three-, four-, five-, and six-position switches with 15° angle of throw should be four poles per deck.
- (c) Two-, three-, four-, five-, six-, seven-, eight-, nine-, and ten-position switches with 18° angle of throw should be two poles per deck.
- (d) Two-, three-, four-, and five-position switches with 18° angle of throw should be four poles per deck.
- (e) Two-, three-, four-, five-, six-, seven-, eight-, and nine-position switches with 20° angle of throw should be two poles per deck.
- (f) Two-, three-, four-, five-, six-, seven-, and eight-position switches with 22.5° angle of throw should be two poles per deck.
- (g) Two-, three-, and four-position switches with 22.5° angle of throw should be four poles per deck.
- (h) Two-position and three-position switches with 30° angle of throw should be four poles per deck.
- (i) Four-position switches with 30° angle of throw should be three poles per deck.
- (j) Five- and six-position switches with 30° angle of throw should be two poles per deck.
- (k) Two-, three-, four-, and five-position switches with 36° angle of throw should be two poles per deck.
- (l) Two-, three-, and four-position switches with 45° angle of throw should be two poles per deck.

TABLE II. Code character for combinations of construction type, number of decks, and switching characteristics.

Code character	Construction type	Number of decks	Switching characteristics				
			First deck	Second deck	Third deck	Fourth deck	Fifth deck
A	N	1	NS				
B		1	S				
C		2	NS	NS			
D		2	S	S			
E		2	NS	S			
F		3	NS	NS	NS		
G		3	S	S	S		
H		3	NS	NS	S		
J		3	NS	S	S		
K		4	NS	NS	NS	NS	
L		4	S	S	S	S	
M		4	NS	NS	NS	S	
N		4	NS	S	S	S	
P	5	NS	NS	NS	NS	NS	
Q	5	S	S	S	S	S	
R	5	NS	NS	NS	NS	S	
S	5	NS	S	S	S	S	
T	S	1	NS				
U		1	S				
V		2	NS	NS			
W		2	S	S			
X		2	NS	S			
Y		3	NS	NS	NS		
Z		3	S	S	S		
1		3	NS	NS	S		
2		3	NS	S	S		
3		4	NS	NS	NS	NS	
4		4	S	S	S	S	
5		4	NS	NS	NS	S	
6		4	NS	S	S	S	
7	5	NS	NS	NS	NS	NS	
8	5	S	S	S	S	S	
9	5	NS	NS	NS	NS	S	
0	5	NS	S	S	S	S	

TABLE III. Code letters for combinations of poles per deck and angle of throw.

Code letter	Poles per deck	Angle of throw	Code letter	Poles per deck	Angle of throw
A	1	15°	M	2	25.7°
B	2	15°	N	1	30°
C	3	15°	P	2	30°
D	4	15°	Q	3	30°
E	1	18°	R	4	30°
F	2	18°	S	1	36°
G	1	20°	T	2	36°
H	2	20°	U	1	45°
J	1	22.5°	V	2	45°
K	2	22.5°			
L	1	25.7°			

TABLE IV. Code letters for number of positions.

Code letter	Number of positions	Code letter	Number of positions
A	<u>1/</u>	N	13 with stops
B	2 with stops	P	14 with stops
C	3 with stops	Q	15 with stops
D	4 with stops	R	16 with stops
E	5 with stops	S	17 with stops
F	6 with stops	T	18 with stops
G	7 with stops	U	19 with stops
H	8 with stops	V	20 with stops
J	9 with stops	W	21 with stops
K	10 with stops	X	22 with stops
L	11 with stops	Y	23 with stops
M	12 with stops	Z	24 with stops

1/ Switch is continuous rotation type (no stops), and number of positions is dependent on angle of throw as follows:

<u>Angle of throw</u>	<u>Positions</u>
15°	24
18°	20
20°	18
22.5°	16
25.7°	14
30°	12
36°	10
45°	8

Custodian:
Air Force - 85

Review activity:
Air Force - 80

Preparing activity:
Air Force - 85

(Project 5930-F442)