

INCH-POUND

MIL-S-3786/5F
2 June 1992
SUPERSEDING
MIL-S-3786/5E
30 December 1987

MILITARY SPECIFICATION SHEET

SWITCH, ROTARY, OPEN CONSTRUCTION, .200 AMPERE,
STYLE SR05

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

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of the following specifications listed in that issue of the Department of Defense Index of Specifications and Standards (ODISS) specified in the solicitation: MIL-S-3786.

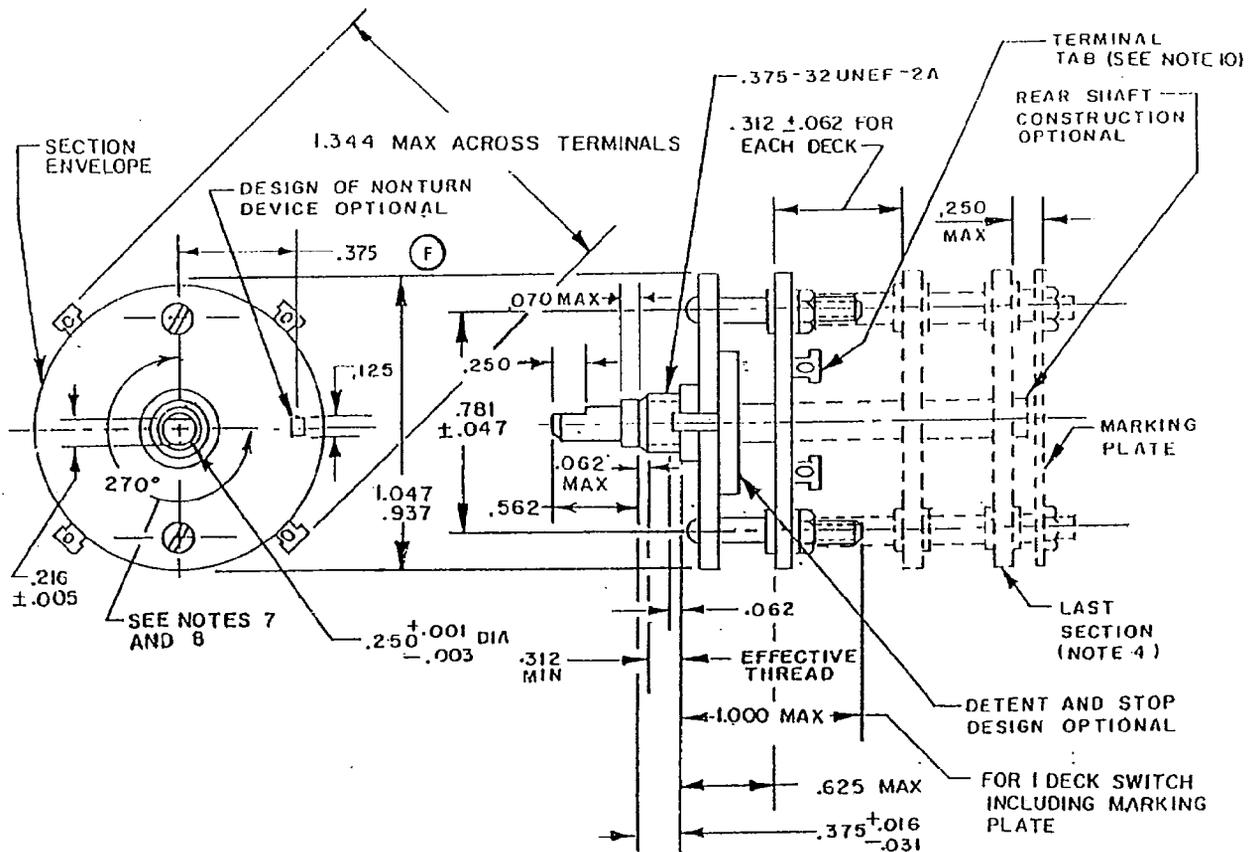
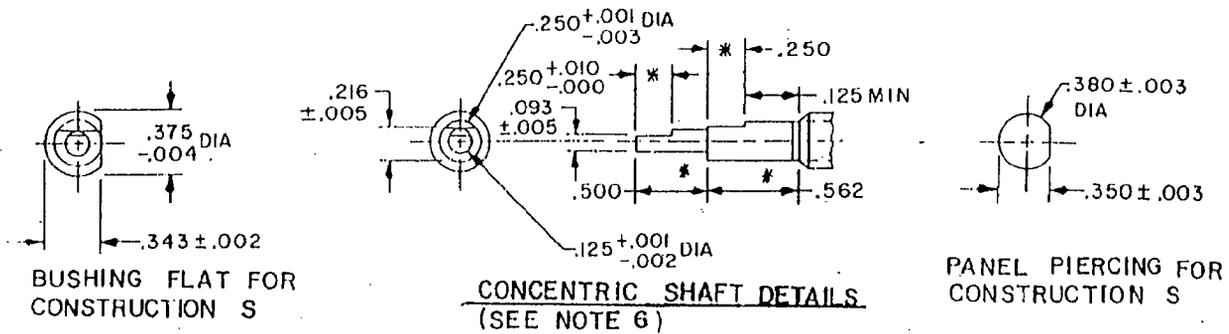


FIGURE 1. Style SR05 switch.

(F) denotes changes



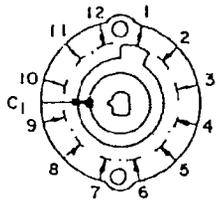
Inches	mm	Inches	mm	Inches	mm
.001	0.03	.125	3.18	.562	14.27
.002	0.05	.216	5.49	.625	15.88
.003	0.08	.250	6.35	.750	19.05
.005	0.13	.312	7.92	.781	19.84
.010	0.25	.343	8.71	.812	20.62
.016	0.41	.350	8.89	.937	23.80
.031	0.79	.355	9.02	1.000	25.40
.062	1.59	.375	9.53	1.047	26.59
.070	1.78	.380	9.65	1.344	34.14
.076	1.93	.500	12.70		

NOTES:

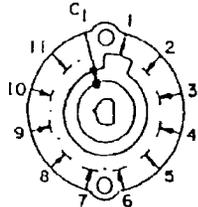
1. Dimensions are in inches.
2. Metric equivalents are given for information only.
3. Unless otherwise specified, tolerance is ± 0.015 (0.38 mm).
4. The number of sections is as selected from table III.
5. Nonturn device as shown is not applicable to S construction switches.
6. Inner shaft stop strength 4 inch-pounds. Outer shaft stop strength 15 inch-pounds.
7. Shaft flat angle A° is the angle between a line through the center of the shaft and the center of the nonturn device, and another line through the center of the shaft and perpendicular to the shaft flat. For construction S switches, the bushing flat is the nonturn device. Angle A is 270° .
8. Shaft shown in maximum counterclockwise position for switches with stops, and with switch in position number 1 for switches without stops.
9. Front plate design optional provided it falls within the maximum outside diameter of the section dimension referenced.
10. Terminal tabs may be bent to the rear at an angle up to 75° from the plane of the section.
11. Marking plate is included with all switches.

FIGURE 1. Style SR05 switch - Continued.

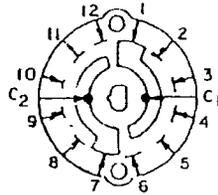
30° ANGLE OF THROW



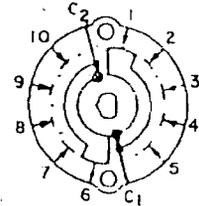
1 POLE
12 POSITIONS
AND CONTINUOUS
ROTATION



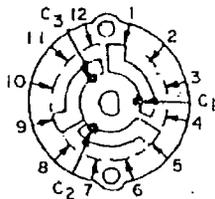
1 POLE
2, 3, 4, 5, 6, 7, 8, 9
10 & 11 POSITIONS



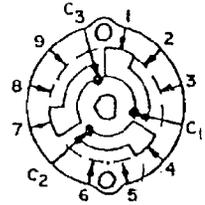
2 POLE
6 POSITIONS



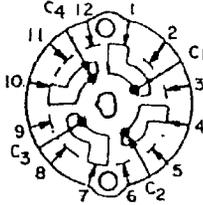
2 POLE
2, 3, 4 & 5 POSITIONS



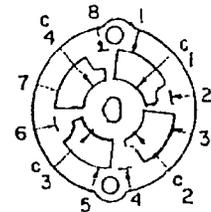
3 POLE
4 POSITIONS



3 POLE
2 & 3 POSITIONS

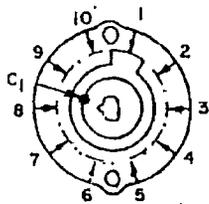


4 POLE
3 POSITIONS

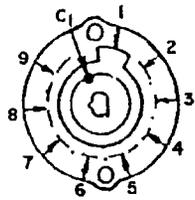


4 POLE
2 POSITIONS

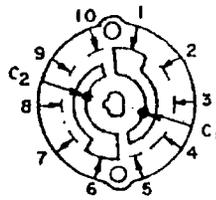
36° ANGLE OF THROW



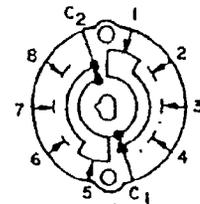
1 POLE
10 POSITIONS
AND CONTINUOUS
ROTATION



1 POLE
2, 3, 4, 5, 6, 7, 8
AND 9 POSITIONS



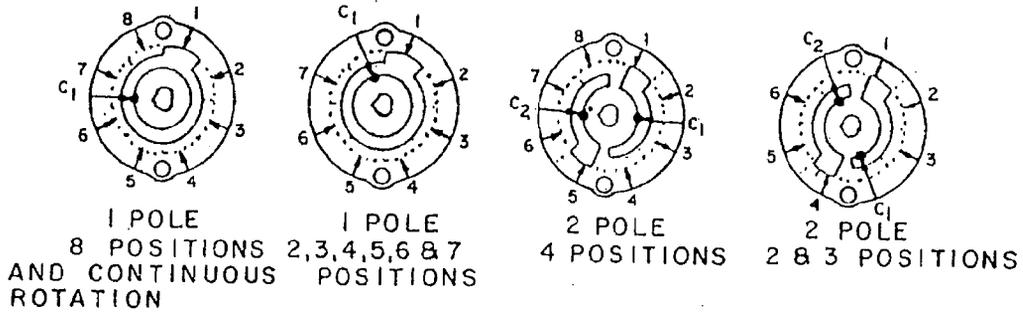
2 POLE
5 POSITIONS



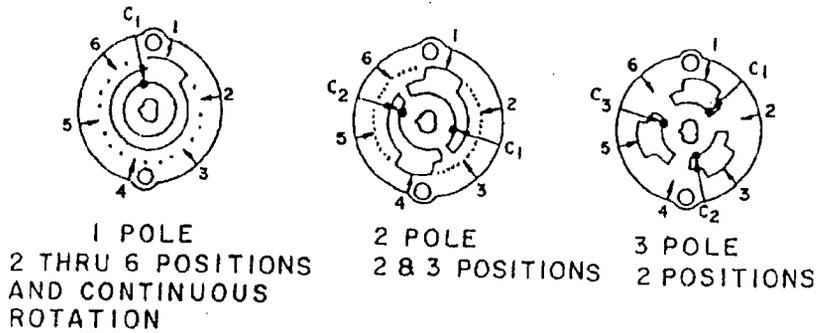
2 POLE
2, 3 & 4 POSITIONS

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

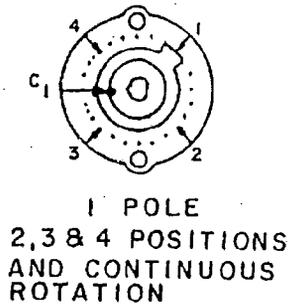
45° ANGLE OF THROW



60° ANGLE OF THROW



90° ANGLE OF THROW



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.

REQUIREMENTS:

Dimensions and configuration: See figures 1 and 2.

Construction type: See table I.

Angle of throw: See table II.

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

Insulation material: See table II.

Number of poles per deck: See table III.

Number of decks: See table IV.

Number of positions: See table III.

Switching characteristics: See table IV.

Temperature-life characteristic: See table I.

Altitude: Symbol C (70,000 feet).

Rotational-torque: 0.75 inch-pound minimum, 4 inch-pound maximum at room temperature.

0.75 inch-pound minimum, 6 inch-pound maximum at minimum temperature.

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

Contact resistance:

At room temperature:

Initial and after vibration and shock - - - - - 20 milliohms, maximum.

After moisture-resistance and salt spray - - - - - 30 milliohms, maximum.

After initial soak and completion of life test - - 40 milliohms, maximum.

Vibration grade: Symbol 3 (10 to 2000 Hz).

Shock type: See table I.

Dielectric withstanding voltage:

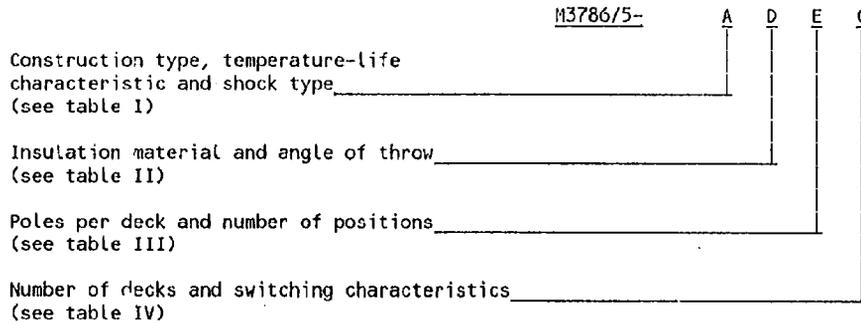
At atmospheric pressure - - - - - 750 volts, rms.

At reduced barometric pressure - - - - - 375 volts, rms.

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

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Part or Identifying Number (PIN): The military pin shall consist of M3786/5- (four letters selected from tables I through IV) as shown in the following example:



Pin's shall be generated only to identify switches shown on figure 2. Acquiring switches not identified by military pin's shall be in accordance with the ordering data of MIL-S-3786.

Application. To conserve material, space, and weight, the following is suggested:

- Two-position and three-position switches with 30° angle of throw should be four poles per deck.
- Four-position switches with 30° angle of throw should be three poles per deck.
- Five- and six-position switches with 30° angle of throw should be two poles per deck.
- Two-, three-, four-, and five-position switches with 36° angle of throw should be two poles per deck.
- Two-, three-, and four-position switches with 45° angle of throw should be two poles per deck.
- Two- and three-position switches with 60° angle of throw should be two poles per deck.

M3786/5-ADEC identifies a rotary switch of construction type N, temperature-life characteristic B, shock types H and M, ceramic or glass bonded mica insulation material, 36 degree angle of throw, 1 pole per deck, 5 positions, 2 decks, and nonshorting switching characteristic.

TABLE I. Code letter for combination of construction type, temperature-life characteristic, and shock type.

Code Letter	Construction type <u>1/</u> <u>2/</u>	Temperature-life characteristic	Shock type
A	N	B	H and M
B	S	B	H and M
C	N	C	H and M
D	S	C	H and M
E	N	D	H and M
F	S	D	H and M
G	N	B	M
H	S	B	M
J	N	C	M
K	S	C	M
L	N	D	M
M	S	D	M

- 1/ Construction type N identifies an open construction switch, without a sealed shaft and panel seal.
- 2/ Construction type S is an open construction switch, with a sealed shaft and panel seal.

TABLE II. Code letter for combinations of insulation material and angle of throw.

Code Letter	Insulation material	Angle of throw	Code Letter	Insulation material	Angle of throw
A	C	30°	J	P	45°
B	G	30°	K	C	60°
C	P	30°	L	G	60°
D	C	36°	M	P	60°
E	G	36°	N	C	90°
F	P	36°	P	G	90°
G	C	45°	Q	P	90°
H	G	45°			

TABLE III. Code letters for combination of poles per deck and number of positions.

Code letter	Poles per deck	Number of positions	Code letter	Poles per deck	Number of positions
A	1	C 1/	M	1	12
B	1	2	N	2	2
C	1	3	P	2	3
D	1	4	Q	2	4
E	1	5	R	2	5
F	1	6	S	2	6
G	1	7	T	3	2
H	1	8	U	3	3
J	1	9	V	3	4
K	1	10	W	4	2
L	1	11	X	4	3

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

Angle of throw	Positions
30°	12
36°	10
45°	8
60°	6
90°	4

TABLE IV. Code letter for combinations of number of decks and switching characteristics.

Code letter	Number of decks	Switching characteristics					
		First deck	Second deck	Third deck	Fourth deck	Fifth deck	Sixth deck
A	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	4	NS	NS	S	S		
U	5	NS	NS	NS	S	S	

TABLE IV. Code letter for combinations of number of decks and switching characteristics - Continued.

Code letter	Number of decks	Switching characteristics					
		First deck	Second deck	Third deck	Fourth deck	Fifth deck	Sixth deck
V	5	NS	NS	S	S	S	
W	6	NS	NS	NS	NS	NS	NS
X	6	S	S	S	S	S	S
Y	6	NS	NS	NS	NS	NS	S
Z	6	NS	NS	NS	NS	S	S
1	6	NS	NS	NS	S	S	S
2	6	NS	NS	S	S	S	S
3	6	NS	S	S	S	S	S

TABLE V. Electrical loads.

Environmental condition	Inductive load in accordance with MIL-I-81023		Resistive loads	
	Milliamperes	Volts, dc	Milliamperes	Volts
At atmospheric pressure	20	28	200	28 dc
At reduced barometric pressure	---	---	100	115 rms
			100	28 dc
			50	115 rms

CONCLUDING MATERIAL

Custodians:

Army - ER
 Navy - EC
 Air Force - 85

Review activities:

Army - AR, MI
 Navy - AS, OS
 Air Force - 99
 DLA - ES

User activities:

Army - AT, AV, ME
 Navy - CG, MC
 Air Force - 19

Preparing activity:
 Air Force - 85

Agent:
 DLA - ES

(Project 5930-1486)