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IN REPLY  
REFER TO

DSCC-VAT

24 September 2004

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Draft of MIL-DTL-3786 /1F, /2F, /3G, /5G, /9E, /10E, /28E, /32C, and /40B.  
Project numbers 5930-1866 through -1874.

The drafts of the above subject documents are being sent to you for review and comments. These drafts consist of the following changes:

Updating of referenced documents.  
Incorporation of amendments.

If these documents are of interest to you, please provide your comments electronically. This can be in the form of a return e-mail, with or without an attached text file. A 45-day coordination cycle from the date of this letter has been allotted. Please provide your comments within that time period. If no comments are received in the allotted 45 day coordination cycle, concurrence is assumed and all comments received after will be held to the first amendment. If an electronic response is not possible we will still accept comments via letter, facsimile or phone call but only after you have contacted the project officer listed below. The draft documents can be found at the following DSCC-VA web page:

[www.dsc.dla.mil/Programs/MilSpec/initialdrafts.asp](http://www.dsc.dla.mil/Programs/MilSpec/initialdrafts.asp)

This process still requires military departments to identify their comments as "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians or this office, as applicable, in sufficient time to allow for consolidating the department reply.

If there are any questions, please contact Mark Rush by the preferred method of E-Mail at [Mark.Rush@dla.mil](mailto:Mark.Rush@dla.mil) or by telephone at commercial 614-692-0550, DSN 850-0550; or by facsimile at 614-693-1644. Our mailing address as a last resort is Defense Supply Center, Columbus, DSCC-VAT, P.O. Box 3990, Columbus, OH 43216-5000. If you have further questions or concerns you may contact me at [Kendall.Cottongim@dla.mil](mailto:Kendall.Cottongim@dla.mil), by telephone at 614-692-0676 or by facsimile at 614-692-6939.

/ SIGNED /  
KENDALL A. COTTONGIM  
Chief  
Electronics Components Team

NOTE: This draft, dated September 24, 2004 prepared by DLA-CC, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. (Project 5930-1867)

INCH-POUND  
MIL-DTL-3786/1F  
DRAFT  
SUPERSEDING  
MIL-S-3786/1E  
30 December 1987

DETAIL SPECIFICATION SHEET

SWITCH, ROTARY, OPEN CONSTRUCTION, 1/2 AMPERE, STYLE SR01

Inactive for new design after 8 March 1999

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

The requirements for acquiring the switch described herein shall consist of this specification sheet and the latest issue of MIL-DTL-3786.

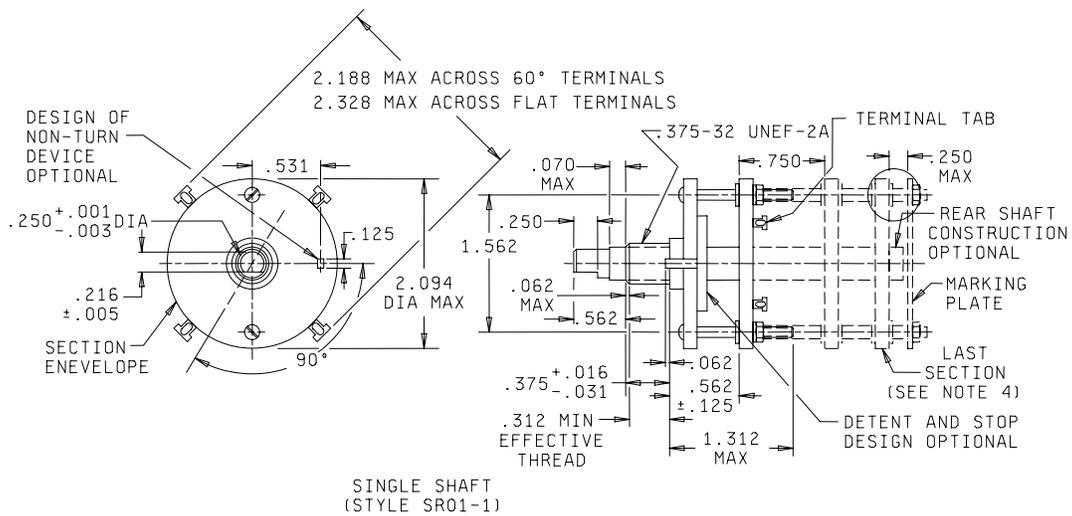
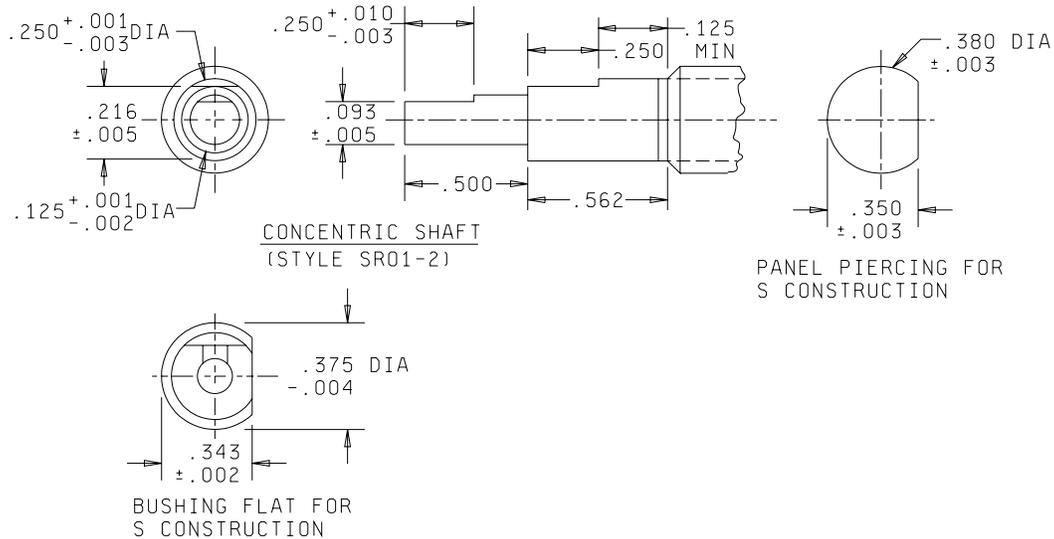


FIGURE 1. Style SR01 switch.

MIL-DTL-3786/1F



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is  $\pm .015$  (0.38 mm).
4. The number of sections is optional.
5. Nonturn device as shown is not applicable to S construction switches.
6. Shaft-flat angle  $90^\circ$  is the angle between a line through the center of the shaft and center of the nonturn device and another line through the center of the shaft and perpendicular to the shaft flat.
7. Shaft shown in maximum counterclockwise position for switches with stop and with switch in position number 1 for switches without stop.
8. For allowable variations, see MIL-DTL-3786 ordering data.
9. Front plate design optional provided it falls within the maximum O.D. of the section dimension referenced.

FIGURE 1. Style SR01 switch - Continued.

18° ANGLE OF THROW

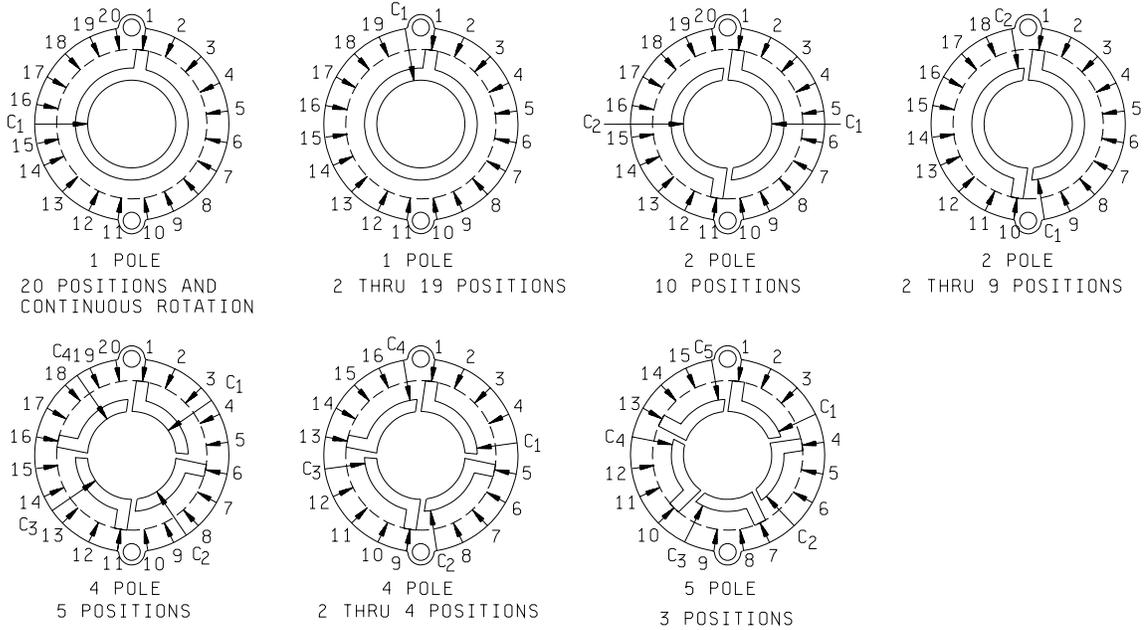


FIGURE 2. Circuit diagrams – viewed from front or knob end with switch in extreme counterclockwise position.

MIL-DTL-3786/1F

20° ANGLE OF THROW

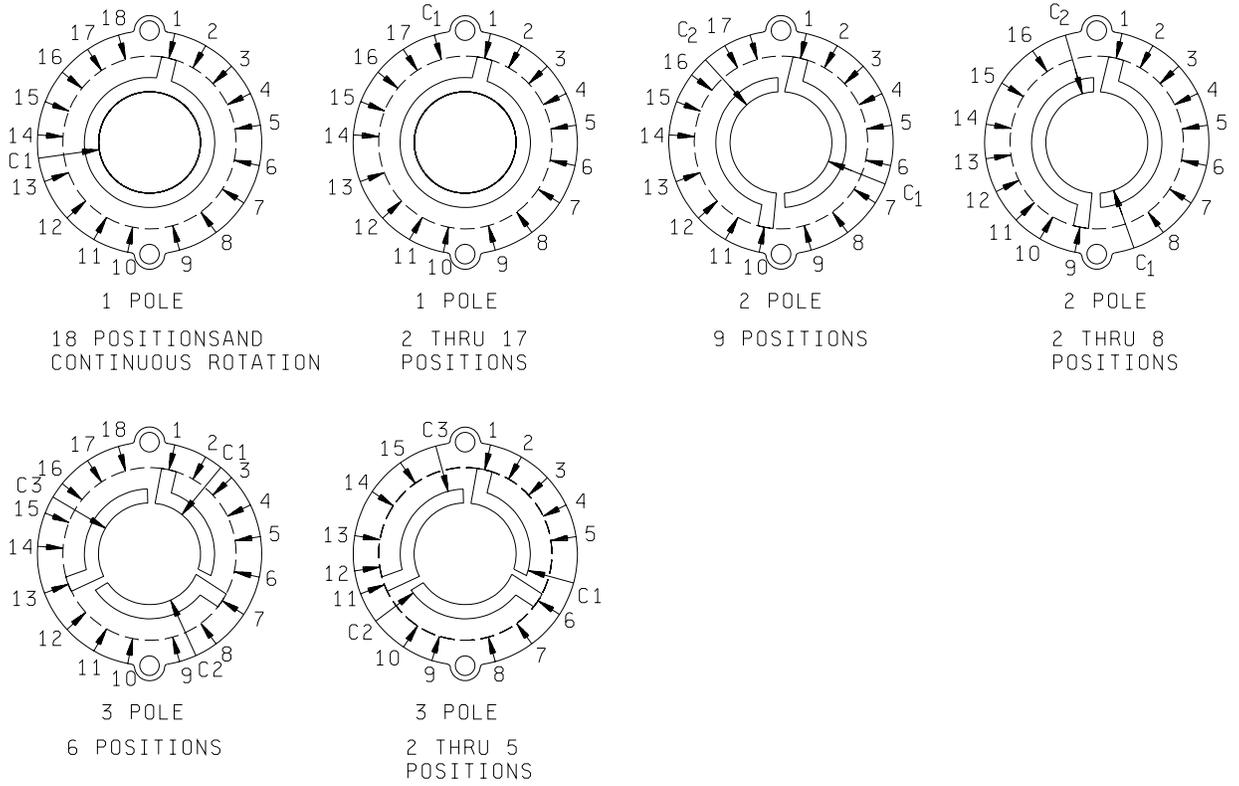
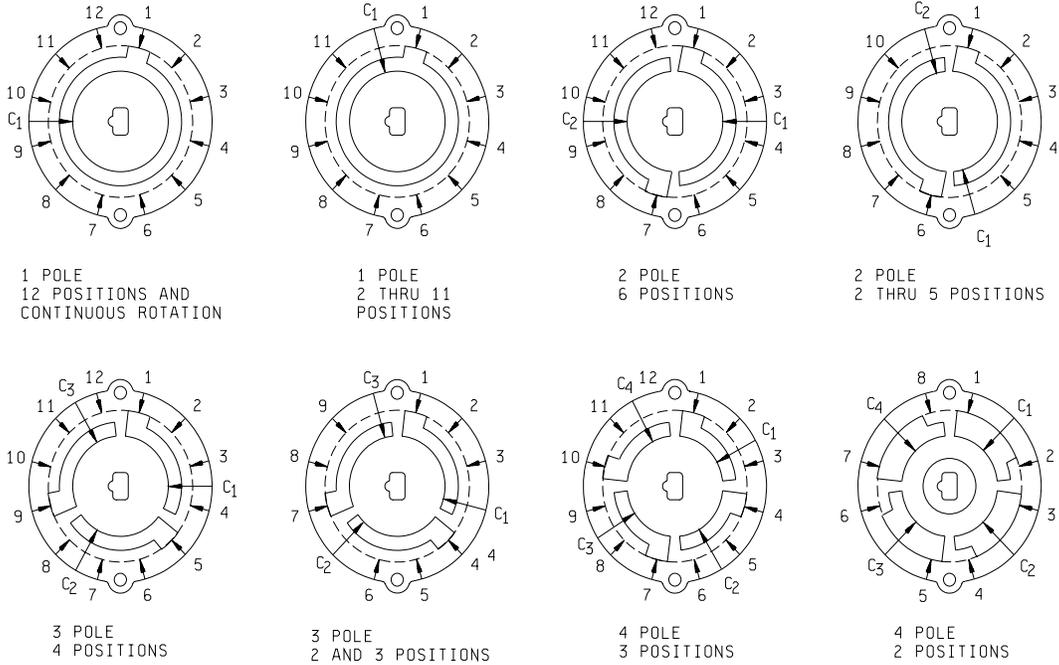


FIGURE 2. Circuit diagrams – viewed from front or knob end with switch in extreme counterclockwise position - Continued.

MIL-DTL-3786/1F

30° ANGLE OF THROW



36° ANGLE OF THROW

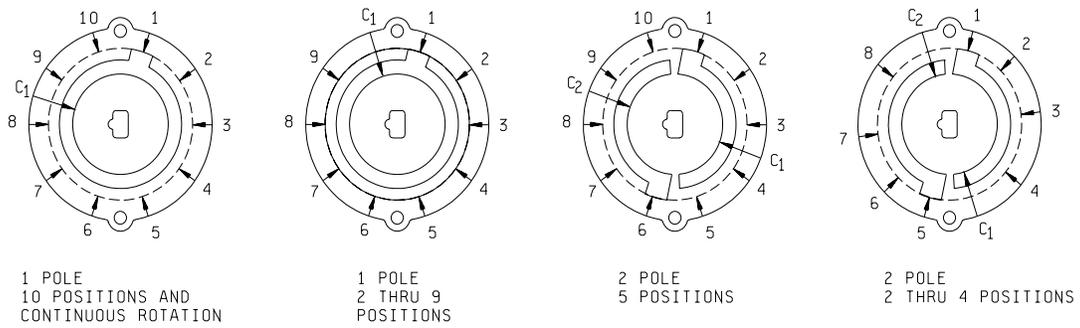


FIGURE 2. Circuit diagrams – viewed from front or knob end with switch in extreme counterclockwise position - Continued.

MIL-DTL-3786/1F

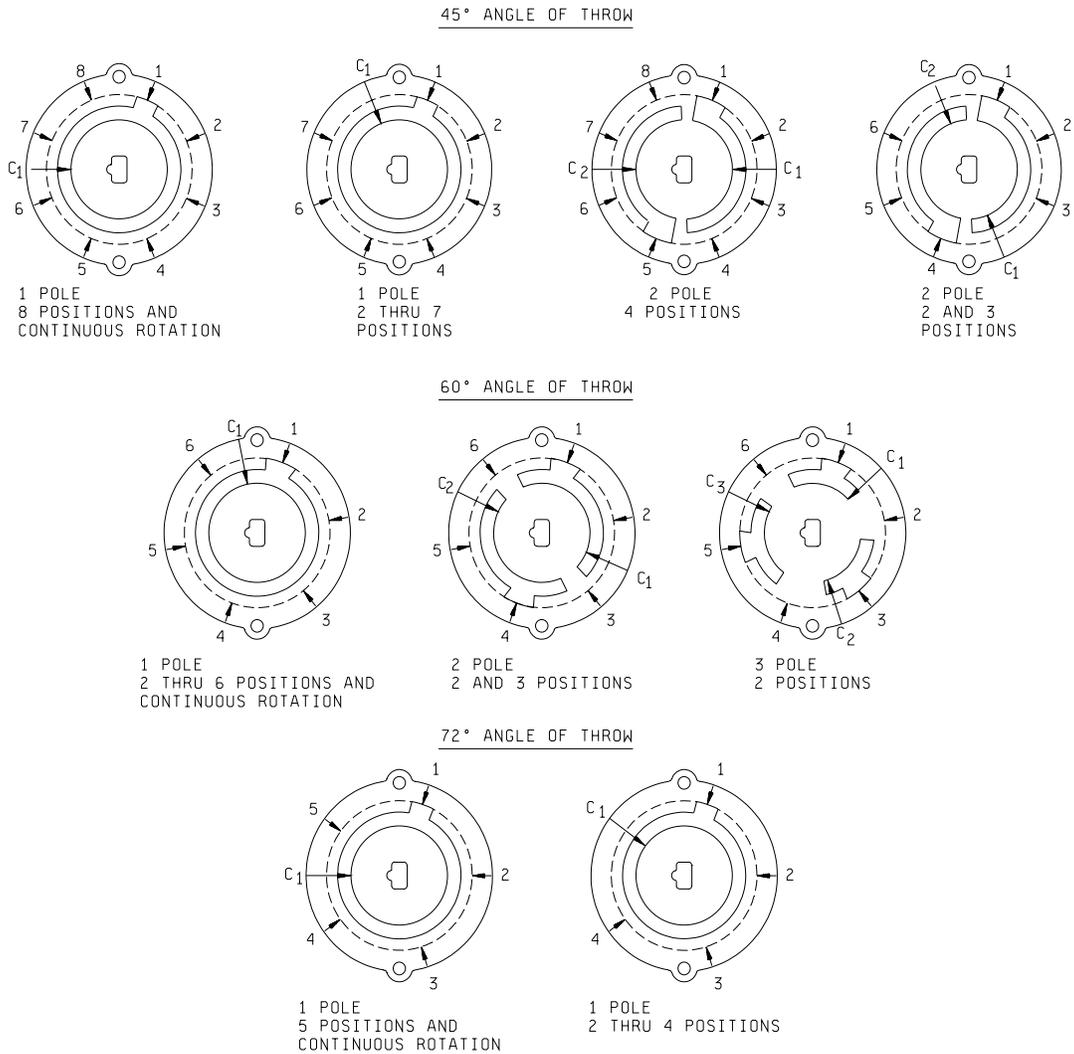


FIGURE 2. Circuit diagrams – viewed from front or knob end with switch in extreme counterclockwise position - Continued.

MIL-DTL-3786/1F

REQUIREMENTS:

Dimensions and configurations: See figures 1 and 2.

Angle of throw: 18°, 20°, 30°, 36°, 45°, 60°, and 72°. See table V.

Terminals: The terminal tabs shall be bent at an angle of 60 ±15 degrees from the plane of the section. When flat terminals are required, the dimensions shall be as shown on figure 1.

Rotational torque: The minimum and maximum values of torque determined for shaft rotation shall be within the limits specified in table I.

TABLE I. Rotational-torque limits.

Temperature	Torque (pound-inch)	
	Minimum	Maximum
Room	1.75	6
Minimum	1.75	8

Construction type: See table IV.

Number of poles per deck: See table VI.

Number of positions: See table VI.

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

TABLE II. Electrical load.

Environmental condition	Inductive Load		Resistive Load	
	Milliamperes	Volts, dc	Milliamperes	Volts
At atmospheric pressure	50	28	500	28 V dc
			225	115 V rms
			50	300 V rms
At reduced barometric pressure	---	---	350	28 V dc
			100	115 V rms

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Dielectric withstanding voltage: The applicable test voltage specified in table III shall be applied between the general switch elements.

TABLE III. Dielectric-test voltages.

Altitude	Test voltage
	<u>Volts, rms</u>
At atmospheric pressure	1,000
At reduced barometric pressure	400

Mounting hardware: Each switch shall be supplied with 1 each hexagon nut in accordance with MS25082-20 or equivalent, and one internal-tooth lockwasher in accordance with NASM35333-42 or equivalent.

Contact resistance: For switches of life-temperature characteristics A, C, and E, the contact resistance at room temperature shall not exceed the following values:

- Initial and after vibration and shock ----- 20 milliohms.
- After moisture-resistance and salt spray----- 30 milliohms.
- After initial soak and completion of life test----- 40 milliohms.

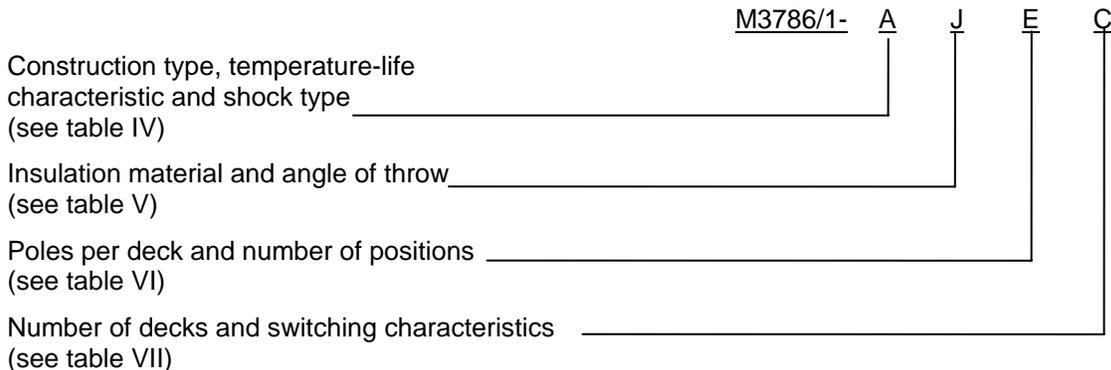
Vibration grade: Symbol 1 (10 to 55 Hz).

Shock type: See table IV.

Altitude: Symbol C (70,000 feet).

Part number: The military part number shall consist of M3786/1-(four letters selected from tables IV through VII) as shown in the following example:

(AJEC identifies a rotary switch of construction type N, temperature-life characteristic B, shock type 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 characteristics.)



NOTE: Part numbers shall be generated only to identify switches shown on figure 2. Acquisition of switches not identified by military part numbers shall be in accordance with the ordering data of MIL-DTL-3786.

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

Code letter	Construction type	Temperature-life characteristic	Shock type
A	N	B	H and M
B	S	B	"
C	N	C	"
D	S	C	"
E	N	D	"
F	S	D	"
G	N	B	M
H	S	B	"
J	N	C	"
K	S	C	"
L	N	D	"
M	S	D	"

TABLE V. 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	18	K	G	36
B	G	18	L	P	36
C	P	18	M	C	45
D	C	20	N	G	45
E	G	20	P	P	45
F	P	20	Q	C	60
G	C	30	R	G	60
H	G	30	S	P	60
I	P	30	T	C	72
J	C	36	U	G	72
			V	P	72

TABLE VI. Code letters for combinations 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 <u>1/</u>	X	2	3
B	1	2	Y	2	4
C	1	3	Z	2	5
D	1	4	1	2	6
E	1	5	2	2	7
F	1	6	3	2	8
G	1	7	4	2	9
H	1	8	5	2	10
J	1	9	6	3	2
K	1	10	7	3	3
L	1	11	8	3	4
M	1	12	9	3	5
N	1	13	10	3	6
P	1	14	11	4	2
Q	1	15	12	4	3
R	1	16	13	4	4
S	1	17	14	4	5
T	1	18	15	5	2
U	1	19	16	5	3
V	1	20	17	6	2
W	2	2			

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>
18°	20
20°	18
30°	12
36°	10
45°	8
60°	6
72°	5

TABLE VIII. 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	
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

## Referenced Documents:

MIL-DTL-3786  
MS25082  
NASM 35333

## Custodians:

Army - CR  
Navy - EC  
Air Force - 11  
DLA - CC

Preparing activity:  
DLA - CC

(Project 5930-1867)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at [www.dodssp.daps.mil](http://www.dodssp.daps.mil).