

MIL-S-4040/2 (EC)
9 September 1969

MILITARY SPECIFICATION SHEET

SOLENOID, ELECTRICAL

(ROTARY - STEPPING)

The complete requirements for procuring the solenoid described herein shall consist of this document and the latest issue of specification MIL-S-4040.

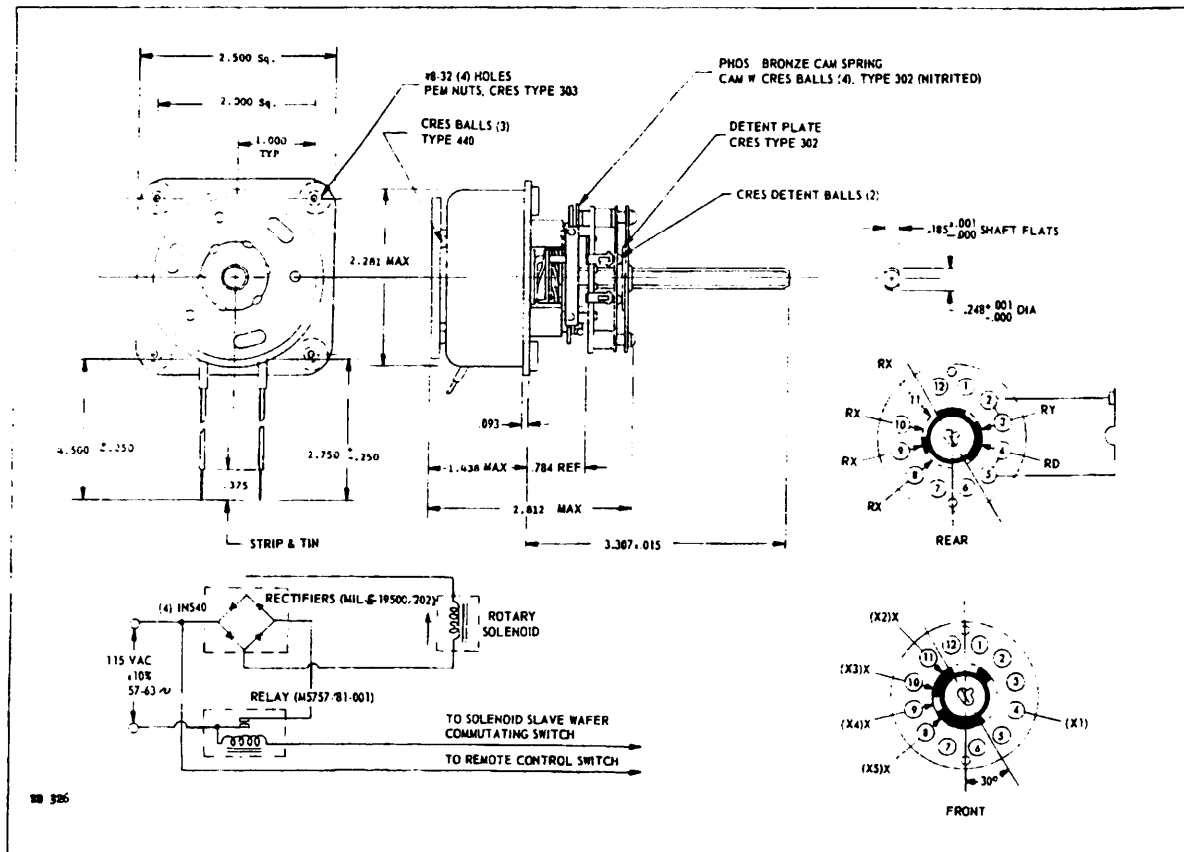


Figure 1

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INCHES	MM	INCHES	MM
.093	2.36	2.000	50.8
.185	4.70	2.281	57.94
.248	6.30	2.500	63.50
.250	6.35	2.750	69.86
.375	9.53	2.812	71.42
.784	19.91	3.307	84.00
1.000	25.4	4.500	114.30
1.438	36.53		

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, the tolerance is + .005.
3. Metric equivalents (to the nearest .01mm) are given for general information only and are based upon 1 inch = 25.4mm.

Figure 1. (Cont'd)

REQUIREMENTS:

Dimensions and configuration:	See figure	
Coil:		
Voltage	See figure and table I	
Resistance	See table I	
Current rating maximum	See table I	
Dielectric withstanding voltage coil to case . .	600 VRMS	
Contacts:		
Control deck	MIL-S-3786/3	50 milliamperes (mA), 28Vdc Inductive (2.8 Henries) 500 mA, 28Vdc Resistive 225 mA, 115 Vrms Resistive 50 mA, 300 Vrms Resistive
Interrupter switch	1.5 Vrms (resistive)	
Control deck dielectric withstanding voltage:		
Contact to contact	750 Vrms	
Contact to case	750 Vrms	
Design and construction:		
Required shaft torque	6.7 pound inch (see note 1 and 2)	
Duty cycle.	10 percent on, 90 percent off	
Rotary stroke	30° + 1-1/2° (see note 3)	
Plating	Steel parts (other than CRES) shall be cadmium plated in accordance with QQ-P-416 (Class 2, Type I), except case, armature plate, ratchet and drive yoke shall be chrome plated.	
Materials and finish:		
Control deck	MIL -S-3786 Symbol P	
Contacts and rotary	MIL -S-3786 Symbol P	
Shaft	CRES passivate dipped in accordance with QQ-S-763, Type 430, Switch shaft shall be keyed and staked to ratchet (cyanide hardened steel)	
Case and bracket	Metal	
Environmental requirements:		
Temperature	-10 to +65° C.	
Vibration	MIL STD 202, Method 201	
Shock	Test 2 (50 G)	
Thermal shock	Test condition A	

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Life: 500,000 rotation steps in accordance with MIL-S-28714

NOTES:

1. Over and above the unit detent requirements at any combination of line voltage, temperature and environmental tests as required in MIL-S-28714 and with the applied voltage consisting of an unfiltered, pulsating, unidirectional wave shape having a dc level of 25 volts minimum.
2. Manual torque required to rotate shaft shall be 1.5 inch-pounds max.
3. Total angular backlash between shaft and detent shall be not more than 2°.
4. A hardened CRES washer will be used on both sides of the interrupter cam to prevent ball wear.
5. A "C" ring will be used to prevent end motion of the switch shaft.
6. Detent balls will be CRES in accordance with QQ-S-763, Type 430, passivate dipped.

TABLE I. Coil data ^{1/}

AC Input Voltage	Rectified DC Working voltage	Coil Current in Amperes
130 max	117	2.25 max
120 nom	108	1.97 nom
110 min	99	1.73 min

^{1/} With the unit stabilized at 20°C +5°-0°

Part Number: M4040/2-01

APPLICATION DATA:

This item is intended for use in, but not limited to, Switchboard, Signal Distribution, Radar SB1108/SP, SB1109/SP, and SB1505/SP. (This part was formerly identified by Admiral Drawing #591C34.)

Preparing Activity:

Navy - EC

(Project 5945-N201-1)

SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 119-R004
<p style="text-align: center;"><u>INSTRUCTIONS</u></p> <p>This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity (as indicated on reverse hereof).</p>		
SPECIFICATION		
ORGANIZATION (Of submitter)		CITY AND STATE
CONTRACT NO.	QUANTITY OF ITEMS PROCURED	DOLLAR AMOUNT \$
MATERIAL PROCURED UNDER A		
<input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT		
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?		
A. GIVE PARAGRAPH NUMBER AND WORDING.		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.		
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE SPECIFICATION RESTRICTIVE?		
<input type="checkbox"/> YES <input type="checkbox"/> NO IF "YES", IN WHAT WAY?		
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)		
SUBMITTED BY (Printed or typed name and activity)		DATE