

MILITARY SPECIFICATION SHEET

RELAYS, VACUUM, SPST (NO), 15 AMPERES DC OR
 60 HZ RMS, 5 KILOVOLTS PEAK

This specification is approved for use within the Department of the Air Force, and is available for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the relays described herein shall consist of this specification and the latest issue of MIL-R-83725.

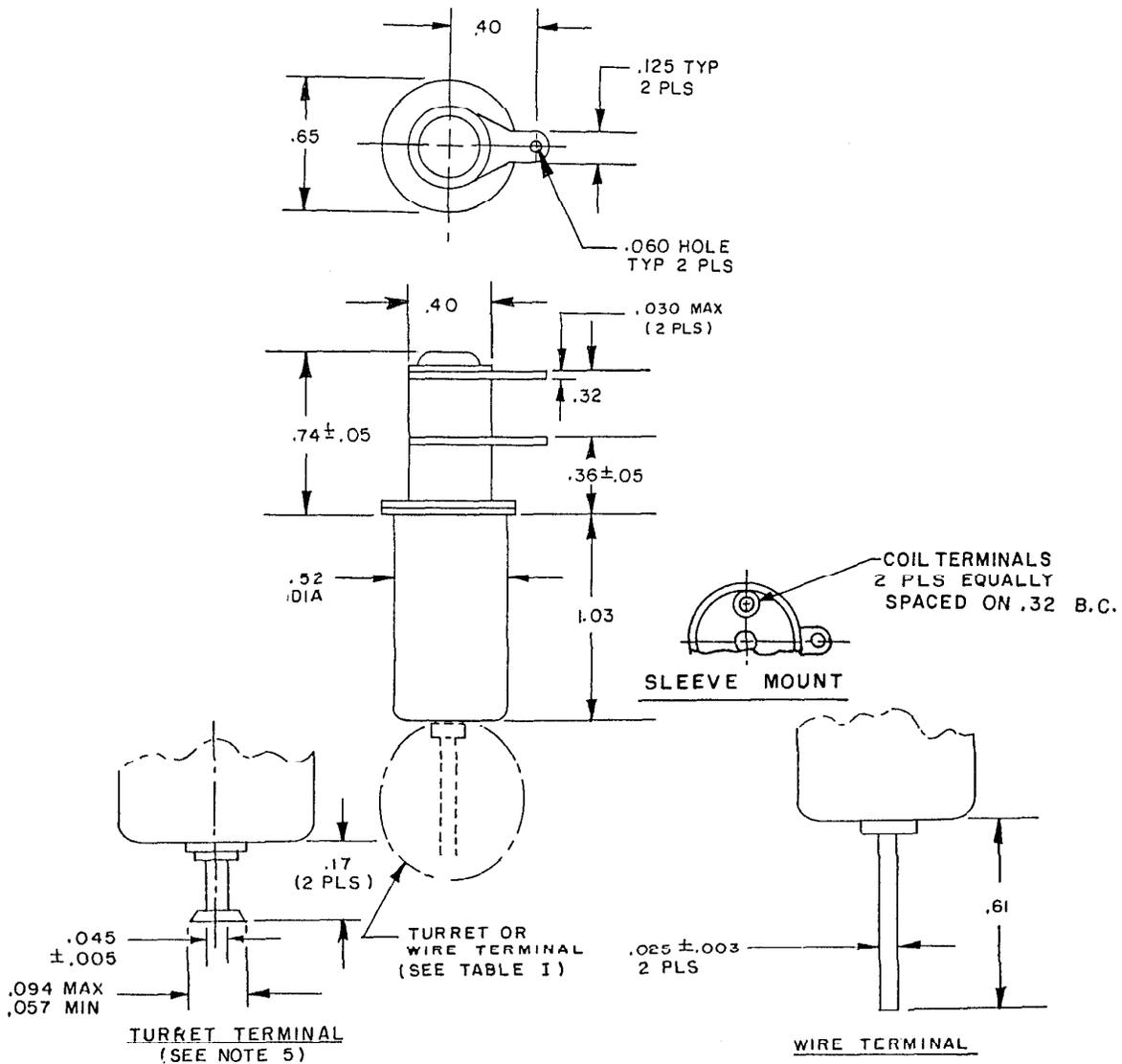
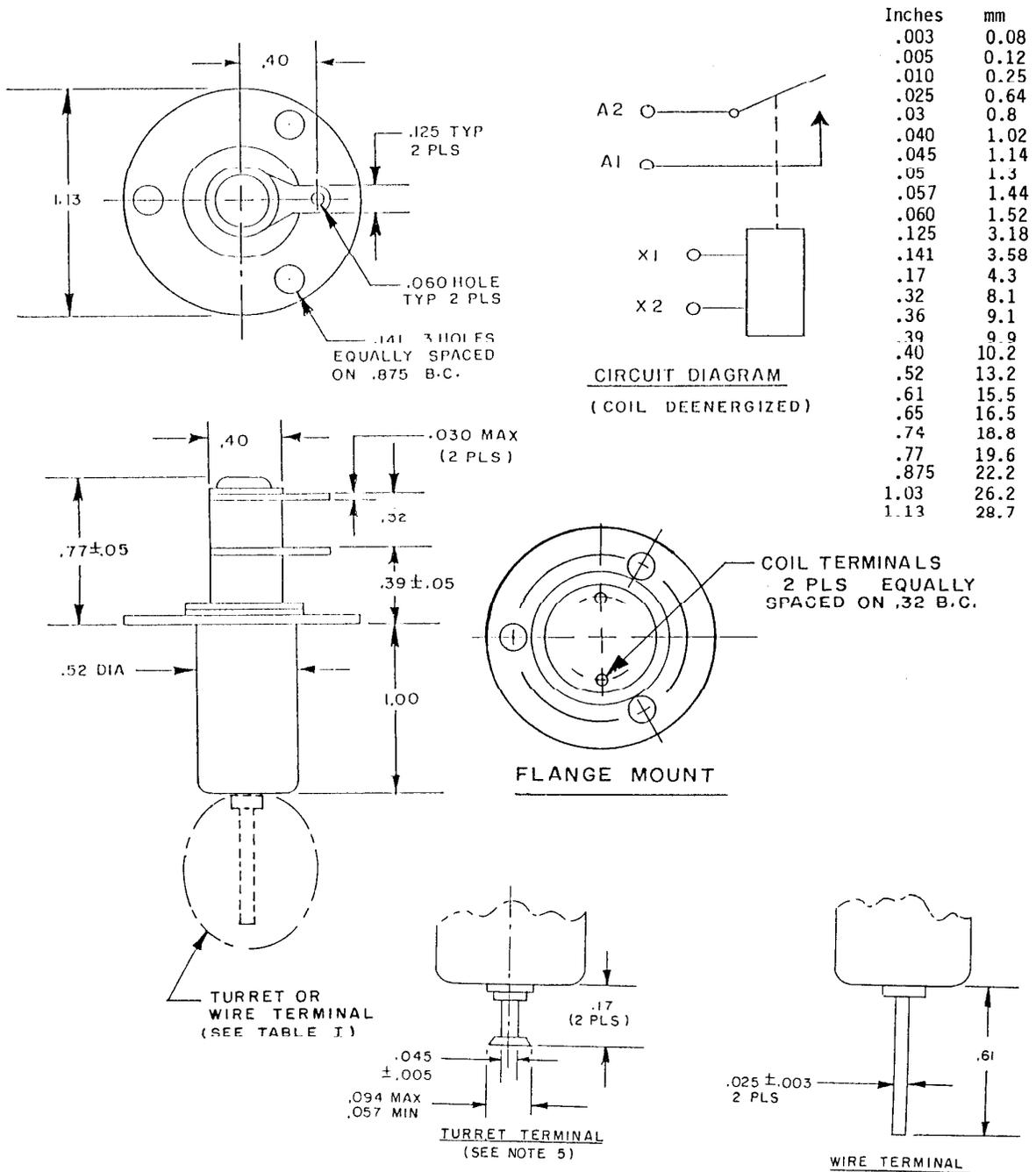


FIGURE 1. Relay dimensions and configuration.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
2. Unless otherwise specified, tolerances are $\pm .03$ (0.76 mm) for two places decimals and $\pm .010$ (0.25 mm) for three place decimals.
4. Glazing of ceramic insulator is required.
5. Turret terminals shall accommodate two number 22 AWG wires as a minimum.

FIGURE 1. Relay dimensions and configuration - Continued.

REQUIREMENTS:

CONTACT DATA:

Configuration: SPST, N/O, ground isolated.

Arrangement: 1 form A.

Load ratings:

Resistive: (Carry only).

15 amperes dc or 60 Hz rms.

12 amperes rms, 2.5 MHz.

8 amperes rms, 16 MHz.

6 amperes rms, 32 MHz.

2.75 amperes rms, 50 Hz.

2.0 amperes rms, 75 Hz.

Rated operating voltage:

5 kilovolts peak, 60 Hz or dc.

4.5 kilovolts peak, 2.5 MHz.

3.5 kilovolts peak, 16 MHz.

2.8 kilovolts peak, 32 MHz.

2.0 kilovolts peak, 50 Hz.

1.0 kilovolt peak, 75 Hz.

Contact resistance:

Rated life:

Before: .020 ohm, maximum.

During: .100 ohm, maximum.

After: .100 ohm, maximum.

Capacitance:

1.6 picofarads, maximum across open contacts.

1.6 picofarads, maximum between open contacts and ground.

COIL DATA: (See table I).

Duty rating: Continuous.

Operate time: 10 milliseconds, maximum, including bounce.

Release time: 10 milliseconds, maximum, including bounce.

ELECTRICAL DATA:

Insulation resistance: 1,000 megohms, minimum, except the resistance between coil and case at high temperature shall be 500 megohms or greater.

Dielectric withstanding voltage:

At atmospheric pressure, 60 Hz or dc.

Between all mated contacts in the open position: 6 kV peak.

Between high voltage terminals and case: 6 kV peak.

Between coil and case: 500 V rms, 60 Hz.

ENVIRONMENTAL DATA:

Temperature range: -55°C to +125°C.

Vibration: MIL-STD-202, method 204, test condition C (10-55 Hz, .06-inch DA/55-2000 Hz, 10 g).

Shock: MIL-STD-202, method 213, test condition A, 50 g, 11 milliseconds, half sine.

PHYSICAL:

Terminal strength: 5 pounds pull.

Dimensions and configuration: See figure 1.

Termination: Solder terminal.

Weight: 1 ounce, maximum.

LIFE TEST REQUIREMENTS:

Mechanical cycling: 2,000,000 cycles. Two sample units (cycling rate, 36,000 per hour maximum; contact current shall not exceed 10 milliamperes).

QUALITY ASSURANCE:

Dielectric withstanding voltage: Tests to be conducted at atmospheric pressure rating only.
Duration of application: 5-10 seconds at a 10 percent increase in the dielectric withstanding voltage.

PART NUMBER: M83725/21- and a dash number from table I.

TABLE I. Dash numbers and characteristics. 1/

Part number M83725/21-	Mount	Coil terminal type	Coil voltage rated (V dc) 2/	At 25°C 3/					Over temperature range		
				Coil resistance (ohms ±10%)	Coil voltage maximum (V dc)	Pickup voltage maximum (V dc)	Hold voltage (V dc)	Dropout voltage (V dc)	Pickup voltage maximum (V dc)	Hold voltage (V dc)	Dropout voltage (V dc)
001	Sleeve	Wire	12	70	14	8	5	0.5	11	7	0.3
002		"	26.5	290	32	16	10	1	23	14	0.7
003	"	"	115	4700	127	80	50	5	110	70	3.5
004	Flange	"	12	70	14	8	5	0.5	11	7	0.3
005	"	"	26.5	290	32	16	10	1	23	14	0.7
006	"	"	115	4700	127	80	50	5	110	70	3.5
007	Sleeve	Turret	12	70	14	8	5	0.5	11	7	0.3
008	"	"	26.5	290	32	16	10	1	23	14	0.7
009	"	"	115	4700	127	80	50	5	110	70	3.5
010	Flange	"	12	70	14	8	5	0.5	11	7	0.3
011	"	"	26.5	290	32	16	10	1	23	14	0.7
012	"	"	115	4700	127	80	50	5	110	70	3.5

1/ Relay case must be grounded.

2/ CAUTION: The use of any coil voltage other than rated coil voltage may compromise the operation of the relay.

3/ Energizing the coil for 30 minutes prior to measurement of the pick-up voltage is not applicable.

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QUALIFICATION INSPECTION:

Qualification inspection: See table II.

TABLE II. Qualification inspection.

Single submission	Group submission		
	Part	Sample size	Inspections
10 units plus 1 open unit	M83725/21-005	5 units	Full qualification
	M83725/21-011	5 units	
	M83725/21-001	1 unit	Group I of qualification inspection table, shock, vibration, plus 1 open unit of any dash number.
	M83725/21-004	1 unit	
	M83725/21-009	1 unit	
	M83725/21-012	1 unit	

Reduced qualification inspection: See table III. If the relays produced for MIL-R-83725/21 are similar in design and construction to the relays produced for MIL-R-83725/22, then reduced testing for qualification of MIL-R-83725/21 relays may be performed concurrent with or subsequent to successful qualification of MIL-R-83725/22.

TABLE III. Reduced qualification inspection.

Group submission		
Part	Sample size	Inspections
M83725/21-001	1 unit	Group I of qualification inspection table, shock, vibration, and plus 1 open unit of any dash number.
M83725/21-005	1 unit	
M83725/21-009	1 unit	
M83725/21-011	1 unit	

Preparing activity:
Air Force - 85

Agent:
DLA - ES

(Project 5945-F645-01)