

INCH-POUND

MS27749E
 27 November 2003
 SUPERSEDING
 MS27749D
 29 Apr 1985

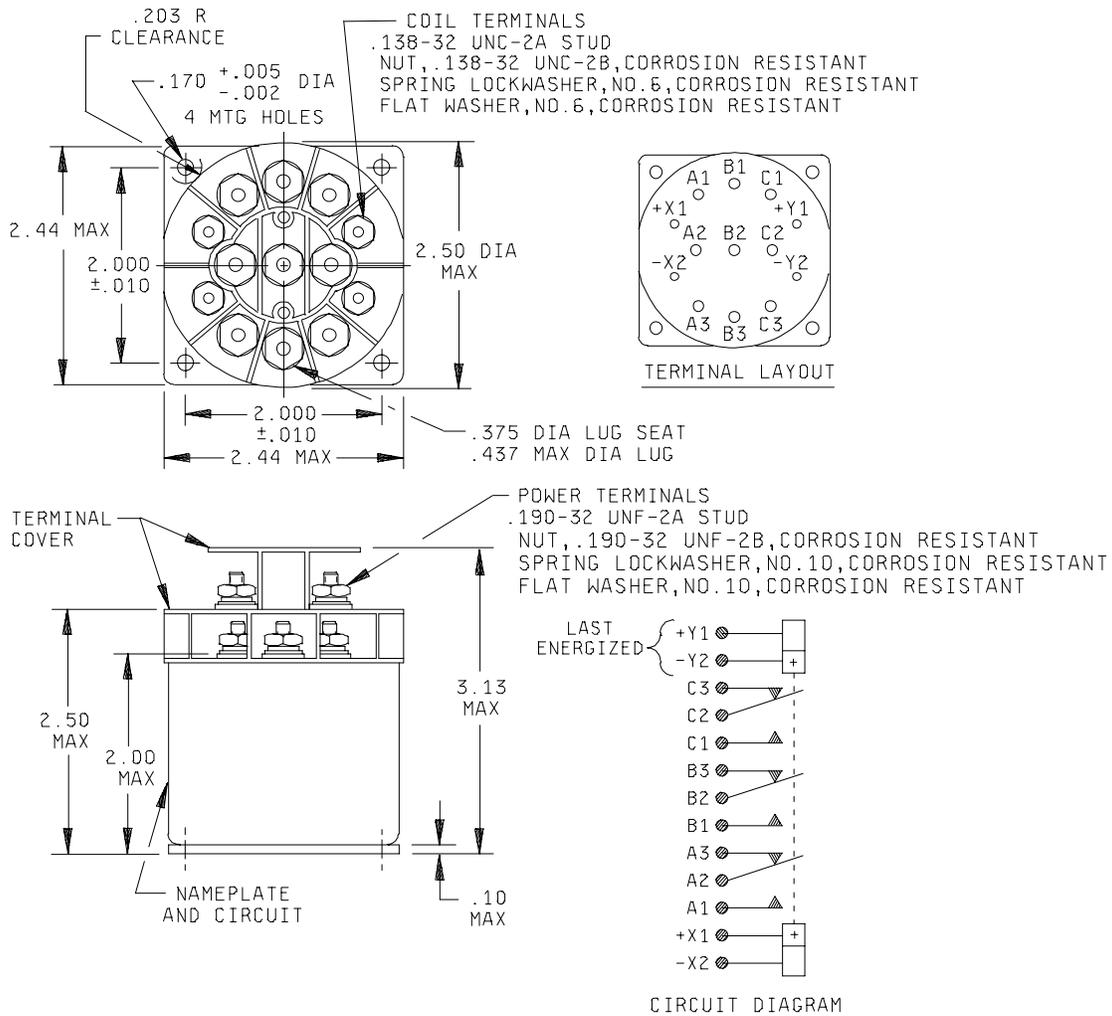
DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 60 AMPERES, 3 PDT
 MAGNETIC LATCH, HERMETICALLY SEALED

INACTIVE FOR NEW DESIGN AFTER 15 NOVEMBER
 2002. NO SUPERSEDING SPECIFICATION.

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

The requirements for acquiring the relay described herein shall
 consist of this specification and the latest issue of MIL-PRF-6106.



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Inches	mm
.002	0.05
.005	0.13
.010	0.25
.10	2.5
.170	4.32
.203	5.16
.375	9.52
.437	11.10
1.91	48.5
2.000	50.80
2.44	62.0
2.45	62.2
2.5	63.5
3.13	79.5

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is ± 0.031 (0.79 mm).
3. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.
4. Referenced Government documents of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this standard to the extent specified herein.
5. Relay is magnetically latched in both positions.
6. Coils are not to be energized simultaneously (unless connected series aiding).
7. Metric equivalents are given for general information only.

MS part number	Type	Coil	Terminal type	Mounting	Max weight in pounds
MS27749-1	I	dc	Stud	Plate	.875
MS27749-2	I	dc	Stud	Plate	.875

1/ Weight includes terminal barriers.

FIGURE 1. Dimensions and configurations - Continued.

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REQUIREMENTS:

Contact data:

Load ratings: See table I.

Initial contact voltage drop: 0.150 volt.

After life test: 0.175 V.

Overload current: 50 amperes dc; 80 amperes ac.

Rupture current: 60 amperes dc; 100 amperes ac.

Coil data: See table II.

Duty rating: Continuous.

Electrical data:

Insulation resistance:

Initial: 100 megohms.

After life or environmental test: 50 megohms.

Dielectric withstanding voltage:

Sea level:

	<u>Initial</u>	<u>After life tests</u>
Coil to case	1,000	1,000
Aux contacts	N/A	N/A
All other points	1,250	1,000

Altitude:

	<u>80,000 ft</u>	<u>300,000 ft</u>
Coil to case	350	500
Aux contacts	N/A	
All other points	350	500

Environmental characteristics:

Temperature range: -70°C to +125°C.

Maximum altitude rating: 300,000 feet.

Shock g-level: 200 g's.

Duration: 6 ms.

Max duration contact opening: 10 μ s.

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Vibration - sinusoidal:

G-level 30 g's.

Frequency range 10 - 3,000 Hz.

Vibration - random:

Applicable specification: MIL-STD-202, method 214.

Test condition: IG.

Duration: 15 minutes each plane.

Acceleration 15 g's.

Physical data:

Dimensions and configurations: See figure 1.

Weight: 0.18 pound maximum.

Part or Identifying Number (PIN): MS27742- (dash number from table II).

Qualification by similarity: See MIL-PRF-6106.

TABLE II. Rated contact load (amperes per pole) case grounded.

Type of load	Life operating cycles $\times 10^3$	28 V dc				115 V ac, phase				115/200 V ac, 3 phase <u>1/</u>				See appropriate notes
		Main		Aux		Main		Aux		Main		Aux		
		NO	NC	NO	NC	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz		400 Hz	60 Hz	
Resistive <u>2/</u>	50	25	25			25				25				
Inductive	10	12	12											
Inductive	20					15				15				
Motor	50	10	10			10				10				
Lamp	50	5	5			5				5				
Transfer load	---					---				---				<u>3/</u>
Mechanical life reduced current	200	6	6			6				6				
Mixed loads		Applicable per specification												

1/ Absence of value indicates relay is not rated for 3 phase applications.

2/ For full rated load, temperature, and altitude, use number 12 wire or larger. Relays shall be mounted so that mounting bracket temperature is limited to +135°C maximum.

2/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplies at rating indicated.

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Operating characteristics.

Part no. MS 27749-	Coil data									Time - (milliseconds maximum)						
	Coil	Nominal			Max at +25°C		Max pick-up voltage			Drop out volt- age ^{2/}	Oper- ate ^{3/}	Rel- eas e ^{4/}	Contact Bounce			
		Volts ^{1/}	Freq Hz	Ω Res ±10%	Volts	Amp	Nor- mal ^{2/}	High temp test	Cont cur- rent test				Main		Aux	
													NO	NC	NO	NC
1	X1,X2	28	dc	200	29	.190	18	20	21	N/A	35	---	3	3	---	---
2	Y1, Y2	28	dc	200	29	.190	18	20	21	N/A	---	35	3	3	---	---

^{1/} Contact transfer time @ rated voltage, 1.8 milliseconds minimum.

^{2/} Over the temperature range..

^{3/} With nominal coil voltage.

^{4/} From nominal coil voltage.

TABLE II. Rated contact load (amperes per pole) case grounded.

Type of load	Life operat ing cycles x 10 ³	28 V dc				115 V ac, 1 phase				115/200 V ac, 3 phase ^{1/}				See appro priate notes
		Main		Aux		Main		Aux		Main		Aux		
		NO	NC	NO	NC	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	
Resistive	50	50	50			60				60				
Inductive	20	20	20											
Inductive	50					60				60				
Motor	50	20	20			40				40				
Lamp	50	10	10			15				15				
Transfer load	10					12.5/ 60				12.5/ 60				^{2/}
Mechanical life reduced current	200	7	7			14				14				^{2/}
Mixed loads	50	1	1			5				5				

^{1/} Absence of value indicates relay is not rated for 3 phase applications.

^{2/} Transfer load indicates relay suitable for transfer between unsynchronized ac power supplies at rating indicated.
12.5 amps for -1, 60 amps for -2.

APPLICATION, NOTES:

- Examination of product, external parts shall be performed in accordance with MIL-PRF-6106, except the case temperature shall be limited to 150°C maximum.
- Strength of terminals, shall be performed in accordance with MIL-PRF-6106, except it shall be tested at room ambient temperature only.

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ENVIRONMENTAL CHARACTERISTICS

Temperature range 55°C to +71°C.

Max altitude rating 50,000 ft.

Shock G-level 50g.

Duration 6 ms

Max duration contact opening 10 μ s.

Vibration:

Sinusoidal:

G-level 10 g

Frequency range 70-2,000 Hz

Nonoperate

G-level 15 g

Frequency range 20-2,000 Hz

Acceleration 15 g

ELECTRICAL CHARACTERISTICS

Insulation resistance, initial 100 megohms.

After life or environmental tests 50 megohms

Dielectric strength (sea level)

	<u>Initial</u>	<u>After life tests</u>
Coil to case	1,000 V rms	1,000 V rms
Aux contacts	N/A	N/A
All other points	1,500 V rms	1,150 V rms

Dielectric strength (altitude).

Coil to case	<u>50,000 ft</u> 500 V rms
Aux contacts	N/A
All other points	700 V rms

Max contact drop initial .150 volt.

After life test .175 volt.

Overload current 125 A dc; 115/200 A ac;

Rupture current 150 A dc; 115/200 Vac; 400 Hz 500 A

Duty rating Continuous.

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Conformance inspection: Performance of groups B and C tests may be suspended at the discretion of the qualifying activity.

Qualification by similarity: See MIL-PRF-6106.

NOTES

Referenced documents. In addition to MIL-PRF-6106, this specification sheet references the following documents. (Government documents are available on line at <http://assist.daps.dla.mil/quicksearch> or www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094).

STANDARDS

Department of Defense

- MIL-STD-202 - Electronic and Electrical Component Parts
- MIL-STD-461 - Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment

Custodians:
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5945-1214-01)

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 ASSIST Online database at www.dodssp.daps.mil.