INCH-POUND

MS27709G
6 February 1996
SUPERSEDING
MS27709F
5 June 1987

MILITARY SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 10 AMPERES, 4 PDT, TYPE I, HERMETICALLY SEALED

INACTIVE FOR NEW DESIGN
AFTER 5 JUNE 1987.
NO SUPERSEDING STANDARD.

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 specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-R-6106.

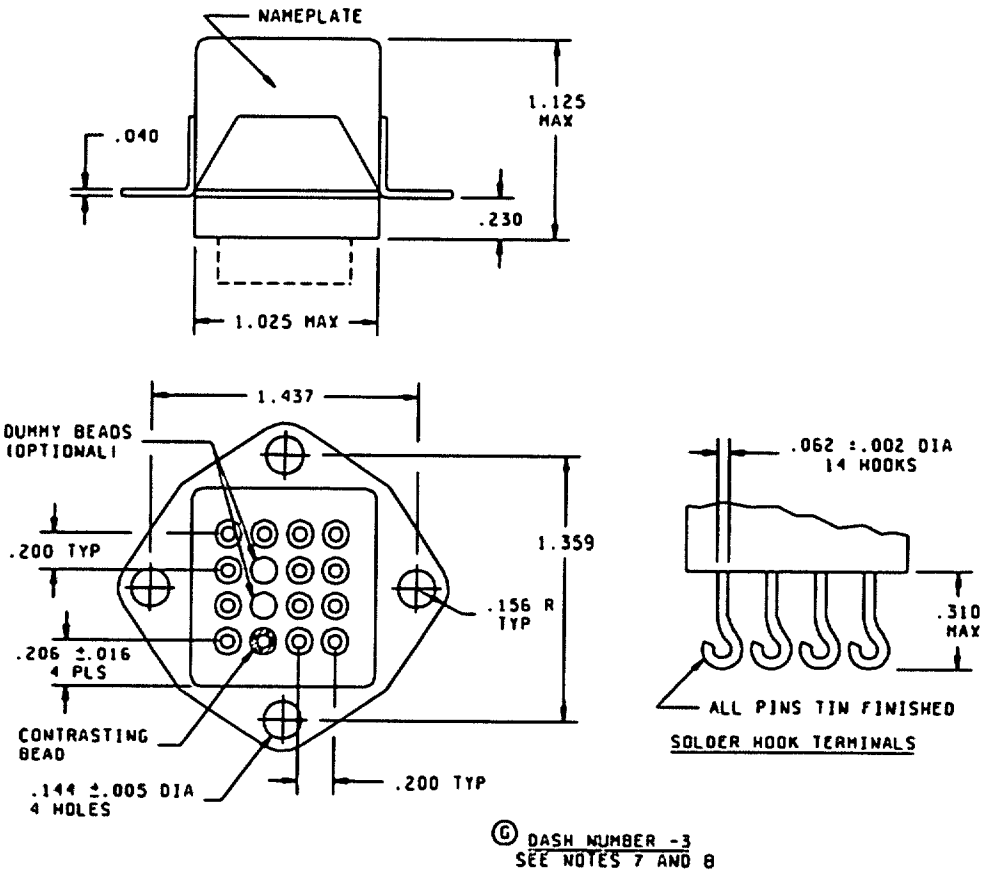


FIGURE 1. Configurations and dimensions.

G denotes changes

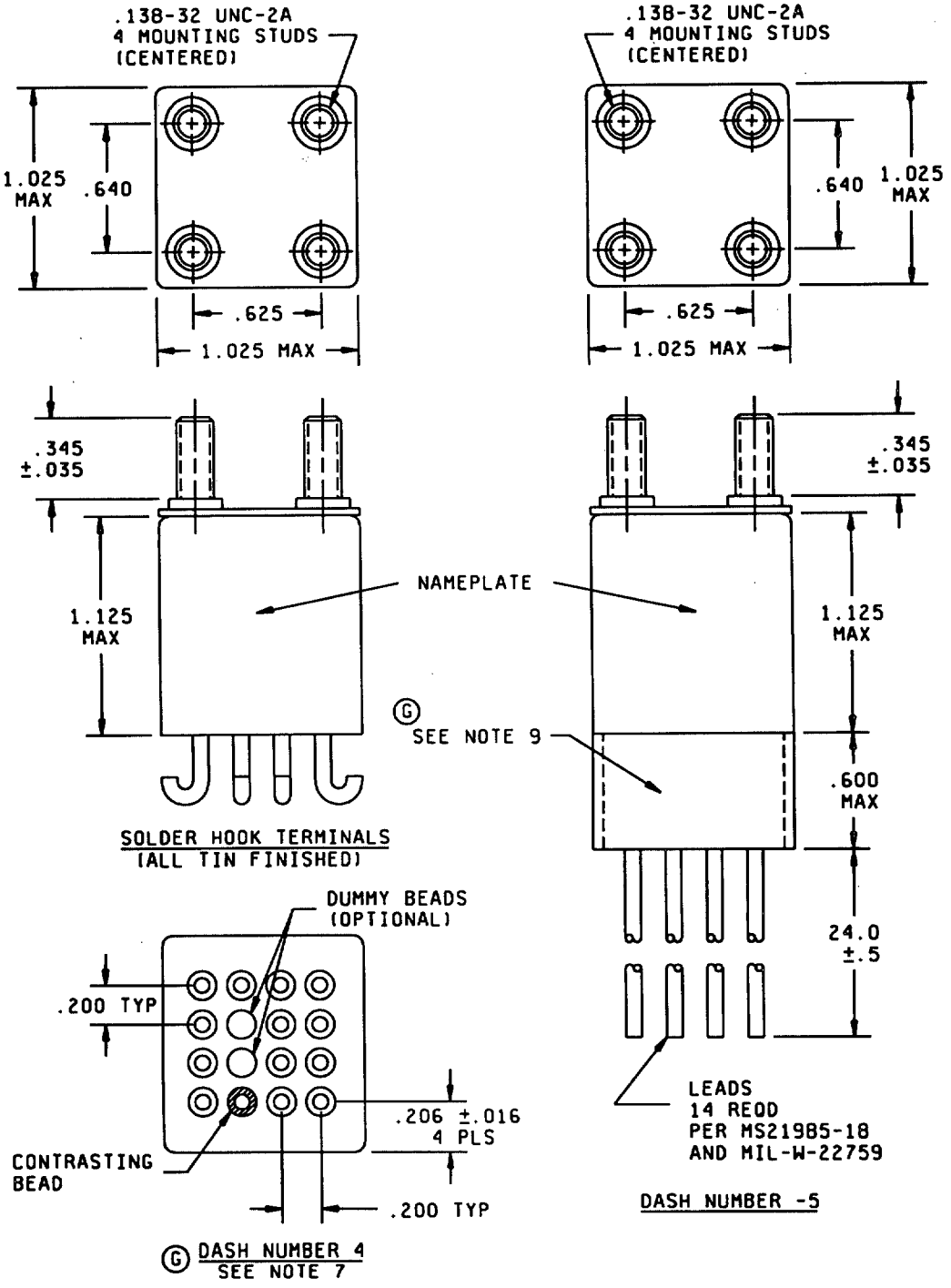
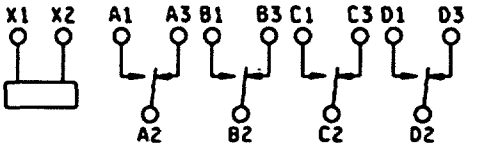


FIGURE 1. Configurations and dimensions - Continued.

Inches	mm	Inches	mm	Inches	mm
.002	0.05	.156	3.96	.625	15.88
.005	0.13	.200	5.08	.640	16.26
.010	0.25	.206	5.23	1.025	26.04
.016	0.41	.230	5.84	1.125	28.58
.035	0.89	.300	7.62	1.359	34.52
.040	1.02	.310	7.87	1.437	36.50
.062	1.57	.345	8.76	24.0	610.
.138	3.51	.500	12.70		
.144	3.66	.600	15.24		

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ±.010 (0.25 mm).
4. (G) Terminal numbers shall not appear on relay header. There shall be affixed to the relay a legible circuit diagram that identifies each terminal location specified.
5. In the event of a conflict between the text of this document and the references cited herein, the text of this document shall take precedence.
6. 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 document to the extent specified herein.
7. (G) Orientation of solder lugs is optional.
8. (G) Shape of flange is optional within the envelope dimensions shown.
9. (G) Shell material shall be diallyl phthalate type SDG in accordance with MIL-F-14, or equivalent material as approved by the qualifying activity. Shell shall be filled with encapsulation in accordance with MIL-S-23586, grade B, type II, class II, or equivalent filler as approved by the qualifying activity.

(G) FIGURE 1. Configurations and dimensions - Continued.



CIRCUIT DIAGRAM

Lead coding (-5 only)			
Term	Color	Term	Color
A1	Blue	C2	White-brown
A2	Brown	C3	White-red
A3	Red	D1	White-yellow
B1	Yellow	D2	White-orange
B2	Orange	D3	White-green
B3	Green	X1	White
C1	White-blue	X2	Black

(G) FIGURE 2. Lead coding and circuit diagram.

REQUIREMENTS:

Configurations and dimensions: See figure 1.

(G) Lead coding and circuit diagram: See figure 2.

Dash numbers and general characteristics: See table I.

Contact data:

Rated contact load: See table II.

Maximum contact drop, initial: 0.150 V.

After life test: 0.175 V.

Overload current (NO): 40 amperes dc.

Rupture current (NO): 50 amperes dc.

Operating characteristics: See table III.

Duty rating: Continuous.

RFI specification: N/A.

Electrical data:

Minimum insulation resistance:

Initial: 100 megohms.

After life or environmental test: 50 megohms.

Dielectric strength:

Sea level, 2-5 seconds:

	Initial	After life tests
Coil to case:	1,000 V rms	1,000 V rms
Aux. contacts:	N/A	N/A
(G) All other points:	1,250 V rms	1,000 V rms

Altitude, 1 minute (80,000 ft.): 1/

Coil to case:	N/A	250 V rms
Aux. contacts:	N/A	N/A
All other points:	N/A	350 V rms

1/ Dielectric may be improved by suitable insulation of terminals and wiring after installation.

Environmental characteristics:

Temperature range: -70°C to +125°C.

Maximum altitude rating: 80,000 feet.

Shock, g-level: 50 g's.

Duration: 10 ms.

Maximum duration contact opening: 1 ms.

Vibration, sinusoidal:

G-level: 20 g's.

Frequency range curve: 10 to 2,000 Hz.

Vibration, random: N/A.

High shock: N/A.

Acceleration: 15 g's.

Terminal strength (high temperature pull and torque test): N/A.

Part or Identifying Number (PIN): MS27709- (plus applicable dash number from table I).

(G) Quality assurance provisions: Group B and group C testing are not required. The manufacturer shall notify the qualifying activity in the event of any design or construction changes, and shall impose additional testing requirements as necessary.

(G) The Qualified Products List (QPL) associated with this inactive for new design specification will be maintained until acquisition of the product is no longer required, whereupon the specification and the QPL will be canceled.

(G) Supersession data: See table IV.

TABLE I. Dash numbers and general characteristics.

PIN MS27709-	Type	Coil	Terminal type	Mounting or mating socket	Max weight (pound)
3	I	dc	Solder hook	Flange (4 hole)	0.2
4	I	dc	Solder hook	Stud	0.2
5	I	dc	Potted leads	Stud	0.5

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

Type of load	Life operating cycles x 10^3	28 V dc				115 V ac, 1 phase				115/200 V ac, 3 phase 1/				See appropriate 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	100	10	10			10				10				
Inductive	50	8	8			8				8				
Motor	100	4	4			4				4				
Lamp	100	2	2			2				2				
Transfer load														2/
Mechanical life (reduced current)	400	2.5	2.5			2.5				2.5				
Intermediate current		Applicable per MIL-R-6106												

1/ Absence of value indicates that the relay is not rated for 3 phase applications.
2/ Transfer load indicates that the relay is suitable for transfer between unsynchronized ac power supplies at the rating indicated.

(G) TABLE III. Operating characteristics.

PIN MS27709-	Coil data											Time - (milliseconds maximum)					
	Coil	Rated			Max		Max pickup voltage			Hold voltage 2/	Drop-out voltage 2/	Operate 3/	Release 4/	Contact bounce			
		Volts 1/	Freq. (Hz)	Res (Ω) min	Volts	A	Normal 2/	High temp test	Cont current test					Main		Aux	
														NO	NC	NO	NC
3	X1,X2	28	dc	260	29	.200	18	19.8	22.5	7.0	1.5	15	15	2	2		
4	X1,X2	28	dc	260	29	.200	18	19.8	22.5	7.0	1.5	15	15	2	2		
5	X1,X2	28	dc	260	29	.200	18	19.8	22.5	7.0	1.5	15	15	2	2		

1/ CAUTION: Use of any coil voltage less than the rated coil voltage will compromise the operation of the relay.
2/ Over the temperature range.
3/ With rated coil voltage.
4/ From rated coil voltage.

(G) TABLE IV. Supersession data.

Superseded PIN MS27709-	Replacement PIN M83536/15-
1	021
2	022
6	No replacement

CONCLUDING MATERIAL

Custodians:
Navy - AS
Air Force - 85

Preparing activity:
Air Force - 85

Agent:
DLA - ES

(Project 5945-0977)