INCH-POUND

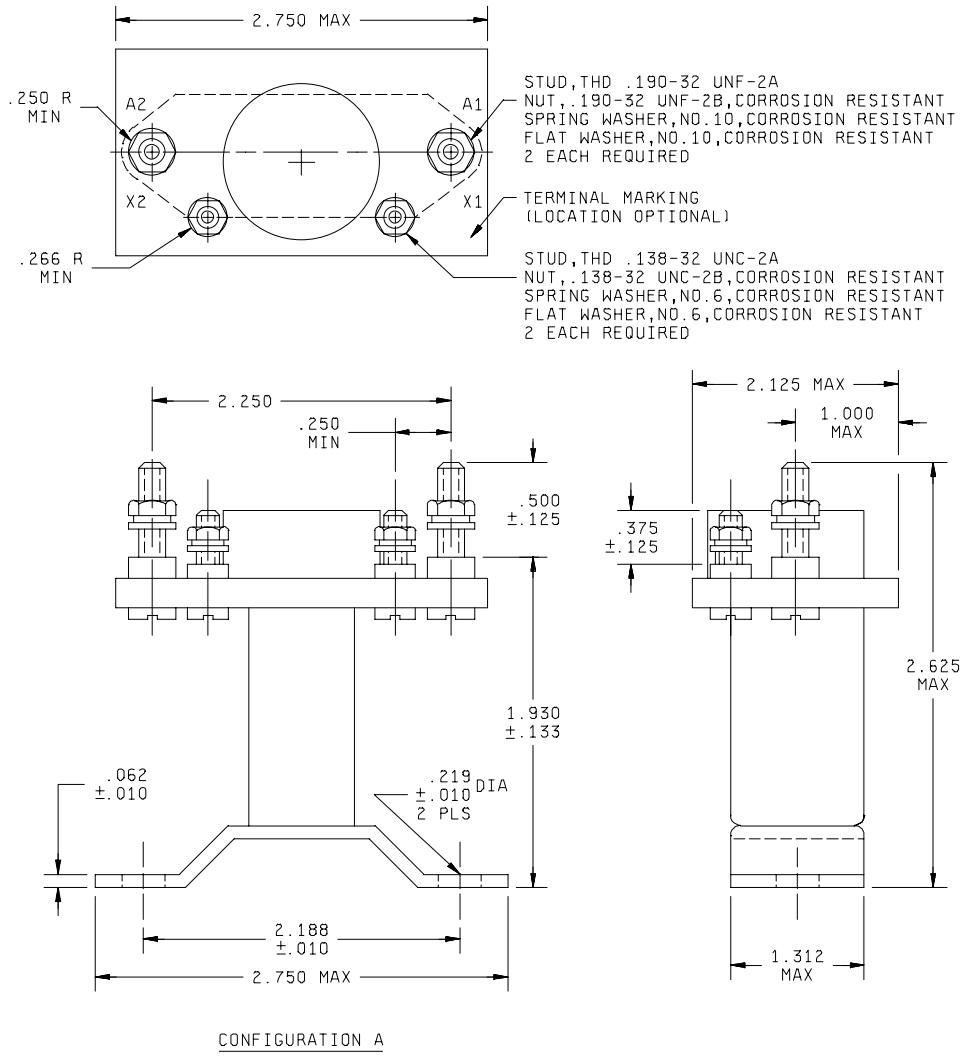
MS24166J
15 April 2003
SUPERSEDING
MS24166H
18 March 1996

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 50 AMPERES, 1 PST, (N.O.) TYPE II, NONHERMETICALLY SEALED

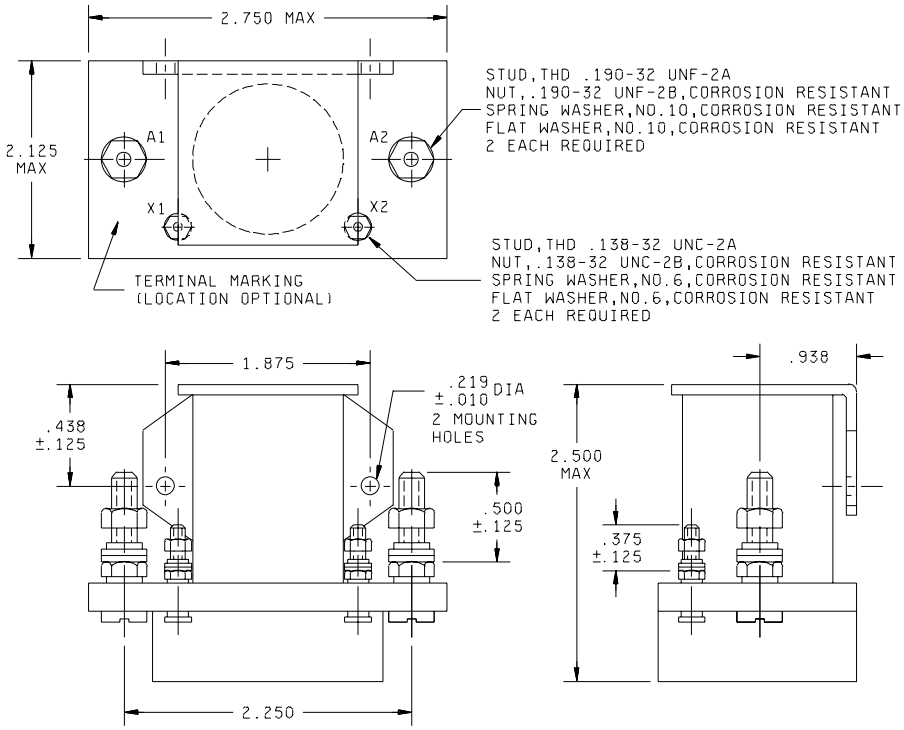
This specification is approved for use by all Departments and Agencies of the Department of Defense.

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



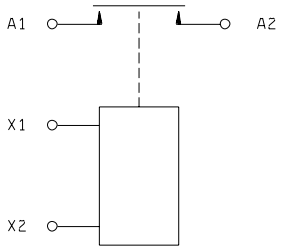
CONFIGURATION A

FIGURE 1. Configurations and dimensions.



CONFIGURATION B

Inches	mm	Inches	mm
.010	0.25	.938	23.83
.062	1.57	1.000	25.40
.093	2.36	1.312	33.32
.125	3.18	1.875	47.63
.133	3.38	1.930	49.02
.219	5.56	2.125	53.98
.250	6.35	2.188	55.58
.266	6.76	2.250	57.15
.375	9.53	2.625	66.68
.438	11.13	2.750	69.85
.500	12.70		



CIRCUIT DIAGRAM

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ±.031 (0.79 mm).
4. An additional flat washer may be used for terminal seat.
5. Terminal temperature rise under continuous current conditions is 95°C. Intermediate current shall be conducted at 71°C.
6. In the event of a conflict between the text of this specification and the references cited herein, this specification shall take precedence.
7. 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.
8. Shape of relay is optional within the envelope dimensions shown.
9. Cadmium or cadmium compounds are prohibited on external hardware. A transition period to non-cadmium hardware is authorized for up to 1 year from the date of this revision.
10. Spring washer on drawing is a spring lock washer.

FIGURE 1. Configurations and dimensions - Continued.

REQUIREMENTS:

Configurations and dimensions: See figure 1.

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): 400 amperes.

Rupture current (NO): 500 amperes.

Operating characteristics (see table III):

Duty rating: Continuous.

RFI specification: MIL-STD-461 (applicable to coil circuits of ac operated relays).

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	
	28 V dc	115 V ac	28 V dc	115 V ac
Coil to case:	1,250 V rms	N/A	1,000 V rms	N/A
Aux. contacts:	1,250 V rms	N/A	1,000 V rms	N/A
All other points:	250 V rms	N/A	1,000 V rms	N/A

Altitude, 1 minute.

	Initial	
	28 V dc	115 V ac
Coil to case:	500 V rms	N/A
Aux. contacts:	500 V rms	N/A
All other points:	500 V rms	N/A

Environmental characteristics:

Temperature range: -55°C to +71°C.

Maximum altitude rating: 50,000 feet.

Shock, g-level: 25 g's.

Duration: 6-9 ms.

Maximum duration contact opening: 2 ms.

Vibration levels, sinusoidal: See table IV.

Vibration, random: N/A.

High shock: N/A.

Acceleration: 10 g's.

Qualification by similarity: See table V.

Part or Identifying Number (PIN): MS24166- (plus applicable dash number from table I).

TABLE I. Dash numbers and general characteristics.

PIN MS24166-	Type	Coil	Terminal type	Mounting or mating socket	Maximum weight (pounds)
D1 1/	II	dc	Stud	Bracket - bottom	0.6
D2 2/	II	dc	Stud	Bracket - side	0.6

1/ For Government logistics support, MS24166-D1 shall be used in lieu of AN3350-2.
2/ For Government logistics support, MS24166-D2 shall be used in lieu of AN3350-1.

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/			
		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											
Inductive	10	50											
Motor	50	50											
Lamp	50	25											
Transfer load 2/													
Mechanical life (reduced current)	100	12.5											
Mixed loads	50	5											

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

TABLE III. Operating characteristics.

PIN MS24166-	Coil data											Time - (milliseconds maximum)					
	Coil	Rated			Max		Max pick-up voltage			Hold voltage 2/	Drop-out voltage 2/	Operate 3/	Release 4/	Bounce			
		Volts 1/	Freq. (Hz)	Res Ω +10% -15%	Volts	Ampere	Normal 2/	High temp test	Cont Current test					Main		Aux	
														NO	NC	NO	NC
D1	X1,X2	28	dc	94	29	.35	18	21	22.5	7.0	1.5	20	10	5.0			
D2	X1,X2	28	dc	94	29	.35	18	21	22.5	7.0	1.5	20	10	5.0			

1/ CAUTION: Use of any coil voltage less than 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.

TABLE IV. Vibration levels (sinusoidal).

5-10 Hz	10-55 Hz	55-250 Hz	250-500 Hz	500-1500 Hz
0.08	.06 DA	2 g's	2 g's	N/A

Custodians:
Navy - AS
Air Force - 11
DLA - CC

Review activity:
Air Force - 99

Preparing activity:
DLA - CC

(Project 5945-1206-07)