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IN REPLY  
REFER TO

DSCC-VAT

6 July 2004

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Proposed Drafts of MS24140M, Amendment 1; MS24171G, Amendment 1; MS24178H, Amendment 2; Project Numbers 5945-1277 to 5945-1279

The initial drafts of the subject documents are now available for viewing and downloading from the DSCC-VA Web site:

<http://www.dsccols.com/Programs/MilSpec>

or

<http://www.dscc.dla.mil/Programs/MilSpec/DocSearch.asp>

The proposed drafts of the subject documents are forwarded for your review and comment. The proposed documents identify loading requirement clarifications for MS24140 and to correct errors made during the previous revisions. Vertical lines in the margins are intended to mark the location of changes.

If these documents are of interest to you, please submit your typed comments or suggestions using electronic mail or by letter. Comments may be resubmitted if it is believed that insufficient consideration has been given to previous comments. Please provide additional justification for these items. Comments or suggested changes that are not editorial in nature should include justification. Industrial activities should indicate whether they are commenting from the standpoint of a "User" or "Manufacturer." Military review activities should forward comments to their custodians in sufficient time to allow for consolidating the departmental reply. All agencies, industry, and coordinated custodian comments should be sent to this center. Comments originating from the military departments must be identified as either "Essential" or "Suggested." Essential comments, which must be accepted or withdrawn, should be supported by test data unless they obviously require no data.

Comments should be returned to this Center no later than 45 days from the date of this letter. If no response is received by the specified date, it is assumed that you concur with the documents. Any further coordination concerning these documents will be circulated only to firms and organizations that furnish comments or reply that they have an interest.

If there are any questions, please contact Mr. Jim Crum, by electronic mail at [James.Crum@dla.mil](mailto:James.Crum@dla.mil) (preferred method of notification); by telephone at commercial 614-692-0542, DSN 850-0542; by facsimile 614-692-6939; or by mail at Defense Supply Center Columbus, Electronic Components Team, DSCC-VAT, P.O. Box 3990, Columbus, OH 43218-3990.

*Signature on File*

KENDALL A. COTTONGIM  
Chief  
Electronic Components Team

3 Attachments



**NOTE: This draft, dated 6 July, 2004 prepared by DLA-CC has not been approved and is subject to modification. DO NOT USE FOR ACQUISITION PURPOSES. (Project # 5945-1278)**

INCH-POUND

MS24171G  
w/AMENDMENT 1  
DRAFT  
SUPERSEDING  
MS24171G  
15 April 2003

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 200 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.

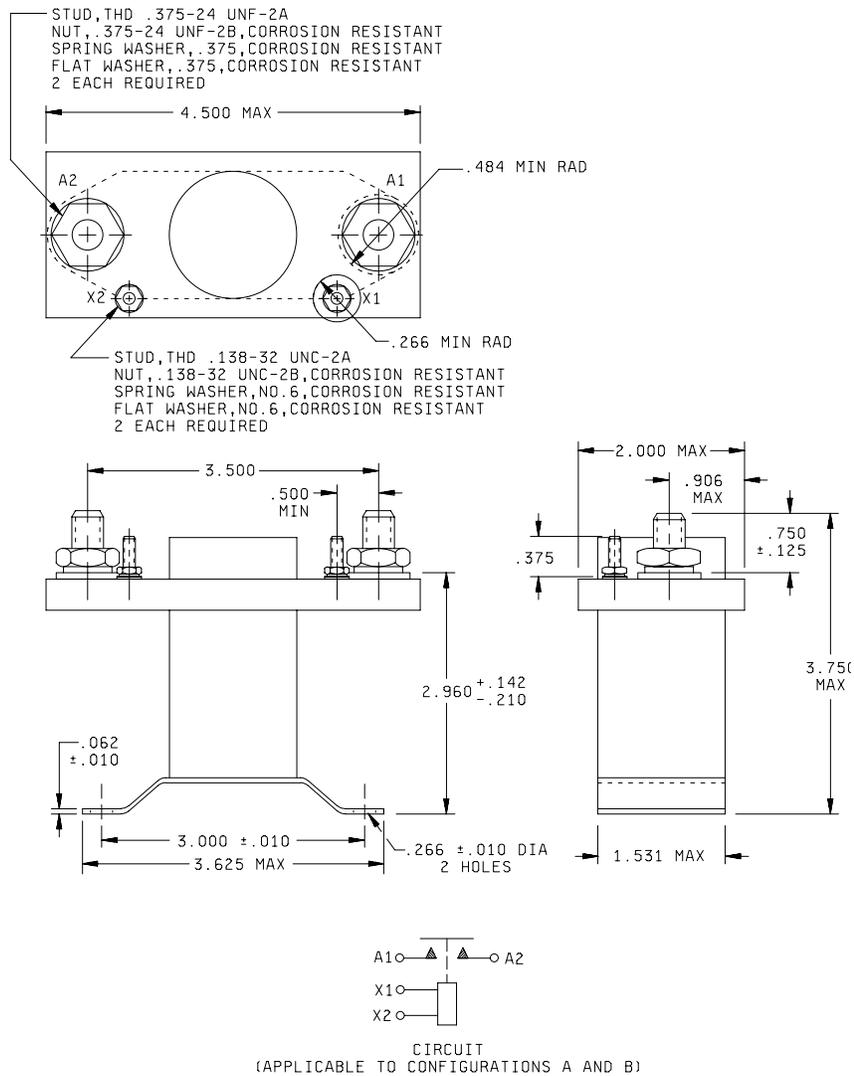


FIGURE I. CONFIGURATION A. Dimensions and configurations (for details see tables I and II).

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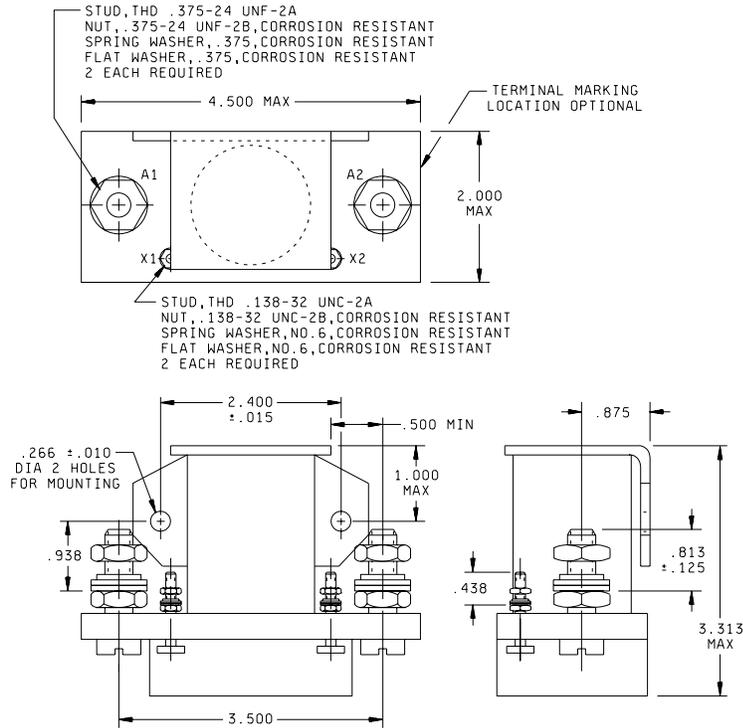


FIGURE 1. CONFIGURATION B. Dimensions and configurations (for details see tables I and II).

| Inches | mm    | Inches | mm    | Inches | mm     |
|--------|-------|--------|-------|--------|--------|
| .101   | 0.25  | .484   | 12.30 | 2.000  | 50.80  |
| .062   | 1.57  | .500   | 12.70 | 2.406  | 61.11  |
| .125   | 3.18  | .750   | 19.06 | 2.960  | 75.18  |
| .138   | 3.51  | .813   | 20.66 | 3.000  | 76.20  |
| .142   | 3.61  | .875   | 22.22 | 3.313  | 84.15  |
| .210   | 5.33  | .906   | 23.01 | 3.500  | 88.90  |
| .266   | 6.76  | .938   | 23.83 | 3.750  | 95.26  |
| .375   | 9.52  | 1.000  | 25.40 | 4.500  | 114.30 |
| .438   | 11.13 | 1.531  | 38.89 |        |        |

NOTES:

1. Dimensions are in inches.
2. Terminal cover not required.
3. Additional flat washer may be used for terminal seat.
4. Part number MS24171-D1 replaces part no. MS24171-1.
5. This specification sheet takes precedence over documents referenced herein.
6. Referenced Government documents of the issue listed in Assist Online (<http://assist.daps.dla.mil>) or Assist Quick Search (<http://assist.daps.dla.mil/quicksearch>) specified in the solicitation form a part of this specification to the extent specified herein.
7. Metric equivalents are given for general information only.
8. Unless otherwise specified, tolerances are ±.062 (1.57 mm).
9. Terminal temperature rise under continuous current conditions, 95°C. Mixed loads to be conducted at 71°C.
10. Shape of relay optional within envelope dimensions.
11. Cadmium or cadmium compounds are prohibited on external hardware.
12. Spring washer on drawing is a spring lock washer.

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TABLE I. Dash numbers and characteristics.

| Dash number<br>MS24171- | Type | Coil | Terminal<br>type | Mounting or<br>mating socket | Max weight<br>in pounds |
|-------------------------|------|------|------------------|------------------------------|-------------------------|
| D1 <u>1/</u>            | II   | dc   | Stud             | Bracket - bottom             | 1.33                    |
| D2 <u>2/</u>            | II   | dc   | Stud             | Bracket - side               | 1.33                    |

1/ For Government logistics support MS24171-D1 shall be used in lieu of AN3370-2.

2/ For Government logistics support MS24171-D2 shall be used in lieu of AN3370-1.

TABLE II. Operating characteristics.

| PIN<br>MS<br>24171- | Coil data |                    |            |                                    |       |     |                          |                       |                              |                                   |  | Time - (milliseconds maximum) |                           |        |     |     |     |
|---------------------|-----------|--------------------|------------|------------------------------------|-------|-----|--------------------------|-----------------------|------------------------------|-----------------------------------|--|-------------------------------|---------------------------|--------|-----|-----|-----|
|                     | Coil      | Nominal            |            |                                    | Max   |     | Max pick-up voltage      |                       |                              | Hold<br>vol-<br>tage<br><u>2/</u> | Drop<br>out<br>vol-<br>tage<br><u>2/</u> | Oper-<br>ate<br><u>3/</u>     | Rel-<br>ease<br><u>4/</u> | Bounce |     |     |     |
|                     |           | Volts<br><u>1/</u> | Freq<br>Hz | $\Omega$<br>Res<br>minimum<br>25°C | Volts | Amp | Nor-<br>mal<br><u>2/</u> | High<br>temp.<br>test | Cont<br>cur-<br>rent<br>test |                                   |  |                               |                           | Main   |     | Aux |     |
|                     |           |                    |            |                                    |       |     |                          |                       |                              |                                   |  |                               |                           | NO     | NC  | NO  | NC  |
| D1                  | X1,X2     | 28                 | dc         | 59                                 | 29    | .60 | 18                       | 21                    | 22.5                         | 7.0                               | 1.5                                      | 25                            | 10                        | 50     | --- | --- | --- |
| D2                  | X1,X2     | 28                 | dc         | 59                                 | 29    | .60 | 18                       | 21                    | 22.5                         | 7.0                               | 1.5                                      | 25                            | 10                        | 50     | --- | --- | --- |

1/ CAUTION: Use of any coil voltage less than nominal coil voltage will compromise the operation of the relay.

2/ Over the temperature range.

3/ With nominal coil voltage.

4/ From nominal coil voltage.

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

| Type of load                             | Life<br>operating<br>cycles x<br>10 <sup>3</sup> | 28 V dc |    |     |    | 115 V ac, 1 phase |          |           |          | 115/200 V ac, 3 phase <u>1/</u> |          |           |          | See<br>appropriate<br>notes |
|--|--|---------|----|-----|----|-------------------|----------|-----------|----------|---------------------------------|----------|-----------|----------|-----------------------------|
|  |  | Main    |    | Aux |    | Main              |          | Aux       |          | Main                            |          | Aux       |          |                             |
|  |  | NO      | NC | NO  | NC | 400<br>Hz         | 60<br>Hz | 400<br>Hz | 60<br>Hz | 400<br>Hz                       | 60<br>Hz | 400<br>Hz | 60<br>Hz |                             |
| Resistive                                | 50   | 200     |    |     |    |                   |          |           |          |                                 |          |           |          |                             |
| Inductive                                | 10   | 100     |    |     |    |                   |          |           |          |                                 |          |           |          |                             |
| Motor                                    | 50   | 200     |    |     |    |                   |          |           |          |                                 |          |           |          |                             |
| Lamp                                     |  |         |    |     |    |                   |          |           |          |                                 |          |           |          |                             |
| Transfer load                            |  |         |    |     |    |                   |          |           |          |                                 |          |           | /        | <u>2/</u>                   |
| Mechanical<br>life<br>reduced<br>current | 100  | 50      |    |     |    |                   |          |           |          |                                 |          |           |          |                             |
| Mixed loads                              | 50   | 20      |    |     |    |                   |          |           |          |                                 |          |           |          |                             |

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

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

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Environmental characteristics:

Temperature range: -55° to +71°C.

Maximum altitude rating: 50,000 ft.

Shock G-level: 25 g's.

Duration: 6-9 ms.

Max duration contact opening: 2 ms.

Vibration - sinusoidal: (see table IV)

Vibration - random: N/A.

High shock: N/A.

Acceleration: 10 g's.

TABLE IV. Vibration levels.

| 5-10 Hz | 10-55 Hz | 55-250 Hz | 250-500 Hz | 500-1,500 Hz |
|---------|----------|-----------|------------|--------------|
| .08 DA  | .06 DA   | 2 g's     | 2 g's      |              |

Electrical characteristics:

Insulation resistance, initial: 100 megohms.

After life or environmental tests: 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 | 1,250 V rms | N/A      | 1,000 V rms      | N/A      |

Dielectric strength (altitude): 1 minute.

|                  | 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      |

Max contact drop initial: .150 volt.

After life test: .175 volt.

Overload current: (NO) 1,600 amperes.

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Rupture current: (NO) 2,000 amperes.  
Duty rating: Continuous.  
RFI specification: MIL-STD-461 (Applicable to coil circuits of ac operated relays).

Qualification by similarity: See MIL-PRF-6106.

Referenced documents. In addition to MIL-PRF-6106, this document references the following:

MIL-STD-461

The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Custodian:  
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Preparing Activity  
DLA - CC  
(Project 5945-1278)

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](http://www.dodssp.daps.mil).