

INCH-POUND

MS24184M
w/AMENDMENT 1
24 June 2004
SUPERSEDING
MS24184M
15 April 2003

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 300 AMPERES, 1 PST (N.O.),
TYPE I, WITH AUXILIARY CONTACTS,
HERMETICALLY 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.

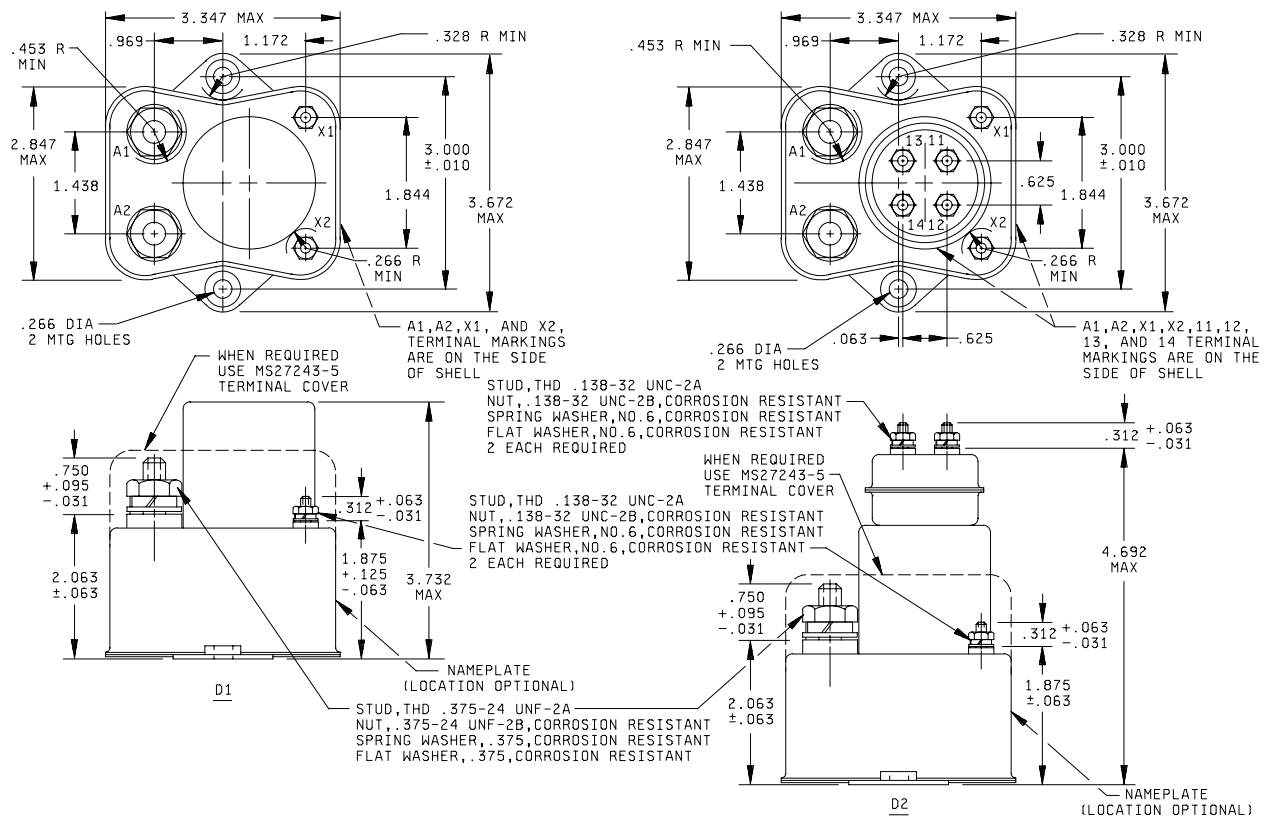
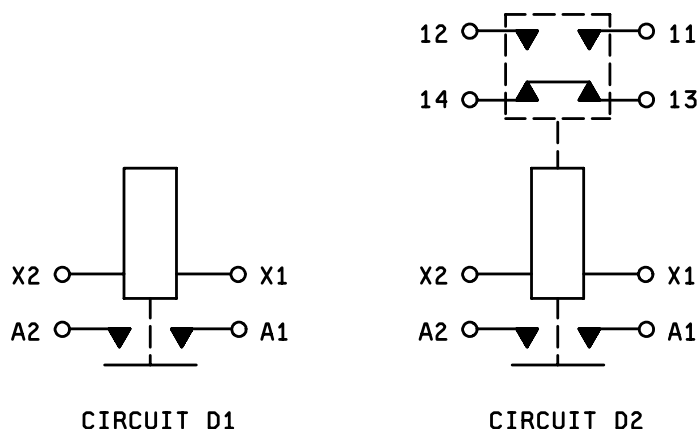


FIGURE 1. Dimensions and configurations.

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| Inches | mm | Inches | mm | Inches | mm |
|--------|-------|--------|-------|--------|--------|
| .010 | 0.25 | .625 | 15.88 | 3.000 | 76.2 |
| .031 | 0.79 | .750 | 19.05 | 3.347 | 85.01 |
| .063 | 1.60 | .969 | 24.61 | 3.672 | 93.27 |
| .095 | 2.41 | 1.172 | 29.77 | 3.732 | 94.79 |
| .125 | 3.18 | 1.438 | 36.53 | 4.692 | 119.18 |
| .266 | 6.76 | 1.844 | 46.83 | | |
| .312 | 7.92 | 1.875 | 47.63 | | |
| .328 | 8.33 | 2.063 | 52.40 | | |
| .453 | 11.51 | 2.847 | 72.31 | | |

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ± 0.031 inch (0.79 mm).
4. Coil and auxiliary terminals may use additional flat washer for terminal seat.
5. Weight includes covers and barriers.
6. All test requirements of specification MIL-PRF-6106 apply except that off time for motor load shall be six seconds minimum and average contact voltage drop reading before tests shall not exceed .15 volt.
7. PIN MS24184-1 is inactive for new design after 10 December 1957.
PIN MS24184-D1 replaces MS24184-1.
8. 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.
9. Cadmium or cadmium compounds are prohibited on external hardware.
10. Spring washer on drawing is a spring lock washer.

FIGURE 1. Dimensions and configurations - Continued.

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REQUIREMENTS:

Dimensions and configurations: See figure 1.

Dash numbers and general characteristics: See table I.

Contact data:

Load ratings: See table II.

Maximum contact drop, initial: 0.150 V.

After life test: 0.175 V.

Overload current (NO): 2,400 amperes.

Rupture current (NO): 3,000 amperes.

Coil data: 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 | 1,500 | 1,000 | 1,125 |
| Aux contacts | 1,250 | 1,500 | 1,000 | 1,125 |
| All other points | 1,250 | 1,500 | 1,000 | 1,125 |

Dielectric strength (altitude): 1 minute.

| | 28 V dc | 115 V ac |
|------------------|---------|----------|
| Coil to case | 500 | 500 |
| Aux contacts | 500 | 500 |
| All other points | 500 | 500 |

Environmental characteristics:

Temperature range: -70°C to + 71°C.

Maximum altitude rating: 80,000 ft.

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Shock g-level: 25 g's.

Duration: 6-9 ms.

Maximum duration contact opening: 2 ms.

Vibration - sinusoidal: See table IV.

Acceleration: 15 g's.

Part or Identifying Number (PIN): MS24184- (plus applicable dash number from table I).

Qualification by similarity: See MIL-PRF-6106.

TABLE I. PIN and general characteristics.

| <u>1/</u> <u>2/</u> Part number MS24184- | Type | Coil type | Terminal type | Mounting or mating socket | Auxiliary contacts | Maximum weight in pounds |
|--|------|-----------|---------------|---------------------------------|-----------------------|-----------------------------|
| D1 | I | dc | Stud | Flange | No | 2.4 |
| D2 | I | dc | Stud | Flange | Yes | 2.5 |

1/ MS24184-A1 has been canceled without replacement.

2/ The term Part or Identifying Number (PIN) is equivalent to the former term MS dash number.

TABLE II. Rated contact load (amperes per pole) case grounded. 1/

| Type of load | Life operating cycles x 10 ³ | 28 V dc | | | | 115 V ac, 1 phase | | | | See appro- priate notes |
|--|--|------------------------------|----|------|------|-------------------|-------|--------|-------|----------------------------------|
| | | Main | | Aux | | Main | | Aux | | |
| | | NO | NC | NO | NC | 400 Hz | 60 Hz | 400 Hz | 60 Hz | |
| Resistive | 50 | 300 | | 5 | 5 | 300 | | 5 | | |
| Inductive | 50 | 100 | | 5 | 5 | | | 5 | | |
| Motor <u>2/</u> | 50 | 250 | | | | 150 | | | | |
| Lamp | | | | .75 | .75 | | | .75 | | |
| Transfer load | | | | | | | | | | <u>3/</u> |
| Mechanical life reduced current | 100 | 75 | | 1.25 | 1.25 | 75 | | 1.25 | | |
| Mixed loads | 50 | Applicable per MIL-PRF-6106. | | | | | | | | |

1/ Absence of value means parameter is not applicable to this specification sheet.

2/ Off time for motor load shall be 6 seconds minimum.

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

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TABLE III. Operating characteristics.

| PIN MS 24184- | Coil data | | | | | | | | | | Time - milliseconds maximum | | | | | | |
|---------------------|-----------|-------------|------------|-------------------------|-------|-----|---------------------|-------------------|-------------------------------|--------------------|-----------------------------|---------------|---------------|-----------|-----|-----|-----|
| | Coil | Rated | | | Max | | Max pick-up voltage | | | Hold voltage 2/ | Drop out voltage 2/ | Operate 4/ | Release 5/ | Bounce 4/ | | | |
| | | Volts 1/ | Freq Hz | Ω Res +15% -10 | Volts | Amp | Normal 2/ | High temp test | Cont current test 3/ | | | | | Main | | Aux | |
| | | | | | | | | | | | | | | NO | NC | NO | NC |
| D1 | X1,X2 | 28 | dc | 52 | 29 | 0.6 | 18 | 21 | 22.5 | 7.0 | 1.0 | 40 | 15 | 4.0 | --- | --- | --- |
| D2 | X1,X2 | 28 | dc | 52 | 29 | 0.6 | 18 | 21 | 22.5 | 7.0 | 1.0 | 40 | 15 | 4.0 | --- | 5.0 | 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/ The terminal temperature rise shall not exceed 95°C.

4/ With rated coil voltage.

5/ From rated coil voltage.

TABLE IV. Vibration levels (sinusoidal).

| PIN MS24184- | 5-10 Hz | 10-55 Hz | 55-250 Hz | 250-500 Hz | 500-1,500 Hz |
|--------------|---------|----------|-----------|------------|--------------|
| D1 | .08 DA | .06 DA | 8 g's | 4 g's | 3 g's |
| D2 | .08 DA | .06 DA | 8 g's | 4 g's | 3 g's |

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

MIL-STD-461
MS27243

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.

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

Preparing activity:
DLA - CC

(Project 5945-1276)

Review activities:
Navy - EC

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.