

INCH-POUND
MIL-PRF-6106/48C
w/AMENDMENT 1
14 March 2006
SUPERSEDING
MIL-PRF-6106/48C
22 September 2005

PERFORMANCE SPECIFICATION SHEET

RELAY, ELECTROMAGNETIC, 100 AMPERES, SPST (N.O.) WITH SPDT (FORM Z)
5 AMPERES AUXILIARY CONTACTS, HERMETICALLY SEALED, TYPE I

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

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

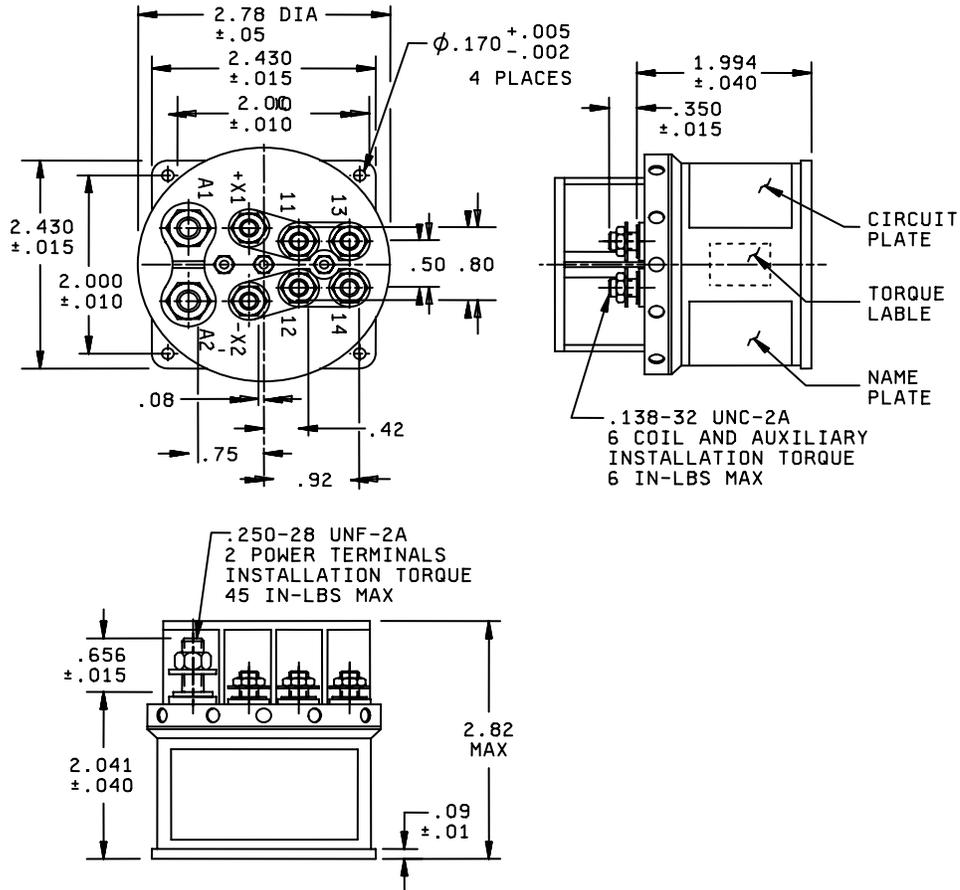
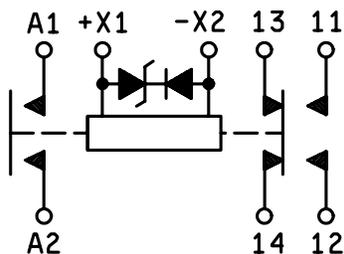


FIGURE 1. Relay, outline drawing.

MIL-PRF-6106/48C
w/AMENDMENT 1



CIRCUIT DIAGRAM

Inches	mm	Inches	mm	Inches	mm
.002	0.05	.090	2.29	.750	19.05
.005	0.13	.138	3.51	.800	20.32
.010	0.25	.170	4.32	.915	23.24
.015	0.38	.250	6.35	1.967	49.96
.030	0.76	.350	8.89	2.000	50.80
.040	1.02	.415	10.54	2.016	51.12
.085	2.16	.656	16.66	2.430	61.72
				2.900	73.66

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ± 0.03 (0.76 mm) for two place decimals and ± 0.010 (0.25 mm) for three place decimals.
4. Terminal number need not appear on the relay header provided there is affixed to the relay a suitable legible circuit diagram that identifies each terminal location specified.

FIGURE 1. Relay, outline drawing - Continued.

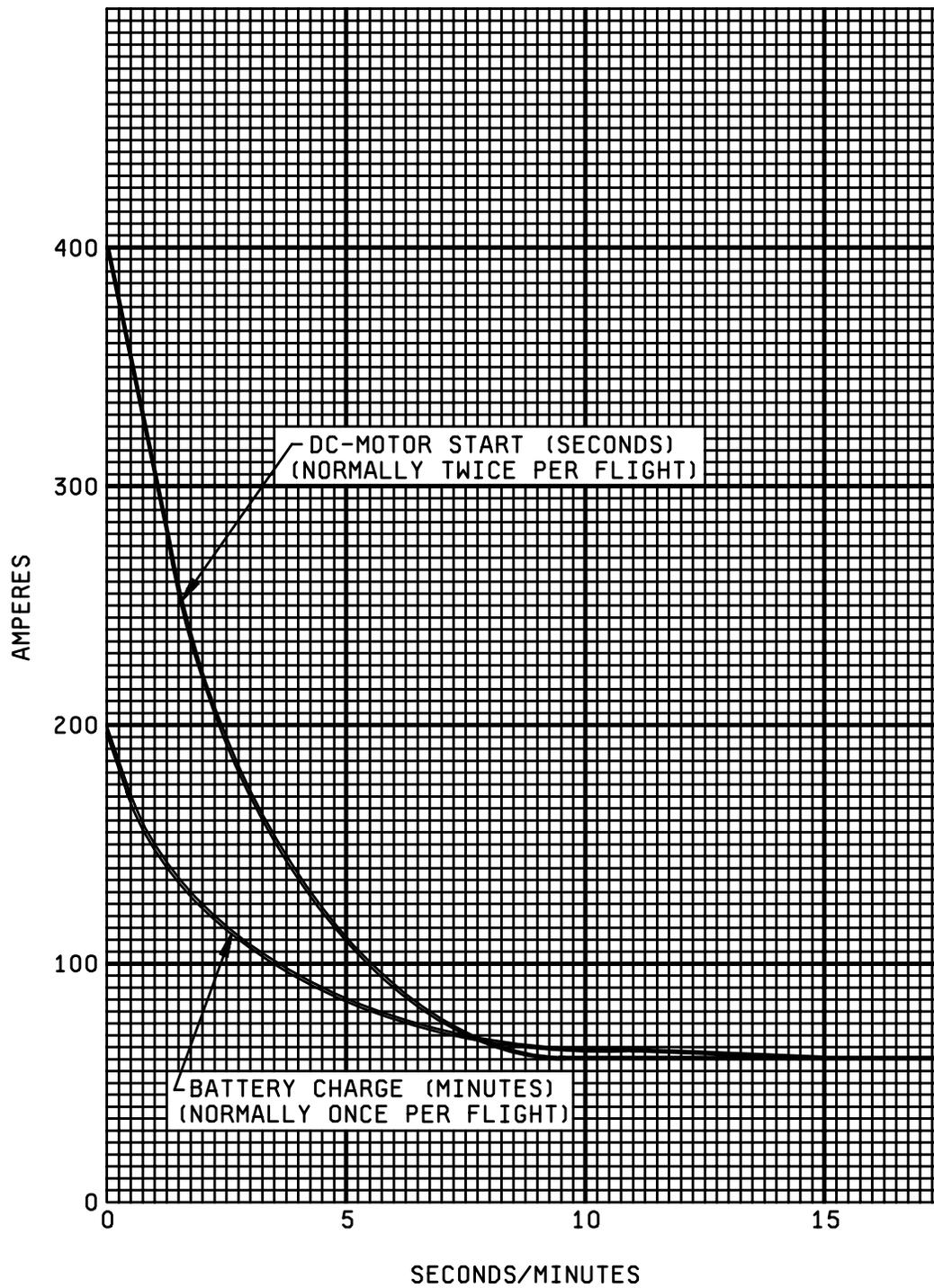


FIGURE 2. Overload.

MIL-PRF-6106/48C
w/AMENDMENT 1

REQUIREMENTS:

Coil data:

Duty cycle: Continuous.

Coil voltage: 28 V dc, maximum 30 V dc.

Pickup voltage, maximum: 18 V dc.

Pickup voltage, high temperature test: 21 V dc maximum.

Pickup voltage, continuous current test: 22.5 V dc maximum.

Hold voltage: 7.0 V dc, over the temperature range.

Dropout voltage: 1.5 V dc, over the temperature range.

Coil resistance: 90 ohms minimum at +25°C for -003; 100 ohms minimum at +25°C for -004.

Coil transient voltage: 42 V peak inverse voltage.

Contact data:

Contact voltage drop: 100 mV maximum initial, 150 mV maximum after life test.

Operate time: 30 milliseconds maximum at +25°C.

Release time: 20 milliseconds maximum at +25°C.

Contact bounce: 3 milliseconds maximum (main and auxiliary contacts).

Main contacts:

Voltage ratings: 28 V dc.

Current rating:

Resistive: 100 amperes.

Inductive: 100 amperes (10,000 life cycles).

Motor: 50A for -003; 25A for -004.

Lamp: 50 amperes (25,000 life cycles). The total "On" time shall be 2 seconds \pm 0.05 second and the "Off" time shall be 7 seconds \pm 2.0 seconds for a simulated lamp load.

Mixed loads: 10 amperes.

Overload current: 800 A for -003 and -004 (-003 only as shown in figure 2).

Rupture current: 1,000 amperes dc.

Auxiliary contacts:

Voltage rating: 28 V dc.

MIL-PRF-6106/48C
w/AMENDMENT 1

Current rating:

Resistive: 5 amperes.

Inductive: 5 amperes (10,000 life cycles).

Lamp: 1 ampere (25,000 life cycles). The total "On" time shall be 2 seconds ± 0.05 second and the "Off" time shall be 7 seconds ± 2.0 seconds for a simulated lamp load.

Mechanical life at reduced current: 0.5 ampere (100,000 life cycles).

Mixed loads: 2 milliamperes at 28 V dc. 50 ohms maximum contact resistance. 1/

Contact voltage drop: 5 millivolts maximum at 6 V dc and 100 mA. 1/

Physical data:

Strength of terminals and mounting studs shall be tested in accordance with the following:

Torque test in-lbs.		Force test lbs.		Installation torque in-lbs.	
Terminal size	Room temp.	180°C	Room temp.		180°C
6 - 32	10	4	30	12	6
¼ -28	75	30	50	20	45

If the design does not call for soldered terminals in place, the 180°C torque test listed above shall be used at least once after mounting the studs on the relay to verify the strength of new terminals and mounting studs.

Weight: 11.3 ounces (320 grams) maximum.

Finish: Optional (painted or plated).

Environmental data:

Ambient temperature range: -55°C to +125°C.

Altitude: 80,000 feet maximum.

Seal:

Applicable specification: MIL-STD-202, method 112, test condition C, procedure IV.

Leak rate: 5×10^{-6} std cc/s.

Shock: 30 G's (half sine wave).

Duration: 6-9 milliseconds.

Maximum duration contact opening: 2 milliseconds.

1/ CAUTION: Auxiliaries tested or used above 100 milliamperes at 6 V dc maximum or will negate the intermediate current requirement.

2/ Test to be performed with 5 ampere load on main contact.

MIL-PRF-6106/48C
w/AMENDMENT 1

Vibration random:

M6106/48-003 2/	
Frequency (Hz)	Level (g ² /Hz)
10 - 125	0.0375
125 - 250	+4 dB
250 - 1,000	0.1
1,000 - 2,000	-3 dB

M6106/48-004 2/	
Frequency (Hz)	Level (g ² /Hz)
15 - 50	0.012
120 - 200	0.364
250 - 400	0.194
500 - 1,000	0.060
1,300 - 2,000	0.097

Vibration sinusoidal (-003 only): 55-2000 Hz, 10 g's. Test to be performed with 5 ampere load on main contact.

At 5 - 10 Hz: 0.08 da.

At 10 - 55 Hz: 0.05 da.

Salt spray: Applicable.

Electrical data:

Life:

Electrical: 50,000 cycles minimum at rated load (unless otherwise specified).

Mechanical: 100,000 cycles.

Insulation resistance, initial: 100 megohms.

After life or environmental tests: 50 megohms.

Dielectric withstanding voltage: See MIL-PRF-6106.

Part or Identifying Number (PIN): M6106/48-003, M6106/48-004.

Qualification by similarity: See MIL-PRF-6106.

SUPERSESSION DATA:

Supersession data: See table I.

TABLE I. Supersession data.

Superseded part no. M6106/48-	New part no. M6106/48-
001	003
002	004

NOTES:

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

MIL- STD-202

MIL-PRF-6106/48C
w/AMENDMENT 1

Changes from previous issue. Marginal notations are marked with vertical lines to indicate where changes from the previous issue were made. 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 and relationship to the last previous issue.

Custodian:
Air Force - 11
DLA - CC

Preparing activity:
DLA-CC

Review activities:
Air Force - 99

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