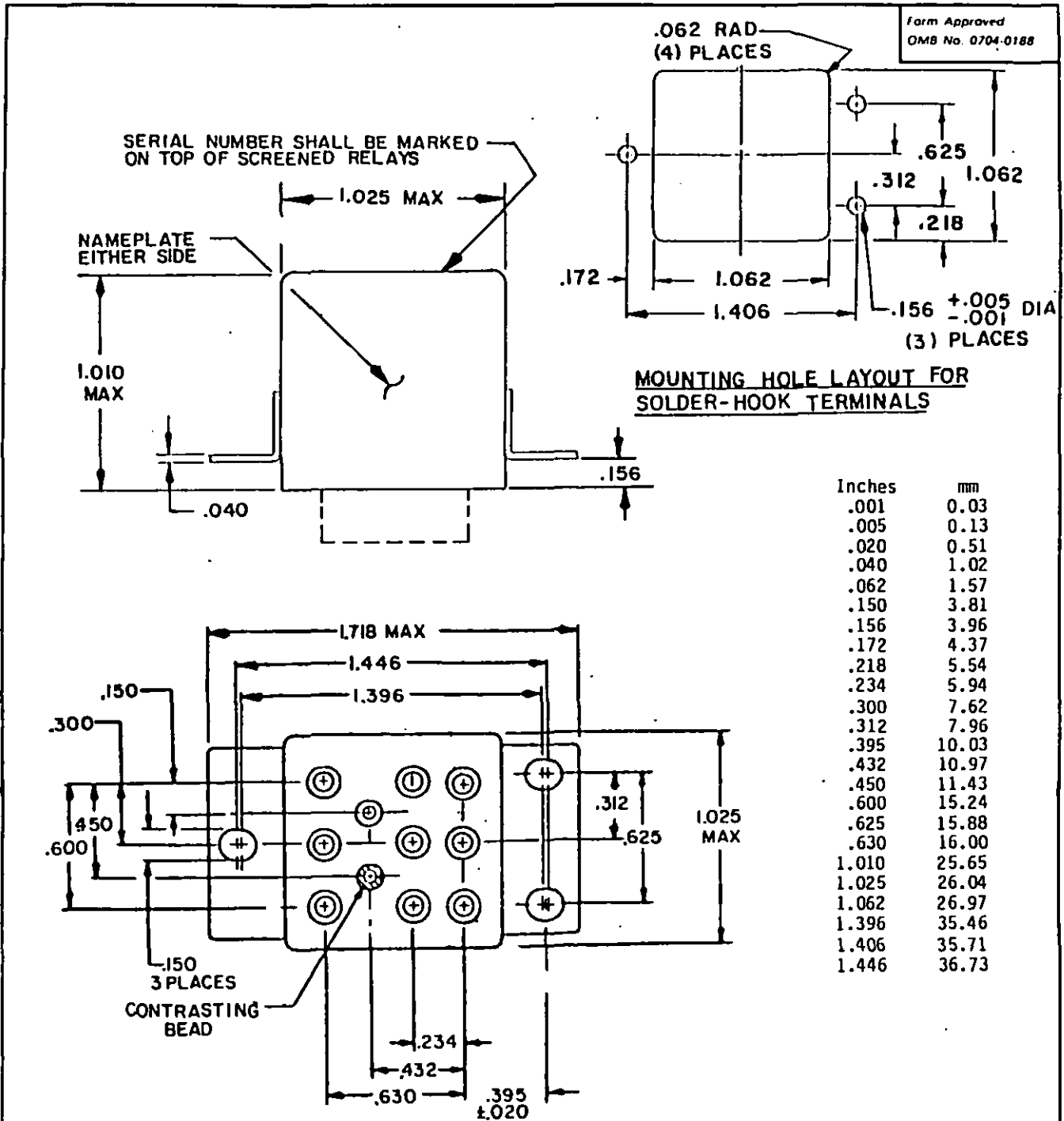


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TERMINAL LAYOUT FOR ALL SOLDER-HOOK, DC SOLDER-PIN AND SOCKET - PIN RELAYS

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ± 0.010 (0.25 mm).

FIGURE 1. Outline drawing (for details see tables I and II).

Ⓧ Denotes Changes

PREPARING ACTIVITY: Air Force - 85 CUSTODIANS: ARMY - NAVY - AIR FORCE - 85 DLA -	MILITARY SPECIFICATION SHEET TITLE RELAYS, 25 AMPERES, 3PDT, ALL WELDED, TYPE I, HERMETICALLY SEALED, PERMANENT MAGNET DRIVE	SPECIFICATION SHEET NUMBER MS27743J(USAF) 18 JAN 1990 SUPERSEDING MS27743H(USAF) 3 Nov 1989 AMSC N/A fsc 5945
REVIEW: Air Force - 11, 99 USER: PROJECT NUMBER: 5945-F707	DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.	

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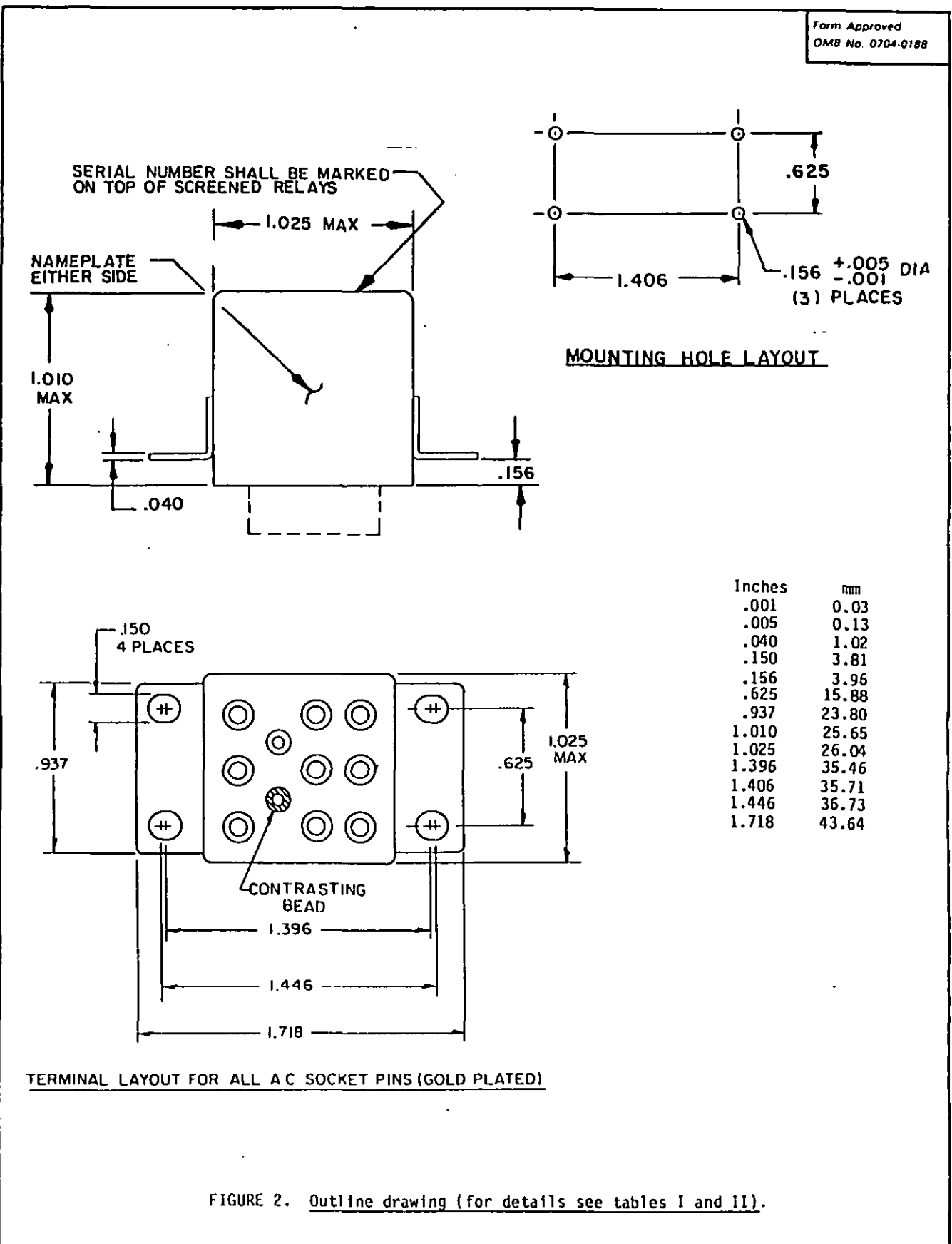
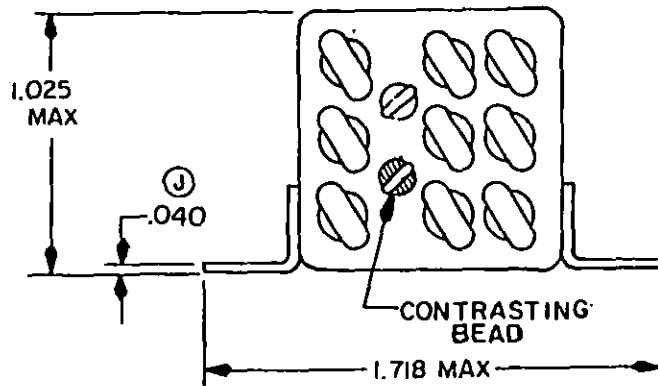
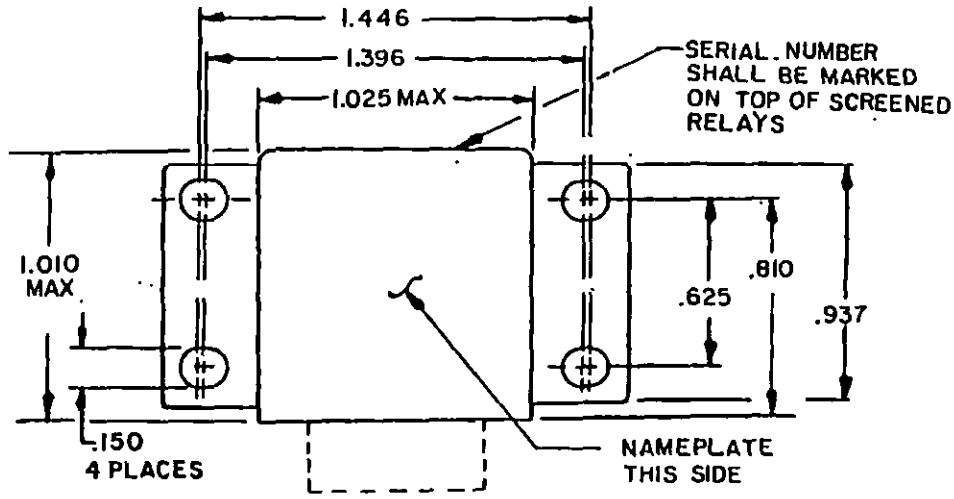


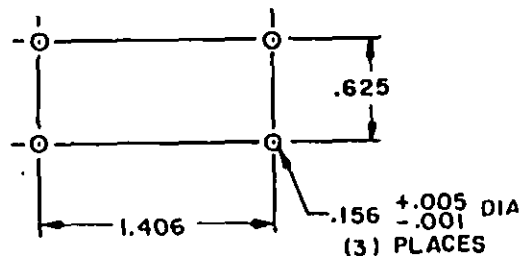
FIGURE 2. Outline drawing (for details see tables I and II).

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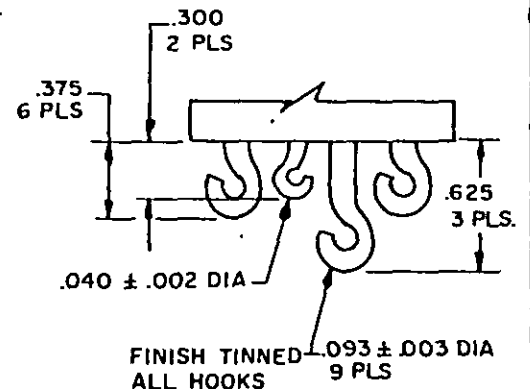
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TERMINAL LAYOUT FOR ALL SOLDER-HOOK AND SOLDER-PIN (TIN PLATE FINISH) RELAYS



MOUNTING HOLE LAYOUT



SOLDER-HOOK TERMINAL

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).

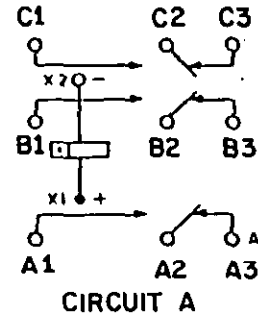
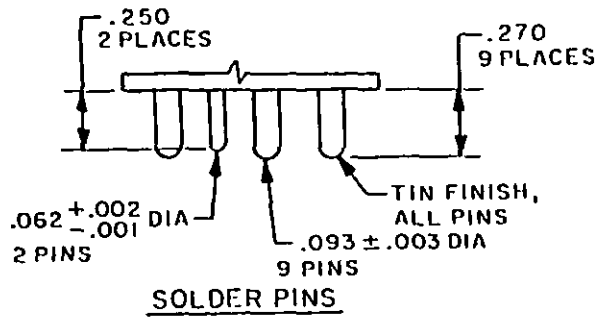
FIGURE 3. Outline drawing (for details see tables I and II).

THIS SPECIFICATION IS APPROVED FOR USE BY THE DEPARTMENT OF THE AIR FORCE AND IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE.

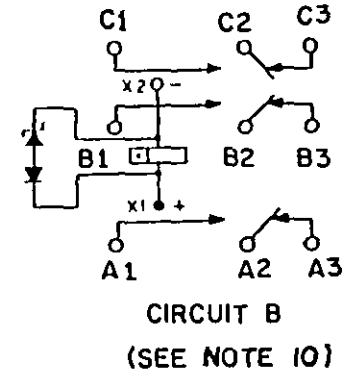
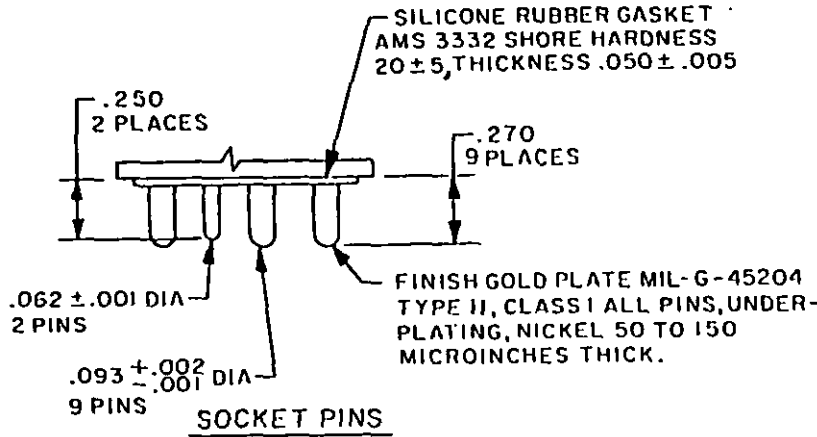
<p>PREPARING ACTIVITY: Air Force - 85 CUSTODIANS: ARMY - NAVY - AIR FORCE - 85 DLA - REVIEW: Air Force - 11, 99 USER: PROJECT NUMBER: 5945-F707</p>	<p>MILITARY SPECIFICATION SHEET TITLE RELAYS, 25 AMPERES, 3PDT, ALL WELDED, TYPE I, HERMETICALLY SEALED, PERMANENT MAGNET DRIVE</p>	<p>SPECIFICATION SHEET NUMBER MS27743J(USAF) SUPERSSEDING MS27743H(USAF) AMSC N/A FSC 5945</p>
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CIRCUIT A
(POLARIZED MONOSTABLE)
(SEE NOTES 7, 8, 9, AND 10)



CIRCUIT B
(SEE NOTE 10)

Inches	mm	Inches	mm	Inches	mm
.001	0.03	.150	3.81	.937	23.80
.002	0.05	.156	3.96	1.010	25.65
.003	0.08	.250	6.35	1.025	26.04
.005	0.13	.270	6.86	1.396	35.46
.020	0.51	.300	7.62	1.406	35.71
.040	1.02	.375	9.53	1.446	36.73
.062	1.57	.625	15.88		
.093	2.36	.810	20.57		

NOTES:

- Dimensions are in inches.
- Metric equivalents are given for general information only.
- Unless otherwise specified, tolerance is $\pm .010$ (.25 mm).
- Terminal numbers 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.
- For design feature purposes, this standard takes precedence over acquisition documents referenced herein.
- Referenced documents shall be of the issue in effect on date of invitation for bid.
- Coil polarity not applicable to ac versions 7,8,9,13,14,15,19,20,21,25,26, and 27.
- DC versions of this relay must not operate or be damaged by reverse polarity. Semiconductors shall not be used for this purpose.
- Permanent magnet drive consists of permanent magnet with its flux path switched and combined with the electro-magnet flux.
- For details see table 1.

FIGURE 3. Outline drawing (for details see tables I and II) - Continued.

PREPARING ACTIVITY: Air Force - 85 CUSTODIANS: ARMY - NAVY - AIR FORCE - 85 OLA -	MILITARY SPECIFICATION SHEET TITLE RELAYS, 25 AMPERES, 3PDT, ALL WELDED, TYPE I, HERMETICALLY SEALED, PERMANENT MAGNET DRIVE	SPECIFICATION SHEET NUMBER MS27743J(USAF) SUPERSEEDING MS27743H(USAF) AMSC N/A FSC 5945
REVIEW: Air Force - 11, 99 USER: PROJECT NUMBER: 5945-F707 DISTRIBUTION STATEMENT		

TABLE I. Dash numbers and characteristics.

MS part number MS27743-	Type	Coil frequency (Hz) 1/ 2/	Coil 1/ Suppression (transient voltage, back EMF)	Terminal type 3/ ⓐ	Mounting	Mating socket	Circuit	Weight max			
								Pounds	Grams		
4	4/	5/	1	dc	N/A	Solder hook	Figure 1	N/A	A	.18	82
5	4/	5/	1	dc	N/A	Solder hook	Figure 3	N/A	A	"	"
6	4/	5/	1	dc	N/A	Socket pin	Figure 1	MIL-S-12883/48	A	"	"
7	5/		1	400	N/A	Solder hook	Figure 1	N/A	A	"	"
8	5/		1	400	N/A	Solder hook	Figure 3	N/A	A	"	"
9	5/		1	400	N/A	Socket pin	Figure 2	MIL-S-12883/48	A	"	"
10	6/		1	dc	N/A	Solder hook	Figure 1	N/A	A	"	"
11	"		1	dc	N/A	Solder hook	Figure 3	N/A	A	"	"
12	"		1	dc	N/A	Socket pin	Figure 1	MIL-S-12883/48	A	"	"
13	"		1	400	N/A	Solder hook	Figure 1	N/A	A	"	"
14	"		1	400	N/A	Solder hook	Figure 3	N/A	A	"	"
15	6/		1	400	N/A	Socket pin	Figure 2	MIL-S-12883/48	A	"	"
16	5/		1	dc	42 V dc max	Solder hook	Figure 1	N/A	B	"	"
17	"		1	dc	42 V dc max	Solder hook	Figure 3	N/A	B	"	"
18	"		1	dc	42 V dc max	Socket pin	Figure 1	MIL-S-12883/48	B	"	"
19	"		1	50/400	N/A	Solder hook	Figure 1	N/A	A	"	"
20	"		1	50/400	N/A	Solder hook	Figure 3	N/A	A	"	"
21	5/		1	50/400	N/A	Socket pin	Figure 2	MIL-S-12883/48	A	"	"
22	6/		1	dc	42 V dc max	Solder hook	Figure 1	N/A	B	"	"
23	"		1	dc	42 V dc max	Solder hook	Figure 3	N/A	B	"	"
24	"		1	dc	42 V dc max	Socket pin	Figure 1	MIL-S-12883/48	B	"	"
25	"		1	50/400	N/A	Solder hook	Figure 1	N/A	A	"	"
26	"		1	50/400	N/A	Solder hook	Figure 3	N/A	A	"	"
27	6/		1	50/400	N/A	Socket pin	Figure 2	MIL-S-12883/48	A	"	"
28	5/		1	dc	N/A	Solder pin	Figure 1	N/A	A	"	"
29	5/		1	dc	N/A	Solder pin	Figure 3	N/A	A	"	"
30	6/		1	dc	N/A	Solder pin	Figure 1	N/A	A	"	"
31	6/		1	dc	N/A	Solder pin	Figure 3	N/A	A	"	"
32	5/		1	dc	42 V dc max	Solder pin	Figure 1	N/A	B	"	"
33	5/		1	dc	42 V dc max	Solder pin	Figure 3	N/A	B	"	"
34	6/		1	dc	42 V dc max	Solder pin	Figure 1	N/A	B	"	"
35	6/		1	dc	42 V dc max	Solder pin	Figure 3	N/A	B	"	"

NOTES:

- 1/ JAN TX or equivalent screened semiconductors shall be used in screened relays with internal coil suppression or ac coil ratings after 30 December 1980. Relays using suppression devices shall continue to operate should the suppression circuit be in a failure mode.
- 2/ Diodes shall have a peak inverse voltage of 600 V dc minimum when used.
- 3/ All solder pins shall be tin plated. All socket pins shall be gold plated in accordance with MIL-G-45204, type II, class 1.
- 4/ MS27743-1 of the previous edition is cancelled and superseded by MS27743-4, effective 1 August 1980.
MS27743-2 of the previous edition is cancelled and superseded by MS27743-6, effective 1 August 1980.
MS27743-3 of the previous edition is cancelled and superseded by MS27743-5, effective 1 August 1980.
- 5/ For Government logistic support, see table V.
- 6/ Screened relays shall be tested to the group A ER requirements only and additional life testing is not required. For group A inspection, operational reliability shall be performed at the alternate low level run in.

PREPARING ACTIVITY: Air Force - 85
CUSTODIANS: ARMY - NAVY -
AIR FORCE -85 DLA -

REVIEW: Air Force - 11, 99
USER:

PROJECT NUMBER: 5945-F707

DISTRIBUTION STATEMENT A

MILITARY SPECIFICATION SHEET

TITLE
RELAYS, 25 AMPERES, 3 PDT, ALL
WELDED, TYPE I, HERMETICALLY
SEALED, PERMANENT MAGNET DRIVE

SPECIFICATION SHEET NUMBER

MS27743J(USAF)

SUPERSEDING
MS27743H(USAF)

AMSC N/A

FSC 5945

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TABLE II. Operating characteristics.

MS part no. 1/	Coil	Coil data					Time (milliseconds - maximum)									
		Nominal Volts 1/	Freq Hz	Res Ω ±10% at +25°C	Max Volts (Amp test)	Max pick-up voltage Normal test 2/ High Cont temp current test 2/	Drop out voltage 2/	Operate 3/ 4/	Contact bounce		Break bounce NO only ⓐ					
									INO	INC		INO	INC			
4, 5, 6, 10, 11, 12, 28, 29, 30, 31	X1, X2	28	dc	290	29	0.12	18	19.8	22.5	7.0	1.5	15	1	1	---	---
7, 8, 9, 13, 14, 15	X1, X2	115	400	---	122	0.04	90	95.4	103.5	30	5.0	20	1	1	---	0.1
16, 17, 18, 22, 23, 24, 32, 33, 34, 35	X1, X2	28	dc	290	29	0.12	18	19.8	22.5	7.0	1.5	15	1	1	---	0.1
19, 20, 21, 25, 26, 27	X1, X2	115	50/ 400	---	122	0.03	95	100	105	40	5	20	1	1	---	0.1

NOTES:
1/ Caution: The use of any coil voltage less than the nominal coil voltage will compromise the operation of the relay.
2/ Over temperature range
3/ With nominal coil voltage.
4/ From nominal coil voltage.

PREPARING ACTIVITY: Air Force - 85 CUSTODIANS: ARMY - NAVY - AIR FORCE - 85 OLA -	TITLE RELAYS, 25 AMPERES, 3PDT, ALL WELDED, TYPE I, HERMETICALLY SEALED, PERMANENT MAGNET DRIVE	SPECIFICATION SHEET NUMBER MS27743J(USAF)
REVIEW: Air Force - 11, 99 USER: PROJECT NUMBER: 5945-F707		SUPERSADING MS27743H(USAF)
DISTRIBUTION STATEMENT		AMSC N/A FSC 5945

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THIS SPECIFICATION IS APPROVED FOR USE BY THE Department of the Air Force and is available for use by all Departments and Agencies of the Department of Defense.

TABLE III. 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						115/200 V ac, 3-phase						See appropriate notes
		Main			Aux			Main			Aux			Main			Aux			
		NO	NC	25	NO	NC	25	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz			
Resistive 2/	50	25	25	--	--	25	25	--	--	25	--	--	25	--	--	--	--			
Inductive	10	12	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Inductive	20	--	--	--	--	15	--	--	--	15	--	--	--	--	--	--	--			
Motor	50	10	10	10	--	10	--	--	--	10	--	--	--	--	--	--	--			
Lamp	50	5	5	--	--	5	--	--	--	5	--	--	--	--	--	--	--			
Transfer, load	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3/			
Mechanical life reduced current	200	6	6	--	--	6	--	--	--	6	--	--	--	--	--	--	--			
Intermediate current		Applicable per specification																		

1/ Absence of values indicates that relay is not rated for 3-phase application.
 2/ For full rated load, maximum temperature and altitude use number 12 wire or larger. Relays shall be mounted to limit mounting bracket temperature to +160°C maximum.
 3/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplied at rating indicated.

PREPARING ACTIVITY: Air Force - 85 CUSTODIANS: ARMY - NAVY - AIR FORCE - 85 DLA -	MILITARY SPECIFICATION SHEET TITLE RELAYS, 25 AMPERES, 3PDT, ALL WELDED, TYPE I, HERMETICALLY SEALED, PERMANENT MAGNET DRIVE	SPECIFICATION SHEET NUMBER MS27743J(USAF)
REVIEW: Air Force - 11, 99 USER:		SUPERSADING MS27743H(USAF)
PROJECT NUMBER: 5945-F707 DISTRIBUTION STATEMENT		AMSC N/A FSC 5945

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HIS SPECIFICATION IS APPROVED FOR USE BY THE Department of the Air Force and is available for use by all Departments and Agencies if the Department of Defense.

Electrical characteristics
(Applicable to figure 3,
see table I.)

-70°C to +125°C
300,000 ft
100 G
6 ms
10 µs
20 G
10-3000 Hz
MIL-STD-202
214
IE 0.2 G²/Hz
15 minutes each plane
15 G

Environmental characteristics
(Applicable to figures 1 and 2,
see table I.)

-70°C to +125°C
300,000 ft
200 G
6 ms
10 µs
30 G
10-3000 Hz
MIL-STD-202
214
IG 0.4 G²/Hz
15 minutes each plane
15 G

TABLE IV. Time-current relay characteristics at +25°C. 1/ 2/

1	30 A - hour
2	50 A - 5.0 seconds
3	100 A - 1.2 seconds
4	250 A - 0.2 second
5	350 A - 0.1 second

1/ Caution: Compare with time-current characteristics of the associated circuit protective device.

2/ Time-current relay characteristics at +25°C. Relays must be able to sustain five applications (make and carry only) of power concurrently on adjacent poles at each of five different current levels and 115/200 V ac 400 Hz 3-phase. Cooling time between successive applications shall be 30 minutes. Tests shall be performed on both normally open and normally closed contacts of each relay. There shall be no failures or evidence of welding or sticking and relays shall pass contact voltage drop at the conclusion.

Electrical characteristics

Insulation resistance, initial 100 megohms
After life or environmental tests 50 megohms
Dielectric strength (sea level)

	Initial	After life tests
Coil to case	1000 V rms	1000 V rms
Aux contacts	---	---
All other points	1250 V rms	1000 V rms
Dielectric strength (sea level) 1/		

Coil to case	80,000 ft	300,000 ft
Aux contacts	350 V rms	500 V rms
All other points	---	---
	350 V rms	500 V rms

Max contact drop initial 0.150 volt
After life test 0.175 volt
Overload current 50 amperes dc, 80 amperes ac
Rupture current 60 amperes dc, 100 amperes ac
Duty rating Continuous
RFI specification MIL-STD-461
(Applicable to coil circuits of ac operated relays)

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

PREPARING ACTIVITY: Air Force - 85
CUSTODIANS: ARMY - NAVY -
AIR FORCE - 85 DLA -
REVIEW: Air Force - 11, 99
USER:
PROJECT NUMBER: 5945-F707

MILITARY SPECIFICATION SHEET
TITLE RELAYS, 25 AMPERES, 3PDT, ALL WELDED, TYPE I, HERMETICALLY SEALED, PERMANENT MAGNET DRIVE

SPECIFICATION SHEET NUMBER MS27743J(USAF)
SUPERSEDING MS27743H(USAF)
AMSC N/A FSC 5945

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Cross reference for Government support: See table V.

TABLE V. Cross reference for Government logistical support.

MS Part or Identifying Number MS27743-	Support with MS Part or Identifying Number MS27743-
4	10
5	11
6	12
7	13
8	14
9	15
16	22
17	23
18	24
19	25
20	26
21	27
28	30
29	31
32	34
33	35

PREPARING ACTIVITY: Air Force - 85
CUSTODIANS: ARMY - NAVY -
AIR FORCE - 85 DLA -
REVIEW: Air Force - 11, 99
USER:
PROJECT NUMBER: 5945-F707

MILITARY SPECIFICATION SHEET
TITLE
RELAYS, 25 AMPERES, 3PDT, ALL
WELDED, TYPE I, HERMETICALLY
SEALED, PERMANENT MAGNET DRIVE

SPECIFICATION SHEET NUMBER

MS27743J(USAF)

SUPERSEDING

MS27743H(USAF)

AMSC N/A

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