

PERFORMANCE SPECIFICATION SHEET

RELAYS, HYBRID, TIME DELAY, VOLTAGE SENSITIVE, DELAY ON DROP-OUT,  
 CLASS A, TYPE V, HERMETICALLY SEALED (POTTED),  
 SPDT, 2 AMPERE, TRACK MOUNTED

Inactive for new design after 23 June 1995.  
 No superseding document.

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 [MIL-PRF-83726](#).

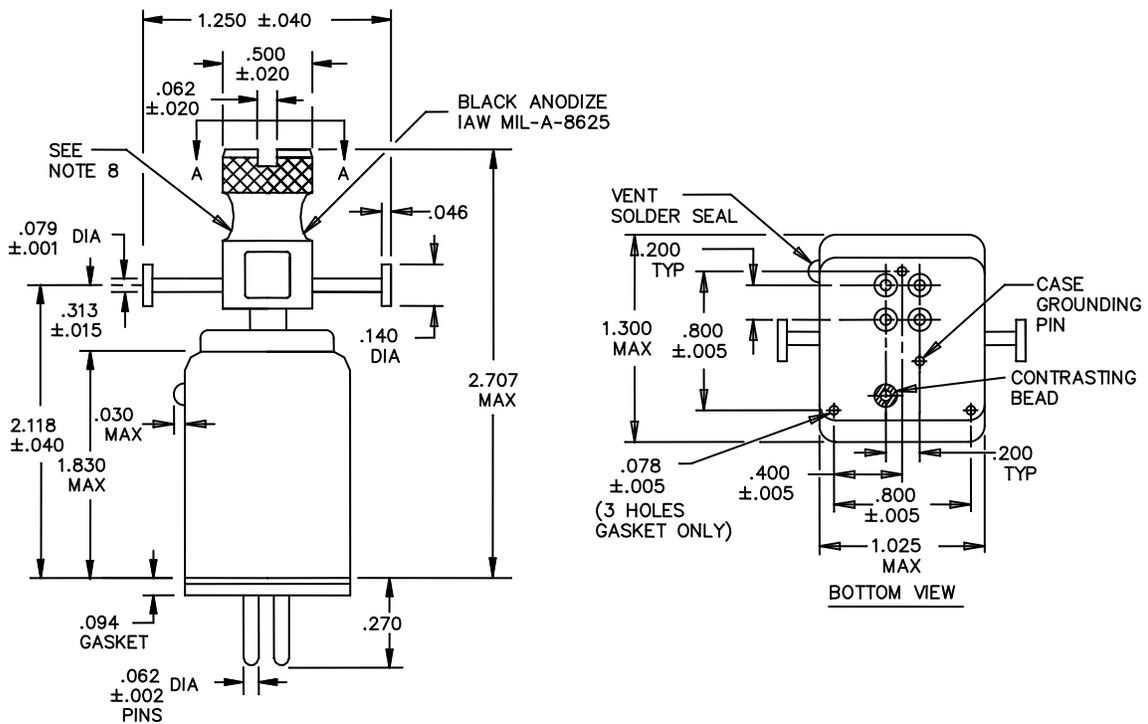
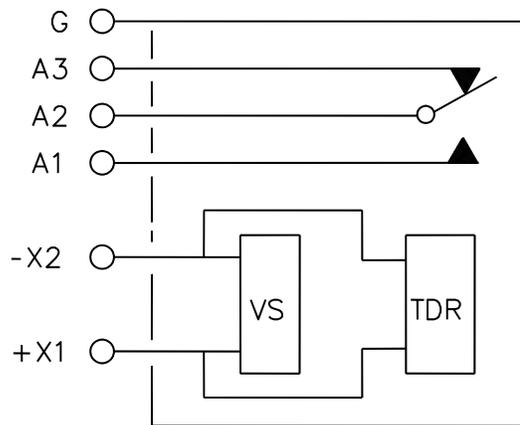
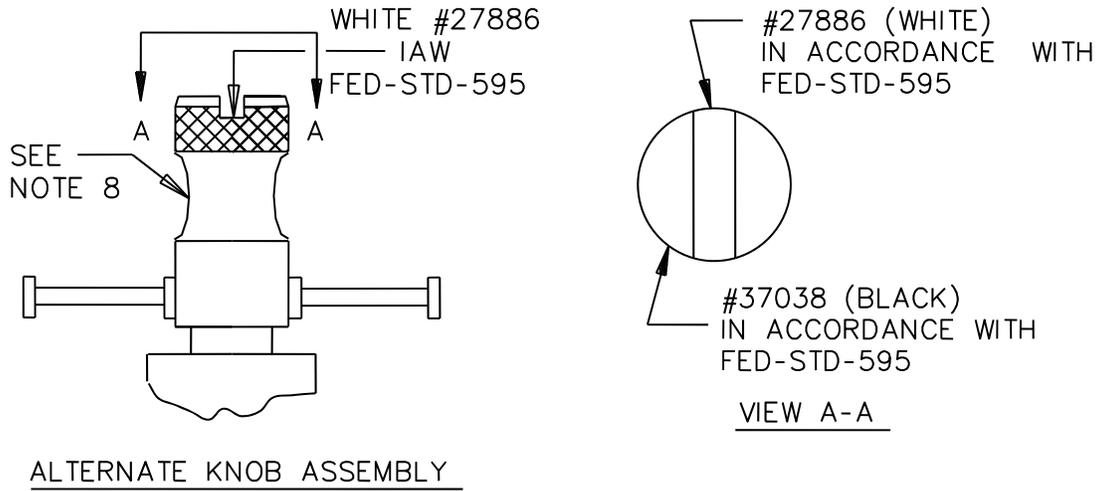


FIGURE 1. Dimensions and configuration.





CIRCUIT DIAGRAM  
DE-ENERGIZED  
TERMINAL VIEW

FIGURE 1. Dimensions and configuration - Continued.

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Inches	mm	Inches	mm	Inches	mm
.001	0.03	.062	1.57	.400	10.16
.002	0.05	.078	1.98	.500	12.70
.005	0.13	.079	2.01	.800	20.32
.015	0.38	.094	2.39	1.025	26.04
.020	0.51	.140	3.56	1.250	31.75
.030	0.76	.200	5.08	1.300	33.02
.040	1.02	.270	6.86	1.830	46.48
.045	1.14	.313	7.95	2.118	53.80
				2.707	68.76

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is  $\pm 0.010$  (0.25 mm).
3. Metric equivalents are given for general information only.
4. Terminal numbers shall not appear on the relay header. There shall be affixed to the relay a legible circuit diagram which identifies each terminal location specified.
5. For mounting track, see [MIL-DTL-12883/49](#). For bracket and socket assembly, see [MIL-DTL-12883/51](#).
6. Gasket material: Methylvinyl silicone; shore hardness A40.
7. Terminal plating: Shall provide the operational, environmental, and interface characteristics to provide a reliable interconnect to gold plated contacts. Terminals except for the polarizing pin, shall be gold plated. One system for gold plating that may be used is [ASTM B488](#), type 3, class 1.25 with a nickel underplate of 50 to 150 microninches thick. The gold plating system shall enable the product to meet the performance requirements of this specification and shall be approved by the qualifying activity.
8. Knob and post shall be nickel plated (100 microinches thick minimum) 303 stainless steel.

FIGURE 1. Dimensions and configuration - Continued.

## REQUIREMENTS:

Operating data:

Configuration: SPDT.

Life/load ratings: See [table I](#).

Timing action: See [table II](#).

TABLE I. Life/load ratings (relay case grounded).

Type of load	Life (cycles)	Amperes 28 V dc
Resistive	100,000	2.0
Inductive	50,000	0.5
Lamp	100,000	0.2
Mechanical life (reduced current)	400,000	0.5
Intermediate current	100,000	0.5

Contact drop:

Initial: 0.150 volt maximum.

After life tests: 0.175 volt maximum.

Minimum current: 0.050 ampere.

Contact bounce: See [table II](#).

Overload:

DC: 8 amperes minimum.

AC: Not applicable.

Rupture:

DC: 10 amperes minimum.

AC: Not applicable.

Input data:

Duty ratings: Continuous.

Input voltage:

Maximum: See [table II](#).

Rated: See [table II](#).

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Voltage:

Operate: See [table II](#).

Release: See [table II](#).

Operate time: See [table II](#).

Release time: See [table II](#).

Maximum coil current: See [table II](#).

TABLE II. Operating characteristics.

Dash number	DC coil volts <u>1/</u>			Maximum dc coil		Time-milliseconds-maximum		
	Rated	Pickup <u>2/</u>	Dropout	Volts	Amps	Operate <u>3/</u>	Release delay <u>4/</u>	Contact bounce <u>3/</u>
-001	28	15.5 +0.5, -0.0	14.0 -0.0 <u>5/</u>	30	0.11	10	150 ±50	1.0
-002		25.75 ±0.25	24.75 ±0.25				3500 ±500	
-003		21.0 +0.5, -0.0	20.5 +0.0, -0.5				1000 ±200	
-004		15.5 +0.5, -0.0	14.0 -0.0 <u>5/</u>					

1/ Over total operating temperature range.

2/ Applies also to [MIL-PRF-6106](#) high temperature and continuous current tests.

3/ With rated coil voltage.

4/ From dropout voltage to 8 volts. Below 8 volts, release delay time may be 0.

5/ Plus tolerance permits any value less than pickup voltage.

Electrical data:

Insulation resistance:

Initial: See [table III](#).

After life: See [table III](#).

Dielectric withstanding voltage (sea level):

Coil to case:

Initial: See [table III](#).

After life: See [table III](#).

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All other points:

Initial: See [table III](#).

After life: See [table III](#).

Dielectric withstanding voltage (80,000 feet):

Coil to case:

Initial: See [table III](#).

After life: See [table III](#).

All other points:

Initial: See [table III](#).

After life: See [table III](#).

Leakage current: See [table III](#).

TABLE III. Electrical data.

Minimum insulation resistance (megohms)		Dielectric withstanding voltage (rms)					
		Sea level <a href="#">1/</a>		80,000 feet altitude <a href="#">2/</a>			
Initial	After life	Initial	After life	Initial	After life		
100	100	Coil to case	1050	1050	350	350	
		All other points	600	600	350	350	
		Normal leakage current (rms) microamperes <a href="#">3/</a>					
		Coil to case	25	25			
		All other points	25	25			

[1/](#) Testing shall be performed with relay installed in socket and bracket assembly [MIL-DTL-12883/51](#) and secured in mounting track [MIL-DTL-12883/49](#).

[2/](#) Relay shall not be installed in socket and bracket assembly [MIL-DTL-12883/51](#).

[3/](#) Leakage current at sea level.

Transients (applicable O -003 only): The time delay relay shall comply with [MIL-STD-461](#) (applies to X1 and X2 terminals only; A1, A2, and A3 shall be wired but unloaded) and the requirements defined in method CE106, CS101, CS114, RE103, and RS103, except that the field intensity of RS103 shall be in accordance with table IV herein. Voltage spikes (transients of 500 microseconds or less duration) generated by the time delay relay and conducted on lines X1, X2 of the relay shall not exceed 42 volts. Voltages generated by the time delay relays shall be monitored on the control/power leads (+X1, X2) with an oscilloscope having the ability to detect, measure, and display voltage spikes of 0.25 to 1,000 volts amplitude and 10 nanoseconds to 50 microseconds duration. The oscilloscope shall be capable of retaining the display. The qualification test report shall include photographs of all oscilloscope-displayed spike voltages. Switches used to control the time delay relays shall not be EMI-suppressed in any way. During susceptibility testing, the relay shall not change state nor have the timing interval affected in any way by the EMI signals. The timing interval shall be considered to include the instants of turn-on and turn-off.

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TABLE IV. Field intensity levels.

Frequency	RS103 (volts/meter)
14 kHz to 200 MHz	20
200 MHz to 450 MHz	65
450 MHz to 1 GHz	20
1 GHz to 12 GHz	100

Environmental data:

Temperature range (operating): -70°C to +85°C. +171°C nonoperating, 10 minutes. +200°C, nonoperating, 1 minute.

Altitude: 80,000 feet.

Shock:

G level: 50 g's.

Duration: 10 milliseconds.

Contact opening: 10 microseconds, maximum.

Contact closing: 1 microsecond, maximum.

Vibration (sinusoidal):

G level: 30 g's.

Frequency range: 10 Hz to 3,000 Hz.

Vibration (random): Applicable in accordance with [MIL-STD-202](#), method 214, test condition 1B.

Power specter density: 0.4 g<sup>2</sup>/Hz.

Frequency range: 50 Hz to 2,000 Hz.

Duration: 15 minutes each plane.

Vibration scan:

Frequency range: 5 Hz to 2,000 Hz.

Intensity: 0.01 inch double amplitude or ±2 g's (whichever is less).

Acceleration: 15 g's.

Seal: Applicable to nonhermetically-sealed relays and hermetically-sealed (potted) relays.

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Physical data:

Dimensions and configuration: See [figure 1](#).

Weight: 0.24 pound (.108 kilogram) maximum.

Finish: Orange 32246, [FED-STD-595](#).

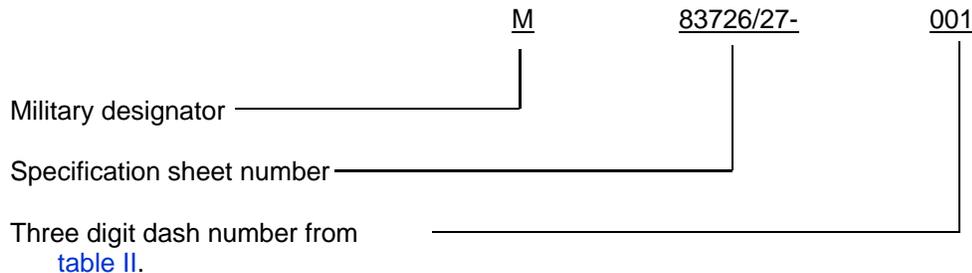
Marking: See [MIL-PRF-83726](#). In addition, relays shall be marked with the Electrostatic Discharge Sensitive (ESDS) identifier as specified in [MIL-STD-1285](#).

ESDS protection program: The manufacturer shall establish and maintain an ESD control program in accordance with [MIL-STD-1686](#) for mission critical equipment. Evidence of such compliance shall be verified by the qualifying activity of this specification as a prerequisite for qualification and continued qualification. This program shall be documented by an ESD control plan that must be under document control. As a minimum, this plan must address the identification of ESDS sub-components and end items, facilities, training, design protection, handling procedures, marking, cleaning, preservation, packaging, and quality assurance. A model ESD control program is available from the qualifying activity and may be used as a guideline. Further guidance for ESD control is available from the Electrostatic Discharge (EOS/ESD) Association and the Electronics Industry Association (EIA). This requirement is applicable to all manufacturers who handle ESDS component parts and materials in the relay manufacturing or testing process. This requirement is not limited to manufacturers qualifying ESDS end items.

ESDS verification: As a part of qualification or qualification after redesign, ESD testing shall be done in accordance with method 3015 of [MIL-STD-883](#) modified to test at 16,000 volts. Testing at lower voltage levels is not required. This testing shall be accomplished as part of the group III for qualification inspection and as part of the group C inspection.

ESDS preservation and packaging: Relays shall be preserved and packaged in such a manner as to ensure that the integrity of ESD sensitive relays is not diminished. ESD sensitive relays shall be preserved and packaged in accordance with the requirements of [MIL-STD-1686](#).

Part or Identifying Number (PIN): Consists of the prefix M83726/27-, a three digit dash number (expressed in milliseconds):



Example: M83726/27-001

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Quality assurance provisions: Group B and group C testing are not required. The manufacturer shall notify the qualifying activity in the event of any design or construction changes, and shall impose additional testing requirements as necessary.

The Qualified Products List (QPL) associated with this inactive for new design specification will be maintained until acquisition of the product is no longer required, whereupon the specification and the QPL will be canceled.

NOTE: As of 15 June 1999, [MIL-PRF-83726](#) no longer specifies Quality Levels, but existing order configurations may still include them. Relays with a "W" quality level indicator at the end are interchangeable with relays without a quality level letter.

Referenced documents. In addition to [MIL-PRF-83726](#), this document references the following:

<a href="#">FED-STD-595/27886</a>	<a href="#">FED-STD-595/37038</a>	<a href="#">FED-STD-595/32246</a>	<a href="#">MIL-DTL-12883/51</a>
<a href="#">MIL-DTL-12883/49</a>	<a href="#">MIL-PRF-6106</a>	<a href="#">MIL-A-8625</a>	<a href="#">MIL-STD-202-214</a>
<a href="#">MIL-STD-461</a>	<a href="#">MIL-STD-883</a>	<a href="#">MIL-STD-1285</a>	<a href="#">MIL-STD-1686</a>
<a href="#">ASTM B488</a>			

Changes from previous issue: The margins of this specification 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 previous issue.

Custodians:  
Navy - EC  
Air Force - 85  
DLA - CC

Preparing activity:  
DLA - CC

Review activity:  
Air Force – 99

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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 the ASSIST Online database at <https://assist.dla.mil>.