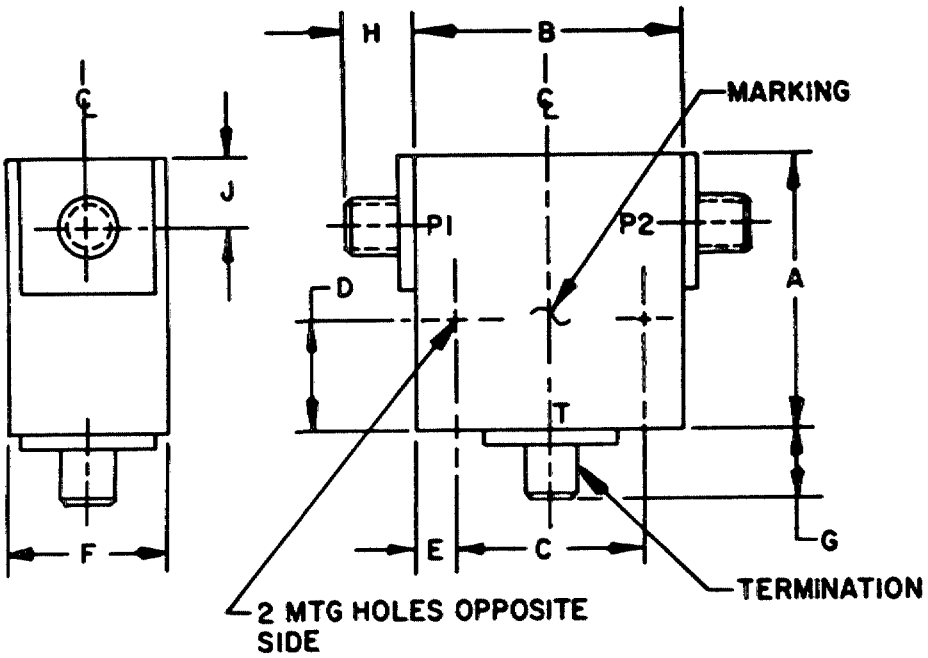
MILITARY SPECIFICATION SHEET

ISOLATORS, RADIO FREQUENCY, COAXIAL

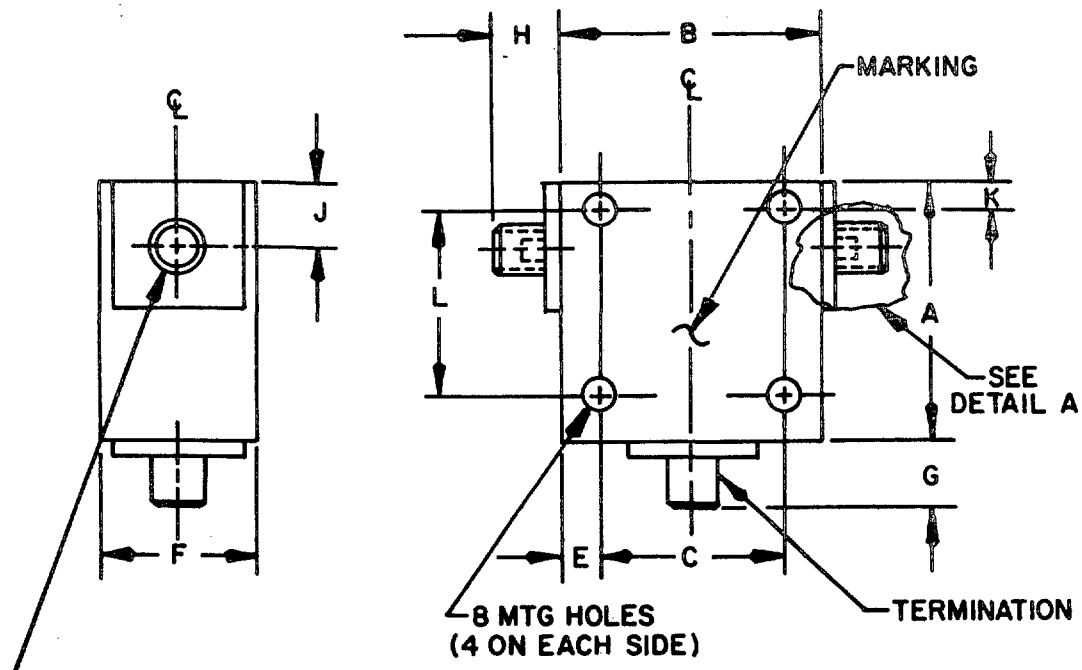
This specification is approved for use by all Departments and Agencies of the Department of Defense.

The complete requirements for procuring the isolators described herein shall consist of this document and the latest issue of specification MIL-I-28791.

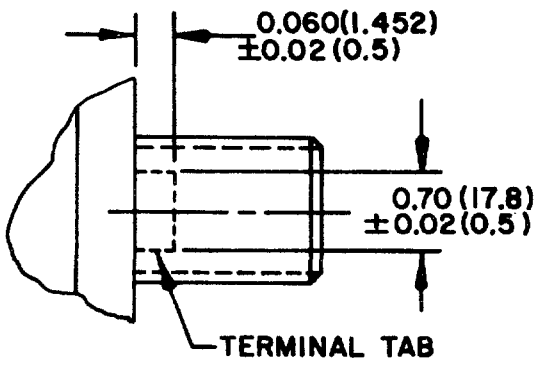


NOTES:
1. See table I for dimensions.
2. All undimensioned pictorial representations are for reference purposes only.

FIGURE 1. Dimensions and configuration for dash numbers 001, 002, 003, 004, 005, 016, 017, 020, 022, 023, 024, 025, 030, 031, and 035.



Removable SMA connectors for dash number -010 only.

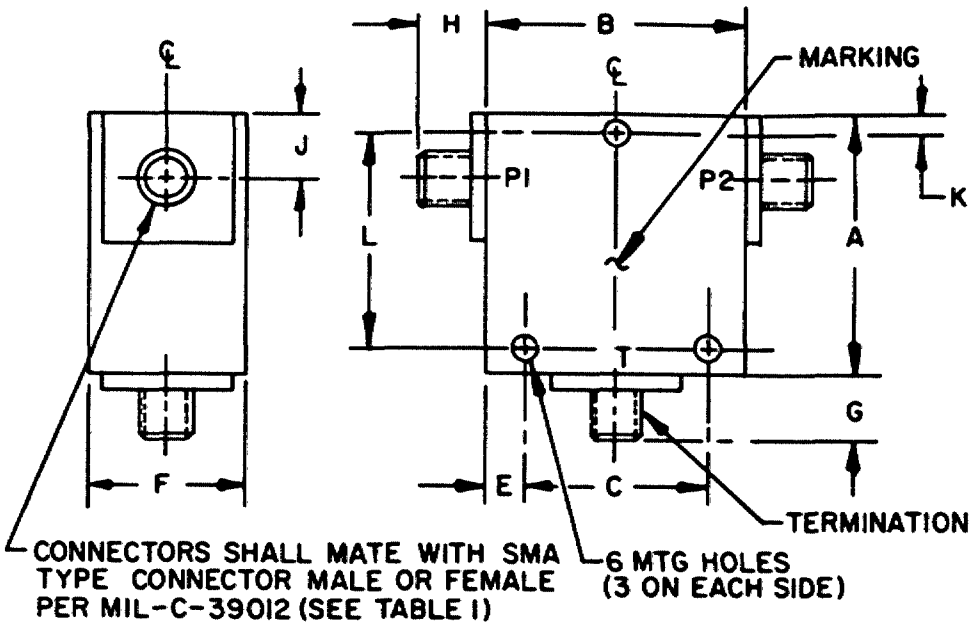


DETAIL A

STRIPLINE TERMINAL TABS PROTRUSION FROM CASE WHEN INPUT AND OUTPUT PORT CONNECTORS ARE REMOVED. SHIM CONNECTOR MOUNTINGS AS REQUIRED.

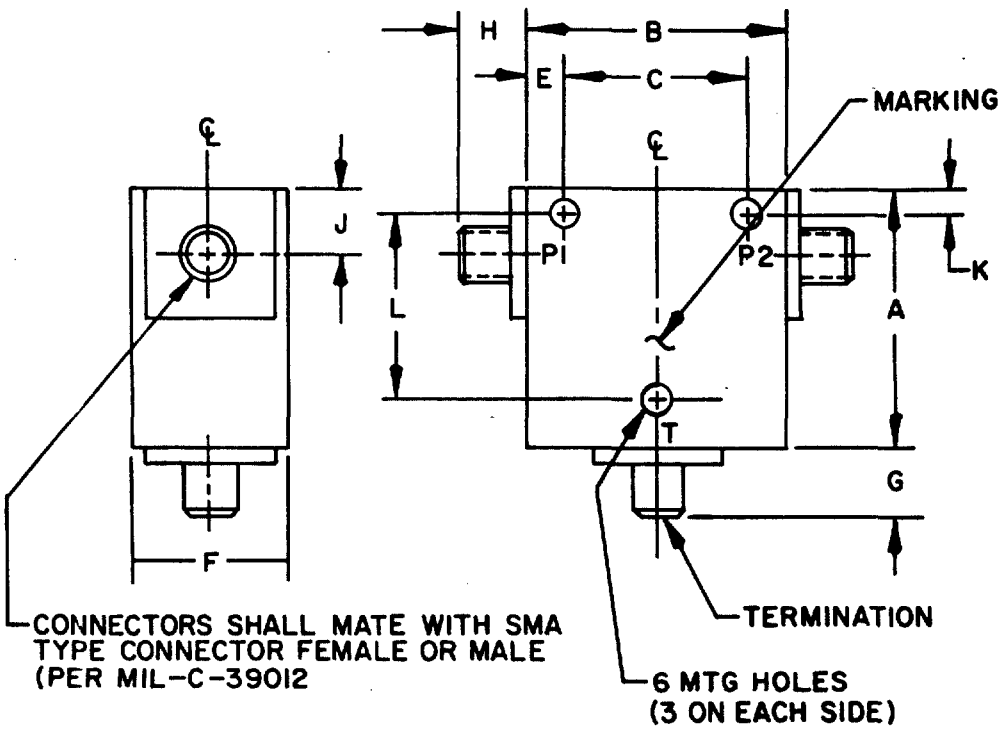
NOTES:
1. See table I for dimensions.
2. All undimensioned pictorial representations are for reference purposes only.
3. Metric equivalents are in parentheses.

FIGURE 2. Dimensions and configurations for dash numbers 006, 010, and 014.



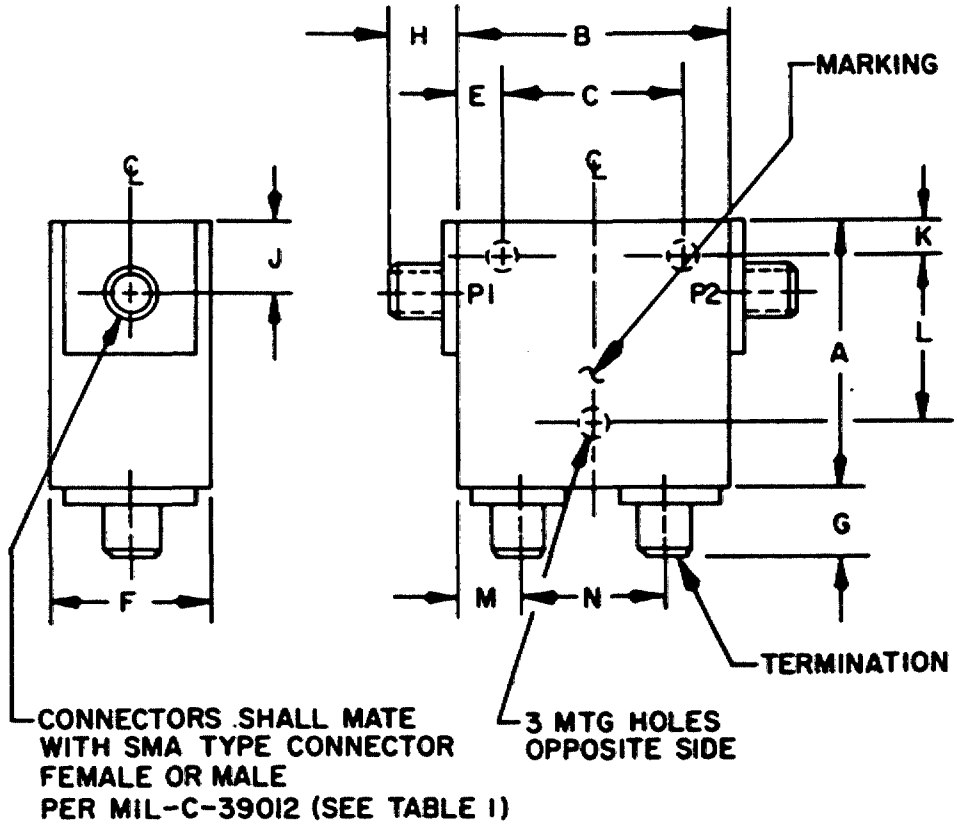
NOTES:
1. See table I for dimensions.
2. All undimensioned pictorial representations are for reference purposes only.

FIGURE 3. Dimensions and configurations for dash numbers 007, 009, 011, 012, and 027.



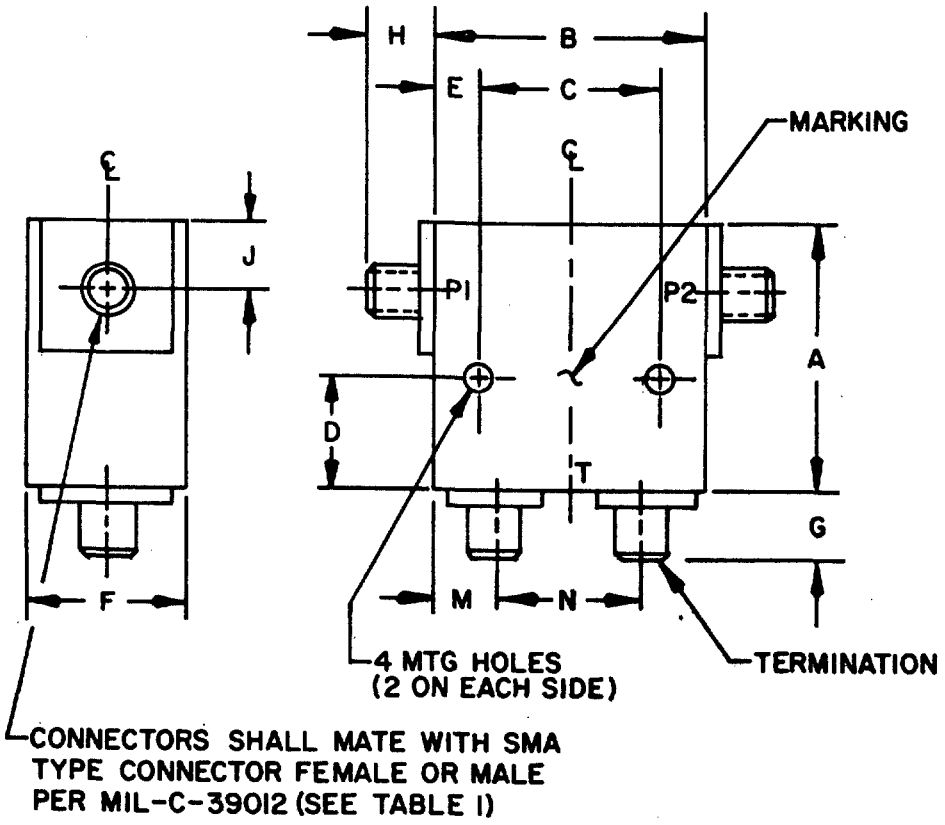
NOTES:
1. See table I for dimensions.
2. All undimensioned pictorial representations are for reference purposes only.

FIGURE 4. Dimensions and configurations for dash numbers 008, 013, 015, 018, 019, 021, 028, and 033.



NOTES:
1. See table I for dimensions.
2. All undimensioned pictorial representations are for reference purposes only.

FIGURE 5. Dimensions and configurations for dash numbers 026 and 032.



NOTES:
1. See table I for dimensions.
2. All undimensioned pictorial representations are for reference purposes only.

FIGURE 6. Dimensions and configurations for dash numbers 029 and 034.

TABLE I. Dimensional and thread requirements.

Dash no.	Dimensions 1/ 2/													
	A	B	C		D		E		F	G	H		J	
	Max	Max	Min	Max	Min	Max	Min	Max	Max	Max	Min	Max	Min	Max
-001	.66 (16.8)	.53 (13.5)	.345 (8.76)	.355 (9.02)	.407 (10.34)	.417 (10.59)	.070 (1.78)	.080 (2.03)	.53 (13.5)	.135 (3.43)	.220 (5.59)	.415 (10.54)	.245 (6.22)	.255 (6.48)
-002	.66 (16.8)	.53 (13.5)	.345 (8.76)	.355 (9.02)	.407 (10.34)	.417 (10.59)	.070 (1.78)	.080 (2.03)	.53 (13.5)	.135 (3.43)			.245 (6.22)	.255 (6.48)
-003	1.055 (26.80)	.955 (24.26)	.645 (16.38)	.655 (16.64)	.395 (10.03)	.405 (10.29)	.145 (3.68)	.155 (3.94)	.65 (16.5)	.27 (6.9)			.245 (6.22)	.255 (6.48)
-004	1.055 (26.80)	.955 (24.26)	.645 (16.38)	.655 (16.64)	.395 (10.03)	.405 (10.29)	.145 (3.68)	.155 (3.94)	.65 (16.5)	.27 (6.9)			.245 (6.22)	.255 (6.48)
-005	1.20 (30.5)	1.20 (30.5)	.945 (24.00)	.955 (24.26)	.395 (10.03)	.405 (10.29)	.125 (3.18)	.135 (3.43)	.75 (19.0)	.17 (4.3)			.255 (6.48)	.265 (6.73)
-006	1.25 (31.8)	1.25 (31.8)	.645 (16.38)	.655 (16.64)			.295 (7.49)	.305 (7.75)	.75 (19.0)	.17 (4.3)			.295 (7.49)	.305 (7.75)
-007	1.50 (38.1)	1.50 (38.1)	.995 (25.27)	1.005 (25.53)			.245 (6.22)	.255 (6.48)	.63 (16.0)	.27 (6.9)			.265 (6.73)	.275 (6.98)
-008	2.75 (69.8)	2.75 (69.8)	1.995 (50.67)	2.005 (50.93)			.495 (12.57)	.505 (12.83)	.89 (22.6)	.69 (17.5)			.399 (10.13)	.349 (8.86)
-009	1.25 (31.8)	1.25 (31.8)	.995 (25.27)	1.005 (25.53)			.115 (2.92)	.125 (3.18)	.63 (16.0)	.27 (6.9)			.245 (6.22)	.255 (6.48)
-010	1.500 (38.10)	1.49 (37.8)	.995 (25.27)	1.005 (25.53)			.245 (6.22)	.255 (6.48)	.65 (16.5)	.17 (4.3)			.275 (6.98)	.285 (7.24)
-011	1.25 (31.8)	1.25 (31.8)	.995 (25.27)	1.005 (25.53)			.115 (2.92)	.125 (3.18)	.63 (16.0)	.27 (6.9)			.245 (6.22)	.255 (6.48)
-012	2.00 (50.8)	2.00 (50.8)	1.713 (43.51)	1.723 (43.76)			.135 (3.43)	.145 (3.68)	1.00 (25.4)	.27 (6.9)			.495 (12.57)	.505 (12.83)
-013	1.70 (43.2)	1.63 (41.4)	1.115 (28.32)	1.125 (28.58)			.245 (6.22)	.255 (6.48)	.75 (19.0)	.27 (6.9)			.349 (8.86)	.355 (9.02)
-014	1.72 (43.7)	1.65 (41.9)	1.045 (26.54)	1.055 (26.80)			.295 (7.49)	.305 (7.75)	.75 (19.0)	.17 (4.3)			.335 (8.51)	.345 (8.76)
-015	2.08 (52.8)	1.77 (45.0)	1.095 (27.81)	1.105 (28.07)			.325 (8.26)	.335 (8.51)	.99 (25.1)	.17 (4.3)			.275 (6.98)	.285 (7.24)
-016	1.625 (41.28)	1.625 (41.28)	1.320 (33.53)	1.330 (33.78)	.807 (20.50)	.817 (20.75)	.120 (3.05)	.130 (3.30)	.75 (19.0)	.27 (6.9)			.370 (9.40)	.380 (9.65)
-017	1.625 (41.28)	1.625 (41.28)	1.320 (33.53)	1.330 (33.78)	.807 (20.50)	.817 (20.75)	.120 (3.05)	.130 (3.30)	.75 (19.0)	.27 (6.9)	.220 (5.59)	.415 (10.54)	.370 (9.40)	.380 (9.65)

TABLE I. Dimensional and thread requirements - Continued.

Dash no.	K		L		MTG threads	Connectors	Figure No.
	Min	Max	Min	Max			
-001					.086-56 UNC-2B x .13DP	2 females	1
-002					.086-56 UNC-2B x .13DP	2 females	1
-003					.112-40 UNC-2B x .15DP	2 females	1
-004					.112-40 UNC-2B x .15DP	2 females	1
-005					.086-56 UNC-2B x .13DP	2 females	1
-006	.145 (3.68)	.155 (3.94)	.995 (25.27)	1.005 (25.53)	.086-56 UNC-2B x .30DP	2 females	2
-007	.145 (3.68)	.155 (3.94)	1.182 (30.02)	1.192 (30.28)	.112-40 UNC-2B x .13DP	2 females	3
-008	.399 (10.13)	.349 (8.86)	1.995 (50.67)	2.005 (50.93)	.112-40 UNC-2B x .19DP	2 females	4
-009	.115 (2.92)	.125 (3.18)	.995 (25.27)	1.005 (25.53)	.086-56 UNC-2B x .13DP	1 female & 1 male	3
-010	.115 (2.92)	.125 (3.18)	.995 (25.27)	1.005 (25.53)	.086-56 UNC-2B x .13DP	2 females	2
-011	.115 (2.92)	.125 (3.18)	.995 (25.27)	1.005 (25.53)	.086-56 UNC-2B x .13DP	1 female & 1 male	3
-012	.135 (3.43)	.145 (3.68)	1.713 (43.51)	1.723 (43.76)	.112-40 UNC-2B x .15DP	2 females	3
-013	1.075 (27.30)	1.085 (27.56)	.349 (8.86)	.355 (9.02)	.112-40 UNC-2B x .15DP	2 females	4
-014	.335 (8.51)	.345 (8.76)	1.0495 (26.657)	1.0505 (26.683)	.112-40 UNC-2B x .15DP	2 females	2
-015	.345 (8.76)	.355 (9.02)	1.395 (35.43)	1.405 (35.69)	.112-40 UNC-2B x .15DP	2 females	4
-016					.112-40 UNC-2B x .15DP	2 females	1
-017					.112-40 UNC-2B x .15DP	2 females	1

TABLE I. Dimensional and thread requirements - Continued.

Dash no.	Dimensions 1/ 2/													
	A	B	C		D		E		F	G	H		J	
	Max	Max	Min	Max	Min	Max	Min	Max	Max	Max	Min	Max	Min	Max
-018	1.00 (25.4)	1.00 (25.4)	.795 (20.19)	.805 (20.45)			.095 (2.41)	.105 (2.67)	.5) (12.7)	.17 (4.3)	.220 (5.59)	.415 (10.54)	.245 (6.22)	.255 (6.48)
-019	1.06 (26.9)	1.00 (25.4)	.745 (18.92)	.755 (19.18)			.115 (2.92)	.125 (3.18)	.75 (19.0)	.27 (6.9)			.245 (6.22)	.255 (6.48)
-020	1.03 (26.2)	1.00 (25.4)	.595 (15.11)	.605 (15.37)	.395 (10.03)	.405 (10.29)	.195 (4.95)	.205 (5.21)	.63 (16.0)	.17 (4.3)			.275 (6.98)	.285 (7.24)
-021	1.30 (33.0)	1.15 (29.2)	.695 (17.65)	.705 (17.91)			.225 (5.72)	.235 (5.97)	.63 (16.0)	.17 (4.3)			.275 (6.98)	.285 (7.24)
-022	1.00 (25.4)	1.00 (25.4)	.745 (18.92)	.755 (19.18)	.182 (4.62)	.192 (4.88)	.120 (3.05)	.130 (3.30)	.50 (12.7)	.27 (6.9)			.245 (6.22)	.255 (6.48)
-023	1.00 (25.4)	1.00 (25.4)	.745 (18.92)	.755 (19.18)	.182 (4.62)	.192 (4.88)	.120 (3.05)	.130 (3.30)	.50 (12.7)	.27 (6.9)			.245 (6.22)	.255 (6.48)
-024	1.12 (28.4)	.91 (23.1)	.820 (20.83)	.830 (21.08)	.090 (2.29)	.100 (2.54)	.080 (2.03)	.090 (2.29)	.90 (22.9)	.27 (6.9)			.375 (9.52)	.385 (9.78)
-025	.85 (21.6)	.75 (19.0)	.595 (15.11)	.605 (15.37)	.255 (6.48)	.265 (6.73)	.075 (1.90)	.085 (2.16)	.60 (15.2)	.17 (4.3)			.255 (6.48)	.265 (6.73)
-026	.85 (21.6)	1.60 (40.6)	1.395 (35.43)	1.405 (35.69)			.095 (2.41)	.105 (2.67)	.60 (15.2)	.17 (4.3)			.245 (6.22)	.255 (6.48)
-027	1.06 (26.9)	.87 (22.1)	.620 (15.75)	.630 (16.00)			.115 (2.92)	.125 (3.18)	.81 (20.6)	.17 (4.3)			.245 (6.22)	.255 (6.48)
-028	1.08 (27.4)	.94 (23.9)	.620 (15.75)	.630 (16.00)			.155 (3.94)	.165 (4.19)	.56 (14.2)	.17 (4.3)			.275 (6.98)	.285 (7.24)
-029	1.00 (25.4)	1.80 (45.7)	1.595 (40.51)	1.605 (40.77)	.375 (9.52)	.385 (9.78)	.095 (2.41)	.105 (2.67)	.63 (16.0)	.17 (4.3)			.265 (6.73)	.275 (6.98)
-030	.77 (19.6)	.63 (16.0)	.495 (12.57)	.505 (12.83)	.515 (13.08)	.525 (13.34)	.058 (1.47)	.068 (1.73)	.50 (12.7)	.25 (6.4)			.245 (6.22)	.255 (6.48)
-031	.84 (21.3)	.63 (16.0)	.465 (11.81)	.475 (12.06)	.325 (8.26)	.335 (8.51)	.075 (1.90)	.085 (2.16)	.62 (15.7)	.17 (4.3)			.285 (7.24)	.295 (7.49)
-032	.68 (17.3)	1.02 (25.9)	.855 (21.72)	.865 (21.97)			.075 (1.90)	.085 (2.16)	.56 (14.2)	.45 (11.4)			.265 (6.73)	.275 (6.98)
-033	.83 (21.1)	.67 (17.0)	.355 (9.02)	.365 (9.27)			.155 (3.94)	.165 (4.19)	.62 (15.7)	.35 (8.9)			.275 (6.98)	.285 (7.24)
-034	.78 (19.8)	1.20 (30.5)	.955 (24.26)	.965 (24.51)	.525 (13.34)	.535 (13.59)	.115 (2.92)	.125 (3.18)	.63 (16.0)	.15 (3.8)			.245 (6.22)	.255 (6.48)
-035	.77 (19.6)	.63 (16.0)	.495 (12.57)	.505 (12.83)	.515 (13.08)	.525 (13.34)	.058 (1.47)	.068 (1.73)	.80 (20.3)	.25 (6.4)	.220 (5.59)	.415 (10.54)	.245 (6.22)	.255 (6.48)

TABLE I. Dimensional and thread requirements - Continued.

Dash no.	K		L		M	N	MTG threads	Connectors	Figure no.
	Min	Max	Min	Max	Max	Max			
-018	.225 (5.72)	.235 (5.97)	.645 (16.38)	.655 (16.64)			.086-56 UNC-2B x .13DP	2 females	4
-019	.225 (5.72)	.235 (5.97)	.695 (17.65)	.705 (17.91)			.086-56 UNC-2B x .13DP	2 females	4
-020							.112-40 UNC-2B x .15DP	2 females	1
-021	.175 (4.44)	.185 (4.70)	.945 (24.00)	.955 (24.26)			.112-40 UNC-2B x .15DP	2 males	4
-022							.125 DIA THRU	2 females	1
-023							.125 DIA THRU	2 females	1
-024							.086-56 UNC-2B x .13DP	2 females	1
-025							.086-56 UNC-2B x .16DP	2 females	1
-026	.245 (6.22)	.255 (6.48)	.495 (12.57)	.505 (12.83)	.40 (10.2)	.80 (20.3)	.086-56 UNC-2B x .16DP	2 females	5
-027	.145 (3.68)	.155 (3.94)	.732 (18.59)	.742 (18.85)			.112-40 UNC-2B x .18DP	2 females	3
-028	.245 (6.22)	.255 (6.48)	.595 (15.11)	.605 (15.37)			.086-56 UNC-2B x .16DP	2 males	4
-029					.45 (11.4)	.45 (11.4)	.112-40 UNC-2B x .15DP	2 females	6
-030							.086-56 UNC-2B x .13DP	2 females	1
-031							.086-56 UNC-2B x .13DP	2 females	1
-032	.265 (6.73)	.275 (6.98)	.305 (7.75)	.315 (8.00)	.25 (6.4)	.51 (13.0)	.086-56 UNC-2B x .13DP	2 females	5
-033	.225 (5.72)	.235 (5.97)	.485 (12.32)	.495 (12.57)			.086-56 UNC-2B x .16DP	2 males	4
-034							.086-56 UNC-2B x .16DP	2 females	6
-035							.086-56 UNC-2B x .13DP	2 females	1

1/ Metric equivalents are in parentheses.
2/ Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.

ENGINEERING DATA:

Frequency range: See table II.

Voltage rating (sea level): 335 V.

Nominal impedance: 50 ohms.

Operating temperature range: See table II.

Power rating: See table II.

Input port: P_1.

Output port: P_2.

RF connectors: Shall be stainless steel.

REQUIREMENTS:

Dimensions and configuration: See figures 1 through 6, and table I.

Dielectric withstanding voltage: 1000 volts rms minimum.

Isolation: See table II.

Insertion loss: See table II.

VSWR: See table II.

Marking: See figures 1 through 6.

Salt spray (where applicable): MIL-STD-202, method 101, test condition B. This test shall be performed under first article inspection after the vibration test. Insertion loss and VSWR shall be measured after the test.

Part number: M28791/1 - (dash number from table II).

TABLE II. Electrical and additional environmental requirements.

Dash number	Frequency range	Isolation	Insertion loss	VSWR	Operating temperature range	Input power rating Avg.	Salt spray 1/
	GHz	dB min	dB max	max	°C	Watt min	
-001	9.50-10.0	20	0.3	1.25:1	-55°C to +95°C	10	N/A
-002	12.5-13.5	20	0.3	1.25:1	-55°C to +95°C	10	N/A
-003	7.0-11.0	20	0.5	1.30:1	-55°C to +95°C	10	N/A
-004	11.0-18.0	20	0.5	1.30:1	-55°C to +95°C	10	N/A
-005	0.95-1.225	20	0.5	1.25:1	-54°C to +85°C	2	N/A
-006	0.95-1.225	22	0.4	1.25:1	0°C to +71°C	2	Cond. B
-007	0.96-1.215	18	0.5	1.25:1		75	N/A
-008	1-2	18	0.5	1.30:1	0°C to +71°C	2	Cond. B
-009	1.255-1.41	20	0.4	1.25:1	-28°C to +65°C	5	Cond. B
-010	1.26-1.666	20	0.5	1.25:1	-40°C to +65°C	0.03	Cond. B
-011	1.495-1.65	20	0.3	1.25:1	-28°C to +65°C	5	Cond. B
-012	1.53-1.87	20	0.5	1.25:1	-20°C to +70°C	2	N/A
-013	1.8-4.2	20	0.8	1.50:1	-40°C to +75°C	2	Cond. B
-014	2-4	20	0.4	1.25:1	-55°C to +125°C	1	Cond. B
-015	2-4	20	0.4	1.25:1	-54°C to +71°C	2	Cond. B
-016	2.16-4.16	18	0.5	1.35:1	-55°C to +85°C	2	Cond. B
-017	2.2-4.2	18	0.5	1.35:1	-55°C to +85°C	2	Cond. B
-018	2.7-2.9	20	0.4	1.25:1	-41°C to +53°C	2	Cond. B
-019	3.6-8.4	20	0.5	1.50:1	-40°C to +75°C	2	Cond. B
-020	4.0-8.0	20	0.5	1.30:1	-55°C to +125°C	1	Cond. B
-021	4.0-8.0	20	0.4	1.25:1	-54°C to +70°C	2	Cond. B
-022	4.16-8.16	18	0.5	1.35:1	-55°C to +85°C	2	Cond. B
-023	4.2-8.2	18	0.5	1.35:1	-55°C to +85°C	2	Cond. B
-024	4.35-4.85	25	0.5	1.18:1	-40°C to +71°C	2	N/A
-025	7-11	30	0.4	1.10:1	-54°C to +105°C	10	N/A
-026	7.55-12.85	25	1.2	1.35:1	-40°C to +75°C	2	Cond. B
-027	8-12	20	0.4	1.25:1	-54°C to +70°C	1	N/A
-028	8-12	20	0.4	1.25:1	-54°C to +71°C	2	Cond. B

TABLE II. Electrical and additional environmental requirements - Continued.

Dash number	Frequency range	Isolation	Insertion loss	VSWR	Operating temperature range	Input power rating Avg.	Salt spray 1/
	GHz	dB min	dB max	max	°C	Watt min	
-029	8-12	40	0.8	1.25:1	0°C to +65°C	2	Cond. B
-030	8.16-12.56	18	0.5	1.35:1	-55°C to +85°C	2	Cond. B
-031	8-16	17	0.7	1.35:1	-45°C to +85°C	2	Cond. B
-032	12-18.5	30	1.2	1.35:1	-40°C to +75°C	2	Cond. B
-033	12-18	18	0.6	1.30:1	-54°C to +71°C	2	Cond. B
-034	12.4-18	40	0.8	1.25:1	0°C to +65°C	2	Cond. B
-035	12.56-18.16	17	1.0	1.45:1	-55°C to +85°C	2	Cond. B

1/ This test shall be performed under first article inspection and be conducted after the vibration test. After exposure, isolators shall be examined for evidence of corrosion. Any corrosion shall be considered a failure. After the salt spray test, the VSWR shall be measured and shall not be greater than specified.

NOTE: Isolators covered by this specification sheet are substituted for the following manufacturer's part numbers. This information in no way implies that the manufacturer part is suitable as a substitute for the military part number.

Dash number	Manufacturer's code	Manufacturer's part numbers	FSN
005	81755	C9399-1	
005	24022	TOS23T-11	
006	77327	0019437-01	6625-01-067-1197
006	21847	AMI9525	
007	19156	910456-001	
007	14135	L20T73	
008	06424	10372-1	
008	16453	2JC-1020	
009	10001	2938712-1	
009	12110	35496	
009	17480	5513	
010	28528	1133089	
010	27338	101101943	
011	10001	2938712-2	
011	12110	35497	
011	17480	5514	
012	06401	7910890-00	
012	51027	C1-L35326	
013	06424	1202005-1	5985-01-067-3084
013	24022	T-1S83T-4	
014	50224	I37-0300	
014	06424	10359-1	
015	80063	SM-A-874683-1	
015	32562	340-1007-050	
015	27338	101100012-1	5985-01-063-1580
016	04660	4600211-001	
016	12110	34391	
016	16453	2JC8034-S	
017	04660	4600211-002	
017	12110	34392	
017	16453	2JC8035-S	
018	96214	803413-1	
018	27338	101103119	5985-01-070-3656
019	06424	1202005-2	5985-01-067-1198
019	24022	T-3S83T-1	
020	06424	10359-2	
020	50224	I37-0600	
021	80063	SM-A-874683	
021	32562	340-1007-010	
021	27338	101102216	5985-01-032-0926
021	16453	2JC-8260-C	
022	04660	4600211-003	
022	12110	34393	
022	16453	2J8036-C	
023	04660	4600211-004	
023	12110	34394	
023	16453	2J8037-C	
024	94990	58-P05719G001	
024	51027	B1-C15311	
025	12436	6010829-001	
025	24022	T-7S43T-6	
025	55298	XT24	
025	81755	C10074	
026	06424	1202004-2	5985-01-067-3185
026	24022	T-7S44T-4	
027	711434	711434-1	
027	16453	ICX-4850	

Dash number	Manufacturer's code	Manufacturer's part numbers	FSN
028	80063	SM-A-874683-3	
028	32562	340-1007-020	
028	27338	101102215	5985-01-032-4759
028	16453	2JC-8261-X	
029	06424	10519-2	
029	50224	RDL-0134	
030	04660	4600211-005	
030	12110	34395-1	
030	16453	2JC-8038-X	
031	80063	SM-C-920581	
031	27338	101101833	5985-00-098-7629
031	24022	T8S63T-7A	
031	96341	MA7L221	
032	06424	1202004-1	5985-01-069-9706
032	24022	T-12S44T-2	
033	80063	SM-A-874683-4	
033	32562	340-1007-030	
033	27338	101102193	5985-01-053-6392
033	16453	2JC-8262-P	
034	06424	10519-1	
034	50224	RDL-0135	
035	04660	4600211-009	
035	12110	35489-2	
035	16453	2JC8042-P	

Custodians:
Army - ER
Navy - EC
Air Force - 85

Review activities:
Air Force - 11, 99
Navy - MC
DLA - ES

User activity:
Navy - OS, SH, MC,AS

Preparing activity:
Navy - EC

Agent:
DLA - ES

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