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 22 October 1987
 SUPERSEDING
 MIL-F-15733/41F
 1 September 1983

PERFORMANCE SPECIFICATION SHEET

FILTERS, RADIO FREQUENCY INTERFERENCE, STYLE FL84

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

The requirements for acquiring the filters described herein shall consist of this specification and the latest issue of MIL-F-15733.

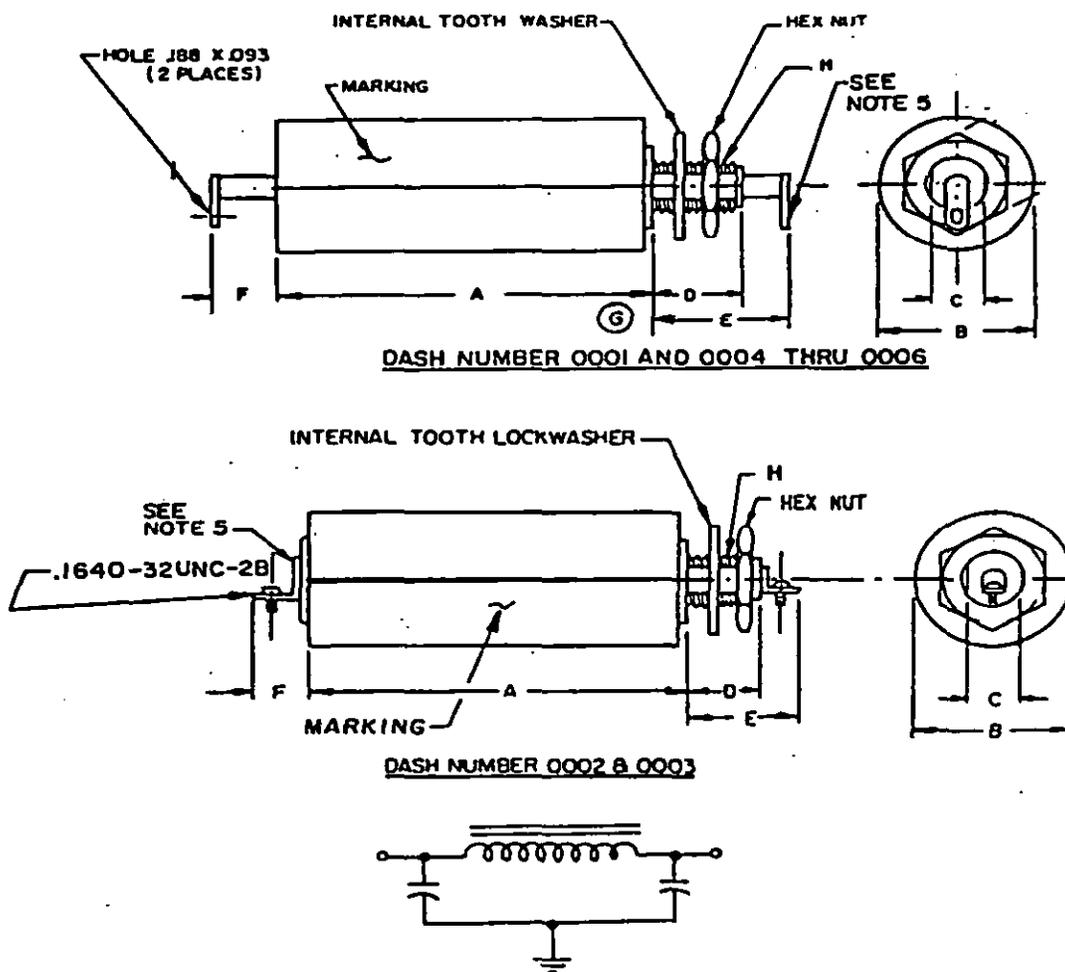


FIGURE 1. Case and circuit configuration.

(G) denotes changes

G Filter dimensions.

Dash number	A		B		C		D		E		F		H Mounting thread	Max Weight (lbs)
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
0001	2.469	2.655	1.063 (27.00)	1.187 (30.15)	.370	.380	.422	.454	.625	.781	---	.250	.4375-20 UNF-2A	.375
0002	---	4.562	1.355 (34.42)	1.395 (35.43)	.651	.661	.360	.390	---	1.046	---	.781	.750-20 UNF-2A	.7
0003	---	3.937	1.230 (31.24)	1.270 (32.26)	.651	.661	.360	.390	---	1.046	---	.781	.750-20 UNF-2A	.5
0004	2.845	3.031	1.188 (30.18)	1.312 (33.32)	.526	.536	.359	.391	.531	.843	---	.406	.625-24 UNEF-2A	.59
0005	1.88	3.12	.968 (24.59)	1.032 (26.21)	.365	.385	.417	.457	.573	.737	---	.218	.4375-20 UNF-2A	.47
0006	3.313	3.499	1.100 (30.18)	1.312 (33.32)	---	.531	.359	.391	.625	.781	---	.406	.625-24 UNI-2A	.47

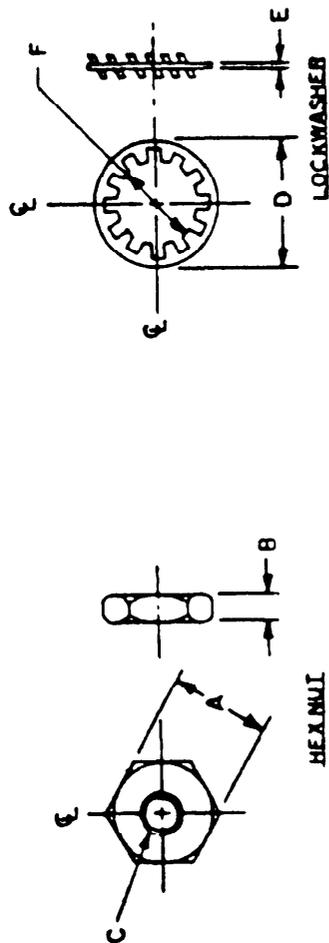


FIGURE 1. Case and circuit configuration - Continued.

Mounting hardware
Filter hardware dimensions.

(G) Mounting hardware						
Dash number	Hex nut			Lockwasher		
	A	B	C	D	E	F
0001	.615	.095	.4375-20 UNF-2B	.744	.033 ref.	.448
	.635	.156		.789		.464
0002	1.052	.141	.750-20 UNF-2B	1.047	.017	.760
	1.072	.171		1.077		.757
0003	1.052	.141	.750-20 UNF-2B	1.047	.017	.760
	1.072	.171		1.077		.757
0004 0006	.865	.146	.625-24 UNF-2B	.867	.017	.640
	.885	.166		.883		.659
0005	.615	.095	.4375-20 UNF-2B	.744	.033 ref.	.448
	.635	.156		.789		.464

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Circuit diagram is for information only.
4. Mounting hardware (internal-tooth lockwasher and hex nut) shall be supplied with filter.
5. Terminal shape and angular orientation optional.

FIGURE 1. Case dimensions and circuit diagram - Continued.

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Weight: See figure 1.

Case: Metal.

Terminals:

Solderable (dash numbers 0001, and 0004 through 0006).

Radial tapped permanent stud (dash numbers 0002 and 0003).

Ⓒ Operating temperature range: -55°C to $+125^{\circ}\text{C}$.

Rated voltage: See table I.

Rated current: See table I.

Insertion loss (at $+25^{\circ}\text{C}$): See table I.

Insertion loss (at temperature extremes): Insertion loss shall be as specified in table I except that a degradation of 2 dB from the value specified in table I shall be allowed up to 10 MHz.

Ⓒ Voltage conditioning (applicable to quality conformance only): 100 percent of each lot of filters shall be subjected to the voltage conditioning test. The test shall be conducted prior to the group A inspection of MIL-F-15733, as follows:

Test temperature: Maximum operating temperature.

Test voltage: 120 percent of the rated ac voltage (except for -0005).
140 percent of the rated dc voltage (for -0005). Charging current shall not exceed 50 mA.

Test duration:

100 \pm 4 hours (dash numbers 0001, 0005, and 0006).
50 \pm 4, -0 hours (dash numbers 0002, 0003, and 0004).

After completion of exposure, and while filters are stabilized at the applicable test temperature, the insulation resistance shall be measured. Filters shall then be stabilized at $+25^{\circ}\text{C}$ and insulation resistance shall be measured. A reject shall be defined as a filter whose insulation resistance does not meet the initial requirements when measured at the maximum operating temperature and at $+25^{\circ}\text{C}$. The insulation resistance requirement at the maximum operating temperature shall not be less than 10 percent of the $+25^{\circ}\text{C}$ requirement. If the total rejects from any particular lot exceed 10 percent, the entire lot shall be rejected.

⑥ TABLE I. Electrical characteristics.

Dash number	Circuit diagram	Rated voltage		Rated current (amps)	Voltage drop (volts)	Minimum insertion loss (dB) in accordance with MIL-STD-220 at $\pm 25^{\circ}\text{C}$ 2/ 3/										
		Volts (dc)	Volts (ac)			.15 MHz	.30 MHz	.50 MHz	.60 MHz	1.0 MHz	10 MHz	20 MHz	40 MHz	100 MHz	500 MHz	1 GHz
0001	Pf	400	125	10	.5 V rms	24	46	60	65	79	88	88	90	90	90	90
0002	"	400	125	20	.16 V rms	55	75	75	75	90	90	90	90	90	90	90
0003	"	400	125	15	.5 V rms	38	58	70	70	80	80	80	80	80	80	80
0004	"	125	---	20	1.25 V dc	50	58	82	86	90	90	90	90	90	84	84
0005	"	400	125	1	.5 V rms	60	75	80	80	80	80	80	80	80	80	80
0006	"	400	125	10	.22 V dc	44	62	75	80	90	85	85	85	85	85	85

1/ DC to 400 Hz.

2/ Full load insertion loss measurements shall be performed at frequencies between 150 kHz to 20 MHz inclusive; all other measurements shall be performed at no load.

3/ In addition, the following dash numbers shall meet the following no-load insertion loss measurements at the specified frequencies:

Dash no.	.15 MHz	.3 MHz	.5 MHz	.6 MHz	1 MHz	10 MHz	20 MHz
0001	44	60	---	78	90	90	90
0004	58	---	86	---	---	---	---
0006	60	---	88	88	100	---	---

Seal: Filters shall be placed with the terminals facing sideways (not upward), and brought to a case temperature, of $90^{\circ}\text{C} \pm 5^{\circ}\text{C}$. After 10 minutes at this case temperature, the filters shall be turned through 180 degrees onto another surface with the terminals still sideways and kept at this position for 10 minutes with the case temperature maintained within the same limits. Filters which show liquid seepage shall be cleaned and cooled to room ambient temperature. While still at room ambient temperature, the filters shall be immersed for 1 minute in oil or water maintained at a temperature of $90^{\circ}\text{C} \pm 5^{\circ}\text{C}$. The filters shall be immersed horizontally so that the terminals will be exposed at each end, to a depth of at least 1 inch below the surface of the liquid.

Capacitance to ground: Method 305, MIL-STD-202 (applicable to -0001 only).

Test frequency: 1,000 \pm 100 Hz.

Measured capacitance: Between 0.72 and 1.17 μF .

Temperature rise: 25°C , maximum.

Dielectric withstanding voltage: Method 301, MIL-STD-202.

Test voltage:	Dash nos.	V dc
	0001 through 0003, 0005, and 0006	800
	0004	250

Test voltage shall be applied between either terminal and case. The test voltage shall be applied and discharged through a resistance of at least 1 ohm per volt.

Barometric pressure (reduced): Method 105, MIL-STD-202.

Test altitude: 80,000 feet (0.83 inch of mercury).

Dielectric withstanding voltage: In accordance with initial requirements, except the test voltage shall be 125 percent of the rated dc voltage.

Insulation resistance: Method 302, test condition A, MIL-STD-202. Insulation resistance measured at +25°C between either terminal and the case shall be at least:

<u>Dash nos.</u>	<u>Megohms</u>
0001- - - - -	550
0002, 0003, 0005, 0006- - -	500
0004 - - - - -	300

Voltage drop: See table I.

Insertion-loss: In accordance with MIL-F-15733, and table I.

Overload: In accordance with MIL-F-15733.

Measurements at +25°C after test: Insulation resistance and voltage drop shall be measured and shall meet initial requirements.

Transient voltage (not applicable to -0004 through -0006): Filters shall withstand the transient and spike voltages specified in MIL-STD-704 for category B equipment.

Qualification inspection: In accordance with MIL-F-15733, as an additional test in group I, following the overload test.

Quality conformance inspection: In accordance with MIL-F-15733, group B inspection, as an additional test following the overload test.

Measurements at +25°C after test: Insulation resistance and voltage drop shall be measured and shall meet initial requirements.

Terminal strength: Method 211, MIL-STD-202, test condition A (pull).

Applied force:

<u>Dash nos.</u>	<u>Pounds</u>
0001	3
0002 and 0003	9
0004 through 0006	5

The force shall be applied in a direction parallel to the longitudinal axis of the filter. Slight deformation at the solder tab shall be allowable provided no cracks, fractures or other damage to the terminal results from this test.

Flashpoint of impregnant or potting compound: In accordance with MIL-F-15733. Minimum allowable flashpoint shall be 145°C.

⑥ Resistance to soldering heat (not applicable to -0002 and -0003): Method 210, test condition B, MIL-STD-202.

Salt spray (corrosion): Method 101, test condition A, MIL-STD-202.

⑥ Thermal shock and immersion:

Thermal shock: Method 107, test condition B, MIL-STD-202.

Immersion: Method 104, test condition A, MIL-STD-202.

Measurements after final cycling:

Dielectric withstanding voltage: As initially specified, except the test voltage shall be 90 percent of that initially specified.

Insulation resistance: Not less than 30 percent of the initial value specified.

- ⑥ Insertion-loss (check test) shall be measured and shall meet initial requirements.

Shock (specified pulse): Method 213, test condition I, MIL-STD-202.

Mounting: Filters shall be rigidly mounted by the body.

Electrical load: 100 percent of rated voltage between either terminal and case.

Insertion-loss (check test): Not applicable.

Vibration, high frequency: Method 204, test condition D for -0001 through -0005 and test condition B for -0006, MIL-STD-202. Electrical current load shall not be applied to filters during the vibration test.

Test during vibration: During the last cycle in each direction, an electrical measurement shall be made to determine intermittent-open or short circuiting.

After the vibration test, filters shall be subjected to and shall meet the initial requirements of the insertion-loss (check test).

Moisture resistance: Method 107, test condition A, MIL-STD-202, except no measurement shall be made before and after cycling. Filters shall then be tested in accordance with method 106, MIL-STD-202.

Initial measurements: Not applicable.

Polarization voltage: 100 V dc.

Measurements after 24-hour drying period:

Dielectric withstanding voltage: As initially specified, except test voltage shall be 90 percent of that initially specified.

Insulation resistance shall be not less than 30 percent of the initial value specified.

Insertion-loss (check test) shall meet initial requirements.

- ⑥ Life: Method 108, test condition B, MIL-STD-202. Test temperature +125°C.

Test voltage: 1.2 times the rated rms voltage (except for -0005).
1.4 times the rated dc voltage (for -0005).

Test current: Rated current (see table I).

Measurements after test:

Dielectric withstanding voltage: As initially specified, except the test voltage shall be 90 percent of that initially specified.

Insulation resistance shall be not less than 30 percent of the initial value specified.

Insertion-loss (check test) shall be measured and shall meet the initial requirements.

Part number: M15733/41- (dash number from table I).

Supersession data: This specification sheet includes the requirements of contractor (97942), specifications 580R951H01 and 580R951H02, revision B, dated 1 November 1973, and contractor (86360), Drawing number 321C0650-01, dated 11 March 1970.

Custodians:

Army - ER
Navy - EC
Air Force - 85

Review activities:

Army - AR, MI
Navy - OS
Air Force - 11, 99
DLA - ES

User activities:

Army - AT, AV, ME
Navy - AS, MC, SH
Air Force - 19

Preparing activity:

Navy - EC

Agent:

DLA - ES

(Project 5915-0327)