

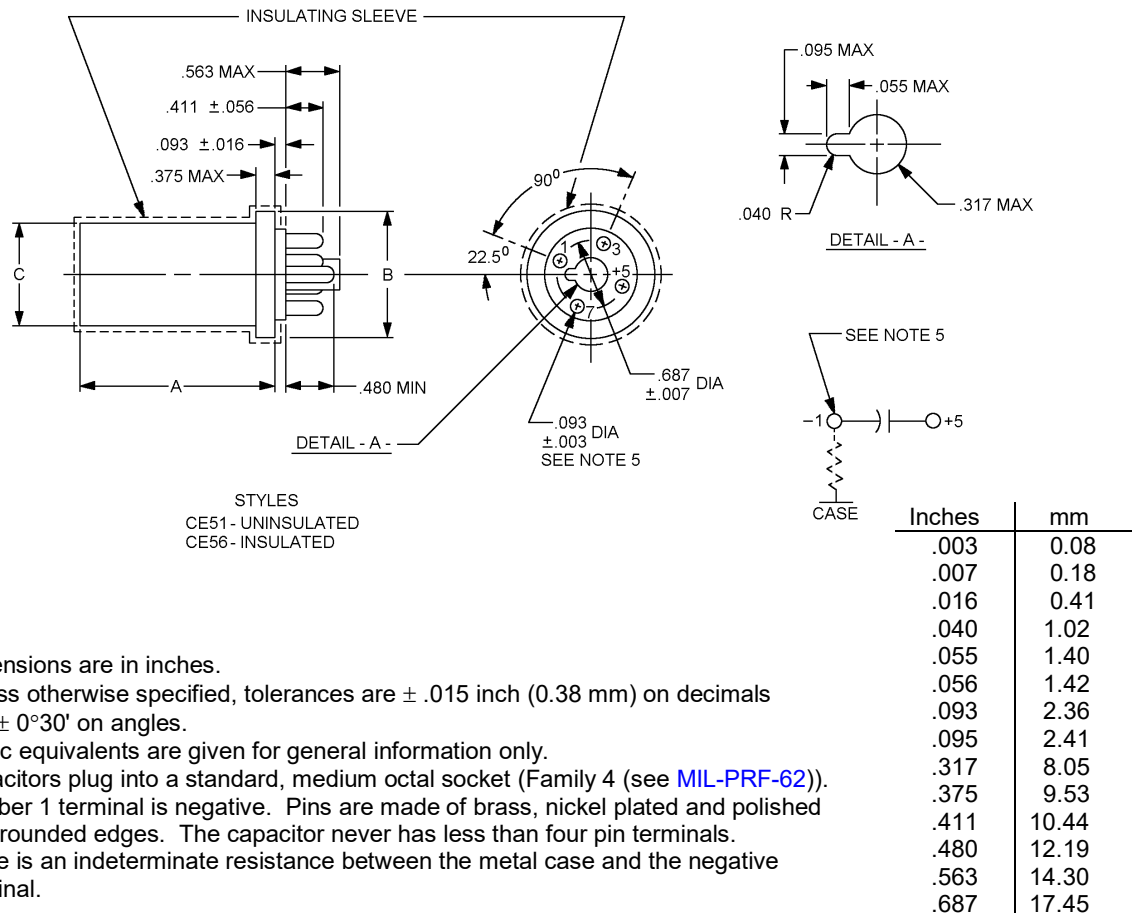
PERFORMANCE SPECIFICATION SHEET

CAPACITOR, FIXED, ELECTROLYTIC (DC, ALUMINUM, DRY ELECTROLYTE, POLARIZED), STYLES CE51 AND CE56

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

The requirements for acquiring the product described herein shall consist of this specification sheet and [MIL-PRF-62](#).

Inactive for new design
(For replacement purposes only)



NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerances are $\pm .015$ inch (0.38 mm) on decimals and $\pm 0^\circ 30'$ on angles.
3. Metric equivalents are given for general information only.
4. Capacitors plug into a standard, medium octal socket (Family 4 (see [MIL-PRF-62](#))).
5. Number 1 terminal is negative. Pins are made of brass, nickel plated and polished with rounded edges. The capacitor never has less than four pin terminals.
6. There is an indeterminate resistance between the metal case and the negative terminal.

FIGURE 1. Dimensions and configuration.



MIL-PRF-62/8F

TABLE I. Styles CE51 and CE56 capacitors.

Part or identifying number (PIN) <u>1/</u>	Capacitance	DC rated voltage	DC leakage	Maximum impedance at 120 +10, -5 Hz, -40°C +0, -3°C	Dissipation factor	Case dimensions <u>2/</u> <u>4/</u>		
						A	B	C
						± .062 (1.57)	+ .010 (0.25), - .050 (1.27)	± .016 (0.41)
	<u>μf</u>	<u>Volts</u>	<u>μa</u>	<u>Ohms</u>	<u>Percent</u>	<u>Inches (mm)</u>	<u>Inches (mm)</u>	<u>Inches (mm)</u>
CE5-C101E	100	15	58	280	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C271E	270	15	95	104	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C331E	330	15	105	85	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C471E	470	15	126	60	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C681E	680	15	153	41	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C102E	1,000	15	180	28	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C152E	1,500	15	222	19	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C222E	2,200	15	273	13	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C332E	3,300	15	332	8.5	20	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C472E	4,700	15	399	6	20	3.250 (82.55)	1.500 (38.10)	1.375 (34.93)
CE5-C682E	6,800	15	480	4.1	20	4.250 (107.95)	1.500 (38.10)	1.375 (34.93)
CE5-C270F	27	25	39	550	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C470F	47	25	51	314	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C680F	68	25	62	218	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C101F	100	25	75	148	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C271F	270	25	123	55	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C331F	330	25	136	45	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C471F	470	25	162	31	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C681F	680	25	195	22	20	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C102F	1,000	25	237	15	20	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C152F	1,500	25	291	10	20	3.000 (76.20)	1.500 (38.10)	1.375 (34.93)
CE5-C222F	2,200	25	352	6.7	20	3.500 (88.90)	1.500 (38.10)	1.375 (34.93)
CE5-C332F	3,300	25	423	4.5	20	4.250 (107.95)	1.500 (38.10)	1.375 (34.93)
CE5-C101G	100	50	106	148	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C151G	150	50	130	99	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C221G	220	50	157	67	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C361G	360	50	201	41	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C471G	470	50	229	31	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C681G	680	50	276	22	15	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C821G	820	50	304	18	15	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C102G	1,000	50	336	15	15	3.000 (76.20)	1.500 (38.10)	1.375 (34.93)
CE5-C152G	1,500	50	411	10	15	3.500 (88.90)	1.500 (38.10)	1.375 (34.93)
CE5-C222G	2,200	50	500	6.7	15	4.250 (107.95)	1.500 (38.10)	1.375 (34.93)
CE5-C680H	68	100	124	129	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C101H	100	100	150	88	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C151H	150	100	183	59	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C221H	220	100	222	40	15	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C271H	270	100	248	33	15	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C331H	330	100	271	27	15	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C431H	430	100	310	21	15	2.750 (69.85)	1.500 (38.10)	1.375 (34.93)
CE5-C471H	470	100	325	19	15	3.000 (76.20)	1.500 (38.10)	1.375 (34.93)
CE5-C681H	680	100	391	13	15	3.750 (95.25)	1.500 (38.10)	1.375 (34.93)
CE5-C470J	47	150	126	187	12	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C201J	200	150	260	44	12	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C271J	270	150	302	33	12	2.750 (69.85)	1.500 (38.10)	1.375 (34.93)
CE5-C331J	330	150	332	27	12	3.000 (76.20)	1.500 (38.10)	1.375 (34.93)
CE5-C471J	470	150	398	19	12	3.750 (95.25)	1.500 (38.10)	1.375 (34.93)
CE5-C680K	68	200	175	129	12	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C101K	100	200	211	88	12	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C151K	150	200	259	59	12	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)

See footnotes at end of table.

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TABLE I. Styles CE51 and CE56 capacitors - Continued.

PIN <u>1/</u>	Capacitance	DC rated voltage	DC leakage	Maximum impedance at 120 +10, -5 Hz, -40°C +0, -3°C	Dissipation factor	Case dimensions <u>2/</u> <u>4/</u>		
						A	B	C
						± .062 (1.57)	+ .010 (0.25), - .050 (1.27)	± .016 (0.41)
	<u>μf</u>	<u>Volts</u>	<u>μa</u>	<u>Ohms</u>	<u>Percent</u>	<u>Inches (mm)</u>	<u>Inches (mm)</u>	<u>Inches (mm)</u>
CE5-C221K	220	200	312	40	12	2.750 (69.85)	1.500 (38.10)	1.375 (34.93)
CE5-C331K	330	200	386	27	12	3.250 (82.55)	1.500 (38.10)	1.375 (34.93)
CE5-C151M	150	250	290	59	12	2.750 (69.85)	1.500 (38.10)	1.375 (34.93)
CE5-C221M	220	250	352	40	12	3.250 (82.55)	1.500 (38.10)	1.375 (34.93)
CE5-C331M	330	250	430	27	12	4.250 (107.95)	1.500 (38.10)	1.375 (34.93)
CE5-C750N	75	300	225	117	12	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C121N	120	300	285	74	12	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C151N	150	300	318	59	12	3.000 (76.20)	1.500 (38.10)	1.375 (34.93)
CE5-C221N	220	300	385	40	12	3.750 (95.25)	1.500 (38.10)	1.375 (34.93)
CE5-C100P	10	350	88	880	12	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C270P	27	350	145	326	12	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C330P	33	350	161	266	12	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C470P	47	350	192	187	12	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C680P	68	350	232	129	12	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C820P	82	350	254	107	12	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C101P	100	350	280	88	12	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C121P	120	350	308	74	12	3.000 (76.20)	1.500 (38.10)	1.375 (34.93)
CE5-C151P	150	350	345	59	12	3.500 (88.90)	1.500 (38.10)	1.375 (34.93)
CE5-C221P	220	350	416	40	12	4.250 (107.95)	1.500 (38.10)	1.375 (34.93)
CE5-C100Q	10	400	94	1,480	17	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C270Q	27	400	156	550	17	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C330Q	33	400	172	450	17	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C470Q	47	400	206	314	17	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C680Q	68	400	248	218	17	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C820Q	82	400	271	180	17	2.750 (69.85)	1.500 (38.10)	1.375 (34.93)
CE5-C101Q	100	400	300	148	17	3.250 (82.55)	1.500 (38.10)	1.375 (34.93)
CE5-C151Q	150	400	368	99	17	4.250 (107.95)	1.500 (38.10)	1.375 (34.93)
CE5-C100R	10	450	100	2,200	17	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C150R	15	450	123	1,465	17	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C270R	27	450	168	815	17	2.500 (63.50)	1.250 <u>3/</u> (31.75)	1.156 (29.36)
CE5-C330R	33	450	182	666	17	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C390R	39	450	198	564	17	2.500 (63.50)	1.500 (38.10)	1.375 (34.93)
CE5-C620R	62	450	250	352	17	3.000 (76.20)	1.500 (38.10)	1.375 (34.93)
CE5-C680R	68	450	262	323	17	3.250 (82.55)	1.500 (38.10)	1.375 (34.93)
CE5-C820R	82	450	289	268	17	3.500 (88.90)	1.500 (38.10)	1.375 (34.93)
CE5-C101R	100	450	318	220	17	4.250 (107.95)	1.500 (38.10)	1.375 (34.93)

1/ Complete PIN shall include an additional digit to complete style.2/ The dimensions shown are for style CE51; for style CE56, add .062 inch (1.57 mm) ± .062 inch (1.57 mm) to the nominal dimension.3/ Tolerance for this dimension shall be + .030 inch (0.76 mm), - .050 inch (1.27 mm).4/ Metric equivalents are given for general information only.

REQUIREMENTS:

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

Case type: Tubular, uninsulated (CE51) and insulated (CE56).

Capacitance value: See [table I](#).

Capacitance tolerance:

At 200 volts, dc rated, and above: -10, +50 percent.

At 150 volts, dc rated, and less: -10, +75 percent

Operating temperature range: -40°C to +85°C.

Solderability: Not applicable.

DC leakage (DCL): See [table I](#).

Dissipation factor (DF): See [table I](#).

Terminal strength: Not applicable.

Thermal shock and immersion:

Thermal shock: In accordance with [MIL-PRF-62](#).

Immersion: In accordance with [MIL-PRF-62](#).

Dielectric withstanding voltage (DWV) (insulating sleeves): In accordance with [MIL-PRF-62](#).

DCL: Not more than 150 percent of initial measurement.

Capacitance change: 5 percent.

DF: See [table I](#).

Corrosion: Not more than 10 percent.

Moisture resistance: In accordance with [MIL-PRF-62](#).

Insulation resistance (insulating sleeve): Not less than 100 megohms.

DWV (insulating sleeves): In accordance with [MIL-PRF-62](#).

DCL: Not more than 150 percent of initial requirement.

Capacitance change: 5 percent.

DF: See [table I](#).

Corrosion: Not more than 10 percent.

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Stability at low and high temperature: In accordance with [MIL-PRF-62](#).

Step 1 (at + 25°C).

DCL: See [table I](#).

Capacitance: See [table I](#).

DF: See [table I](#).

Step 2 (at -40°C):

Impedance: See [table I](#).

Step 3 (at +25°C):

DCL: See [table I](#).

Capacitance: ± 5 percent of initial value.

DF: See [table I](#).

Step 4 (at +85°C):

DCL: Not more than 10 times initial value, or meet initial +25°C requirement.

Capacitance: ± 20 percent of initial value.

DF: See [table I](#).

Step 5 (at +25°C):

DCL: See [table I](#).

Capacitance: ± 5 percent of initial value.

DF: See [table I](#).

Surge voltage: In accordance with [MIL-PRF-62](#).

DCL: See [table I](#).

Capacitance change: 6 percent.

DF: See [table I](#).

Vent: Not applicable.

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Life: In accordance with [MIL-PRF-62](#).

DCL: See [table I](#).

Capacitance change:

100 volts, dc rated, and less: -20, + 15 percent.

DC rated voltage above 100 volts: $\pm$ 15 percent.

DF: Meet the initial requirement or not exceed 150 percent of the initial measurement.

Shelf life: In accordance with [MIL-PRF-62](#).

Build factor: Not more than 4.0.

Shelf factor: Not more than 3.0.

DCL: Not more than 150 percent of initial value.

Capacitance change: 6 percent.

DF: Not more than 175 percent of initial requirement.

Application data:

All capacitors shall withstand an rms ripple current at 120 Hz and +85°C as determined from the formula:

$$I_r = k\sqrt{C}$$

Where:

I_r = rms ripple current in milliamps.

C = normal capacitance in microfarads.

k = 50 for units rated at 15 and 300 volts dc.

= 40 for units rated at 350 to 450 volts dc, inclusive.

Supersession data: See [table II](#).

TABLE II. Supersession data.

Superseded insulated PIN: M62/08-	Superseded uninsulated PIN: M62/08-	Recommended replacement PIN (style CE51 or CE56)	Superseded insulated PIN: M62/08-	Superseded uninsulated PIN: M62/08-	Recommended replacement PIN (style CE51 or CE56)
001	153	CE5-C101E	046	198	CE5-C470P
002	154	CE5-C271E	047	199	CE5-C680H
003	155	CE5-C331E	048	200	CE5-C101H
004	156	CE5-C471E	049	201	CE5-C151H
005	157	CE5-C681E	050	202	CE5-C201J
006	158	CE5-C102E	051	203	CE5-C271H
007	159	CE5-C152E	052	204	CE5-C301H
008	160	CE5-C152E	053	205	CE5-C431H
009	161	CE5-C222E	054	206	CE5-C471H
010	162	CE5-C332E	055	207	CE5-C681H
011	163	CE5-C472E	056	208	CE5-C100P
012	164	CE5-C682E	057	209	CE5-C270P
013	165	CE5-C270F	058	210	CE5-C330P
014	166	CE5-C470F	059	211	CE5-C470J
015	167	CE5-C470F	060	212	CE5-C680K
016	168	CE5-C680F	061	213	CE5-C101K
017	169	CE5-C101F	062	214	CE5-C121N
018	170	CE5-C271F	063	215	CE5-C151K
019	171	CE5-C331F	064	216	CE5-C201J
020	172	CE5-C471F	065	217	CE5-C271J
021	173	CE5-C681F	066	218	CE5-C331J
022	174	CE5-C681F	067	219	CE5-C471J
023	175	CE5-C102F	068	220	CE5-C100P
024	176	CE5-C102F	069	221	CE5-C270P
025	177	CE5-C152F	070	222	CE5-C330P
026	178	CE5-C222F	071	223	CE5-C470P
027	179	CE5-C332F	072	224	CE5-C680K
028	180	CE5-C270P	073	225	CE5-C101K
029	181	CE5-C330P	074	226	CE5-C151K
030	182	CE5-C470P	075	227	CE5-C221K
031	183	CE5-C680H	076	228	CE5-C331K
032	184	CE5-C101G	077	229	CE5-C331K
033	185	CE5-C151G	078	230	CE5-C100P
034	186	CE5-C221G	079	231	CE5-C270P
035	187	CE5-C331H	080	232	CE5-C330P
036	188	CE5-C361G	081	233	CE5-C470P
037	189	CE5-C471G	082	234	CE5-C680P
038	190	CE5-C681G	083	235	CE5-C820P
039	191	CE5-C681G	084	236	CE5-C101P
040	192	CE5-C821G	085	237	CE5-C121N
041	193	CE5-C102G	086	238	CE5-C151M
042	194	CE5-C152G	087	239	CE5-C221M
043	195	CE5-C222G	088	240	CE5-C331M
044	196	CE5-C270P	089	241	CE5-C100P
045	197	CE5-C330P	090	242	CE5-C270P

TABLE II. Supersession data - Continued.

Superseded insulated PIN: M62/08-	Superseded uninsulated PIN: M62/08-	Recommended replacement PIN (style CE51 or CE56)	Superseded insulated PIN: M62/08-	Superseded uninsulated PIN: M62/08-	Recommended replacement PIN (style CE51 or CE56)
091	243	CE5-C330P	109	261	CE5-C100Q
092	244	CE5-C470P	110	262	CE5-C270Q
093	245	CE5-C680P	111	263	CE5-C330Q
094	246	CE5-C750N	112	264	CE5-C470Q
095	247	CE5-C101P	113	265	CE5-C680Q
096	248	CE5-C121N	114	266	CE5-C820Q
097	249	CE5-C151N	115	267	CE5-C101Q
098	250	CE5-C221N	116	268	CE5-C151Q
099	251	CE5-C100P	117	269	CE5-C100R
100	252	CE5-C270P	118	270	CE5-C150R
101	253	CE5-C330P	119	271	CE5-C270R
102	254	CE5-C470P	120	272	CE5-C330R
103	255	CE5-C680P	121	273	CE5-C390R
104	256	CE5-C820P	122	274	CE5-C620R
105	257	CE5-C101P	123	275	CE5-C680R
106	258	CE5-C121P	124	276	CE5-C820R
107	259	CE5-C151P	125	277	CE5-C101R
108	260	CE5-C221P			

Changes from previous issue: Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:

DLA - CC

(Project 5910-2020-023)

Review activities:

Army - AT, AV, CR4, MI
Navy - AS, MC, OS
Air Force - 19

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