

# Aviation

## Take flight with high performance aviation lighting solutions from CML.

Vertically integrated design, engineering, manufacturing, and assembly capabilities make CML responsive to the needs of aircraft manufacturers and maintenance facilities around the world.



Every aviation lamp we produce is designed to meet or exceed critical requirements for light output and service life. Each design anticipates environmental, electrical, and photometric conditions for aircraft or ground support applications. And CML inspection, testing, and statistical documentation set the standard for the industry.



The result is a lamp that will not only deliver top rated performance and optimum service life -- it will also cost less for you to own and operate.

Choose from a broad range of styles and operating characteristics for an equally diverse range of applications. Status indicators. Instrumentation lighting. Cabin and flight deck lighting. Navigation and anticollision lighting. Inspection lighting.

Specify CML lamps as original equipment or direct replacements for all other lamp brands. For cross-reference data and additional technical information on any or all of our aviation light solutions, contact your local CML authorized Aviation Lamp Distributor.

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# Incandescent Lamps

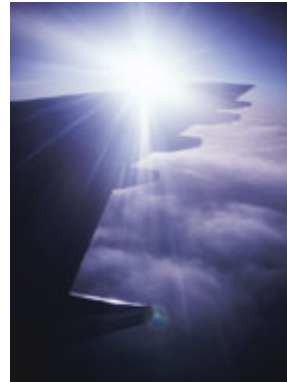
CML incandescent lamps are available in a vast array of configurations and performance characteristics. Primary advantages include their bright white light output and their relatively low cost. Because of their unique light output, CML incandescents are a preferred light source for backlighting, illumination, and indication.

CML's broad range of incandescent lamps are available in a wide variety of sizes, operating voltages, and light output, and are designed to meet or exceed the requirements of the most rigorous aviation applications.

## Aviation Incandescent Lamps Include:

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# Aviation Incandescent Lamps -- T-1



Fig	Part #	Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)	Mil. Ref.
	6832	T-1	Short Wire Terminal	5.00	.06	.05	40000.00	
	6832AS15 <sup>1</sup>	T-1	Short Wire Terminal	5.00	.06	.05 ± .008	40000.00	M6363/5-7
	7132AS15 <sup>1</sup>	T-1	Short Wire Terminal	5.00	.07	.09 ± .014	3000.00	M6363/5-8
	7152	T-1	Short Wire Terminal	5.00	.11	.15	40000.00	M6363/5-9
	7152AS15 <sup>1</sup>	T-1	Short Wire Terminal	5.00	.11	.15 ± .023	40000.00	
	680	T-1	Std. Wire Terminal	5.00	.06	.03	60000.00	MS24367-680
	683	T-1	Std. Wire Terminal	5.00	.06	.05	40000.00	MS24367-683
	683AS15 <sup>1</sup>	T-1	Std. Wire Terminal	5.00	.06	.05 ± .008	40000.00	M6363/5-2
	713	T-1	Std. Wire Terminal	5.00	.07	.09	25000.00	MS24367-713
	715	T-1	Std. Wire Terminal	5.00	.11	.15	40000.00	MS24367-715
	715AS15 <sup>1</sup>	T-1	Std. Wire Terminal	5.00	.11	.15 ± .023	40000.00	M6363/5-4
	7219	T-1	Std. Wire Terminal	12.00	.06	.15	16000.00	
	6838	T-1	Std. Wire Terminal	28.00	.24	.303	16000.00	
	682	T-1	Sub Midget Flanged	5.00	.06	.05	60000.00	M6363/6-1
	685	T-1	Sub Midget Flanged	5.00	.06	.05	40000.00	M6363/6-2
	685AS15 <sup>1</sup>	T-1	Sub Midget Flanged	5.00	.06	.05 ± .008	40000.00	MS24515-685AS15
	6810	T-1	Sub Midget Flanged	5.00	.06	.15	5000.00	
	718	T-1	Sub Midget Flanged	5.00	.11	.15	40000.00	M6363/6-4
	718AS15 <sup>1</sup>	T-1	Sub Midget Flanged	5.00	.11	.15 ± .023	40000.00	MS24515-718AS15
	6839 <sup>1</sup>	T-1	Sub Midget Flanged	28.00	.02	.13	16000.00	M6363/6-5
	6839AS15	T-1	Sub Midget Flanged	28.00	.02	.13	16000.00	M6363/6-5
	3112	T-1	Sub Midget Flanged	28.00	.04	.150	5000.00	
	7683	T-1	Bi-Pin Std. (.050)	5.00	.06	.05	40000.00	
	7265	T-1	Bi-Pin Std. (.050)	5.00	.06	.15	5000.00	
	7715	T-1	Bi-Pin Std. (.050)	5.00	.11	.15	40000.00	








7715AS15	T-1	Bi-Pin Std. (.050)	5.00	.11	1.5 ± .023	40000.00
7839	T-1	Bi-Pin Std. (.050)	28.00	.02	.150	16000.00
8-2400	T-1	Bi-Pin Std. (.100)	5.00	.11	.150	40000.00
3071BPEGPL	T-1	Bi-Pin	5.00	.06	.150	5000.00
6839BPE	T-1	Bi-Pin	28.00	.02	.13	16000.00
8-2402	T-1	Bi-Pin	28.00	.02	.15	4000.00
3229BPE	T-1	Bi-pin	14.00	.04	.150	16000.00
6839BPEGL	T-1	Bi-pin	28.00	.00	.150	16000.00

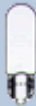
<sup>1</sup> Aged & Selected

## Aviation Incandescent Lamps -- T-1 1/4

Fig	Part #	Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)
	737	T-1 1/4	Midget Flanged	28.00	.05	.3	16000.00
	7632	T-1 1/4	Bi-Pin Std. (.100)	28.00	.04	.32	1000.00
	4009BPE	T-1 1/4	Bi-pin	28.00	.24	.3	7000.00

# Aviation Incandescent Lamps -- T-1 3/4

Fig	Part #	Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)	Mil. Ref.	
	338	T-1 3/4	Midget Flanged	2.70	.06	.04	6000.00	MS6363/8-2	
	3150	T-1 3/4	Midget Flanged	5.00	.06	.15	5000.00		
	7335	T-1 3/4	Midget Flanged	5.00	.11	.15	40000.00		
	345	T-1 3/4	Midget Flanged	6.00	.04	.03	10000.00		
	328	T-1 3/4	Midget Flanged	6.00	.20	.6	1000.00	MS6363/8-4	
	328AS15	T-1 3/4	Midget Flanged	6.00	.20	.6 ± .09	1000.00	MS25237-328-15	
	380	T-1 3/4	Midget Flanged	6.30	.04	.02	20000.00		
	394	T-1 3/4	Midget Flanged	12.00	.04	.12	10000.00		
	382	T-1 3/4	Midget Flanged	14.00	.08	.3	15000.00		
	330	T-1 3/4	Midget Flanged	14.00	.08	.5	1500.00	MS25237-330	
	385	T-1 3/4	Midget Flanged	28.00	.04	.15	50000.00		
	387	T-1 3/4	Midget Flanged	28.00	.04	.3	10000.00	M6363/8-9	
	327	T-1 3/4	Midget Flanged	28.00	.04	.34	4000.00	MS25237-327	
	327AS15	T-1 3/4	Midget Flanged	28.00	.04	.34 ± .051	4000.00	M6363/8-7	
	327R	T-1 3/4	Midget Flanged	28.00	.04	.34	4000.00	MS25237-327R	
	737AS15	T-1 3/4	Midget Flanged	28.00	.05	.3	16000.00		
	382AS10	T-1 3/4	Midget Flanged	14.00	.08	.3	15000.00		
	376AS15	T-1 3/4	Midget Flanged	28.00	.60	.34 ± .051	25000.00		
		336	T-1 3/4	Midget Groove	14.00	.08	0.5	1500.00	
		388	T-1 3/4	Midget Groove	28.00	.04	0.3	10000.00	
334		T-1 3/4	Midget Groove	28.00	.04	0.34	4000.00		
	7328	T-1 3/4	Bi-Pin Std. (.125)	6.00	.20	0.6	1000.00		
	7367	T-1 3/4	Bi-Pin Std. (.125)	10.00	.04	0.08	5000.00		
	7371	T-1 3/4	Bi-Pin Std. (.125)	12.00	.04	0.12	10000.00		
	7382	T-1 3/4	Bi-Pin Std. (.125)	14.00	.08	0.3	15000.00		
	7387	T-1 3/4	Bi-Pin Std. (.125)	28.00	.04	0.3	10000.00		
	4009BPEGPL	T-1 3/4	Bi-Pin	28.00	.04	.3	7000.00		
	335	T-1 3/4	Midget Screw	28.00	.04	0.34	4000.00		
	1764	T-1 3/4	Wire Terminal	28.00	.04	.34	4000.00		
84	T-1 3/4	Wedge	6.30	.04	.02	20000.00			



85

T-1 3/4

Wedge



28.00

.04

.3

10000.00

## Aviation Incandescent Lamps -- T-2

Fig	Part #	Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)
	120PSB	T-2	Slide Base	120.00	.02	0.36	5000.00
	28ESB	T-2	Slide Base	28.00	.04	0.25	6000.00
	48ESB	T-2	Slide Base	48.00	.04	0.44	5000.00
	120MB	T-2	Miniature Bayonet	120.00	.02	0.36	5000.00




## Aviation Incandescent Lamps -- T-3 1/4

Fig	Part #	Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)	Mil. Ref.
	43	T-3 1/4	Miniature Bayonet	2.50	.50	0.5	3000.00	
	47	T-3 1/4	Miniature Bayonet	6.30	.15	0.52	3000.00	MS15571-2
	44	T-3 1/4	Miniature Bayonet	6.30	.25	0.9	3000.00	MS15571-1
	1816	T-3 1/4	Miniature Bayonet	13.00	.33	3	1000.00	
	756	T-3 1/4	Miniature Bayonet	14.00	.08	0.31	15000.00	
	1815	T-3 1/4	Miniature Bayonet	14.00	.20	1.4	3000.00	MS15571-8
	1813	T-3 1/4	Miniature Bayonet	14.00	.10	0.86	1000.00	
	1818	T-3 1/4	Miniature Bayonet	24.00	.17	3.3	250.00	
	1819	T-3 1/4	Miniature Bayonet	28.00	.04	0.34	3000.00	M6363/9-3
	1829	T-3 1/4	Miniature Bayonet	28.00	.07	1	1000.00	M6363/9-4
	757	T-3 1/4	Miniature Bayonet	28.00	.08	0.62	7500.00	
	1820	T-3 1/4	Miniature Bayonet	28.00	.10	1.6	1000.00	
	1864	T-3 1/4	Miniature Bayonet	28.00	.17	3	1500.00	
	313	T-3 1/4	Miniature Bayonet	28.00	.17	3.5	500.00	M6363/9-2
	313R <sup>1</sup>	T-3 1/4	Miniature Bayonet	28.00	.17	3.5	500.00	M6363/9-2R
	1835	T-3 1/4	Miniature Bayonet	55.00	.05	1.1	5000.00	







<sup>1</sup> Painted Red

## Aviation Incandescent Lamps -- T-4 1/2



Fig	Part #	Type	Base	Volts	AMP $\pm 10\%$	MSCP NOM	AVG LIFE (hrs)	Mil. Ref.
	1495	T-4 1/2	S.C. Bayonet	28.00	.30	6.0	500.00	M56363/14-1
	1495X <sup>1</sup>	T-4 1/2	S.C. Bayonet	28.00	.30	6.0	500.00	

<sup>1</sup> Gas Filled




## Aviation Incandescent Lamps -- Other Lamps

Fig	Part No.	Lamp Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)	Mil_Spec Reference
	27	G-4½	Miniature Screw	4.90	.30	1.4	30.00	
	6S6dc/120V	S-6	D.C. Bayonet	120.00	.05	3.2	1500.00	MS15567-1
	8666	T-3/4	Wire Terminal	5.00	.08	.15	15000.00	
	7632	T-1 1/4	Bi-Pin Std. (.100)	28.00	.04	.32	1000.00	
	737	T-1 1/4	Midget Flanged	28.00	.05	.3	16000.00	
	4009BPE	T-1 1/4	Bi-pin	28.00	.24	.3	7000.00	


# Aviation Incandescent Lamps -- S-8

Fig	Part #	Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)	Special Features	Mil. Ref.
	1619	S-8	S.C. Bayonet	6.70	1.90	15	500.00		
	93	S-8	S.C. Bayonet	12.80	1.04	15	500.00		MS35478-93
	1141	S-8	S.C. Bayonet	12.80	1.44	21	500.00		M6363/12-3
	305	S-8	S.C. Bayonet	28.00	.51	15	300.00		M6363/12-5
	307	S-8	S.C. Bayonet	28.00	.66	21	300.00		M6363/12-4
	307-R	S-8	S.C. Bayonet	28.00	.66	21	300.00	Painted Red	MS35478-307R
	2232	S-8	S.C. Bayonet	28.00	.64	18	2000.00		M6363/12-7
	2232SB	S-8	S.C. Bayonet	28.00	.64	18	2000.00	Silver Bonnet	
	2233	S-8	S.C. Bayonet	28.00	.77	21	2000.00		M6363/12-8
	1691	S-8	S.C. Bayonet	28.00	.61	15	1000.00	Double Filament	MS6363/12-6
	1683	S-8	S.C. Bayonet	28.00	1.02	32	500.00	Double Filament	MS6363/12-2
	1665	S-8	S.C. Bayonet	28.00	.80	21	1000.00		
	1680	S-8	S.C. Bayonet	6.00	4.10	32	300.00		
	1680X	S-8	S.C. Bayonet	6.00	4.10	32	300.00	Nickel Contact	
	1691	S-8	S.C. Bayonet	28.00	.61	15	1000.00		
	94	S-8	D.C. Bayonet	12.80	1.04	15	500.00		MS15584-2
	1142	S-8	D.C. Bayonet	12.80	1.44	21	500.00		MS15584-4
	308	S-8	D.C. Bayonet	28.00	.67	21	300.00		

## Aviation Incandescent Lamps -- S-11




Fig	Part #	Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)	Mil. Ref.
	3011	S-11	S.C. Bayonet	28.00	1.29	44	1000.00	MS6363/13-2
	309	S-11	S.C. Bayonet	28.00	.90	32	300.00	
	310	S-11	D.C. Bayonet	28.00	.90	32	300.00	

## Aviation Incandescent Lamps -- R-12


Fig	Part #	Type	Base	Volts	AMP $\pm 10\%$	MSCP NOM	AVG LIFE (hrs)	Mil_Spec Reference
	1383 <sup>1</sup>	R-12	S.C. Bayonet	13.00	1.54		300.00	MS35480-1
	1385 <sup>1</sup>	R-12	S.C. Bayonet	28.00	.71		300.00	MS35480-2

<sup>1</sup> Frosted Env.

## Aviation Incandescent Lamps -- G-3 1/2


Fig	Part No.	Lamp Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)
	50	G-3 1/2	Miniature Screw	7.50	.22	1	1000.00
	51	G-3 1/2	Miniature Bayonet	7.50	.22	1	1000.00
	363	G-3 1/2	Min. Bayonet	14.00	.20	2	250.00

## Aviation Incandescent Lamps -- G-6

Fig	Part #	Type	Base	Volts	AMP $\pm 10\%$	MSCP NOM	AVG LIFE (hrs)	Mil_Spec Reference
	67	G-6	S.C. Bayonet	13.50	.59	4	5000.00	MS15570-67
	1251	G-6	S.C. Bayonet	28.00	.23	3	2000.00	MS15570-1251
	303	G-6	S.C. Bayonet	28.00	.30	6	500.00	M6363/11-2
	623	G-6	S.C. Bayonet	28.00	.37	6	1000.00	MS15570-623




# Aviation Incandescent Lamps -- B-3 1/2

Fig	Part No.	Lamp Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)
	PR4 <sup>1</sup>	B-3 1/2	S.C. Miniature Flange	2.33	.27	0.4	10.00
	PR2 <sup>1</sup>	B-3 1/2	S.C. Miniature Flange	2.38	.50	0.8	15.00
	PR6 <sup>1</sup>	B-3 1/2	S.C. Miniature Flange	2.47	.30	0.45	30.00
	PR3 <sup>1</sup>	B-3 1/2	S.C. Miniature Flange	3.57	.50	1.5	15.00
	PR7 <sup>1</sup>	B-3 1/2	S.C. Miniature Flange	3.70	.30	0.9	30.00
	PR13 <sup>1</sup>	B-3 1/2	S.C. Miniature Flange	4.75	.50	2.2	15.00
	PR18 <sup>1</sup>	B-3 1/2	S.C. Miniature Flange	7.20	.55	5.5	20.00

<sup>1</sup> Flashlight Prefocus




## Aviation Incandescent Lamps -- B-6

Fig	Part #	Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)
	1308	B-6	S. C. Bayonet	28.00	.56	.16	2000.00
	1309	B-6	S.C. Bayonet	28.00	.52	15	300.00
	1309IF	B-6	S.C. Bayonet	28.00	.52	15	300.00
	1317 <sup>1</sup>	B-6	S.C. Bayonet	6.00	.45	3.4	100.00

<sup>1</sup> Frosted ENV

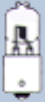





# Warning Lamps

CML designs its wide range of aircraft navigation and anticollision lamps to provide the high light output and specified light distribution patterns required in both commercial and private aircraft applications. These high-quality lamps feature unsurpassed durability and consistency to meet the strictest aviation requirements. All lamps carry the Federal Aviation Administration's (FAA) Parts Manufacturer Approval (PMA) providing installation eligibility on all applicable aircraft.

Fig	Part No.	Lamp Type	Base	Volts	Design Wattage	Avg Life (hrs)	Military Reference
	16870	GG12A	Single Contact Bayonet	6	40.0	150	M6363/1-3
	A-7079B-24	GG12A	Single Contact Bayonet	28	40.0	150	M6363/1-1
	A-7079a-24	GG12A	Double Contact Bayonet	28	14/40	300/150	
	11631	GG12B	Single Contact Bayonet	6	40.0	300	M6363/3-2
	626	GG12B	Single Contact Bayonet	6	40.0	300	
	A-4174-24	GG12B	Single Contact Bayonet	28	40.0	300	M6363/3-1
	A-4174-24X	GG12B	Single Contact Bayonet	28	40.0	300	
	11631	GG12B	Single Contact Bayonet	6	40.0	300	M6363/3-2
	626	GG12B	Single Contact Bayonet	6	40.0	300	
	A-4174-24	GG12B	Single Contact Bayonet	28	40.0	300	M6363/3-1
	A-4174-24X	GG12B	Single Contact Bayonet	28	40.0	300	

# Halogen Lamps

CML halogen lamps operate in a 'halogen regenerative cycle' which maintains nearly constant light output and color temperature throughout the life of the lamp. The halogen cycle permits the use of more compact bulbs than those of conventional tungsten-filament lamps of comparable ratings. It also allows increasing lamp life to approximately twice that of conventional tungsten-filament lamps of comparable wattage, color temperature, and light output. What's more, it permits increasing light outputs and color temperatures to values significantly above those of conventional tungsten-filament lamps.

Fig	Part No.	Lamp Type	Base	Volts	AMP ± 10%	MSCP NOM	AVG LIFE (hrs)
	2059	T-2 3/4	S.C. Mini Bayonet	12.0	.833	10	2000
	8-A187	T-2 3/4	S.C. Bayonet	28.0	.411	10.5 +/- 1.38	2000
	8-A259	T-2 3/4	S.C. Bayonet	28.0	.429	9.8 +/- 1.18	4000
	8-A194	T-3 1/4	S.C. Bayonet	6.0	1.67	10.0 +/- 1.5	2000
	8-A266	T-2 3/4	S.C. Bayonet	28.0	.357	8.2	4000
	767	T-2 3/4	S.C. Bayonet	6.0	2.0	19.0	50
	8-A193	T-3 1/4	S.C. Bayonet	6.0	2	10.0 +/- 1.5	2000
	2059X	T-2 3/4	S.C. Bayonet	12.0	.833	8.60 +/- 1.29	4000
	1982SP	T-3	S.C. Bayonet	28.0	2.679	107	2000
	1978X	T-3	Special	10.0	10	130	2000
	8-A103	T-3	Special	28.0	1.786	60	1000
	1967	T-3	Special	28.0	3.357	210	1000
	1970	T-3	Special	28.0	3.571	150	1000
	1970X	T-3	Special	28.0	3.571	140	1000
	250021	T-3	Special	14.0	3.571	95	150

# Neon Lamps

CML's line of neon lamps represents one of the most economical forms of 'power on' indications for line voltage applications. They are available in a variety of sizes, shapes, and performance characteristics. CML neon lamps provide superior performance under shock and vibration conditions. They also offer very low operating current. Because of their outstanding efficiency and cost-effectiveness, CML neon lamps are a primary indication choice among those specifying lighting for a host of aviation applications.

Part Number	Type	Base	Max. Strkg. Volts		Design Current
			AC	DC	mA
A1A (NE-2)	T-2	Wire Terminal	65	90	.6
A1G	T-2	Midget Flange	65	90	.3
A1H	T-2	Midget Flange	95	135	1.2
C7A (NE-2D)	T-2	Midget Flange	65	90	.70
C9A (NE-2J)	T-2	Midget Flange	95	135	1.90
B1A (NE-51)	T-3 1/4 S.C.	Mini Bayonet	65	90	.30
B2A (NE51H)	T-3 1/4 S.C.	Mini Bayonet	95	135	1.20
B9A (NE-48)	T-4 1/2 D.C.	Mini Bayonet	65	90	2.00

Part Number	Series Resistor Value		Avg Life	Bright-ness	Military Reference
	100 - 120W AC or DC	220 - 250W AC or DC			
A1A (NE-2)	100KW1/4 W	540KW1/3 W	25000	Std	
A1G	220KW1/4 W	540KW1/3 W	25000	Std	
A1H	47KW1/4 W	150KW1/3 W	25000	High	
C7A (NE-2D)	100KW1/4 W	220KW1/3 W	25000	Std	M15098/11-001
C9A (NE-2J)	30KW1/4 W	100KW1/3 W	25000	High	M15098/11-002
B1A (NE-51)	220KW1/4 W	540KW1/3 W	25000	Std	M15098/10-001
B2A (NE51H)	47KW1/4 W	150KW1/3 W	25000	High	M15098/11-002
B9A (NE-48)	30KW1/4 W	100KW1/3 W	5000	Std	M15098/6-002