



The Engineering  
Resource For  
Advancing Mobility

400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

# AEROSPACE RECOMMENDED PRACTICE

## ARP 881B

Superseding ARP 881A

Issued 10-10-65

Revised 1-1-83

### LAMPS FOR AIRCRAFT LIGHTING

1. **PURPOSE AND SCOPE:** This Aerospace Recommended Practice (ARP) lists the lamps that are recommended for the type of service indicated. This list is not intended as a catalog and does not include many types that are now in use. It does, however, reflect current practice.
2. **DEFINITIONS:**
  - 2.1 **Trade No.:** The trade number is recorded with the American National Standards Institute and is uniform throughout the industry. It completely identifies a lamp and is sufficient identification for ordering.
  - 2.2 **Design Volts:** "Design Volts" shows the voltage at which a lamp is designed for the tabulated ampere, candlepower, and rated laboratory life characteristics.
  - 2.3 **Rated Average Laboratory Life:** "Rated average laboratory life" is the average life obtained in closely controlled laboratory life testing of groups of lamps at their design voltage. It is not necessarily the same as service life, where conditions such as shock, vibration, voltage fluctuations, and environment may result in a shorter average attained life.
  - 2.4 **Bulb, Base, Filament, and Light Center Length:** Refer to SAE standard, J573 (published in the SAE Handbook).
  - 2.5 **Marginal Indicia:** The phi ( $\phi$ ) symbol is used to indicate technical  $\phi$  changes from the previous issue of this specification.

PREPARED BY SUBCOMMITTEE A-20B, EXTERIOR  
OF  
SAE COMMITTEE A-20, AIRCRAFT LIGHTING

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# ARP 881B

| Service     | Design Trade<br>Volts Number | Amps<br>or<br>Watts | Mean<br>Spherical<br>Candelas | Bulb       | Base       | Fila-<br>ment | Light<br>Center<br>Length<br>in. mm | Maximum<br>Overall<br>Length<br>in. mm | Amp(e)<br>At Design<br>Volts | Rated<br>Average<br>Lab. Life<br>(hr.) | Approx.<br>Weight<br>Lb. g | National<br>Stock<br>Number | Military<br>Standard  |                        |                      |
|-------------|------------------------------|---------------------|-------------------------------|------------|------------|---------------|-------------------------------------|--|------------------------------|--|----------------------------|-----------------------------|-----------------------|------------------------|----------------------|
| Landing     | 13 4509 (b)                  | 100W                |                               | PAR-36     | Scr. Term. | C-6           |                                     | 2-3/4                                  | 69.8                         | 7.69                                   | 25                         | 236                         | 237-7867 MS25243-4509 |                        |                      |
|             | 13 4537 (b)                  | 100W                |                               | PAR-46     | Scr. Term. | C-6           |                                     | 3-1/8                                  | 79.4                         | 7.69                                   | 25                         | 417                         | 946-9636              |                        |                      |
|             | 13 4313 (b)                  | 250W                |                               | PAR-36     | Scr. Term. | C-6           |                                     | 2-3/4                                  | 69.8                         | 19.23                                  | 25                         | 236                         | 946-4807              |                        |                      |
|             | 13 4522 (b)                  | 250W                |                               | PAR-46     | Scr. Term. | C-2           |                                     | 3-1/8                                  | 79.4                         | 19.23                                  | 25                         | 417                         | 155-7920 MS25241-4522 |                        |                      |
|             | 28 4553 (b)                  | 250W                |                               | PAR-46     | Scr. Term. | CC-8          |                                     | 3-1/8                                  | 79.4                         | 8.92                                   | 25                         | 47                          | 725-4683 MS25241-4553 |                        |                      |
|             | 28 4557                      | 600                 |                               |            |            |               |                                     |  |                              |  |                            |                             |                       |                        |                      |
|             | 28 4557 (b)                  | 1000W               |                               | PAR-64     | Scr. Term. | CC8/C6        |                                     |  |                              | 35.70                                  | 25/100                     | 907                         | 519-2131              |                        |                      |
|             | 28 04559 (b)                 | 600W                |                               | PAR-64     | Scr. Term. | CC-8          |                                     | 3-3/4                                  | 95.2                         | 21.41                                  | 25                         | 2.00                        | 907                   | 145-1110 MS25242-Q4559 |                      |
|             | 28 04559X (b)                | 600W                |                               | PAR-64     | Scr. Term. | CC-6          |                                     | 3-3/4                                  | 95.2                         | 21.41                                  | 100                        | 2.00                        | 907                   |                        |                      |
|             | 28 4581 (b) (c)              | 450W                |                               | PAR-46     | Scr. Term. | CC-8          |                                     | 3-1/8                                  | 79.4                         | 16.08                                  | 10                         | 0.92                        | 417                   | 557-3065 MS25241-4581  |                      |
| 28 4596 (b) | 250W                         |                     | PAR-36                        | Scr. Term. | CC-8       |               |                                     | 69.8                                   | 8.92                         | 25                                     | 0.52                       | 236                         | 577-8450              |                        |                      |
| Taxiing     |                              |                     |                               |            |            |               |                                     |  |                              |  |                            |                             |                       |                        |                      |
| Navigation  | 28 1986                      | 250W                | 600                           | T-4        | Wire Term. | CC-6          |                                     | 2                                      | 50.8                         | 8.92                                   | 100                        | 0.031                       | 14                    |                        |                      |
|             | 28 4551 (b)                  | 250W                |                               | PAR-46     | Scr. Term. | CC-6          |                                     | 3-3/4                                  | 95.2                         | 8.92                                   | 25                         | 0.92                        | 417                   | 583-3334 MS24517-4551  |                      |
| Wing        | 28 4570 (b)                  | 150W                |                               | PAR-46     | Scr. Term. | CC-6          |                                     | 3-3/4                                  | 95.2                         | 5.36                                   | 300                        | 0.92                        | 417                   | 132-5328 MS28926-4570  |                      |
|             | 6 1680                       | 4.1A                | 32                            | S-B        | S.C. Bay.  | C-6           | 1-1/4                               | 31.8                                   | 50.8                         | 4.1                                    | 300                        | 0.021                       | 10                    | 870-7778 MS35478-1680  |                      |
|             | 6.2 600 (d)                  | 26W                 |                               | GG-10      | S.C. Index | C-2R          |                                     | 2-3/16                                 | 55.6                         | 4.19                                   | 300                        | 0.019                       | 9                     | MS25309-600            |                      |
|             | 6.2 1163 (d)                 | 40W                 |                               | GG-12      | S.C. Index | C-6           |                                     | 2-1/2                                  | 63.5                         | 6.45                                   | 300                        | 0.025                       | 11                    | MS24513-1163           |                      |
|             | 6.2 1687 (d)                 | 40W                 |                               | GG-12      | S.C. Index | C-6           |                                     | 2-1/2                                  | 13.5                         | 6.45                                   | 150                        | 0.025                       | 11                    | 870-0799 MS25338-1687  |                      |
|             | 10 1978X                     | 100W                | 130                           | T-3        | Spec.      | C-8           |                                     | 2.025                                  | 51.43                        | 10.0                                   | 2000                       | 0.016                       | 7                     |                        |                      |
|             | 10 1988                      | 100W                | 130                           | T-3        | Spec.      | C-8           |                                     | 2.15                                   | 54.6                         | 10.00                                  | 2000                       | 0.019                       | 9                     | 548-3978               |                      |
|             | 12.8 1777                    | 1.52A               | 26                            | S-8        | S.C. Bay.  | C-2R          | 1-1/8                               | 28.57                                  | 50.8                         | 1.52                                   | 400                        | 0.021                       | 10                    | 941-2701               |                      |
|             | 13 7512-12 (d)               | 26W                 |                               | GG-10      | S.C. Index | C-2R          |                                     | 2-3/16                                 | 55.8                         | 2.0                                    | 300                        | 0.019                       | 9                     |                        |                      |
|             | 14 4174-12 (d)               | 40W                 |                               | GG-12      | S.C. Index | C-6           |                                     | 2-1/2                                  | 63.5                         | 3.08                                   | 150                        | 0.05                        | 11                    |                        |                      |
|             | 14 7079B-12 (d)              | 40W                 |                               | GG-12      | S.C. Index | C-6           |                                     | 2-1/2                                  | 63.5                         | 3.08                                   | 150                        | 0.025                       | 11                    |                        |                      |
|             | 28 7079 (d)                  | 40W                 |                               | GG-12      | S.C. Index | C-6           |                                     | 2-3/16                                 | 63.5                         | 1.43                                   | 150                        | 0.025                       | 11                    | 789-2260 MS25338-7079  |                      |
|             | 28 7512 (d)                  | 26W                 |                               | GG-10      | S.C. Index | CC-6          |                                     | 2-3/16                                 | 55.6                         | 9.3                                    | 300                        | 0.015                       | 9                     | 504-2090 MS25309-7512  |                      |
|             | 28 4174 (d)                  | 40W                 |                               | GG-12      | S.C. Index | CC-6          |                                     | 2-1/2                                  | 63.5                         | 1.43                                   | 300                        | 0.025                       | 11                    | 519-0854 MS24513-417A  |                      |
|             | 28 1683                      | 1.02A               | 32                            | S-8        | S.C. Bay.  | CC-6          | 1-1/4                               | 31.8                                   | 50.8                         | 1.02                                   | 500                        | 0.021                       | 10                    | 044-6914 MS35478-1683  |                      |
| 28 1970X    | 100W                         | 140                 | T-3                           | Spec.      | CC-8       |               | 2-1/4                               | 57.2                                   | 3.57                         | 1000                                   | 0.016                      | 7                           |                       |                        |                      |
| 28 1967     | 150W                         | 210                 | T-3                           | Spec.      | CC-8       |               | 2-1/4                               | 57.2                                   | 5.36                         | 1000                                   | 0.016                      | 7                           | 045-7173              |                        |                      |
| Wing        | 13 04631 (b)                 | 250W                |                               | PAR-36     | Scr. Term. | C-6           |                                     | 2-3/4                                  | 69.8                         | 19.23                                  | 500                        | 0.52                        | 236                   |                        |                      |
| Inspection  | 28 4502 (b)                  | 50W                 |                               | PAR-36     | Scr. Term. | CC-6          |                                     | 2-3/4                                  | 69.8                         | 1.78                                   | 400                        | 0.52                        | 236                   | 196-4518 MS25243-4502  |                      |
| Interior    | 12.8 1141                    | 1.44A               | 21                            | S-8        | S.C. Bay.  | C-6           | 1-1/4                               | 31.8                                   | 50.8                         | 1.44                                   | 500                        | 0.021                       | 10                    | 155-7799 MS35478-1141  |                      |
|             | 13 89                        | .58A                | 6                             | G-6        | S.C. Bay.  | C-2R          | 3/4                                 | 19.0                                   | 36.5                         | .58                                    | 750                        | 0.012                       | 6                     | 143-3159 MS15570-89    |                      |
|             | 28 1308                      | .56A                | 16                            | B-6        | S.C. Bay.  | CC-8          | 1-1/16                              | 27.0                                   | 44.5                         | .56                                    | 2000                       | 0.016                       | 7                     |                        |                      |
|             | 28 456                       | .17A                | 3                             | G-4        | Min. Bay.  | C-2F          | 9/16                                | 14.3                                   | 1-1/16                       | 27.0                                   | 17                         | 5000                        | 0.012                 | 6                      | 941-8479             |
|             | 28 301                       | .17A                | 3                             | G-5        | S.C. Bay.  | C-2F          | 11/16                               | 17.3                                   | 1-3/8                        | 34.9                                   | 17                         | 500                         | 0.012                 | 6                      | 155-7947 MS25238-301 |
|             | 28 303                       | .30A                | 6                             | G-6        | S.C. Bay.  | C-2F          | 3/4                                 | 19.0                                   | 1-7/16                       | 36.5                                   | 30                         | 500                         | 0.012                 | 6                      | 155-7848 MS15570-303 |
|             | 28 1309                      | .52A                | 15                            | B-6        | S.C. Bay.  | C-2F          | 1-1/16                              | 27.0                                   | 44.5                         | .52                                    | 500                        | 0.016                       | 7                     | 060-4707               |                      |
|             | 28 305                       | .51A                | 15                            | S-8        | S.C. Bay.  | C-2V          | 1-1/8                               | 28.6                                   | 50.8                         | .51                                    | 300                        | 0.021                       | 10                    | 155-7791 MS35478-305   |                      |
|             | 28 1691                      | .61A                | 15                            | S-8        | S.C. Bay.  | CC-6          | 1-1/8                               | 28.6                                   | 50.8                         | .61                                    | 1000                       | 0.021                       | 10                    | 295-2666 MS35478-1691  |                      |
|             | 28 3051F (e)                 | .51A                | 15                            | S-81F      | S.C. Bay.  | C-2V          | 1-1/8                               | 28.6                                   | 50.8                         | .51                                    | 300                        | 0.021                       | 10                    | 295-1680               |                      |
|             | 28 16911F (e)                | .61A                | 15                            | S-81F      | S.C. Bay.  | C-2V          | 1-1/8                               | 28.6                                   | 50.8                         | .61                                    | 1000                       | 0.021                       | 10                    | 441-2708               |                      |

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| Service        | Design          | Trade         | Amps      | Mean     | Bulb        | Base         | Fila-     | Light    | Maximum | Amp(a)    | Rated     | Approx.  | National |          |                |             |
|----------------|-----------------|---------------|-----------|----------|-------------|--------------|-----------|----------|---------|-----------|-----------|----------|----------|----------|----------------|-------------|
| Volts          | Number          | or            | Spherical | Candelas |             | ment         | Center    | Overall  | Length  | At Design | Average   | Weight   | Stock    |          |                |             |
|                |                 | Watts         |           |          |             |              | Length    | Length   | in.     | Volts     | Lab. Life | Lb.      | Number   |          |                |             |
|                |                 |               |           |          |             |              | in.       | mm       | mm      |           | (hr.)     |          | 6240-00  |          |                |             |
|                |                 |               |           |          |             |              |           |          |         |           |           |          | Standard |          |                |             |
| Inte-<br>rior  | 28              | 2232          | .643A     | 18       | S-8         | S.C. Bay.    | CC-8      | 1-3/16   | 30.6    | 50.8      | 2         | 2000     | 0.021    | 10       | MS35478-2232   |             |
|                | 28              | 307           | .67A      | 21       | S-8         | S.C. Bay.    | C-2V      | 1-1/8    | 28.6    | 50.8      | 2         | 300      | 0.021    | 10       | 155-7784       |             |
|                | 28              | 307LF (e)     | .67A      | 21       | S-81F       | S.C. Bay.    | C-2V      | 1-1/8    | 28.6    | 50.8      | 2         | 300      | 0.021    | 10       | 122-0264       |             |
|                | 28              | 1665          | .80A      | 21       | S-8         | S.C. Bay.    | C-2V      | 1-1/8    | 28.6    | 50.8      | 2         | 1000     | 0.021    | 10       | 241-9703       |             |
|                | 28              | 1665LF (e)    | .80A      | 21       | S-81F       | S.C. Bay.    | C-2V      | 1-1/8    | 28.6    | 50.8      | 2         | 1000     | 0.021    | 10       | 941-2709       |             |
|                | 28              | 2233          | .766A     | 21       | S-8         | S.C. Bay.    | CC-8      | 1-3/16   | 30.0    | 50.8      | 2         | 2000     | 0.021    | 10       | MS35478-1665LF |             |
|                | 28              | 3011          | 1.29A     | 44       | S-11        | S.C. Bay.    | C-2V      | 1-1/4    | 31.8    | 60.3      | 2-3/8     | 1000     | 0.021    | 10       | MS35478-2233   |             |
|                | 28              | 705           | .51A      | 15       | S-8         | S.C. Bay.    | CC-6      | 1.12     | 28.4    | 50.8      | 2         | 900      | 0.021    | 10       | MS25235-3011   |             |
|                | β               | (g)           | 5004NW(g) | 4W       | T-5         | Min. Pinless |           |          | 6 (m)   | 152       |           | 7500 (l) | 0.045    | 20       | 053-8273       |             |
|                |                 | (g)           | 5008NW(g) | 8W       | T-5         | Min. Pinless |           |          | 12 (m)  | 305       |           | 7500 (l) | 0.075    | 34       | 955-9174       |             |
|                |                 | (g)           | 5013NW(g) | 13W      | T-5         | Min. Pinless |           |          | 21 (m)  | 533       |           | 7500 (l) | 0.125    | 57       | 880-7800       |             |
|                |                 | (g)           | 5104NW(g) | 4W       | T-5         | Min. Bi Pin  |           |          | 6 (m)   | 152       |           | 7500 (l) | 0.045    | 20       | 916-8196       |             |
|                | (g)             | 5106NW(g)     | 6W        | T-5      | Min. Bi Pin |              |           | 9 (m)    | 228     |           | 7500 (l)  | 0.06     | 27       | 691-1397 |                |             |
|                | (g)             | 5108NW(g)     | 8W        | T-5      | Min. Bi Pin |              |           | 12 (m)   | 305     |           | 7500 (l)  | 0.075    | 34       | 955-9173 |                |             |
|                | (g)             | 5113NW(g)     | 13W       | T-5      | Min. Bi Pin |              |           | 21 (m)   | 533     |           | 7500 (l)  | 0.125    | 57       | 955-9164 |                |             |
|                | (g)             | F14T12NW(g)   | 14W       | T-12     | Med. Bi Pin |              |           | 15.0 (m) | 381     |           | 9000 (e)  | 0.200    | 91       |          |                |             |
|                | (g)             | F15T12NW(g)   | 15W       | T-12     | Med. Bi Pin |              |           | 18.0 (m) | 457     |           | 9000 (e)  | 0.247    | 112      |          |                |             |
|                | (g)             | F20T12NW(g)   | 20W       | T-12     | Med. Bi Pin |              |           | 24.0 (m) | 610     |           | 9000 (e)  | 0.320    | 145      |          |                |             |
|                | (g)             | F30T12NWRG(g) | 30W       | T-12     | Med. Bi Pin |              |           | 36.0 (m) | 914     |           | 13000 (e) | 0.478    | 217      |          |                |             |
| Indi-<br>cator | 5               | 680           | .06A      | .03      | T-1         | Wire Term.   | C-2R      | 1/4      | 6.35    | .06       | (j)       | 0.0004   | .2       | 878-1965 | MS24367-680    |             |
|                | 5               | 682           | .06A      | .03      | T-1         | Sub-Mid Fl.  | C-2R      | 3/16     | 4.7     | .06       | (j)       | 0.0006   | .3       | 879-4980 | MS24515-682    |             |
|                | 5               | 685           | .06A      | .05      | T-1         | Wire Term.   | C-2R      | 1/4      | 6.35    | .06       | (k)       | 0.0004   | .2       | 060-2941 | MS24367-683    |             |
|                | 5               | 715           | .115A     | .15      | T-1         | Sub-Mid Fl.  | C-2R      | 3/16     | 4.7     | .06       | (k)       | 0.0006   | .3       | 752-2581 | MS24515-685    |             |
|                | 5               | 718           | .115A     | .15      | T-1         | Wire Term.   | C-2R      | 1/4      | 6.35    | .115      | (k)       | 0.0004   | .2       | 080-4508 | MS24367-715    |             |
|                | 6               | 316           | .7A       | 3.4      | T-3-1/4     | Sub-Mid Fl.  | C-2R      | 3/16     | 4.7     | .115      | (k)       | 0.0006   | .3       | 764-8237 | MS24515-718    |             |
|                | 6               | 328           | .2A       | 3.4      | T-1-3/4     | Min. Bay.    | C-2R      | 5/8      | 15.8    | 30.0      | .7        | 500      | 0.006    | 3        | 817-9803       | MS25231-316 |
|                | 13              | 89            | .58A      | 6        | G-6         | Mid. Flange  | C-6       | 5/8      | 15.8    | 15.8      | .2        | 1000 (n) | 0.0012   | 5        | 155-7857       | MS25237-328 |
|                | 13              | 1816          | .33A      | 3        | T-3-1/4     | S.C. Bay.    | C-2R      | 3/4      | 19.0    | 36.5      | .58       | 750      | 0.012    | 5        | 143-3159       | MS15570-39  |
|                | 14              | 330           | .08A      | 0.5      | T-1-3/4     | Min. Bay.    | C-2V      | 5/8      | 15.8    | 30.0      | .33       | 1000     | 0.006    | 3        | 155-7949       |             |
|                | 28              | 301           | .17A      | 3        | G-5         | S.C. Bay.    | C-2F      | 3/8      | 9.5     | 15.8      | .08       | 750      | 0.0012   | 5        | 196-4491       |             |
|                | Instru-<br>ment | 28            | 303       | .30A     | 6           | G-6          | S.C. Bay. | C-2F     | 11/16   | 17.3      | .17       | 500      | 0.012    | 5        | 155-7947       | MS25238-301 |
| 28             |                 | 313           | .17A      | 3.5      | T-3-1/4     | Min. Bay.    | C-2F      | 3/4      | 19.0    | .30       | 500       | 0.012    | 5        | 155-7848 | MS15570-303    |             |
| 28             |                 | 1864          | .17A      | 3.0      | T-3-1/4     | Min. Bay.    | C-2F      | 5/8      | 15.8    | .17       | 500       | 0.006    | 3        | 155-8714 | MS25231-313    |             |
| 28             |                 | 387           | .04A      | 0.3      | T-1-3/4     | Mid. Flange  | C-2F      | 3/8      | 9.5     | .04       | 1500      | 0.006    | 3        | 765-8443 | MS25337-387    |             |
| 28             |                 | 327           | .04A      | .34      | T-1-3/4     | Mid. Flange  | C-2F      | 3/8      | 9.5     | .04       | 4000      | 0.0012   | 5        | 763-7744 | MS25237-387    |             |
| 28             |                 | 1495          | .30A      | 6        | T-4-1/2     | Min. Bay.    | C-2F      | 5/8      | 15.8    | .30       | 500       | 0.006    | 3        | 155-7836 | MS25237-327    |             |
| 28             |                 | 1495X         | .30A      | 6        | T-4-1/2     | Min. Bay.    | C-2F      | 5/8      | 15.8    | .30       | 500       | 0.006    | 3        | 299-4742 | MS25069-1495   |             |

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