

# GILL BATTERIES



Founded in 1920 in Redlands, CA, Gill has become the OEM original equipment battery for Raytheon, Cessna, Learjet, Mooney, Piper, Ayres, Airtractor, Maule, and many other manufacturers. Gill's 600 series batteries have proven to be the high performance, high discharge lead-acid batteries need by jet and turbo-prop aircraft. Gill's line of sealed recombinant batteries are now available in most popular sizes and are FAA approved. Gill also provides batteries for battery powered carts which are available by special order.

**NOTE: Part Numbers with an asterisk (\*) ship with acid.**

## 12 VOLT DRY CHARGED BATTERIES FOR GENERAL AVIATION SINGLE & TWIN ENGINE AIRCRAFT

Model	AH @ 1 hr. rate	30 Min. Emer. Cap.(amps)	Wt. (filled)	Electrolyte (qts.)	Application (Aircraft)	Part No.	Price
G-25	18	30	23.8	2 --	<b>Aerostar:</b> 600, 601, 601P <b>Beech:</b> 19, 23, 24, 55, 58, 77 <b>Cessna:</b> 120, 140, 150, 170, 172, 175, 177, 310, 320, 340 <b>Piper:</b> PA-11, PA-36, PA-38	11-01833* 11-01673	. .
G-35	23	40	28.7	3 --	<b>Beech:</b> 17, 18, 19, 23, 24, 33, 35, 36, 50, 76 <b>Bell:</b> 47G-5 <b>Cessna:</b> 180, 182, 185, 188, 195, 206, 207, 210 <b>Mooney:</b> M20, M20B, M20D, M20G, M20J, M20K <b>Piper:</b> PA-11, PA-12, PA-14, PA-16, PA-18, PA-22-25, PA-28, PA-30, PA-32, PA-34, PA-39, PA-44	11-01832* 11-01672	. .
G-35M	23	40	30.7	3	<b>Maule:</b> M-4-210, -4-210C, -4-230C, -4-180C, -5-210C, -5-220C, -5-200, -5-235C, -5-180C, -6-235, -6-180, M-7-235, MX-7-180, MX-7-235	11-03791* 11-03624	. .
G-88	65	108	78.0	8	<b>Ayres Corp.</b> S-2R	11-04011* 11-01685	. .



G-35

## 24 VOLT DRY CHARGED BATTERIES FOR GENERAL AVIATION SINGLE & TWIN ENGINE AIRCRAFT

Model	AH @ 1 hr. rate	30 Min. Emer. Cap.(amps)	Wt. (filled)	Electrolyte (quarts)	Application (Aircraft)	Part No.	Price
G-240	8	13	23.0	3 --	<b>Cessna</b> 152, 172, 182	11-01655* 11-01683	. .
G-241	8	13	24.0	3 --	<b>Cessna</b> 152, 172, 182, 172R, 172S	11-01656* 11-01681	. .
G-242	10	17	27.0	3 --	<b>Cessna:</b> 152, 172, 177, 182, 207, 210, 336, 337 <b>Piper:</b> PA-23, PA-31, PA-36	11-01657* 11-01675	. .
G-243	10	17	28.0	3 --	<b>Cessna:</b> 152, 182, A152, 172, 172R, 172RG, 172S, T182, R182, TR182, T303, 210 (S/N 21059503 & ON), T210M, T210N, T210R, 188, 188A, 188B, A188, A188A, A188B AND T188C <b>Cirrus:</b> SR20, SR22 <b>Slingsby Aviation, Ltd.:</b> T67M260, T67M260-T3A	11-01658* 11-01678	. .
G-244	18	30	38.5	4 --	<b>Beech:</b> A60 <b>Cessna:</b> 310, 335, 340, 402, 404, 414, 421 <b>Piper:</b> PA-31	11-01555* 11-01543	. .
G-245	18	30	39.5	4 --		11-01660* 11-01670	. .
G-246	19	32	41.5	4 --	<b>Airtractor:</b> AT-300, AT-400 <b>Piper:</b> PA-23, PA-31	11-01661* 11-01680	. .
G-247	19	32	42.5	4 --	Piper PA-31P-350	11-01772* 11-01662	. .



G-242

## 12 VOLT VRLA BATTERIES FOR GENERAL AVIATION SINGLE & TWIN ENGINE AIRCRAFT (SEALED)

Model	AH @ 1 hr. rate	30 Min. Cap.(amps)	Wt. (filled)	Application (Aircraft)	Part No.	Price
G-25S	18	30	25.0	<b>Cessna:</b> 120, 140, 150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, 150L, 150M, 170, 170A, 170B, 172, 172A, 172B, 172C, 172D, 172E, 172G, 172F (USAF T-41A), 172H (USAF T-41A), 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172S, 175, 175A, 175B, 175C, 177, 177A, 177B, 310, 310A (USAF U-3A), 310B, 310C, 310D, 310E (USAF-U-3B), 320, 320-1, 320A, 320B, 320C, 320D, 320E, 320F, 340 <b>Piper:</b> PA-11, PA-36-285, PA-36-300, PA-36-375, PA-38-112 <b>Aerostar:</b> PA-60-600 (Aerostar 600), PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), PA-60-602P (Aerostar 602P) <b>Raytheon:</b> 19A, 23, A24, D55, E55, E55A, 58, 58A, 77 <b>Sky International:</b> A-1, S-1S, S-1T, S-2, S-2A, S-2S, S-2B	11-01316	.
G-35S	23	40	29.0	<b>Beechcraft:</b> 23, 35, 36, 50, 76 <b>G-35S:</b> Bell: 47G-5 <b>Cessna:</b> 180, 182, 185, 188, 195, 206, 207, 210 <b>Maule:</b> M-4-210, -220, -180, M-5-180, -210, -220, -235, -200, -210TC, M-6-180, -235, M-7-235, MX-7-180, MX-7-235, MXT-7-180, MT-7-235, MX-7-160, MXT-7-160, MX-7-180A, MXT-7-180A, MX-7-180B, M-8-235 <b>Mooney:</b> M20, M20B, M20D, M20G, M20J, M20K <b>Piper:</b> PA-12, PA-14, PA-16, PA-18, PA-22, PA-23, PA-24, PA-25, PA-28, PA-30, PA-32, PA-34, PA-39, PA-44	11-01679	.



G-25



G-246

## 200 SERIES 24 VOLT VALVE REGULATED LEAD ACID BATTERIES (SEALED)

Model	AH @ 1 hr. rate	30 Min. Cap. (amps)	Wt. (filled)	Application (Aircraft)	Part No.	Price
G-243S	13	20	28.8	<b>Cessna:</b> 152, 182, A152, 172, 172R, 172RG, 172S, T182, R182, TR182, T303, 210 (S/N 21059503 & ON), T210M, T210N, T210R, 188, 188A, 188B, A188, A188A, A188B AND T188C <b>Cirrus:</b> SR20, SR22 <b>Mooney:</b> M20M, M20R <b>Slingsby Aviation, Ltd.:</b> T67M260, T67M260-T3A	11-01666	.

Free UPS Ground\* Shipping in 48 States No UPS Hazardous Charge ~ Pay Price of Battery - That's It! FULL MFG. WARRANTY - SHIPPED SAME DAY ORDERED \*Batteries up to 50 lbs.

**NOTE:** The data in the "Application" section above is intended as a reference guide only. Some installations may vary and require airframe or battery box modification. Some applications may require field approval and some listings are pending FAA approval. Verify correct battery model for your aircraft before ordering. Dry charged Gill Batteries are furnished with electrolyte (except overseas) unless requested otherwise.

### GILL 12/24 VOLT CHARGER

Perfectly packaged, this compact charger is big on performance. Offering adjustable amperage for 12 & 24V batteries, digital 24-hour timer, LED display, constant voltage and constant current for the most efficient way to charge. Wt: 9 lbs. This unit is switchable from 100 Volt to 220 Volt.

P/N 11-01540 .....

### GILL 24 VDC CHARGER



Small, lightweight. 'Smart' state-of-the-art software. Charger starts when battery requires charge •Adjusts to all Gill 24V batteries. LED progress indicators: indicates battery charge level. 'Smart' Circuit will not overcharge battery. Circuit Protection - reverse & short protection •Sleep mode when battery is charged. Specifications: Input: 110-120VAC @ 60 HZ 3.4 amps, Output: 27 VDC Nominal 7.7 Amps, Oper. Temp.: 23-104°F, Wt: 3.3 lbs.

P/N 11-01541 .....

# GILL BATTERIES



G-641



G-6381C



GE-51E



GE-54C



G-641S

## 24 VOLT DRY CHARGED BATTERIES FOR TURBO PROP AND JET APPLICATION

Model	AH 1hr. rate	30min E.C. (amps)	Wt. lbs (filled)	Electrolyte (quarts)	Application (Aircraft)	Part No.	Price
G-6381E	43	70	80	9	Dassault Fan Jet Falcon Series C-F Raytheon Beech: 65-90, 65-A90, 65-A90-1(JU-21A, U-21A, RU-21A, RU-21D, U-21G, RU-21H), 65-A90-4(RU-21E, RU-21H), B90, C90, E90, F90, 99, 99A, 100, A99, A99A, A100, A100A, B100, 200, A100-1(U-21J), 200C, 200CT, 200T, A200(C-12A) OR (C-12C), A200CT(C-12D), OR (FWC-12D) OR (RC-12D), OR (C-12F) OR (RC-12G) OR (RG-12H) OR (RC-12K) OR (RC-12P), B200, B200C, (C-12F) OR (UC-12F) OR (UC-12M) OR (C-12R), B200CT, B200T, 300, B300, 300LW, B300C, MU-300-10, 400, 400T, Hawker 1000 Bell: 204B, 205A, 205B, 205A-1, 212, 222U, 412 Cessna: 208, 208B, 425, 441, 500, 501, 550, 551, S550, 560, 560XL Embraer: EMB-110P1, EMB-110P2 Learjet: 23, 24 series, 25 series, 28 series, 29 series, 31, 31A, 35 series, 36 series, 55, 55C Gulfstream: G-159 Israel Aircraft Industries: 1121, 1121A, 1121B, 1123, 1124 Lockheed-GA: 1329-23 series Mitsubishi: MU-2B, MU-2B-10, -15, -20, -25, -26, 26A, -30, -35, -36, -36A, -40, -60 Pilatus: Pilatus-PC-12 Piper: PA-31T, -31T1, -31T2, PA-42 and PA-42-720 Rockwell: NA-265 series; Aero Commander: 680T, 680V, 680W, 690, 690A Sikorsky: S-76A, S-76B, S-76C Socata Group Aerospatiale: TBM-700	11-01545	.
G-638E	37	60	73	9	Dassault Fan Jet Falcon Series C-F Beech: 65-90, 65-A90, B90, B100, C90, E90, 99, 99A, 100, A99, A99A, A100, A100A, F90 Embraer: EMB-110P1, EMB-110P2 Learjet: 23, 24 series, 25 series, 28 series, 29 series, 31, 31A, 35 series, 36 series, 55, 55C Gulfstream: G-159 Israel Aircraft Industries: 1121, 1121A, 1121B, 1123, 1124 Lockheed-GA: 1329-23 series Mitsubishi: MU-2B, MU-2B-10, -15, -20, -25, -26, 26A, -30, -35, -36, -36A, -40, -60 Pilatus: Pilatus-PC-12 Piper: PA-31T, -31T1, -31T2, PA-42 and PA-42-720 Rockwell: NA-265 series; Aero Commander: 680T, 680V, 680W	11-02215	.
G-639E	24	40	55	5	British Aerospace: DH.125-400A, HS.125-600A, HS.125-700A, BH.125-600A, BAE.125-800A, Jetstream series 3101 Hawker Siddeley, Beechcraft Hawker: DH.125, HS.125, BH.125 Messerschmitt-Bolkow-Blohm GMBH: BO-105S	11-01607	.
G-640E	14	25	40	3	Beech: 65, A65, 65-80, 65-A80, 65-B80, 65-88, 70	11-04160	.
G-641	18	30	41.5	4	Bell: 206, 206A, 206B, 206B-1, 206L, 206L-1, 206L-3 McDonnell Douglas (Hughes) : 369, 369A, 369H, 369HM, 369HS, 369HE, 369D, 369E, 369F, 369FF, 500N, 600N with STC kit SR01427LA installed Schweizer Aircraft Corporation: 269D (333)	11-01684	.
G-6381C	43	70	80	9	Dassault Fan Jet Falcon Series C-F Beech: 65-90, 65-A90, B90, C90, E90, 99, 99A, 100, A99, A99A, A100, A100A Embraer: EMB-110P1, EMB-110P2 Learjet: 23, 24 series, 25 series, 28 series, 29 series, 31, 31A, 35 series, 36 series, 55, 55C Gulfstream: G-159 Israel Aircraft Industries: 1121, 1121A, 1121B, 1123, 1124 Lockheed-GA: 1329-23 series Mitsubishi: MU-2B, MU-2B-10, -15, -20, -25, -26, 26A, -30, -35, -36, -36A, -40, -60 Pilatus: Pilatus-PC-12 Piper: PA-31T, -31T1, -31T2, PA-42 and PA-42-720 Rockwell International: NA-265 series; Aero Commander: 680T, 680V, 680W	11-01609	.
G-638C	37	60	95	9	Dassault Fan Jet Falcon Series C-F Beech: 65-90, 65-A90, 65-A90-1(JU-21A, U-21A, RU-21A, RU-21D, U-21G, RU-21H), 65-A90-4(RU-21E, RU-21H), B90, C90, E90, F90, 99, 99A, 100, A99, A99A, A100, A100A, B100, 200, A100-1(U-21J), 200C, 200CT, 200T, A200(C-12A) OR (C-12C), A200CT(C-12D), OR (FWC-12D) OR (RC-12D), OR (C-12F) OR (RC-12G) OR (RG-12H) OR (RC-12K) OR (RC-12P), B200, B200C, (C-12F) OR (UC-12F) OR (UC-12M) OR (C-12R), B200CT, B200T, 300, B300, 300LW, B300C, MU-300-10, 400, 400T, Hawker 1000 Bell: 204B, 205A, 205B, 205A-1, 212, 222U, 412 Cessna: 208, 208B, 425, 441, 500, 501, 550, 551, S550, 560, 560XL Embraer: EMB-110P1, EMB-110P2 Learjet: 23, 24 series, 25 series, 28 series, 29 series, 31, 31A, 35 series, 36 series, 55, 55C Gulfstream: G-159 Israel Aircraft Industries: 1121, 1121A, 1121B, 1123, 1124 Lockheed-GA: 1329-23 series Mitsubishi: MU-2B, MU-2B-10, -15, -20, -25, -26, 26A, -30, -35, -36, -36A, -40, -60 Pilatus: Pilatus-PC-12 Piper: PA-31T, -31T1, -31T2, PA-42 and PA-42-720 Rockwell International: NA-265 series; Aero Commander: 680T, 680V, 680W, 690, 690A Sikorsky: S-76A, S-76B, S-76C Socata Group Aerospatiale: TBM-700	11-01557	.
G-639C	24	40	55	5	Hawker Siddeley Beechcraft Hawker: DH-125, HS-125, BH-125 Messerschmitt-Bolkow-Blohm GMBH: BO-105S	11-01610	.
GE-50E	31	55	80	8		11-01686	.
GE-51E	22	35	56	4		11-04192	.
GE-54E	10	16	32	3		11-01547	.
GE-50C	31	55	80	8	Gulfstream Commander: 500, 520, 560, 560A, 560E, 680, 680E, 720 North American: AT6-C, AT6-D, AT6-F, T-6G, SNJ-5, SNJ-6, SNJ-7 or any BC-1A, AT6, AT6-A, AT6-B, SNJ-2, SNJ-3, SNJ-4 converted to 24 volts per North American Drg 121-954004, P51	11-01682	.
GE-51C	22	35	56	4	Airtractor: AT-301, AT-301A	11-03623	.
GE-54C	10	16	34	3		11-01546	.

## 7000 SERIES - 600 SERIES (VALVE REGULATED LEAD ACID BATTERIES)

Model	AH 1hr. rate	30 Min. Cap. (amps)	Wt. (filled)	Application (Aircraft)	Part No.	Price
7641-20	20	35	44	Bell: 206A, 206B, 206L, 206L-1, 206L-3 with STC SR01406LA McDonnell Douglas (Hughes) : 369, 369A, 369H, 369HM, 369HS, 369HE, 369D, 369E, 369F, 369FF, 500N, 600N with STC Kit SRO 1427LA installed. Schweizer Aircraft Corporation: 269D (333)	11-06245	.
7638-44	44	70	85		11-05171	.
7639-27	27	42	60		11-07462	.
G-641S	20	35	45	Bell: 206A, 206B, 206L, 206L-1, 206L-3 with STC SR01406LA McDonnell Douglas (Hughes) : 369, 369A, 369H, 369HM, 369HS, 369HE, 369D, 369E, 369F, 369FF, 500N, 600N, with STC kit SR01427LA installed. Schweizer Aircraft Corporation: 269D (333)	11-01633	.

**NOTE:** The data in the "Application" section above is intended as a reference guide only. Some installations may vary and require airframe or battery box modification. Some applications may require field approval and some listings are pending FAA approval. Verify correct battery model for your aircraft before ordering. Dry charged Gill Batteries are furnished with electrolyte (except overseas) unless requested otherwise.



## GILL BATTERY ELECTROLYTE (ACID)

Battery electrolyte (battery grade sulfuric acid) in sealed polyethylene pouch with self-contained dispenser tube, packaged in sturdy cardboard container. Specific gravity 1.285. Detailed filling & disposal instructions on container.

2 Qts.....P/N 11-00300.....  
3 Qts.....P/N 11-00305.....

### BATTERY WARRANTY (APPLICABLE TO GILL & CONCORDE)

The manufacturer will replace with a new battery without charge (except for transportation) any battery which fails in service within 90 days. Addition of any chemical other than water or battery grade sulfuric acid voids this warranty. After expiration of Service Guarantee, adjustment will be made on pro-rate basis based on unused months of service. Batteries that are broken, discharged or fail due to freezing or abuse are not covered.

## SEALED "VALVE REGULATED SRT SERIES"



11-01316



11-01679



11-01666



11-01631



11-01632



11-01633

Model	Weight	Electrolyte	Part No.	Price
G-25S 12 Volt	25 Lbs. (full)	Not Needed	11-01316	.
G-35S 12 Volt	29.0 Lbs.	Not Needed	11-01679	.
G-243S 24 Volt	28.8 Lbs. (full)	Not Needed	11-01666	.
G-6381ES 24 Volt	88.5 Lbs. (full)	Not Needed	11-01631	.
G-641S 24 Volt	44.5 Lbs. (full)	Not Needed	11-01633	.

# CONCORDE BATTERIES

Since their introduction in 1986, several styles of RG® Batteries, likewise known as VRSLAB, SLAB, or AGM batteries, have been developed by Concorde Battery Corporation. Concorde Battery has a dedicated Research and Development Department that is continuously improving and refining its recombinant gas product line. Formed in 1977 Concorde's factory was dedicated to manufacturing dry charged (vented or flooded electrolyte) aircraft batteries. In 1985 Concorde developed it's first recombinant gas battery with absorbed glass mat separators. Now, with the proven reliability of Concorde's recombinant gas (RG®) aircraft batteries and great acceptance in both military and commercial applications, over 90% of its manufacturing has been changed over from dry charged to RG® production.

## CONCORDE SEALED LEAD ACID BATTERIES



**RG-25      RG-25XC      RG-35      RG-35AXC      RG-24-11      RG-24-11M      RG380E/44**

Concorde's line of sealed lead acid batteries is designed with larger positive and negative plates for more capacity and greater starting power even at sub-zero temperatures. They feature real aircraft quality terminals, patented copper alloy internally threaded terminals brass terminal bolts with conical silicon bronze lock washers, recommended 70" pound terminal torque, more than 20% higher capacity than earlier models, and a molded carrying or lifting handle. These valve regulated sealed lead acid batteries feature fully aerobic sealed construction; no spillable electrolyte or flammable gas emissions. "XC" or "AXC" in the model number indicates extra cranking power, and "M" in the model number indicates manifold venting.

Part No.	Battery Type	Connect Type	Amp Hour	Volt	Our Part No.	Price	Part No.	Battery Type	Connect Type	Amp Hour	Volt	Our Part No.	Price
RG-25	Sealed Lead Acid	A	22	12	11-03879	.	RG-24-11	Sealed Lead Acid	A	11	24	11-03876	.
RG-25XC	Sealed Extra Crank	A	24	12	11-03880	.	RG-24-11 M	Sealed Lead Acid	A	11	24	11-03877	.
RG-35A	Sealed Lead Acid	A	29	12	11-03881	.	RG380E/44*	Sealed Lead Acid	E	42	24	11-03883	.
RG-35AXC	Sealed Extra Crank	A	33	12	11-03882	.	RG24-16	Sealed Lead Acid		13	24	11-05112	.

## CONCORDE PLATINUM SERIES LEAD ACID BATTERIES



**CB25      CB25XC      CB35AXC      CB35      CB24-11      CB24-11MXC**

The Platinum Series® battery line from Concorde features more cold cranking amperes for one minute at 0°F, and more 30 minute emergency capacity than any other brand. Platinum Series® batteries provide more one hour capacity than any other brand as well as more high rate performance. These batteries utilize real aircraft quality copper alloy terminals with silicone bronze bolts and conical washers. The batteries listed in the chart below which are not described as "Platinum" are the original series of Concorde lead acid batteries.

### BATTERY WARRANTY

*(Applicable to Gill and Concorde)*

The manufacturer will replace with a new battery without charge (except for transportation) any battery which fails in service within 90 days. Addition of any chemical other than water or battery grade sulfuric acid voids this warranty. After expiration of Service Guarantee, adjustment will be made on pro-rata basis based on unused months of service. Batteries that are broken, discharged or fail due to freezing or abuse are not covered.

### CONCORDE BATTERY ELECTROLYTE (ACID)

2 QT. .... P/N 11-04749.....  
3 QT. .... P/N 11-04750.....

Part No.	Battery Type	Ampere Hour	Weight (lbs.)	Volts	Price
11-06405	CB25 with acid	20 Ah	--	12	.
11-05837	CB25 without acid	20 Ah	22.0	12	.
11-01571	CB25XC with acid	25 Ah	28.5	12	.
11-01572	CB35AXC with acid	34 Ah	--	12	.
11-06244	CB35AXC without acid	34 Ah	32.5	12	.
11-03776	CB-35A with acid	29 Ah	--	12	.
11-03769	CB-35A without acid	29 Ah	28.5	12	.
11-03771	CB24-11 with acid	10 Ah	--	24	.
11-03772	CB24-11 without acid	10 Ah	27.0	24	.
11-03773	CB24-11M without acid	10 Ah	28.0	24	.

**NOTE:** Some installations may vary and require airframe or battery box modification. Some applications may require field approval. Verify correct battery model for your aircraft before ordering. There may be a charge for STC paperwork on certain batteries.

**RG-443**



RG Valve regulated sealed lead acid battery. Lear-jet models 40 & 45. STC #ST01173WI FAA-PMA supplement #59. Emergency Battery ICA calls out the first Cap Check at 12 months or 2000 hrs; subsequent checks at 12 months or 1000 hrs. 24V, Wt: 27 lbs  
P/N 11-02948 .....

**RG-131**



RG valve regulated sealed lead acid battery. Uninterruptible power source for Citation 550 series. Direct replacement for Ni-Cad batteries: 605, 1201, CA 54 & CA 154 series. STC #ST01639LA; FAA-PMA supplement #72. First cap check at 12 months or 1000 hrs. 24V, Wt: 31 lbs.  
P/N 11-02947 .....

**RG-380E/40L**



RG-380E/40L and temperature sensor TSC6A Concorde #5-0242. RG valve regulated sealed lead acid battery. PIAGGIO P-180. Replacement for Ni-Cad battery. STC #SA01653LA. FAA-PMA Supplement #74 Engine starting, reliable power in the event of a generator failure. 24V, Wt: 86 lbs.  
P/N 11-02949 .....

**RG-500**



- Primary Aircraft Purpose: Helicopter Series
- Voltage: 24V
- Rated Capacity C1 = 1 hour
- Rate in ampere hours:17
- Max Weight: 42 lbs. / 19.1 kg

P/N 11-04738 .....

# BATTERIES - CHARGERS



## POWERSONIC BATTERIES

Power Sonic sealed maintenance-free batteries allow safe, trouble-free operation in any position. You never need to add electrolyte; gases generated during over charge are recombined in a unique "oxygen cycle". Under normal operating conditions, 4 or 5 years of dependable service can be expected in standby applications, or between 200 and 1000 charge/discharge cycles, depending on depth of discharge. Made with high-impact ABS plastic bases, using a carefully controlled plate-making process to provide excellent output per cell. This high energy density results in superior power/volume & power/weight ratios. Temp. range: -76° to +140°F.

**3-AMP BATTERY** - Ideal for aircraft with power requirements but no electric starter. Designed to power instruments radios, strobes, etc. This unit may NOT be charged from the onboard charging system. Use dual-rate charger. 5.23"l x 2.64"h. Weight: 2.6 lb.

P/N BT020.....

**18-AMP BATTERY** - Suitable for powering the electric starter of most Rotax and other 2-stroke engines as well as on-board electrical devices. My be maintained by on-board charging systems (see regulator/rectifiers). 7.13"l x 2.99"w x 6.57"h. Wt: 12.8 lbs.

P/N BT021.....

**26-AMP BATTERY** - Where maximum cranking power is needed or several accessories are being used, this is the battery that can handle it. May be maintained by on-board charging systems. Also recommended for the 582/532 engines when used in extremely low temperature environments. 6.89"l x 6.54"w x 4.92"h. Wt: 21 lbs.

P/N 11-03155.....

## ATP HIGH POWER BATTERIES



ATP's UltraStart-Red & UltraBat-13 batteries are the ultimate in high power density non-spillable SLA batteries. The UltraStart-Red is ideal for starting light aircraft engines for ultralight and experimental aircraft and other internal combustion engines. Typical applications include all Rotax 2 stroke engines and HKS 4-stroke engines. For engines 100HP and up UltraStart-Red - Voltage: 12.6 VDC, Energy: 5AH cap., Peak current: 250A instantaneous, Weight: 4.4 lbs., Size: 2.7"l x 3.5"w x 4.5"h

UltraBat-13 - Voltage: 12.6 VDC, Energy: 13AH cap., Peak current: 650A instantaneous, Weight: 10.8 lbs., Size: 3-3/8"l x 7"w x 5"h

UltraStart-Red.....P/N 11-00375  
 UltraBat-13.....P/N 11-00378  
 Battery box for UltraStart-Red.....P/N 11-01997

## BATTERY CORROSION GUARD



Battery Corrosion Guard forms a thin protective coating that will neutralize battery acid on all treated areas. It is an excellent way to clean the battery, hold down straps, and all metal parts you want to protect including cables, clamps, box, and posts. Excellent for aluminum battery boxes. Widely used in the aircraft, truck, and boat industries.

3 oz. can.....P/N 11-00310  
 8 oz can.....P/N 11-00320  
 16 oz. can.....P/N 11-00330

## BATTERY TERMINAL TOOL



This unique tool is designed to provide positive tightening of battery terminals on all popular brands of lead/acid aircraft batteries without over-torquing and without the danger of an electrical short. The tool is made from steel for rugged service and is fully insulated with a rubber hand grip for protection against electrical shorts.

P/N 12-16200.....

## GILL TCT-1000 12V/24V CAPACITY TESTER



The TCT -1000 Battery Capacity Analyzer has been designed to perform automatic capacity testing of 12 and 24 Volt lead-acid batteries. This unit is capable of accurately measuring the capacity of a fully charged battery with a rating between 10 and 59 amphours. It is self-contained and easy to operate. The load tester will display, in percentage, the conformance to the battery's one hour rating.

P/N 11-03302.....

## PULSETECH POWERPULSE 12VOLT WITH LUG



PowerPulse is not a charger. It's a performance device designed to help batteries charge faster and provide maximum performance and power. This patented unit uses a revolutionary ReNew-IT Pulse Technology™ to safely prevent the main cause of battery problems and failure: sulfation buildup on lead-acid battery plates. Used extensively by the consumers and the U.S. Military worldwide for almost ten years. PowerPulse can be powered in two different ways. When the battery is being charged -- either by an onboard charger or a separate charging system -- it will use the charging current as a power source. The rest of the time it uses a small portion of the battery's own energy so it is working 24-hours a day. The PowerPulse system can also be used together with an existing charging system. In fact, it will work even faster and stronger. This means batteries can be both charged and desulfated at the same time.

P/N 11-07464.....

## SEALED IMMOBILIZED ELECTROLITE BATTERIES (GEL TYPE)



•Maintenance-free operation •Excellent shelf life •Long cycle life •Can be mounted on its side •Delivered fully charged and ready for use •Quality construction provides superior resistance to shock and vibration •Long life w/a charging voltage of 13.8V +/- .2V •Need adjustable voltage regulator such as the LR-3 so that charging voltage can be set at 13.8V •No corrosive gas generation •DOT & IATA approved for shipment by air as dry cells •300 Starting AMPS •Warranty 1 year or 100 hours.

NOTE: FOR EXPERIMENTAL AIRCRAFT ONLY

AMPS/VOLTS	WEIGHT	BASE	HEIGHT	P/N	PRICE
32AH, 12V	22.9	7.75 x 5.2	7.1	07-06755	.

## ODYSSEY DRYCELL BATTERIES



P/N 11-01651



P/N 11-02233



P/N 11-01945

Odyssey batteries, with an eight year design life saves you time and money because you do not have to replace your battery as often. It is also the ONLY battery that is capable of delivering a large number of deep cycles -- up to 400 when fully discharged or up to 500 when discharged to 80%. Plus, the battery is specially designed for high vibration applications. Unlike conventional batteries that need to be recharged every six to twelve weeks, the Odyssey battery will maintain up to 50% state of charge after 2

years if stored at room temperature (77°F). At temperatures lower than 77°F, storage times will be even longer. The cranking power of Odyssey batteries is double to triple that of equally sized conventional batteries, even when the temperature is as low as -40°F. Odyssey batteries may be shipped worry free by UPS/Federal Express or air. 2 Year Warranty.

Part No.	Dimensions	Weight	Cranking Amps	Price
11-02233	7-3/16"x 3-1/16"x 6-9/16"	15 Lbs.	Homebuilders 680	.
11-01651	6-9/16"x 6-7/8"x 5-11/16"	24 Lbs.	Homebuilders 925	.
11-01945	73/16"x 31/16"x 69/16"	15 Lbs.	680 Amps; FAA Approved for PA18/PA19	.

**Metal Jacket (Tray) for Odyssey 680Amp battery**

P/N 11-02234.....

## HOLD DOWN BRACKET FOR ODYSSEY 680AMP BATTERY



This hold down bracket for the Odyssey PC 680 battery can be easily mounted in any orientation. Color: Black.

P/N 11-01853.....

## XTREME CHARGE X2 DUAL BATTERY CHARGER



The Xtreme Charge X2 is a dual-station, 12-volt maintenance charger. The Xtreme Charge X2, works with all types and sizes of 12-volt lead-acid batteries.

P/N 11-06866.....

## KELLY BC3000 BATTERY ANALYZER



"Your Battery M.D." Portable and cordless the BC-3000 is a lightweight fully automated battery analyzer assessing the health of all lead-acid aircraft batteries with an ampere hour range of 1-59.

Connect the battery using the included quick battery connection adapters, the unit automatically senses and selects 12 or 24 volts, set the battery rating and press start, that's it. One hour later your test is complete and the

health of your battery is displayed P/N 08-07161.....

EL

# BATTERY BOXES - BATTERIES

## ALUMINUM BATTERY RACKS & BOXES



These top quality battery racks and battery boxes are constructed from 5052 aluminum and are heli-arc welded. A corrosion resistant epoxy powder coating is applied using an electrostatic process and oven baked for a long lasting finish. Complete hold down

**RACK** hardware kits are provided with all racks and boxes, and mount flange are pre-drilled for mounting ease using 3/16" diameter bolts. Use battery racks when mounting in a ventilated area. Use battery boxes when mounting battery in a confined area, where enclosed battery protection is required. Battery boxes include a 1/4" tube for venting and drainage. Specify make and model of battery and horizontal or vertical mount when ordering.



**BOX**

Battery Racks				Battery Boxes			
P/N	Model	Dims.	Price	P/N	Model	App.	Price
11-00105	HR-25	8"H x 5-3/16"W x 7-7/8"L	.	11-00125	HB-25	8"H x 5-3/16"W x 7-7/8"L	.
11-00110	VR-25	8"H x 5-3/16"W x 7-7/8"L	.	11-00130	VB-25	8"H x 5-3/16"W x 7-7/8"L	.
11-00115	HR-35	8"H x 5-3/16"W x 9-7/8"L	.	11-00135	HB-35	8"H x 5-3/16"W x 9-7/8"L	.
11-00120	VR-35	8"H x 5-3/16"W x 9-7/8"L	.	11-00140	VB-35	8"H x 5-3/16"W x 9-7/8"L	.



## BOGERT STAINLESS STEEL PA-28 BATTERY BOX

Replace Piper Battery Boxes \* Metal & Plastic replacement approved. \* Stainless Steel Construction \* Brass screw-in vent-tubes. \* Better than original drain tube \* Battery Box Modification included.

BOX	MODEL	AIRCRAFT S/N	BOX	MODEL	AIRCRAFT S/N		
06-Bba	PA-18	A	ALL SN	06-BBb	PA-32	260E	ALL SN
06-Bba	PA-18	AS	ALL SN	06-BBb	PA-32	300B	ALL SN
06-Bba	PA-18	S	ALL SN	06-BBb	PA-32	300C	ALL SN
06-Bba	PA-18		18-1215-18-309025	06-BBb	PA-32	300D	ALL SN
06-BBc	PA-20	135	934 & Up	06-BBb	PA-32S	300E	ALL SN
06-BBc	PA-20S	135	ALL SN	06-BB	PA-32	301T	ALL SN
06-BBc	PA-22S	108	ALL SN	06-BBb	PA-32S	300	ALL SN
06-BBc	PA-22	135	1021, 1022, 1024 AND UP	06-BBa	PA-39	(C/R)	ALL SN
06-BBc	PA-22	150	ALL SN	06-BB	PA-28	235	ALL SN
06-BBc	PA-22	160	ALL SN	06-BB	PA-28	236	ALL SN
06-BBc	PA-22S	160	ALL SN	06-BB	PA-28	140B	ALL SN
06-BBc	PA-22S	135	ALL SN	06-BB	PA-28	140C	ALL SN
06-BBc	PA-22S	150	ALL SN	06-BB	PA-28	140D	ALL SN
06-BBa	PA-24	180	103-243687	06-BB	PA-28	140E	ALL SN
06-BBa	PA-24	250	ALL SN	06-BB	PA-28	150B	ALL SN
06-BBa	PA-24	260	ALL SN	06-BB	PA-28	150C	ALL SN
06-BBa	PA-24	400	ALL SN	06-BB	PA-28	160B	ALL SN
06-BBa	PA-24	260B	ALL SN * Call For 4247-4300	06-BB	PA-28	160C	ALL SN
06-BBa	PA-24	260C	ALL SN	06-BB	PA-28	160S	ALL SN
06-BB	PA-28	140	ALL SN	06-BB	PA-28	180B	ALL SN
06-BB	PA-28	150	ALL SN	06-BB	PA-28	180C	ALL SN
06-BB	PA-28	151	ALL SN	06-BB	PA-28	180D	ALL SN
06-BB	PA-28	160	ALL SN	06-BB	PA-28	180E	ALL SN
06-BB	PA-28	161	28-7716001-28-8216236	06-BB	PA-28	180F	ALL SN
06-BB	PA-28	180	ALL SN	06-BB	PA-28	180G	ALL SN
06-BB	PA-28	181	ALL SN	06-BB	PA-28	201T	ALL SN
06-BBa	PA-30		ALL SN	06-BB	PA-28	B-235	ALL SN
06-BBb	PA-32	260	ALL SN	06-BB	PA-28	C-235	ALL SN
06-BBb	PA-32	300	ALL SN	06-BB	PA-28	D-235	ALL SN
06-BBb	PA-32	301	ALL SN	06-BB	PA-28	E-235	ALL SN
06-BBb	PA-32	260B	ALL SN	06-BB	PA-28	F-235	ALL SN
06-BBb	PA-32	260C	ALL SN	06-BB	PA-28R	150	ALL SN
06-BBb	PA-32	260D	ALL SN	06-BB	PA-28R	200	ALL SN
06-BB	White		P/N 11-06951	06-BB	PA-28R	201	ALL SN
06-BB	Stainless		P/N 11-04420	06-BB	PA-28R	201T	ALL SN
06-BB	Black		P/N 11-04421	06-BB	PA-28RT	201T	ALL SN
06-BBA	White		P/N 11-06952	06-BB	PA-28S	180	ALL SN
06-BBA	Black		P/N 11-06953	06-BBa	PA-30	B	ALL SN
06-BBA	Stainless		P/N 11-06954	06-BBa	PA-30	C	ALL SN
06-BBB	White		P/N 11-06955				
06-BBB	Black		P/N 11-06956				
06-BBB	Stainless		P/N 11-06957				
06-BBC	White		P/N 11-06959				
06-BBC	Black		P/N 11-06958				
06-BBC	Stainless		P/N 11-06960				

## FIBERGLASS BATTERY BOXES



Available as standard fiberglass battery box or as gel coated version. Gel coated battery box is same dimensions but with white gel coating and with the mount integrated into the box.

Fiberglass Battery Box ..... P/N 11-11007 .....  
Met-Co-Aire Battery Box White ..... P/N 11-05614 .....

## GELL CELL BATTERIES



- Maintenance-free operation • Excellent shelf life
- Long cycle life • Can be mounted on its side
- Delivered fully charged and ready for use • No corrosive gas generation • 300 Starting AMPS
- Warranty 1 year or 100 hours. • Quality construction provides superior resistance to shock and vibration

DOT AND IATA approved for shipment by air as dry cells **Note: FOR EXPERIMENTAL AIRCRAFT ONLY.** P/N 11-03156 .....

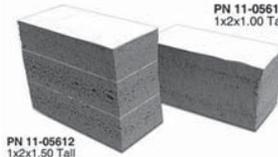
## YUMICROM BATTERIES



These manifold vented batteries work well in home builds with low amperage requirements, putting out a lot of power for their size and weight. Made by Yuasa General in Reading, Pa. 27.1oz. electrolyte required to fill (not furnished). **YB14LA2, 12V, 14AH** - This model being used in the VariEze & Long-EZ. Easily handles the load of starting a Lyc. 0-235 engine. Size: 5-9/32"l x 3-1/2" w x 6-11/16" h. Wt. 10 lbs.

P/N 11-01847 .....  
**YB16-B, 12V, 18AH** - Used in the Solitaire sailplane, VariEze, Long-EZ & other homebuilts without starter. Size: 7"lx4"wx6.25"h. Wt: 12.7 lbs  
P/N 11-01848 .....

## BATTERY BOX BUMPER SEAL



Battery Box Bumper Seal. 1103M foam with sticky back. Mil Spec: AMS3195E Bumper Seal 1"  
P/N 11-05613 .....  
Bumper Seal 1-1/2"  
P/N 11-05612 .....

## AIRCRAFT BATTERY HYDROMETER



Special Tester designed for testing aircraft batteries. Requires only small amount of fluid & ideal for close quarters. Float calibrated from 1.100-1.300 Sp. Gr. in 5° intervals. P/N 11-01674 .....

## AIRCRAFT BATTERY LOCK



This simple locking device is designed to disable the battery from the electrical system which cuts off all power to the aircraft unattended many pilots disconnect the battery and lock the panel door. However, many panel locks are easy to pick and pry open. If a thief is able to unlock the panel door, it is simple to reconnect the battery. Then all on would have to do is go inside the plane through the emergency door, which is often left unlocked with a key, the engine can easily be started and the plane can be flown away. The batter lock is constructed using a tough space age plastic polymer and a seven pin round ball bearing lock that is impossible to pick which in turn prevents aircraft theft and increases security. P/N 11-02753 .....

## BATTERY MAT



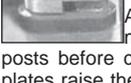
The Battery Mat is the world's only acid neutralizing and absorbing mat designed for use beneath any lead-acid battery. Each mat is simple, efficient, and cost-effective. It's ideal for use with all aircraft, as well as standard and heavy duty equipment. The acid-neutralizing and absorbing fabric is patented and manufactured with recycle material in the U.S. Battery Mat absorbs and neutralizes battery acid that may leak or result from a "boil over", prevents corrosion, cushions vibration shock, is simple to use and install, and is safe to handle. Width: 12". Sold by linear ft. P/N 11-00170..... **Ft**

## BOGERT BATTERY BOX NYLON FLANGES



Improve Starting Performance. Easier Removal & Installation of Battery. May prolong life of battery and starter. Less expensive to modify existing box than to replace. Compatible with our famous "Low Loss" Cable Kits! Eliminate extra connection on outside of the battery box. Do away with the troublesome braided negative strap. Nylon Flanges replacement or experimental. P/N 11-02892 .....  
Nylon Flanges STC'd / PMA'd ..... P/N 11-02893 .....

## BOGERT CONCORDE BATTERY POST ADAPTERS



Aircraft using Concord CB-35A and RG-35A batteries must install two PN 1-1-6 adapter plates to the battery posts before completing the Battery Box Modification. These adapter plates raise the battery post height to equal the post height of standard G-35 series batteries. P/N 11-02891 .....

# BATTERY CHARGERS

## BATTERY CHARGERS BY SCHAUER

Over 70 years of manufacturing experience assures, the user of the finest line of battery chargers—solid state circuitry, non-aging silicon rectifiers at low prices. All chargers furnished with complete operating instructions. One year warranty

### CR612 12 VOLT 10 AMPERE AUTOMATIC



This charger has 5 times the charging rate of the 2 ampere model. Charges average 12V battery in 3 to 7 hours. Equipped with ammeter, 3-wire AC cord, 6-ft. DC output cord with heavy duty plier type battery clips and carrying handle. Size: 7-3/8"H x 9-3/8"W x 6"D. Wt. 11.75 lbs. Designed for overnight use. P/N 11-00890.....

### SR5024WC 24 VOLT 5 AMPERE AUTOMATIC



This charger will charge 24V batteries at a 5 ampere rate. Ideal for aircraft batteries, diesel starting engines, golf carts, electric cars, standby equipment. Size: 7.25"H x 9.25"W x 5.75"D. Wt. 4-3/8 lbs. Designed for overnight use. P/N 11-00885.....

### TB SERIES

### 24 VOLT 10 AMPERE • 24 VOLT 20 AMPERE TEMPERATURE-VOLTAGE COMPENSATED =

Highly advanced, fully automatic charger which reduces from full charge rate to a safe maintaining charge rate as the battery becomes charged. Can be left connected for extended periods without danger of overcharging. Supplies the proper charge in the hottest or coldest weather and is maintained at proper voltage even when the AC line voltage varies  $\pm 10\%$ . Size: 11-1/4"H x 8-1/4"W x 7-7/8"D. 24V 10A-Wt. 22.5 lbs..... P/N 11-00889..... 24V 20A-Wt. 29.5 lbs..... P/N 11-00891.....

### MANUAL CHARGERS

Manual chargers must be disconnected when battery is charged to prevent overcharging and damage to the battery. Normal indication that battery is charged is when ammeter stabilizes for one hour.

### DX5 10 AMPERE TRI-POWER MANUAL



Charges 6, 12 & 24V batteries at a 10 ampere rate. Will also charge four 6V or two 12V batteries at 10 amps when connected in series. Equipped with ammeter voltage selector switch, DC circuit breaker, 3-wire AC cord, 6-ft. DC output cord & carrying handle. Size: 8.25"H x 11.25"L x 7.875"D. Wt. 20.75 lbs. P/N 11-00886.....

### 12V 50A STARTER/10A CHARGER



A combination 10 amp manual battery charger and 50 amp engine starter. When connected to the battery and 120V AC outlet, it will provide up to 50 amps of cranking power, sufficient to turn over the average engine. Size: 7.25"H x 9.25"W x 5-3/4"D. Wt. 12.75 lbs. P/N 11-00892.....

### SCHAUER 1A AUTOMATIC BATTERY CHARGER



This fully automatic charger can be left on the battery indefinitely. Features include indicator lights, overload protection, reverse polarity protection, and small size (4" x 3" x 2"). Charges, maintains, and conditions 12V batteries in stored vehicles, such as aircraft, cars, motorcycles, mowers, etc. Ten foot long cordset includes quick change battery clips and ring terminals. Wt: 2 lbs. P/N 11-04407.....

### FLEET FAST CHARGER/ENGINE STARTER BY SCHAUER



This fast charger/engine starter on wheels provides both low and high charge rates as well as a starting function to start engines. This charger provides 6, 12, & 24V, 60 amp fast charge rate and 300 breaker to protect charger and battery from incorrect hookup, and a one hour timer for automatic shut-off or continuous charging. 2 year limited factory warranty. 53 lbs. P/N 11-00887.....

### KWIKSTART 6290 POWER SUPPLY



Equipped with 2 UL listed 12V, 22amp hour DC High Performance batteries. Ideal for jump-starting aircraft, cars, trucks, boats, RV's and tractors. Also has a convenient switch when moving from 12 to 24V settings. The operator also has up to 100 hours of portable 12VDC power for cell phones, power tools, work lights and more. Also equipped with a bright emergency light. Equipped with a 110V, 1000 mil amp charger with built in overcharge protection to prolong battery life. P/N 11-02487.....

## THE BATTERY MAINTAINER SOLAR BATTERY CHARGER



The Battery Maintainer is the best device available to ensure that your battery will always be "topped off" and fully charged. It has the capacity to keep any 12 volt battery charged with as little as one full hour of sunlight per day. The life of your battery will be dramatically extended by using the Battery Maintainer. It features a diode to prevent the battery from discharging on cloudy days or at night. It is constructed with a glass face and black molded base. Size: 5-1/4" x 11" x 3/8" thick. Output: 100 ma 16 VDC full sunlight. Connects to battery via 12V "hot" cigarette lighter plug in aircraft. For 24 volt use two units. LED Light not included. P/N 01-28312.....

Accessories	Part No.	Price
DC CIG Jack W/Cover & Fuse Wiring	11-06356	.
DC CIG Jack W/Cover (Tabs for Wiring)	11-06357	.
Bracket	11-06358	.
Inline DC Jack	11-06359	.
Cover	11-06360	.
DC Power Plug	11-06361	.
Clamp Red+black Battery Clamp W/Wiring	11-06362	.
Eyelet Red+Black Battery Eyelet Connection W/ Wiring	11-06363	.
Fused Pre-Wired 24VDC Power Point (With Jacks Installed)	11-06364	.
Fused Pre-Wired 12VDC Power Point (With Jacks Installed)	11-06365	.
12FT Solar panel Extension Cable	11-06366	.

## SOLARGIZER AVIATION BATTERY LIFE EXTENDER



Solargizer is the only one of its kind in the world. It is not a battery charger, but a proven, patented electronic device designed to eliminate the #1 cause of battery problems and failures – sulfation. Whether you deal with aircraft, ground equipment, or virtually any other type of vehicle, Solargizer will dramatically extend the life of your battery, increase performance efficiency, reduce recharge time, extend battery capacity so your battery runs longer between charges, and even maintain a charge indefinitely no matter how long your aircraft or vehicle sits unused. Solargizer is small, weather-proof, and easy to install. Because it keeps batteries in optimum working condition, the Solargizer system helps reduce downtime, battery maintenance and replacement costs. And it even protects our environment by reducing the number of batteries needlessly discarded every year.

12 Volt w/ Battery Clamps.....P/N 11-11690..... 24 Volt w/ Battery Clamps.....P/N 11-11692.....

## BATTERYMINDER® BATTERY CHARGER 12V & 24V



11-11671



11-07740

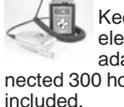
Both model BatteryMINDers are "Smart" 3 stage charger /maintainer /conditioners that extend both performance and life of 12-Volt and 24-Volt sealed and wet (filler cap) Concorde and Gill FAA-PMA Certified LA batteries. The voltage settings and charge rates have been chosen, after conferring with leading aviation battery makers in the U.S. By providing each of these BatteryMINDER units with an "At-the-Battery" temperature compensating sensor, batteries can be safely charged and maintained for extended periods in temperature extremes from 32°F to 125°F. Without this type temperature sensing, batteries will be under-charged in colder temperatures (<60°F to 32°F) and over-charged in high temperatures (>80°F to 125°F). 1-year 100%money-back guarantee+five (5) year "no hassle" warranty Battery Minder 12248AA-S2 12V..... P/N 11-07739..... Battery Minder 24041AA-S2 24V..... P/N 11-07740..... Battery Minder 24041AA-S3 Gill LT 24V..... P/N 11-07741..... Battery Minder 12248AA-S3 Odyssey 24V... P/N 11-07742..... Battery Minder Solar Panel..... P/N 11-02008..... Cigarette Lighter Adapter..... P/N 11-07209..... Small12V Batt.Minder (Non Aviation)..... P/N 11-11671.....

## BATTERY AND ALTERNATOR CONDITION TESTER



Instant and accurate battery condition status: indicates if battery is "healthy" or in need of charging Instant status of your alternator/charging system: determines whether battery or alternator is at fault. Non-Aviation / Not for Aircraft. P/N 11-04302.....

## EMERGENCY CHARGE SYSTEM EBPA299



Keep cellphones and all personal devices charged. When electricity is unavailable simple attach 12volt (car style) adapter to the handheld power pack, plug in and go stay connected 300 hours of talk/standby time (Results may vary)• 9 AA Batteries included. P/N 11-04739.....



# CHARGERS - APU'S - SOLAR PANELS

## OPTIMATE DIAGNOSTIC DESULFATING CHARGERS AND TESTERS



### OptiMate 5



**OPTIMATE 5** can SAVE a neglected / sulfated\* leadacid battery unable to accept charge from the engine charging system (even after jump starting). The multi step charging system is suitable for any type of 12V lead-acid battery. During the 24/7 auto storage control the battery is tested every hour and recharged as necessary. The universal input system accepts AC power between 100 to 240VAC (incl. generator / inverter). Hook it up anywhere in the world, walk away, OptiMate5 does the rest, automatically, safely. Recommended for all lead-acid batteries from 7.5Ah – 120Ah. P/N 11-07220.....

### OptiMate 6



**OPTIMATE 6** can SAVE a neglected / sulfated\* leadacid battery unable to accept charge from the engine charging system (even after jump starting). The micro processor controlled multi step charging system with cell equalizing is suitable for deep cycle and starter (SLI) batteries and the ampmatic auto current control takes the guesswork out of charge current selection. During the continuous maintenance and testing cycle the battery is tested daily and recharged as necessary. Hook it up, walk away, OptiMate6 does the rest, automatically, safely. Recommended for all lead-acid batteries from 15Ah – 240Ah. P/N 11-07221.....

### OptiMate PRO S



**OPTIMATE PRO-S** has a charging system able to save a neglected \*sulfated battery that cannot accept charge from a standard charger or the engine charging system. Battery power is optimized during bulk, absorption & cell balancing charge modes, and then tested to verify charge retention. Battery life is extended if left connected to OptiMate PRO-S when vehicle/craft/equipment is not in use. Initializes, desulfates & charges 1 x 12V battery at a time – from small to large. P/N 11-07222.....

### OptiMate PRO 2



**OPTIMATE PRO-2** has two independent charging systems able to save a neglected \*sulfated battery that cannot accept charge from a standard charger or the engine charging system. Battery power is optimized during bulk, absorption & cell balancing charge modes, and then tested to verify charge retention. Battery life is extended if left connected to OptiMate PRO2 when vehicle/craft/equipment is not in use. Initializes, desulfates & charges 2 x 12V batteries at a time or 1 x 24V system. PN 11-07223.....

\*A battery discharged over time that has built up chemical resistance to charging, but otherwise undamaged and measuring at least 2V.

## AUXILIARY POWER UNIT (APU) & BATTERY CHARGER



Designed to supply filtered DC bus power through standard APU receptacle in private and commercial aircraft. Up to 25 or 50 amp is available for operating avionics and flight control systems when the master switch is activated. It can also charge the battery through the plug at a 10 amp rate. Output is current limited, and will withstand starting loads. Voltage is limited to prevent battery overcharging. DC Current and voltage are displayed on panel meters, voltage accurate to 00.00 **NOTE: Available with piper plug too.**

Model	P/N	DC Amps	DC Volts	AC Power	Dimensions H.W.D.	Wt.	Price
APU14v/25A	11-07068	25	14	117 volts 60hz. 3 amps	8.5x10x12	22	.
APU28v/25A	11-07067	25	28	117 volts 60hz. 6 amps	8.5x10x12	33	.

## AIRCRAFT APU & CHARGER



25 amps of auxiliary power to prevent battery drain while checking aircraft controls and avionics. Battery status is monitored by a digital volt meter accurate to 00.00, and a Tri-color LED. If left connected, will charge and fully maintain battery. Available with plug as shown, or Piper plug. Plugs into standard 117v 60 Hz. receptacle. Max current draw, 6 amps on 24 volt model (APU24v/25A), 3 amps on 12 volt model, (APU12v/25A). Warranty: (3) years.

Charger with Plug 12V..... P/N 11-05662 .....  
Charger with Plug 24V..... P/N 11-05661 .....

## SOLAR PULSE



Specifications	SolarPulse 2W	SolarPulse 5W
<b>Pulse Frequency:</b>	22-28 kHz	22-28 kHz
<b>Max Charging DC Voltage:</b>	16.5 V, 250 mA	16.5 V, 350 mA
<b>Reverse Polarity Protected:</b>	Yes	Yes
<b>Circuit Box Dimensions:</b>	3.25" x 2.25" x 1.5"	3.25" x 2.25" x 1.5"
<b>Solar Panel Dimensions:</b>	4.75" x 8.56" x .125"	8.875" x 8.75" x 0.125"
<b>Box to Lugs Wire Length:</b>	3 feet	3 feet
<b>Box to Panel Wire Length:</b>	17 feet	17 feet
<b>Termination:</b>	.375" Lugs	0.375" Lugs
<b>Weight:</b>	1.35 lb.	1.65 lb.

- \* Unique solar charger provides clean, quiet energy
- \* Cleans battery plates of large, damaging lead-sulfates so batteries can accept, store and release MAXIMUM power when you need it
- \* Helps offset energy-robbing key-off parasitic loads (see chart below)
- \* Works with all lead-acid batteries (flooded cell, AGM and gel)
- \* Ideal for virtually any kind of vehicle and equipment in areas with out access to electrical power
- \* Low-profile industrial-strength solar panel mounts flat (no frame required) so it's virtually indestructible
- \* Prevents the normal loss of battery power on vehicles stored out side no matter how long they sit unused — even months at a time
- \* Helps extend battery life up to 3X longer
- \* Choose from three models: 2-Watt, 5-Watt and 6-Watt
- \* The 5-Watt solar panel is almost HALF THE SIZE of other 5-watt panels yet offers full 5-watt power
- \* The smaller 5-watt panel provides more installation options
- \* The 6-watt model is ideal for emergency rescue and law enforcement vehicles because it has a unique rectangular solar panel designed to easily mount on any light bar
- \* 2- and 5-Watt models include 17-feet of wire between circuit box and solar panel, and the 6-Watt includes 14 feet of wire
- \* Five-year limited warranty

2WATT ..... P/N 11-07120 .....  
5WATT..... P/N 11-07121 .....

## REDIPULSE PRO-12 CHARGE/MAINTENANCE SYSTEM



The PulseTech Pro-12 Charge/Maintenance System. It is designed to keep new batteries "factory-fresh" while they rest on the shelf waiting to be installed or sold. Batteries that sit idle suffer from damaging sulfation buildup (lead sulfate deposits on the battery plates). This buildup is the main cause of battery problems and failure. The Pro-12 uses our scientifically-proven ReNew-IT Pulse Technology to keep these deposits off the plates. By removing these energy-dampening deposits, your batteries are stronger than ever. This means your "shelf-life" warranty issues and other battery-related expenses are reduced dramatically. P/N 11-07122.....

# START PAC® STARTERS - POWER SUPPLIES

## START PAC® PORTABLE STARTING UNITS

The new patent pending Start Pac QC models have separate removable batteries that can be changed in 15 seconds. This feature allows the user to change the batteries in the field without needing to send the Start Pac back to the shop or manufacturer. Batteries have no memory effect and can be recharged at anytime. Made in the USA. Certain aircraft will allow the ship's generator to back charge a GPU. In this manner, Start Pacs can be recharged in the field without an AC source indefinitely.

**NOTE:** When storing the Start Pac for more than 30 days, remove the battery pack from the charging unit and store separately.



**MODEL 1324-1 QC** - \* 13 AMP hours @ 10 Amp Hour Rate \* 1300 AMPS Peak Current complete with built in charger, power plug and cables. \* 15.5"x4"x11.75" \* 35 LBS. Complete \* Units are 24 VDC output with a universal charger that will accept 90-240 VAC 50/60 hertz. Will start turbine or piston engines up to 500 horse power.

Has a 4.5 amp charger and will provide a charge time of approx. 4 hours. Will give two to three starts between charges. This portable unit is mainly designed for emergency starting in remote locations. This unit is not designed for repeated daily starts or maintenance functions.

1324-1 QC .....P/N 11-04538 .....  
1324-1 QC-RBS (Battery Set) .....P/N 11-07231 .....



**MODEL 1324-2QC** - Complete with built in chargers, power plug and cables. Units are 24 VDC output with universal chargers that will accept 90- 240 VAC 50/60 hertz. \* 16 AMP hours @ 10 Amp Hour Rate \* 1400 AMPS Peak Current \* 19.2"x7.5"x9.75" \* 50 LBS. Complete.

Will start turbine or piston engines up to 800 horse power. This unit has dual 4 amp chargers and will provide a charge time of approx. 2 hours. Will give two to four starts between charges. This portable unit is mainly designed for emergency starting in remote locations. This unit is not designed for repeated daily starts or maintenance functions.

1324-2 QC .....P/N 11-04539 .....  
1324-2 QC-B (Batteries) .....P/N 11-06777 .....



**MODEL 2300 QC** - Built in chargers, power plug and cables. 24/26 VDC output, with universal chargers that will accept 90-240 VAC 50/60 hertz. \* 26 AMP hours @ 10 Hour Rate \* 2300 AMPS Peak Current \* Trolley avail. \* 19.2"x7.5"x11.5" \* 69 LBS. Complete. For starting engines up to 1500 horse power and give four to six starts between charges.

This unit has a dual redundant 4 amp chargers. When plugged into an AC source, 8 amps at 28VDC, is available for maintenance functions without depleting the batteries. Recharge time is approx. 3-1/2 hours.

2300 QC .....P/N 11-06780 .....  
2300QC-B (Batteries) .....P/N 11-06781 .....



**MODEL 1628QC** - Complete with built in chargers, power plug and cables. 28.5 VDC output, with universal chargers that will accept 90-240 VAC 50/60 hertz \* 16 AMP hours @ 10 Amp Hour Rate \* 1400 AMPS Peak Current \* 19.2"x7.5"x9.75" \* 54 LBS. Complete. Quicker more robust start due to its higher voltage. This unit utilizes dual 3.5 amp chargers for reliability with a recharge time of 2.5 hours. These units will give three to five starts between charges. Due to their lightweight and portability, these packs are especially suited for use in remote locations. Will start turbine engines up to 800 horsepower.

1628QC .....P/N 11-06778 .....  
1628 QC-B (Batteries) .....P/N 11-07187 .....



**MODEL 6028 QC** - Built in chargers, power plug and cables. Units are 28.5 VDC output, with universal chargers that will accept 90-240VAC 50/60 hertz. \* 26 AMP hours @ 10 Hour Rate \* 2300 AMPS Peak Current \* Trolley avail. \* 19.2"x7.5"x11.5" \* 77 LBS. Complete. Will start the largest electrically started turbine or piston engines including the Garrett TPE331. Will provide a faster and cooler start than most ship's aircraft batteries, thus increasing turbine life. Various maintenance duties can be performed with this pack that requires more than 24 volts for checkout. This unit has dual redundant chargers with a total of 7 amps output with a recharge time of approximately 4 hours.

6028 QC .....P/N 11-06783 .....  
6028 QC-B (Batteries) .....P/N 11-07189 .....



**MODEL Li2800 QC** - A full 28VDC battery pack and will provide superior starts on all electrically-started turbine engines. It has dual, redundant chargers with a total of 7 amps output and a recharge time of approximately 4 hours. \* 28 AMP hours @ 10 Hour Rate \* 2400 AMPS Peak Current \* L 19.2" x W 7.5" x H 9.75" \* 46 LBS. Complete. Utilizes the latest technology in Lithium batteries. (can be left in a completely discharged state without causing damage)

Li2800 QC .....P/N 11-06782 .....



**QUICK CHANGE TROLLEY** - The Start Pac® QC trolley is a light weight accessory for either the Start Pac® Models 1324-2QC, 1628QC, 2300QC or the 6028QC

P/N 11-06775 .....

## START PAC® POWER SUPPLIES

The entire aircraft electrical system can be powered up for GPS programming and electrical maintenance. Thus the on board aircraft battery can be saved for starting. Do not use for starting as starter motors require far more amperage than is available from the StartPac® Portable Power Supply. Not for battery charging. Made in the USA.



**MODEL 53025/12VC** - Do not cover or enclose this Start Pac® when using, as this will inhibit airflow needed for cooling purposes. Use a minimum of 12# wire size for the AC extension cord. 12 Volt output unit. \* AC INPUT: 90 to

240 VAC, 7 amps \* DC OUTPUT: 25 amps @ 14.2 Volts \* 9 Lbs./4.08 kilos complete \* 14" long, 5.25" wide, 5.5" high \* Continuous duty fan cooled \* Over current protection \* Over voltage protection \* Over temperature protection. Designed to power up 12 Volt aircraft systems. The voltage output is set to 14.2 Volts. Maximum amperage output is 50 amps which is adequate for most light aircraft. If overloaded, the 53025/12 will trip off and reset itself after a short period of time. This unit is ideal for powering up new and old aircraft with glass cockpits.

53025 - 12V .....P/N 11-04536 .....  
53025-24V .....P/N 11-04537 .....



**MODEL 53050** - Specifications: \* No duty cycle, output voltage 28.5 VDC \* AC input is universal 90-240 Volts. \* Over current protection \* Over voltage protection \* Over temperature protection \* Forced air-cooling \* DIMENSIONS: Wt. 10 lbs./4.54 kilos 14" X 5.25" X 5.50". A

28.5 Volt continuous DC power supply when plugged into 110/220 Volt single phase AC power. Will deliver full 50 amp DC output continuously, but will not provide enough current for aircraft engine starting or mining equipment starting.

53050 .....P/N 11-06833 .....



**MODEL 53105** - Specifications: \* Maximum continuous 105 amps +5%. No duty cycle. \* AC input 190-240 Volts. \* Over current protection. \* Over voltage protection. \* Over temperature protection. \* Forced air cooling. \* 8 foot power cable. \* Weights 26 lbs./11.80 kilos complete with power cable. \* 14.5"x7"x13.75". A 28.5 Volt continuous DC power supply when plugged into 220Volt single-phase AC power. Will deliver full 105 amp DC output, but will not provide enough current for engine starting.

53105 .....P/N 11-06834 .....



**MODEL 53300** - Specifications: \* Maximum continuous 300 amps +5%. No duty cycle \* AC Input: 190-240 Volts, 60 Amps \* Over current, voltage, and temperature protection \* Forced air cooling \* 10 foot power cable. Size: \* Weight: 120 lbs/54.4 kilos complete Dimensions: 38"L x 21"W x 20"H \* Handle height: 48". A 28.5 Volt continuous DC power supply when plugged into a 220 Volt single-phase AC power source.

53300 .....P/N 11-06835 .....



**START PAC® MINI CHARGER** - Specifications: \* 24 Volts \* 1.5 amps \* 90 to 260 Volt universal input \* Indicator light showing orange when charging, green when fully charged \* Has float mode, can be left connected indefinitely without harming the battery \* High tech, sophisticated electronic circuitry with microchips \* CE approved \* Will fully charge most lead acid aircraft batteries in 24 hours .....P/N 11-04535 .....

## START PAC® GROUND POWER UNITS

The following dimensions apply to each of the 3300s: 38"x21"x20" Handle Height 48". Avoid discharging the batteries completely as damage can result.



**MODEL 3324** - Combination power supply and battery pack. Batteries: \* 78 Amp Hours at 10 hour rate \* 24 Volt DC - 25.5 Volts at rest Sealed cells non- hazardous Valve regulated high amperage output lead acid \* 3200 Peak Amps Power supply / charger: \* Multi- unit 58 Amp DC continuous output \* 28 - 28.5 Volt output from 0 - 58 amp load \* Battery recharge time from fully discharged - 2 hours \* AC Input - 110 Volt or 220 Volts (only 1)

Limitations : 200 amps maximum DC load NOTE- When using more than 58 continuous amps, the batteries will make up the difference until they become depleted. On most aircraft, a low voltage relay will drop the GPU offline when the voltage drops below a preset level. Once the GPU is dropped off, it's voltage will rise and will be accepted again by the aircraft, then will immediately drop off again. This oscillation can cause damage to aircraft components. NOTE-- PLEASE USE #12 or Larger AC EXTENSION CORD

3324 .....P/N 11-07225 .....  
3324-RBS (Battery Set) .P/N 11-07234 .....



# AVTEK PRODUCTS – BATTERY CHARGERS

## AVTEK STANDBY ELECTRICAL SYSTEM



AVTek uses rechargeable, dependable, deep discharge batteries as the power source in its Standby Electrical System. They are sealed and maintenance free. Nothing can get out and there is nothing to add. They can't leak, because the acid is absorbed in the "Substrate" where gases are re-combined. These are very safe batteries in a ventilated enclosure box.

These are deep-discharge batteries, not like your 'WET-Acid' cold-cranking car battery, and unlike Nicads, there will never be a memory problem with lead acid. All the potential stored energy will be available to your dead panel. Power is delivered through the cigarette lighter. No power will be discharged through the cigarette lighter greater than what it takes to heat up the lighter element in the first place. AvTek's design is much more than a battery in a black box. AvTek uses a circuit board to control the power to the buss. This Smart board monitors the amperage demand at an efficient, reliable rate to insure a safe IFR descent. An uncontrolled portable battery connected to the cigarette lighter could smoke the panel, as with any home made project built without a controlling (PCB) Printed Circuit Board. AvTek's batteries are powerful. Clearly capable of delivering over 200 amps through the Cig plug, enough to start the engine if NOT controlled. PCB gives you protection while delivering reliable, dependable source of power for 60 mins. or longer to your IFR panel.

28V system ..... P/N 11-01262.....

## AVTEK ST ALERT ELECTRICAL FAILURE SYSTEM



An early warning detection system that is simple, flawless, & reliable. Detects alternator failure, broken/slipping belts, leaky diodes, regulator failure or if you forgot to turn OFF the master switch after tie down. Uses a reliable MicroCircuit and will never need repair. Has a pulsing red panel mounted LED that is larger and 15 times brighter than normal LEDs and will alert you at the first sign of trouble. Weighs only 1.5 oz. and installs quickly. The LED begins to pulse every time you first turn on the master switch and hit the starter key/button and will go out as the Alternator/Generator comes on so you know everything is alright before you depart. First Alert is now armed & ready to detect any in-flight electrical problems. Size: 3.25" length x 2" width x 1.25" height. Indicate your aircraft voltage when ordering.

P/N 11-01259.....

## AVTEK DIGITAL VOLTMETER

The AvTek digital voltmeter is portable and features an LCD display that pivots for viewing at any angle and under any lighting condition, from bright sun to night flights. Designed for 12/24V electrical systems.

P/N 11-01263.....

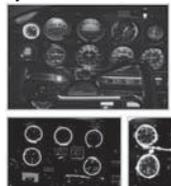
## AVTEK 3-WAY CIGARETTE LIGHTER SPLITTER



AvTek's cigarette lighter splitter accommodates 3 electronic devices. The AvTek unit is ridged and pivots in three directions to minimize clutter. Designed for 12 electrical systems.

P/N 11-01264.....

## AVTEK TEKLITEZ



It's amazing, you'll agree. Flexible thin clear Fiber, that is energized by the inverter designed by AvTek. The fiber needs 66VAC at a specific frequency which when energized develops this Cool-Blue-Neon, that is embedded in the substrate. The gas is NOT free flowing. The result is 360 degrees of the best instrument lighting you'll ever see. It's the specific frequency of the inverter that produces the color. Use your imagination and Light YOUR panel the way you want. Unlike other panel lighting that comes ONLY in round screw-on "White Light Filaments". Each five foot TekLitez Fiber is "Snap" connected at the inverter...you can purchase one or more...you can always add more in the future... 9 v Battery or you can connect to your buss...use your own dimmer. TekLitez allows you to illuminate Square instruments. Under the panel for better chart reading. Snap to install. The small thin E.L.F. is Super-Glued into place. The inverters is 2" cube, which goes anywhere behind the panel. Sold in 5 foot lengths per kit which will illuminate approx 5 or 6 large round instruments (includes inverter). Life expectancy is over 80,000 hours.

P/N 11-07169.....

## AVTEK BONDING AND GROUND KIT



Do your Panel Instruments Bounce and become erratic? Does your Starter turn your Engine SLOWLY and you have a new fully charged battery? Do you see an ugly corroded Battery Post soon after you clean the Post? These are symptoms of BAD Ground/Bonds. When the Resistive Corrosion is developed at the Starter the result is slow turning during starts. Mechanics miss-diagnosing the problem and a NEW Starter is purchased needlessly. Kit includes: \* FAA-APPROVAL \* Three (3) Jumper One for the panel, starter and your battery...and Aluminum Fasteners \* DVD step by step how to Power-Point Presentation \* Sealant . P/N 11-07359.....

## ROLL AROUND STARTER



Quick-start vehicles anywhere without AC power. On-board starter battery gives more cranking power than any fast charger, up to 1100 amps cold cranking power. Assists pilots where there is no power. Plugs into any AC outlets for rapid automatic recharging. Solid state circuitry monitors battery condition and maintains maximum state of charge. Patented "stop/go" light warns operator before making a reverse connection. Fully automatic, 10amp charger recharges starter battery or any on-board 12V battery. Will not overcharge. (Battery not supplied, recommended minimum 500 CCA) Features heavy duty 8 ft. long 4 AWG cables, 500 amp clamps, and flexi-spring cable guards. P/N 11-06127.....

## PORTABLE STARTER/ 400 AMP BOOST BATTERY



Features: 17 amp hour battery, Up to 50 hours of power, 400 cranking amps, 3ft. long - 4 gauge cables, 1000 peak amps, LEDs for battery state of charge, External charger, Overcharge protection, 400 amp clamps, Wt: 18 Lbs.

P/N 11-01382.....

## PORTABLE STARTER/ 600 AMP BOOST BATTERY



Features: High performance 17 amp hour battery, Up to 100 hours of power, 600 cranking amps, 32" long - 4 gauge cables, 1600 peak amps, LEDs for battery state of charge, External charger, Overcharge protection, 600 amp clamps, Wt: 20 Lbs. P/N 11-01383.....

## BATTERY TENDER CHARGER



### BATTERY TENDER PLUS - 6V @ 1.25A

12V @ 1.25A. The Battery Tender Plus is a 1.25 amp battery charger designed to fully charge a battery and maintain it at proper storage voltage without the damaging effects caused by trickle chargers. Included is a quick connect harness for hard to reach areas. **\*DO NOT USE P/N 11-03015 WITH GILL OR CONCORDE ALIATION BATTERIES.**

Voltage	Amp	Description	Part No.	Price
6Volt	1.25A	Battery Tender Charger	11-04085	
12Volt	1.25A	Battery Tender Charger	11-03157	



### POWER TENDER PLUS - 12V @ 5A 24V @ 2.5A

WATERPROOF, Shock & Vibration Resistant, Lightweight (LESS THAN 4 POUNDS), compact charger designed for either portable operation or permanent mounting. Charges and maintains both flooded and sealed, maintenance free, AGM, lead acid batteries. Float / Maintenance function maintains batteries at proper storage voltage without the damaging effects caused by trickled chargers. The Power Tender PLUS is easy to use, it's rugged, its compact, it's packed with power, and it's backed by the reputation of the undisputed battery charger industry leader, DELTRAN. Note: Part does not come the Alligator clips. PN 11-06403. Note: For 24Volt (PN# 11-03015) Is not for use with Gill or Concord Batteries.

Voltage	Amp	Description	Part No.	Price
12Volt	5A	Power Tender Plus	11-03016	
24Volt	2.5A	Power Tender Plus	11-03015	

Power Tender Alligator Clip ..... P/N 11-06403.....

## BATTERY TENDER JUNIOR



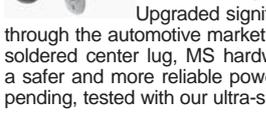
120 VAC /60 Hz input. Includes Ring Terminals and Alligator Clips with BLACK (6V & 12V) QDC. 6V, .750 Amps. P/N 11-05163 ..... 12V, .750Amps ..... P/N 11-05164.....

## CIGARETTE LIGHTER RECEPTACLE



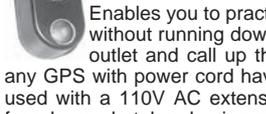
This 12V female cigarette lighter receptacle is made from stainless steel and is ideal or homebuilt panels. 292568. P/N 11-01294.....

## LONESTAR DC CIGARETTE LIGHTER RECEPTACLE



Upgraded significantly over the commercial parts available through the automotive market. Include a high amperage ceramic, internal soldered center lug, MS hardware, heat shrinkable terminals to produce a safer and more reliable power connections to your aircraft's buss. TSO pending, tested with our ultra-small converters. P/N 11-04862.....

## GARHAWK CV500 AC-DC CONVERTER FOR GPS PRACTICE



Enables you to practice with your GPS at home or at the office without running down expensive batteries. Plug into any 110V outlet and call up the simulator mode on your GPS. Powers any GPS with power cord having a cigarette lighter plug, and it can be used with a 110V AC extension cord. Ideal for powering a cel phone from home, hotel, or business. P/N 11-00426.....

EL

# GROUND STARTING COMPONENTS

## AIRCRAFT JUMPER CABLES

Cable is heavy duty, 4 ga. copper, 15 ft. long, twin extruded to help prevent tangling, and room temperature flexible at 40 degrees below zero. Fully insulated clamps wont arc or spark and are rated 500 amps, have a solid copper jaw, and have a flexispring strain relief to prevent cable breakage. Polarity light warns if clamps are connected incorrectly, preventing electrical system damage and personal injury. Available in two styles (above).



**6141** - Jumper Cable with standard 3-pin Lexan female plug (equivalent to AN2551) on one end and alligator clamps on other end.  
P/N 6141 .....



**6142** - Jumper Cable with special Piper single-pin plug on one end and alligator-clamps on other end.  
P/N 6142 .....

## REPLACEMENT PAIR OF 500 AMP CLAMPS

Used on #6141 and #6142 jumper cables. (above)  
P/N 11-06202 .....



## JUMPER PLUG

Standard 3-pin female plug equivalent to AN2551 plug. Red Lexan construction is unbreakable and screws together in minutes. Sleeves are solid copper, silver plated. With solenoid pin. Corrosion proof. Mates with AN2552-3A external power receptacle. P/N 11-03158 .....



## WOODEN PLUG

Solid laminated ash plug with brass female sleeves. Functions same as AN2551 plug. Add cables and alligator clamps for economical ground starting cables. No soldering required. Solenoid activator element in small hole.  
P/N 11-00400 .....



## PIPER TYPE PLUG

Mates with 11041 socket. Electrical conductors and connections are designed for maximum efficiency and long life. With ground return terminal. Single pole. Brass female contact with spring-grip tension provides solid engagement with the socket. Cable clamp holds wires firmly in place. Diecast housing. Accepts up to 0AWG cable.  
P/N 11-03159 .....



## PIPER TYPE SOCKET

Self-grounding socket. Single pole. Diecast housing, spring-loaded door. Solid brass contact, 3/8" (9.5mm) diameter, with insulated tip to prevent short circuits. Rubber boot protects terminals and connections. Accepts up to 0AWG cable. Fits 2" (50.8mm) diameter hole. Flange holes 21/64" (8.6mm) diameter, 2 15/16" (74.6mm) on centers. Mates with 11042 plug.  
P/N 11-00500 .....



## EXTERNAL POWER RECEPTACLE

This external power receptacle is designed to mount in a hole in the skin of aircraft. Hole is then covered with hinged access door (not included). Mates with AN2551 type plugs. Model 4621B.  
P/N AN2552-3A .....



## PLUG & JUMP

The Plug & Jump is a very portable unit which can be carried in the aircraft at all times because it is so lightweight. It can be used to start the aircraft from an ordinary car using standard jumper cables. It comes in two models; The Universal Model is used for Cessna, Beechcraft, etc. (3 pin plug) and the Piper Model is a single pin. The Plug and Jump is a simple conduit of power from any external power source to the aircraft. It is not a battery in and of itself. The Plug n Jump can be used for either 28V or 14V systems.  
Universal Model ..... 11-00971 .....



Piper Model ..... 11-00972 .....

## MASTER RELAY

(Battery Solenoid) - Used on production aircraft. Applicable to all homebuilts. Continuous duty. 12V and 24V  
111-226 (12V) ..... P/N 11-03161 .....



111-226 (24V) ..... P/N 11-05799 .....

## STARTER RELAY

(Starter Solenoid) - For 12V intermittent duty. Adequate current capacity for most engines. P/N 11-03162 .....



## SOLENOID DIODE

Contact diode with 16 inches of lead wire. Install on any contactor, solenoid, or relay, or in certain situations - switches to prevent EMF damage to electronic equipment. Connect the ring terminal end to the trigger wire on the device and the other end to a ground point. .... P/N 11-06697 .....



## PORTABLE POWER SUPPLY



These portable power supplies are an excellent way to power your avionics on the ground while you train or practice in the cockpit. Especially helpful in learning how to operate glass cockpit avionics and panel mount GPS units. To use the

Portable Power Supply plug the cord into an AC wall outlet, and then connect the 3-pin or Piper style plug into the external power receptacle on your aircraft. Furnished with Cessna style 3-pin plug or round Piper style plug. Manufactured in U.S.A.

**Features:** •Charge control: constant current charge to a constant voltage then to a float standby. •Current Limiting. • Fully automatic 3 stage charger can be left on the battery in maintaining/float mode. •Can be set for any type lead acid battery, including conventional, maintenance free, deep cycle, gelled-type, valve regulated batteries. •Cyclic Voltage: 2.5 volts/cell for 24 volt batteries; 2.6 volts/cell for 36 & 48 volt batteries. • May be preset to customer's specification for battery type. •Continuous - 100% duty cycle. •Low voltage start: will start charging a deeply discharged battery with terminal voltage less than 4 volts. •Reverse polarity and short circuit proof. •Aluminum case.

12V Port Power Supply 3 Pin Plug ..... P/N 11-05084 .....

12V Port Power Supply Piper ..... P/N 11-05085 .....

24V Port Power Supply 3 Pin Plug ..... P/N 11-05086 .....

24V Port Power Supply Piper ..... P/N 11-05087 .....

## BYCAN 28V/100AMP APU



The Bycan APU will furnish up to 100 amps at 28 VDC. it plugs into the APU connector on the engine cowling and automatically disconnects the battery so that it will not be drained by the servicing process. A valuable ramp accessory.

Description	Part No.	Price
28V, 100AMP Power Supply - Standard Plug	11-07822	.
28V, 100 AMP Power Supply - Piper Plug	11-07823	.
28V, 100 AMP Power Supply - Pilatus PC-12	11-07824	.
28V, 100 AMP Power Supply - Eclipse E-500	11-07825	.

## RED BARON AUXILIARY POWER UNIT (APU)



The Bycan RB-14/28-25 Red Baron APU is designed to operate avionics equipment in private and commercial aircraft. It will output 14 or 28 volts DC at up to 25 amperes. The voltage is filtered to eliminate hum and is regulated against input AC line voltage changes. The output DC voltage and current are displayed on front panel meters. The DC is also protected by a circuit breaker. The RB-14/28-25 plugs directly into the APU receptacle on the aircraft. It comes equipped with either the standard three-prong connector or the Piper coaxial connector. Both connectors can be supplied, optionally at a slight extra cost. DC cable length is 8'. The AC line cord is normally 8' in length, but special lengths up to 50' are available. The housing is steel, powder coated in red, for optimum flight line safety. Rubber feet and handle are included.

**Features:** • AC Line Voltage: 115v, 60 Hz • AC Current Drain: 7 amperes Max • DC Output: 14 or 28 volts, up to 25 amperes. • Weight: 35 lbs (16 Kg) maximum • Size: 10" x 8" x 8" (25 x 20 x 20 cm) • Warranty: Two years from date of purchase • Regulation: 13.75V ± 1.5v, 27.5V ± 2.5v.  
Standard Connector ..... P/N 11-02142 .....

Piper Connector ..... P/N 11-02143 .....

## THE BLUE ANGEL AIRCRAFT POWER SUPPLY



The Bycan BA-14/2850 Aircraft Ramp Power Supply and Battery Charger is a multi-purpose aircraft flight line service and maintenance tool. The unit has a filtered 14 & 28 volt DC power supply with up to 50 amperes capability for tests of aircraft electrical systems and a secondary mode for recharging run-down batteries. This ramp or hangar accessory is an absolute must for avionics service, gear and flap actuator exercising and other electrical system service. The BA-14/2850 plugs directly into the aircraft APU connector and is tied to the electrical system when the master switch is activated. Selection of output voltage is by a front panel switch which is protected by a switch guard. Closing the guard forces the switch to the 14 volt position. The battery charging mode is selectable by a front panel switch. The charging process is fully automatic. When the charge is in progress a red LED is illuminated. This is replaced by a green LED when the aircraft battery is fully charged. The on/off switch on the unit also resets the unit.

Piper & Cessna Plugs 110V (Two Adapters)... P/N 11-06390 .....

Piper & Cessna Plugs 220V (Two Adapters)... P/N 11-06391 .....

Cessna Plug 110V (One Adapter) ..... P/N 11-06392 .....

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# VOLTAGE CONVERTERS – POWER PANELS



## SS-6 CHARGE CONTROLLER

Mornigstar's superior series switching provides many advantages compared to shunt controllers. Series regulation reduces FET heating and lowers voltage stress on the power FET's. A series configuration also improves protection against lightning surges and reduces switching noise. The series design improves charging accuracy. In PWM, series switching becomes self-correcting for temperature and system voltage drops.

P/N 11-04618 .....

## DC1428A VOLTAGE CONVERTER

The DC1428A is a switching DC-DC converter. Input voltage is typically 12 to 14V, but the converter will operate over a wide range of input voltage. Output voltage is 28V. The input current is limited at 10 amps, so that available output current depends on input voltage. Provide 3.2 amps out at 28V with 12V input, and provides 3.7 amps out with a 14V input. When current draw begins to exceed these limits, the output as avionics equipment designed to operate at 28V will usually operate down to 18V. However, it is still best to limit 28V loads to 3.2 amps. For multiple 28V loads of approximately 3 amps each, additional DC1428A units can be installed for each load. Ideal for providing a 28V product in a 14V aircraft. Size: 6"x 4.75"x 2.2" Wt: 1.5 lbs.

P/N 11-11685 .....

## LONE STAR VOLTAGE CONVERTERS

Lone Star Aviation's new 12V STEP-UP Converter is the smallest (3" x5" x 2"), most efficient (93-95%) and the most versatile STEP-UP aircraft converter in our industry today. RTCA/DO 160D tested to operate 28V NAC/COM radio equipment such as KX 155, KX 165, KY 196A, KY 196B, and Motorola VHF transceivers on 12V aircraft. Additional 28V electronic devices are HSI, cameras, audio panels, battery backup systems, etc. FAA Approved Under TSO-C71 Now Approved LS03-05002B-MS Features: \* Ultra-Small size 2.5" x 4.5" x 2.0" \* 93-95% Efficiency rating \* Light Weight 275 grams / 0.606 lbs \* Optional Connector: MS 3102 Receptacle \* Potentiometer for output adjustments \* Universal Mounting \* LED Status Indicators \* Operating Temp: -55C to +70C \* Circuit Protection: OV, UV, SC, SP, RP, OC \* Regulation Load: +/- .5% \* Ripple Input/Output: 20-25mVp-p \* Transient response time .5 ms \* Easy Installation \* FAA TSO-C71 Approved (Pending)  
14VDC to 28VDC Converter .....P/N 11-02888  
24VDC to 12VDC Converter .....P/N 11-03309  
Connector Kit 5 Pin DB Style .....P/N 11-06001

## DC/AC INVERTER

This classic DC to AC solid-state "peanut" inverter provides a reliable source of 26 volt, 400 Hz, AC power. Versatile, compact and lightweight, it is ideal for use with Stormscope bootstrap and multifunction display installations. Specifications: \* Input: 28VDC @ 0.75 amp. (MD26-28) \* 14VDC @ .150 amp. (MD26-14). \* Output: 26 VAC, 400 Hz, Single Phase, 10 volt-amperes  
MD26-14V Inverter .....P/N MD26-14  
MD26-28V Inverter .....P/N11-07062

**Specifications for 14 to 28** : • Input Voltage: 10-15 VDC • Output Voltage: 27.5 VDC • Efficiency: 87% (13.5 VDC @ 5A) • Short Circuit: Auto Recovery • Over Voltage: 15 VDC Max • Altitude: 50,000 Ft. • Over Current : 110-140% > 5A Auto Recovery • Terminal Block: (5) Phillips Pan Head Screws • MTBF: 100,000 Hrs./According to Mil HBK 217F • Output Current: 5 A (144w) Cont. 7.5A Peak • Temp.: -55C to (+) 71C • TSO Category: Category A

**Specifications for 24 to 12** : • Input Voltage: 22-32 VDC • Output Voltage: 13.8 VDC • Efficiency: 89% (24 VDC @ Full Load) • Regulation: Line-Load = .03 VDC • Ripple: .005 Volts at 400hz • Altitude: 50,000 Ft. • Over Current : 110-140% > 5A Auto Recovery • Terminal Block: (5) Phillips Pan Head Screws • MTBF: 100,000 Hrs./According to Mil HBK 217F • Output Current: 10 A, 12 A Peak at 13.8 VDC • Temp.: -55C to (+) 70C • TSO Category: Category A

## HIGH/LOW VOLTAGE WARNING INDICATOR

This warning indicator device drives an instrument panel mounted warning light which provides an indication of abnormal buss voltage. A flashing light indicates a buss voltage greater than 15.5VDC. A steady light indicates a buss voltage below 12.5 volts DC. The weight of the device is 4.5 oz. and operating voltage is 9 to 20 volts DC. Operating current exclusive of lamp load is 0.1 amps. Lamp load: .02 amps maximum. The sensor requires very little power. Consider using an existing breaker of fuse instead of adding a new one. Do not power from a circuit protected more than 5 amps. 22 AWG wire is recommended for all connections. Recommended lamp fixture (not included) should have transparent yellow or amber lens.  
P/N 07-06830 .....

## LONESTAR THE ELIMINATOR

The Eliminator is a low pass double (LC) PI type filter designed to suppress both low and high frequency line noise. The filter may be connected at the source of the noise or on the input of the effected component.  
P/N 11-08055 .....

## VERTICAL POWER VP-200 AND VP-200 DUO



The VP-200 brings modern technology to the experimental aviation community to reduce wiring complexity, reduce pilot workload, and increase pilot awareness and safety. It is built using the latest technology, yet is based on time-honored electrical architectures. The system provides device switching and circuit protection, overall electrical systems management, engine monitoring, and advanced checklist functionality.

The VP-200 Series of products includes the VP-200 and the VP-200 Duo. Both are based on the same technology platform, and offer different levels of redundancy. The VP-200 Duo includes a second Control Unit which allows additional switching and control capability. It additionally supports a dual independent bus, dual alternator electrical configuration.

**Modes** - The VP-200 Series products operate around the idea of Modes. A Mode is a specific phase of ground or flight operations. It provides a method by which to organize and clarify all of the various activities that must occur during normal operations. Using proprietary algorithms, the VP-200 takes inputs from aircraft engine data and GPS data and determines which one of ten Modes the aircraft is in. These Modes are defined as Pre-flight, Before-Start, Start, After-Start, Taxi, Run-up, Take-off/Climb, Cruise, Landing, and Maneuver. While this may seem like a new concept, you do it every time you fly. As a safe pilot, you are trained to do the same things every time you fly. By its very nature, flying lends itself to automating routine tasks that are done over and over every flight. Much of your routine workload is offloaded to the VP-200 allowing you to focus on flying the aircraft. Also, pilots are usually control freaks. With that in mind, the VP-200 allows you to override automatic settings when necessary (for example, manually turning on the landing light or turning off the strobes). It also tells you exactly what it is doing and provides a real-time status display of all your electrical devices.

For each Mode, the user can:

1. Define what devices (lights, radios, etc.) are turned on and off for each Mode.
2. Organize the display of engine instruments to optimize/de-clutter for that Mode (you may want to see different things during start than during cruise).
3. Configure what checklists to show at each Mode change (checklist items are user configurable).

Everything on traditionally-wired aircraft must be turned on or off manually, including lights, pitot heat, lighting, landing lights, fuel pumps, etc. You may use checklists to ensure you do not forget anything. Contrast this with recent advances in automobile technology where one finds automatic lights, windshield wipers, climate control, systems monitoring, integrated console functions, and so on. Often, when your workload is heavy or when you are distracted, items on the checklist are missed. Further, the very act of going through the checklist distracts you from the task of flying the plane itself, talking to air traffic controllers, and looking out for other traffic. **Specifications:** Operating Voltage: 4 volts - 32 volts normal operations, 40v for 1 second, 60v for 100 ms , Operating Temperature Range: -25 to +70 deg C, Storage Temperature Range: -30 to + 85 deg C. Control Unit: 2.5 lbs. Display Unit: 1.8 lbs. Switch Panel: 0.9 lbs

Description	Part No.	Price
Vertical Power VP-200	11-06375	.
Vertical Power VP-200 DUO	11-06376	.
Vertical Power Climate Control System Option	11-06377	.
Vertical Power Turbine Support	11-06378	.
ACCESSORIES		
Description	Part No.	Price
Vertical Power VP-200 Harness	11-06380	.
Vertical Power VP-200 DUO Harness	11-06381	.

## VERTICAL POWER VP-50



It brings modern technology to experimental aircraft to simplify wiring and provide advanced electrical system capabilities. It replaces switches, circuit breakers, indicators, voltage alarms,

trim relays, shunts, voltage converters and a host of other products. Plus, it makes wiring a modern electrical system simpler than traditional antiquated alternatives.

The VP-50 installs in your instrument panel and provides eight switches to control the avionics and trim system. It supports a single bus, single or dual-battery, single or dual-alternator electrical configuration. The lighted liquid-crystal display shows overvoltage and under-voltage alerts, short-circuit and over-current alerts, trim position, current draw of the system and individual devices, and bus voltage.

It is built using the latest technology, yet is based on time-honored electrical architectures. The system has the flexibility to adapt to each unique aircraft.

Vertical Power VP-50 .....P/N 11-06374 .....

Vertical Power VP-50 Harness .....P/N 11-06379 .....

# VOLTAGE CONVERTERS - POWER PANELS

## AMERI-KING AK550 POWER BOOSTER

The Ameri-King AK-550 is a FAA TSO'd approved Regulated DC to DC Power Booster Converter. It transforms an unregulated input from a 12 Vdc to a regulated +28 Vdc output to a bootstrap mode. It may be installed in a pressurized area, controlled or non-controlled temperature at altitudes up to 55,000 feet. It's locations include Electrical/Avionic equipment rack, behind or beneath aircraft panel, or cabin pressure bulkhead. Installation is extremely simple. All necessary Accessories are provided, including mating MS connector plug and MS cable clamp.

- AK-550-6C (6 amp) ..... P/N 11-00064 .....
- AK-550-12 (12 amp) ..... P/N 11-01453 .....
- AK-550-24 (24 amp) ..... P/N 11-01454 .....

## AMERI-KING DC / DC CONVERTER

The Ameri-King AK551 is a FAA TSO'd approved Regulated DC to DC Power Reducer Converter. It transforms an unregulated input from a 24Vdc battery to a regulated +13.8 Vdc output in a Reducer mode. Applications include critical communication navigation digital Equipment: AM/FM/CD receivers; it may be installed in pressurized or non pressurized area, controlled or noncontrolled temperature at altitude up to 55,000 feet. It's locations include Electrical/Avionic equipment rack, behind or beneath aircraft panel, or cabin pressure bulkhead. Mating connector plug is provided.

- AK-551-9 (9 amp) ..... P/N 11-00066 .....
- AK-551-18 (18 amp) ..... P/N 11-01455 .....
- AK-551-40M (40 amp) ..... P/N 11-01456 .....

## 28 VDC MINI INVERTER

This mini inverter converts 28VDC to 115VAC 60Hz output 9mod.Sine Wave). Excellent for enabling use of a laptop or similar unit that has a wall plug. For 28 volt aircraft. Size: 6.06"L x 2.87"W x 1.77"H. Wt: 1.08 lbs. Not FAA Approved. Lightweight and compact, user replaceable fuse, 150VA continuous output, 200VA peak power for 5 min., 400VA surge power, overload protection, short circuit prot., 1 yr warranty. P/N 11-02029 .....

## DELUXE COCKPIT VOLTAGE CONVERTER

DC-DC Converter, Device to reduce voltage from 28V to 12V. Allowing the user to operate 12V items in a 28/24V airplane. The device is fully electronic, no passive elements generating heat. It is fully protected and fused. A green LED indicates normal and abnormal conditions (overload). The unit is enclosed in a small precision machined aluminum box with integrated heatsink. Input is via a fused lighter plug and output is via a female light receptacle. Size: 1.3"x 1.3"x 2.3"; Weight: approx. 5.0 oz. 3 AMP.28-12V DC-DC Converter..... P/N 11-04330.....

10 AMP.28-12V DC-DC Converter..... P/N 11-04331.....

**Y-COUPLER** - Heavy duty device that allows user to split the output of their cigarette lighter outlet in their airplane or to be used in conjunction with one of the above Cockpit Voltage Converters (running multiple items of one converter). This device is fuse protected (6.0A)

O2YC Y-Coupler..... P/N 11-00401 .....

**IN ERTER** - A device to produce Alternating Current out of a Direct Current Source. This device will generate 110V AC from a 28/24V DC Source (load limit is 150W continuous, 200W peak). Plug it in to your airplane lighter receptacle and have a household 110V AC outlet. This device is fuse and electronically protected against overload, over temperature, over and under voltage. Dims: 1.77"x 2.87"x 6.06"; Wt: 12.77 oz. 110I 28-110V Inverter..... P/N 11-00402.....

## LONESTAR FEED THRU FILTER

Lone Star Aviation's 50 amp filter (FEED THRU) attenuates EMI-RFI noise generated from fuel pumps, ignition systems, dc motors, autopilots systems, etc. The 50 amp (feed thru) filter also can be used to filter ac noise from power lines on autopilots, instrumentation, audio panels, as well as other on board dc equipment effected by noise..... P/N 11-04851 .....

## LONESTAR FILTER 70 AMP

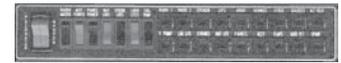
Lone Star Aviation's 70 amp filter attenuates EMI-RFI noise generated from alternator, generator systems, gear motors, blowers for a/c systems and other higher current noise sources. The 70 amp filter also can be used to filter the aircraft's avionics buss to filter RF, NAV, GPS, as well as other navigational equipment. The filter is FAA- PMA for certificated aircraft as well as for experimental aircraft. P/N 11-04849 .....

## LONESTAR FILTER 100 AMP

Lone Star Aviation's 100 amp filter (FEED THRU) (Fail Safe Design) attenuates both low and high frequency, (10hz to 30 mhz) of EMI-RFI noise generated from the aircraft's alternator systems to the aircraft's dc buss. This filter, (100 amp Fail Safe design) is used by OEM aircraft manufacturers to attenuate 100% of the on board noise before it penetrates the aircraft's dc buss. The filter is FAA- PMA pending for certificated aircraft but can be used on experimental aircraft. P/N 11-04850 .....

## POWER PANELS FOR HOMEBUILTS

### Homebuilder's Power Panel



### Mini Power Panel

Self contained power distribution systems that include commonly used switches and circuit breakers. Based on a heavy duty printed circuit board that eliminates the bus bars and provides a user serviceable and logical arrangement of all power system components. Only DC rated switches and quality resettable thermal circuit breakers are utilized. Connections to the panels are via screw type terminal blocks that are neatly labeled and organized for simple wiring. The avionics 'sub' bus is filtered to protect electronics and suppress noise in the aircraft communication systems. All metal parts are stamped aluminum, the face plate artwork utilizes a Lexan overlay material that is both attractive and durable. Complete documentation and suggested wiring diagrams are included.

**Standard Power Panel: 8 Switches:** Fuel Pump, Landing Light, Strobe Lights, Navigation Lights, Panel Power, Pitot Heat, Radio Master, and a Cessna type split master switch for master solenoid and alternator field control. **18 Circuit Breakers:** Fuel Pump, Landing Light, Strobes, Nav Lights, Panel Power, Pitot, Alternator Field, Gyros, Gauges, Trim, and Spare, (on Radio Bus) Radio1, Radio 2, GPS, Transponder, Audio, Avionics. **Dims & Wt:** 2.25"H x 13.00"W x 7.50"D, approximately 3.0 lbs.

**Mini Power Panel: 6 Switches:** (main panel) Fuel Pump, Landing Light, Strobe Lights, Navigation Lights, Panel Power, (side panel) has a Cessna type split master switch for master solenoid and alternator field control. **13 Circuit Breakers:** Fuel Pump, Landing Light, Strobes, Nav Lights, Panel Power, Engine Instruments, & Spare, (on Radio Bus) Radio1, Radio 2, GPS, Transponder, Avionics, (side panel) 30 amp alternator output breaker. **Dims & Wt:** (main panel) 2.375"H x 8.375"W x 6.50"D, (side panel) 2.375"h x 2.5"w x 2.0"d, approximately 2.5 lbs.

- Homebuilders Panel ..... P/N 11-11675 ..... ea
- Mini Power Panel..... P/N 11-11680 ..... ea

## EXP BUS PRODUCTS



EX-110  
P/N 11-00430

**EXP TRAY EX-110** - the EXP BUS mounting tray is the ultimate in quick build time savings. The tray comes Pre-punched, and pre-assembled with rocker switches prewired to the PC board. All the builder needs to do is to cut a single rectangular hole in the panel, connect the battery, alternator, and all of the load wires to the proper terminals on the EXP BUS2 PC board mounted in the chassis. 14V DC systems (not recommended for 28V aircraft). Replaces all but one circuit breaker in most homebuilt aircraft, and includes the master switch, master relay, and the avionics master switch. The avionics output bus provides six protected circuits, and automatically shuts off when the starter is engaged. Three master bus outputs operate items such as panel lights, gyros and engine instruments. Switched outputs include the alternator field, Beacon/Strobe output, nav light output, aux fuel pump output, two landing light outputs, and two spares. All outputs are overload protected, eliminating the need for fuses or circuit breakers, and saving the labor of installing and wiring them up.

P/N 11-00430 .....



EXP-2  
P/N 11-00431

**EXP 2** - the Expbus II is a lifesaver when wiring up your homebuilt project. The EXPBUS II is a complete electrical system on a special high current, printed circuit board. 14V DC systems (not recommended for 28V aircraft) For a small additional charge, we can configure your board with any size (1 to 11 amps) breakers in any position. Size: 7.8" long by 3" deep by 1.9" tall. Weight 0.8 lbs. P/N 11-00431 .....



IND-2  
P/N 11-00432

**IND 2** - Annunciators for each solid state breaker on the EXP BUS \* Over and undervoltage warning lights \* Ammeter display \* Instrument light dimmer circuit \* Single ribbon cable installation to EXP BUS. The Indicator module is an accessory for the EXP BUS DC LOAD CENTER. This optional accessory provides several enhancements to the basic load center, all mounted in a small panel mount module, 4.6 inches long, and 2 inches wide. The module extends 2 inches in depth, behind the panel. The module provides an annunciator output for each fused output on the LOAD CENTER, which illuminates if the circuit is tripped. It also provides OVER and UNDER VOLTAGE annunciators, an AMP-METER indicator, and a light dimmer circuit for the instrument lights.

P/N 11-00432 .....



BRKT 2

**BRKT 2** - Mounting brackets to simplify mounting the PC board in the aircraft. Put things where you want them to be. Free Shipping on this item.

P/N 11-00433 .....

**E P BUS** Back-up Battery..... P/N 11-07115 .....

# STICK GRIPS

## INFINITY MILITARY STICK GRIPS



Infinity Aerospace designed these grips with safety, comfort, functionality, durability and aesthetics in mind. The ergonomic design is contoured to the shape of your fingers and includes a fatigue reducing hand rest at the base. The non-glare matte black finish is abrasion and impact resistant for long life, yet easily removable, maintainable & repairable. Matching customized right & left hand models available. All the major cockpit functions can be at your finger tips. Thousands have already been installed in over 50 models of aircraft (even a 314 ft custom Yacht and a submarine!) FAA certified in the new Micco and Eagle FAA certified aircraft, field approved in Bell 206, Hughes 500 and Hiller helicopters, Aero Commander 500 A's, Mooney's, Cessna's, Swift's and in blimps. Standard issue in several of today's finer Sport Aircraft Kits. Features: • 6" long • fits stick OD's from 5/8" to 1-1/4" • Includes 3 ft of shielded cable w/17 conductors. Color coded pre-wiring & installation schematic • Made from lightweight high impact, durable high temp. tolerant flame retardant & flash resistant injected ABS material • Wt: 12 oz. • Easy removal for maintenance, customizing or repair. Possible Switch Functions: • 2-Axis Trim Switch: Pitch & Aileron or Pitch & Rudder or Step frequencies and/or flip-flop frequencies and/or transponder ident.; or sweep spotlights, cameras, computer cursors, etc.; • Red Trigger Switch: Push-To-Talk (PTT); or 35mm camera, video camera, audio recorder, etc.; • ON/OFF Tactical Push-Buttons: Main fuel pump, aux fuel pump, landing light(s), taxi light(s), nav lights, strobe lights, pitot heat, ident., etc. Four of the switches can be changed to Normally Open (NO) or Normally Closed (NC) momentary push-button for transponder ident., auto-pilot disconnect or flight management control. Also, a spring loaded-to-center and/or an ON/Center OFF/Momentary ON toggle switch can be installed to operate flaps, speed brake(s), spoilers, cowl flap(s), rudder trim, aileron trim, etc.

Description	Part No.	Price
Military Stick Grip A/C with Flap/Brake (Right)	11-00031	.
Military Stick Grip A/C with Flap/Brake (Left)	11-00032	.
Military Stick Grip A/C without Flap/Brake (R)	11-00033	.
Military Stick Grip A/C without Flap/Brake (L)	11-00034	.
Military Stick Grip with Spoilers (Right)	11-00036	.
Military Stick Grip with Spoilers (Left)	11-00667	.
<b>Replacement Switches for extra customizing:</b>		
Momentary push-button switch	11-00218	.
ON/OFF (8636) SPDT push-button	11-00219	.
Toggle [spring loaded-to-center – ON/OFF/ON]	11-00220	.
Toggle [ON/Center OFF/Momentary ON–ON/OFF/ON]	11-00221	.
<b>Spacers/Adapters:</b>		
1" OD x 3/4" ID (i.e.-for Lancairs & canard tubes)	11-00222	.
1" OD x 7/8" ID (i.e.-for Glasairs & RV co-pilot tubes)	11-00223	.
Infinity Switch with China Hat (Right)	11-04757	.

## TEAK WOOD CUSTOM PISTOL GRIPS



Teak wood is beautiful and absorbs sweat, preventing any sticky slime build-up. The grips come in standard, master and ultra styles in left & right hand. The standard grip comes with a push button on top with special dust-proof cover. Normally used for a push-to-talk button, open switch and good for 250,000 cycles min. The master grip has a larger head to accommodate a 4-way trim switch & push-to-talk button. The trim switch is the same one used with the M.A.C. systems. The ultra grip has a larger surface to accommodate the 4-way trim and auto-pilot and/or air brake with the push-to-talk located near the tip of the index finger. The ultra can handle a total of four switches, when using the air brake, in its head. Configurations can also be custom designed. All grips come with buttons and 3/4" or 1" standard bore. Larger bores available.

Description	P/N	Price	Description	P/N	Price
3/4" Standard (Right)	11-02910	.	1" Standard (Right)	11-02910-1	.
3/4" Standard (Left)	11-02915	.	1" Standard (Left)	11-02915-1	.
3/4" Master (Right)	11-02920	.	1" Master (Right)	11-00067	.
3/4" Master (Left)	11-02925	.	1" Master (Left)	11-02925	.
			3/4" Ultra (Right)	11-02930	.
			3/4" Ultra (Left)	11-02935	.

## RAC STICK GRIPS



G101 G205 G207

Ray Allen Company G1 and G2 series stick grips use modern, flush fitting push-button switches to control one or two axis electric trim. When one grip is used, these switches can be wired directly to RAC trim servos. This eliminates the need to wire relays in your trim system. However, if two grips are used, you will need either relays for the control of trims from one grip to the other. The grip itself is made of semi-soft UV and oil resistant foam. The upper switch housing is made of nylon with a lightly textured finish.

The **G101** grip (4.75" height) features a momentary contact switch on top that can be used as a PTT button. (Old MAC Model G1)  
P/N 11-09930 .....

The **G205** grip (5.25" height) has 5 functions which include a PTT and a 4 SPDT, momentary contact switches. These switches are rated at 5 amps and can be used for other purposes. (Old MAC Model G5)  
P/N 11-09920 .....

The **G207** grip (5.4" height) has to additional momentary contact push-button switches mounted on top that can be used for controlling functions on avionics, auto-pilot, etc. (Old MAC Model G7)  
P/N 11-09925 .....

The **G303** stick grip has two trim switches, a faceplate slotted vertically for 1-axis trim and a PTT switch. P/N 11-02538 .....

The **G305** stick grip has 4 trim switches, a faceplate slotted vertically and horizontal for 2-axis trim and PTT switch. P/N 11-02539 .....

The **G307** stick grip has 4 trim switches, a faceplate slotted vertically and horizontal for 2-axis trim and PTT switch. P/N 11-02540 .....

Ray Allen stick grips are designed to fit any stick size up to 1" in diameter with the use of spacers. Two nylon spacer are included with each grip enabling easy installation on 3/4", 7/8" and 1" sticks. All Ray Allen grips come as a complete kit and include pre-cut and stripped, Teflon insulated wire. A die-cut label sheet is also supplied in the **G205** and **G207** grips

## FLIGHT GRIP



#2 #4

The control stick grips from Flight Grip are modular in design to allow maximum flexibility when specifying switches to control the various electrical items on your aircraft and for ease of installation and assembly. Two "off-the-shelf" configurations are listed below. The Model #2 grip provides for control of two functions using the rocker trigger switch. The trigger switch features momentary contact either side of center, with spring return to center OFF action. The Model #4 grip is the same as the Model #2, but adds two push-button switches for thumb activation in the top cap of the grip. The switch mounted closest to the thumb rest is a latching type (push on – push off), and the remaining switch is a momentary type. Left hand grips are available with all the same switch options. Grips are designed to fit 1-1/8" OD control sticks and adapter bushings are available to adapt to 1", 7/8" and " OD control sticks.

#2 (Right Hand-2 Functions) .....	P/N 11-02000 .....
#4 (Right Hand-4 Functions) .....	P/N 11-02050 .....
#2L (Left Hand-2 Functions) .....	P/N 11-06753 .....
#4L (Left Hand-4 Functions) .....	P/N 11-06754 .....
Adapter Bushing 1" .....	P/N 11-06755 .....
Adapter Bushing 7/8" .....	P/N 11-06756 .....
Adapter Bushing 3/4" .....	P/N 11-06757 .....

## HOMEBUILT CONTROL STICKS

These homebuilt control grips are made of high-strength urethane plastic, finish painted in matte black and come complete with all necessary hardware (AN screw, nut, washers). Available unbored or bored to accept 7/8", 1", or 1-1/8" diameter tubing.



All of these grips (except unbored) are available w/PTT Switch at . Add -1 to end of part number for PTT.

Grip	Bore	Part No.	Price
Right	Unbored	11-01010	.
Right	7/8" Bore	11-01015	.
Right	1" Bore	11-01020	.
Right	1-1/8" Bore	11-01025	.
Left	Unbored	11-01010-L	.
Left	7/8" Bore	11-01015-L	.
Left	1" Bore	11-01020-L	.
Left	1-1/8" Bore	11-01025-L	.
Neutral	Unbored	11-02010	.
Neutral	7/8" Bore	11-02015	.
Neutral	1" Bore	11-02016	.
Neutral	1-1/8" Bore	11-02017	.

## RUBBER STICK GRIPS

Rubberized urethane with granular like non-slip surface.



7/8" I.D. Stick Grip.....	P/N 11-00100 .....	ea
1" I.D. Stick Grip.....	P/N 11-00101 .....	ea
1-1/8" I.D. Stick Grip .....	P/N 11-00102 .....	ea

# RAC TRIM SYSTEMS

## RAC ELECTRIC TRIM SERVOS

Ray Allen electric trim systems include a servo, LED position indicator, rocker switch and a clevis/pushrod kit. The heart of the Ray Allen trim system is the servo and they are designed specifically for experimental aircraft. They are small, lightweight, and powerful enough to control trim surfaces on any small aircraft. They will automatically stop when their travel limit is reached and will not travel unless power is switched on by the pilot. Voltage polarity determines direction of travel. Ray Allen servos can be purchased separately for controlling devices that would otherwise require bulky, complicated mechanisms. They are extremely durable and should last the service life of your aircraft. Production samples have been bench tested 50,000 cycles under loaded conditions relating to 244 hours of continuous use or thousands of flight hours. Ray Allen has 4 different servos available: The T2-7A, T2-10A, T3-12A, and the miniature T4-5. Check the specifications to determine which servo output travel best suits your application.



T2-7A



T3-12A



T4-5

\*T2-7A exact replacement for MAC 4A servo. \*T2-10A exact replacement for MAC 6A servo. \*T3-12A exact replacement for MAC 8A servo. \*T4-5 is exact replacement for the Mac S9 servo.

### T2/T3 SERVO SPECIFICATIONS

Operating Voltage..... 12-14 VDC  
No Load Current .....150 ma  
Weight.....4oz. (113 g)  
Max Thrust.....40 lbs. (18 kg)  
Max Operating Thrust.....20 lbs. (0.9 kg)  
Output Shaft Movemt.(T2-7A\*)0.7" (17mm)  
Output Shaft Movemt.(T2-10A\*) 1" (26mm)  
Output Shaft Movemt.(T3-12A\*) ..... 1.2" (31mm)  
Output Travel Time (T2-7A).... 10 seconds  
Output Travel Time (T2-10A)... 16 seconds  
Output Travel Time (T3-12A)... 19 seconds

### T4-5 SERVO SPECIFICATIONS

Operating Voltage..... 12-14 VDC  
No Load Current .....75 ma  
Weight.....2.5 oz. (71 g)  
Max Thrust.....30 lbs. (13.5 kg)  
Output Shaft Movement.....0.5" (13mm)  
Output Travel Time ..... 15 seconds  
Length .....2.25" (57mm)  
Width .....2.25" (57mm)  
Height.....0.77" (20mm)

## RAC SERVO SYSTEMS

RAC Servo Sy tem	Part Number	Output Shaft		Price ea.
		Movement	Travel Time	
T2-7A	11-11505	0.7 in.	10 sec.	.
T2-10A	11-11605	1.0 in.	16 sec.	.
T3-12A	11-11615	1.2 in.	19 sec.	.
T4-5	11-11620	0.5 in.	15 sec.	.

## SERVOS ONLY

RAC Servo Sy tem	Part Number	Output Shaft		Price ea.
		Movement	Travel Time	
T2-7A	11-02048	0.7 in.	10 sec.	.
T2-10A	11-02058	1.0 in.	16 sec.	.
T3-12A	11-02065	1.2 in.	19 sec.	.
T4-5	11-02066	0.5 in.	15 sec.	.

\*T2-7A exact replacement for MAC 4A servo. \*T2-10A exact replacement for MAC 6A servo. \*T3-12A exact replacement for MAC 8A servo. \*T4-5 is exact replacement for the Mac S9 servo.

\*T2-10A exact replacement for MAC 6A servo. \*T4-5 is exact replacement for the Mac S9 servo.

## RAC SWITCHES



**RS2 ROCKER SWITCH** - Very positive snap action in 2 directions and returns to a center off position. It was designed specifically for Ray Allen trim systems. It is wired to connect both power leads to ground when the rocker is released. This eliminates motor coasting & allows very precise trimming. The RS2 switch is rated at 1 amp. The faceplate measures 1.75" (44mm) x 1.0" (25mm) x 1.47" (37mm) deep. Included with trim systems or can be purchased separately. P/N 11-02035

**ROS-4 FOUR-WAY SWITCH** - This compact multi-action switch can be installed inside your control stick grip to activate both elevator and aileron trims. ROS-4 has a SPST action so it must be used in conjunction with a relay deck to operate Ray Allen servos. Rated at 1 amp. P/N 11-02075



## RANS ELEVATOR TRIM SYSTEM



Rans Elevator Trim System features a trim tab actuated by a push-pull wire. By turning the trim wheel, the wire moves the trim tab. The system has the look and feel of a standard aircraft trim wheel. The trim tab is constructed of sheet aluminum and can be adapted to the trailing edge of many homebuilts and ultralights. The trim tab is sized for both low & high speed aircraft and since it is mechanical, requires no battery or power source other than the pilot's hands.

Trim Sys. less Tab (no panel or flap lever mount) .. P/N 11-09955  
Trim Sys. with Lower Panel..... P/N 11-09960  
Trim Sys. Flap Mount..... P/N 11-09965  
Trim Sys. without Wheel ..... P/N 11-09970

## RAC INDICATORS/SENSORS/ACCESSORIES



**RP3 LED POSITION INDICATOR** - This LED meter is designed to be installed in the cockpit and give an indication of the servo output shaft position. The ten LEDs are the brightest available for superior visibility in sunlight, but can be dimmed for night flight. It can be installed horizontally or vertically. 3 wires as small as 28 gage connect the indicator directly to a Ray Allen servo (or a position sensor). The face plate measures 1.75" x 0.75" x 1.1" deep. The RP3 is the standard position indicator included in R.A. trim systems. P/N 11-02020



**GWL-1 GEAR WARNING LIGHTS** - This 6 light indicator is designed to be installed in the cockpit and give an indication of the landing gear position. The lights are high intensity LEDs and are inset to provide maximum visibility in bright sunny conditions. The top lights are yellow and the bottom are green. Six 26-gauge wires connect the lights directly to the gear safe/unsafe switches (not included). The faceplate measures 1.35" x 1.75" x 1.5" deep. Gear warning lights come with labels pre-installed. P/N 11-01575



**POSITION INDICATOR/ROCKER SWITCH LABELS** - Finish off your panel with these high quality labels. Rocker switches and needle indicators require a LARGE label, LED indicators use a SMALL label. Elev 1 shows trim down at top of label.

Rudder - Large ..... P/N 11-01819  
Rudder - Small ..... P/N 11-01820  
Aileron - Large ..... P/N 11-01816  
Aileron - Small ..... P/N 11-01815  
Elev 1 - Large ..... P/N 11-01822  
Elev 1 - Small ..... P/N 11-01821  
Wing Flap - Large ..... P/N 11-01818  
Wing Flap - Small ..... P/N 11-01817  
Cowl Flap - Large ..... P/N 11-01576  
Cowl Flap - Small ..... P/N 11-01814



**POS-12 POSITION SENSOR** - When combined with a Ray Allen indicator, this sensor can be used to measure the position of wing flaps, cowl flaps, or many other mechanisms. Small enough to be installed anywhere, size: 2.7" l x 0.8" w x 0.5" h. (note: T2 & T3 servos have their own built-in sensors) 1.2" travel. P/N 11-01321



**REL-2 SERVO RELAY DECK** - This device converts the momentary contact action of the ROS-4 4-way switch, or any SPST pushbutton switch, into a DPDT action that is necessary to operate Ray Allen servos. You will need one of these relay decks for each servo in your installation. The REL-2 relay deck replaces the REL-1 relay deck. The REL-2 functions the same as the REL-1, however the wire exit location is on the top. Measures 1.6" (40 mm) x 1.8" (49 mm) x 1.1" (28 mm). P/N 11-05312



**SPD-1 SERVO SPEED CONTROL** - Enables you to slow the speed of your trim servo to suit your individual installation. Size: 2" x 0.5" x 0.8". P/N 11-02078



**REG-1 12V REGULATOR** - Enable you to operate servos and indicators in aircraft having 28V electrical systems. Converts all input voltages up to 35V to 12V. Capable of supplying 1 amp of current allowing you to operate 2 trim systems simultaneously. Size: 2" x 0.5" x 0.8". P/N 11-02036



**RC8-7 CLEVIS/PUSHROD KIT** - Contains two 8-32 threaded clevis forks; 7" long, 8-32 threaded, stainless steel pushrod and hardware. This kit included with Ray Allen trim systems. NOT compatible with POS series position sensors. The T4-5 clevis/pushrod kit has just one clevis assembly. RC8 clevis & its hardware are available separately. RC8-7 Kit ..... P/N 11-02040  
T4 Pushrod Kit..... P/N 11-02042



**WC2 5-WIRE TEFLON® INSTALLATION CABLE** - This durable, flexible wire cable is highly recommended for Ray Allen installations. Consists of 5 separate color coded, 26-gauge, 19-strand, silver-plated, FEP Teflon® insulated wires inside a tough, all Teflon® sheathing. 20 ft. roll..... P/N 11-01577  
25 ft. roll..... P/N 11-01578  
50 ft. roll..... P/N 11-01579

EL

# RAC BEZEL SWITCHES

## RAC - RBS SERIES BEZEL SWITCHES

An excellent addition to any instrument panel. The bezel measures 1.25" w x 1.35" h. A die-cut label sheet is purchased separately. The switches are SPST. They have screw terminals and are rated at 15 amps. Specify Toggle (RBS-T11) or Pushbutton (RBS-P11) when ordering. The Ray Allen Gear Bezel Switch (RBS-GS) is the same custom bezel as above combined with SPDT retract gear toggle switch. The switch is rated at 15 amps and has a pull to unlock feature preventing accidental engagement. The Gear Bezel Switch comes with the labels pre-installed.

RAC Part No.	Description	Part No.	Price
RBS-T11	Bezel Switch - Toggle	11-01364	.
RBS-P11	Bezel Switch - Push Button	11-01365	.
RBS-GS	Bezel Gear Switch	11-01366	.
RBS-L1	Bezel Switch label sheet	11-01367	.



LANDING LIGHT	CABIN LIGHTS	BATTERY MASTER	ALTERNATE AIR	OFF
NAV LIGHTS	PANEL LIGHTS	AVIONICS MASTER	INVERTER	OFF
ROTATING BEACON	PULSE LIGHT	ALTERNATOR	CARB HEAT	OFF
STROBE LIGHTS	TAXI LIGHT	AUTOPILOT	ON	OFF
STARTER	DIMMER	PITOT HEAT	ON	OFF
ENGAGE	IGNITION No. 1	HYDRAULIC PUMP	OFF	OFF
FLAPS UP	IGNITION No. 2	LOW BOOST	ON	OFF
FLAPS DN	FUEL PUMP	HIGH BOOST	ON	OFF
CABIN FAN	AVIONICS MASTER A	BOOST PUMP	ON	OFF
CABIN AIR COLD	AVIONICS MASTER B	STANDBY ALTERNATOR	ON	OFF
CABIN AIR HOT	LEFT MAGNETO	TRIM MASTER	OFF	OFF
OXYGEN	RIGHT MAGNETO	PARKING BRAKE	OFF	OFF

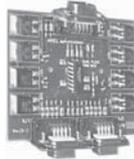
## TWO PLACE TRIM MIXER



The 2 Place Trim Mixer is a solid-state SMT equipment designed to replace the traditional mechanical relays earlier used for two pilots to operate the aircraft's trim system while adding the advantages of logic functions found in electronic equipment. The mixer incorporates MOSFET (Metal Oxide Silicon Field Effect Transistor) transistors for switching the high current with no moving parts and no electrical arc to prevent fuel fumes ignition.

**A typical Trim System is composed of the following elements:**

- Harnesses
- A mixer unit, the 2 Place Trim Mixer
- 2 DC trim motors (such as the MAC Servo with or w/o connections to position indicator)
- SPST switch (option) which are not included & should be provided by the customer



A key feature of the 2 Place Trim Mixer is the prevention of a conflict between two opposite inputs (eg. "UP" by the pilot, and "DOWN" by the copilot). Once an input is established by one of the crew, another input is ignored. An additional switch (option) enables the pilot to "Disable" the copilot from inputting any command to the trim motors.

The 2 Place Trim Mixer is enclosed in an aluminum enclosure for EMI/RFI protection and for easy installation onto the aircraft.

- Specifications:
- Operating Temp.: -20°C to +85°C
  - No. of Operators: 2
  - Operating Voltage: 10VDC to 16VDC
  - Max Current: 7A
  - Quiescent Current: Less than 4mA
  - Current Through any Switch Contact: Less than 10µA
- P/N 11-02876 .....

## FPS PLUS - FLAP POSITIONING SYSTEM



The FPS-Plus is a full service, automatic, flap positioning system. This system operates similar to the "Cessna type flap systems" that many pilots were trained in. The pilot can easily go from one flap position to another with one quick press of the flap button. All flap stop positions (from 0 to 10, your choice) are easily, user programmable. This system is also fairly simple to retrofit it to your "already flying" aircraft.

The Plus feature of this system, allows you to program an elevator trim position for each flap position. Your elevator trim will be automatically adjusted, for every different flap setting that you choose. NO more manual tweaking of the elevator trim is needed for every different flight configuration.

The pilot can now pay more attention to the actual "flying the aircraft", rather than tweaking the correct amount of elevator trim for every different flight configuration. Flying is made much more enjoyable. If you desire to retract the flaps fully, all you have to do, is press the "flap up" button for more than 1 second. The flaps will be automatically retracted to their full up position. The elevator trim is also automatically adjusted to your cruise trim position.

Features: • Full Automatic Flap Positioning with or without "Automatic Elevator Trim Compensation" • Step and Proportional Modes • Designed for +12v and +24v Systems • Compatible with Most Motors and Indicators • Setup is Fully User Programmable • No Limit Switches to Install

Specifications: • The system will operate on +12Vdc or +24Vdc systems. • Maximum amperage for each motor, 10A. • Dimensions (overall) 3" x 5.75" x 1.25" • Footprint 3 x 5.75" • Mounting 2 holes in bottom flanges, 0.156" dia, 5.375" apart • Weight < 4oz.

**FPS-Plus Reflex Operation** -All features of this system are exactly the same as our FPS-Plus. The exception is, when you press the Flap Up Button for more than a second, it returns the flaps to the zero degree position, not "full up". This is an advantage when initiating a "go-around" and "touch and goes". It is also an advantage when your flaps are in any down position, and you want to return the flaps to the "take-off" position.

- FPS-PLUS with Elev. Trim .....P/N 11-02980 .....
- FPS-PLUS without Elev. Trim .....P/N 11-02981 .....
- FPS - PLUS REFLEX.....P/N 11-06440 .....

## ELECTRONIC FLAP CONTROLLER



An electronic device designed to power and automatically position electrically powered flaps. It is a combination drive unit for the flap actuator, and an indicator of flap position. It features momentary push button switches with built in green LED lights, providing settings for 4 flap positions. Each switch can be user pro-grammed to a specific flap position. Once calibrated, momentarily pushing any switch, will then automatically drive the flaps to the pre selected position and stop. The LED corresponding to the new position will then illuminate indicating that the flaps are now in the new position. LED lights can be dimmed for night flying. Can work with any actuator that draws less than 7 amps current at 12 volts when operating. It requires that the system have a 5K or 10K resistive position sensor that provides feedback of flap position. Many actuators incorporate this type of sensor in the unit, or separate linear resistive sensors are available from equipment suppliers. 3 inch long, it can be mounted either horizontally or vertically. The controller incorporates an interface to the optional Aircraft Components gear position warning systems eliminating the need for the manual flap position switch otherwise needed.

P/N 11-07728.....

## TRIM SWITCHES



**TRIM SWITCH CA3112** - The CA3112 is identical to the S-Tec 3112 switch but precision machined from aircraft aluminum and will not crack or break like the OEM version.

P/N 11-07354.....



**TRIM SWITCH CA100-1** - The CA100-1 switch is used on a certified aircraft. It uses MIL-SPEC switches (SPST) and precision machined from aircraft aluminum and will not crack or break like cheap plastic switches. It has a nice tactile click action.

P/N 11-07355.....

## 3 AXIS TRIM RELAY BOARD



3 Axis trim relay and buffer board has been designed to allow easy control of trim motors from small grip mounted or remote switches. Three Axis control is possible with each of the circuits being configured in a double throw format. "Off" circuit conditions apply ground to both motor wires providing an effective braking actions. Board will work with single or winding DC motors. Other remote controls are possible such as auto pilot disconnect or recognition lights and more. Relays are continuous DC rated at 10 Amps. Dimensions are 5.6"L x 4"W x 1.0"H

P/N 11-02043.....

## BENDIX STARTING VIBRATORS



Part Number	Description	Used with Ignition System	Price
10-176487-121	12V DC	S-200, S-600, S-700	.
10-357487-241	24V DC	S-200, S-600, S-700	.
10-176487-122	12V DC	S-1200	.
10-357487-242	24V DC	S-1200	.
10-176485-121	12V DC W/Relay	S-200, S-600, S-700	.
10-176485-241	24V DC W/Relay	S-200, S-600, S-700	.
10-176485-242	24V DC W/Relay	S-1200	.

# IGNITION SWITCHES

## ACS KEYED IGNITION SWITCHES

MFG BY ACS PRODUCTS CO.



These fine quality switches are being used in many production aircraft such as Cessna, Schweizer, Ayers and Air Tractor. They provide "on" and "off" electrical control of both magnetos on single engine aircraft. The key-operated switches mount from rear of panel in 7/8" dia. hole. Available with or without starter position.

**A-510-5** Without Starter Position., Supplied with switch plate and two keys. (diode not required) ..... P/N 11-03169.....  
**A-510-2** With Starter Position., Supplied with switch plate two keys. (diode included)..... P/N 11-03170.....

### ACS IGNITION SWITCH AND LOCK SETS



**MODEL NO. A-510-5K**, Includes ignition switch without starter position, two aircraft locks (one door and one baggage lock)\* and two keys mated to ignition switch and locks. (Diode not required)..... P/N 11-03171.....

**MODEL NO. A-510-2K**, Includes ignition switch with starter position, two aircraft locks (one door and one baggage lock)\* two keys mated to ignition switch and locks . (diode included)..... P/N 11-03172.....  
 \* Baggage lock may be modified to second door lock if preferred.



Part No.  
11-03668



Part No.  
11-03667

### ACS IGNITION SWITCH PLATES

Plate without start - A-2255-A1 ..... P/N 11-03668.....  
 Plate With start - A-2255-A ..... P/N 11-03667.....

### ACS DOOR AND BAGGAGE LOCK SETS



The door and baggage locks furnished with the ignition switches above are also available separately. Set of two locks (one door and one baggage lock) furnished with one key mated to both locks. The baggage lock may be used as second door lock if preferred. .... P/N 11-01600.....

Universal Blank Key (uncut) for ACS door and Baggage Lock ..... P/N 11-03175.....  
 ACS Double Sided Blank Key uncut with black cap ..... P/N 05-03666.....

### ACS LEVER TYPE IGNITION SWITCH

**A-510-1 Lever Type** - Twist-Knob Without Starter Position. (diode not required)..... P/N 11-03176.....



### BENDIX IGNITION SWITCHES

**MODEL NO. 10-357290-1**, Without Starter Position. Includes two keys. Furnished with Switch Plate .....  
**MODEL NO. 10-357200-1**, With Starter Position. Includes two keys. Furnished with Switch Plate .....

**ACS IGNITION SWITCH DEALER DISCOUNTS: 6-10 LESS 5%, 11-19 LESS 10%, 20-99 LESS 15%, 100+ LESS 20% (ASSORTED)**

### ACS STARTER SOLENOID DIODE ASSEMBLY



This is required for all new A-510-2 and A-510-2K ignition switches for compliance with ACS Service Bulletin SB92-01. Diode Assembly for Starter Solenoid with one or Two Coil Contacts  
 P/N 16050-2.....

### ACS IGNITION SWITCH SERVICE KIT

Consists of replacement internal switch contacts, lubricant, diode assembly, and terminal board as required for compliance with ACS Ignition Switch Service Bulletin SB92-01. Kit A-3650-2 contains diode assembly for starter solenoids with one or two coil contacts.  
 Kit No. A-3650-2.....

**MODEL NO. 10-357210-1**, With push to start feature. Includes two keys. Furnished with Switch Plate.....

### BENDIX SWITCH PLATES -

Without Starter Position..... Switch Plate No. 10-51127.....  
 With Starter Position..... Switch Plate No. 10-126676.....



### SUNLIN SOLAR PANELS

The **6.5-watt** portable solar pack module offers a unique solution for reliable and portable solar power for cell phones, PDA's, and other small personal electronics. The SUNLINQ™ 6.5-watt weighs less than half of a pound and when folded is compact, lightweight and easily stored and transported. The low maintenance design provides an optimal electrical path and rugged durability. Built-in grommets allow for hanging, mounting or laying in any position.

The **12-watt** portable solar pack module offers a unique solution for reliable and portable solar power for Sat phones, GPS, battery charging, etc. The SUNLINQ™ 12 watt weighs less than one pound and when folded is compact, lightweight and easily stored and transported. The low maintenance design provides an optimal electrical path and rugged durability. Built-in grommets allow for hanging, mounting or laying in any position.

The **25-watt** portable solar pack module offers a unique solution for reliable and portable solar power for vehicle battery charging, including boats and RVs and laptop computers. The SUNLINQ™ 25 watt weighs less than two pounds and when folded is compact, lightweight and easily stored and transported. The 25-watt SUNLINQ™ is made from a special urethane material giving it the utmost in durability and water resistance. The low maintenance design provides an optimal electrical path and rugged durability. Built-in grommets allow for hanging, mounting or laying in any position.

Cables included with SUNLINQ™ are one each, CLA receptacle, CLA vehicle power outlet, battery clamps, 4 in. barrel connector, and 8 ft. extension cable.



Accessories Kit Included

Description	Part No.	Price
SUNLINQ 6.5 WATT Module	11-06192	.
SUNLINQ 12 WATT Module	11-06193	.
SUNLINQ 25 WATT Module	11-06194	.

# CIRCUIT BREAKERS

## KLIXON 7270 & 7271 CIRCUIT BREAKERS



The Klixon 7270/7271 series circuit breakers were designed to utilize less behind panel space while protecting wire and cable in aircraft and ground support equipment on either 120 VAC, 400 Hz or 30 VDC systems. The units are available with neck mounting (7270-1 and 7271-8) or standard cover plate (7270-7 and 7271-3). In each of these Klixon circuit breakers, the bi-metallic element assures uniform current distribution throughout

its responsive area. This design reduces current density at the critical areas, resulting in an element having a much higher interrupting capability than conventional design. Inherently resistant to shock and vibration, the Klixon disc element is capable of precise calibration settings and will retain the initial calibration within close tolerances throughout the service life of the breaker. Both circuit breakers have conventional actuator action; i.e., the toggle actuator on the 7270 moves to the OFF position for trip indication and the button the 7271 pops out. A standard black button with a white collar is used.

**FEATURES:** • Trip-free • Snap-acting Thermal Element • Simplicity of Design • Lightweight • High Rupture Capacity - 3500 Amps, 120 VAC, 400 Hz 4000 Amps, 30 VDC • Small Size

Part No.	Price	Part No.	Price	Part No.	Price
7270-1-3	.	7270-7-10	.	7271-3-25	.
7270-1-5	.	7270-7-15	.	7271-3-35	.
7270-1-7.5	.	7270-7-20	.	7271-8-3	.
7270-1-10	.	7270-7-25	.	7271-8-5	.
7270-1-15	.	7270-7-30	.	7271-8-7 1/2	.
7270-1-20	.	7270-7-35	.	7271-8-10	.
7270-1-25	.	7271-3-3	.	7271-8-15	.
7270-1-30	.	7271-3-5	.	7271-8-20	.
7270-1-35	.	7271-3-7.5	.	7271-8-25	.
7270-7-3	.	7271-3-10	.	7271-8-30	.
7270-7-5	.	7271-3-15	.	7271-8-35	.
7270-7-7.5	.	7271-3-20	.		

The last dash no. in the Part Number is the Amperage rating

## KLIXON 7277 CIRCUIT BREAKERS



7277-1  
Aux. Switch  
Contact

7277-2

The 7277 series circuit breakers is physically and electrically identical to the 7274-2 style circuit breaker, with the exception that the 7277 series has wider calibration limits. Originally developed as an alternative to slow blow fuses, the trip free 7277 is used extensively as primary electrical circuit protection on general aviation aircraft. The wider calibration limits of the 7277 has also resulted in applications including protection for data processing and telecommunications equipment, computers, flight simulators, construction, material handling and other industrial electronic equipment.

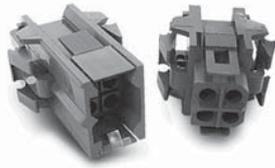
**FEATURES:** The 7277 series is designed for applications that do not require the tighter performance characteristics and approvals of our military circuit breakers. • Small size • Light Weight • Inexpensive Auxiliary switch 7277-1 Only Longer Push Buttons 7277-5 Only

Temp.	Min Ult	Max Ult	Trip Time - Seconds		
°C	Traip	Trip	200%	500%	1000%
+25	110%	150%	2-35	.15-1.75	.028-.8

\* Performance characteristics and dimensions are equivalent to 7274 Calibration: 1/2 - 20 amps\*

Part No.	Price	Part No.	Price	Part No.	Price
7277-5-1	.	7277-1-3	.	7277-2-2	.
7277-5-2	.	7277-1-4	.	7277-2-2.5	.
7277-5-3	.	7277-1-7.5	.	7277-2-3	.
4200-005-4	.	7277-1-10	.	7277-2-4	.
7277-5-7.5	.	7277-1-15	.	7277-2-5	.
7277-5-10	.	7277-2-1/2	.	7277-2-7.5	.
7277-5-15	.	7277-2-3/4	.	7277-2-10	.
7277-1-1	.	7277-2-1	.	7277-2-15	.
7277-1-2	.	7277-2-1.5	.	7277-2-20	.

## ELECTRICAL PLUG CONNECTORS



Make your panel a "plug and play" panel with these heavy-duty electrical connectors. The connectors are designed for either panel mount or free hanging. Connectors are available in 4, 6, 12, 18, 24, and 36 pin configurations. Choose the pins and sockets based on wire size. The pins and sockets are top quality and are

gold/nickel plated. The plugs are sold in pairs and include both the plug and the connector.

Connectors	Part No.	Configuration	Price
SPT015/16	11-02147	4 pin	.
SPT152/153	11-02148	6 pin	.
SPT039/40	11-07356	9 pin	.
SPT017/18	11-02149	12 pin	.
SPT442/43	11-02150	18 pin	.
SPT019/20	11-07357	36 pin	.
Pins	Part No.	Wire Gauge Size	Price
SPT103-1	11-02153	24/20	.
SPT099-1	11-02154	18/16	.
Sockets	Part No.	Wire Gauge Size	Price
SPT105-1	11-02155	24/20	.
SPT101-4	11-02156	18/16	.

## POWERGENIE



Powergenie is a power control unit for Rotax engines (503 through 912) and other two-stroke engines. With Powergenie installed, your hour meter will run only when the engine itself is running, eliminating the need to rely on the master or engine switch. You can power up the airplane's electrical system on the ground for radio work or general maintenance and testing without clocking aircraft time. In addition, you can use Powergenie to power other equipment like beacons, strobes and landing lights for automatic operation when the engine is running.

P/N 11-03388 .....

## STATIC DISCHARGERS

### STATIC WICK



Used on Cessna and Piper aircraft. Comes with 2 holes to rivet to train-line edge and plain wire extension. P/N 11-04154.....

### NULL FIELD TRAILING DISCHARGER



For general aviation & business class aircraft. FAA/PMA, MIL-9129D. Mounting: (2) #8-32 flat head screws. Length: 10-9/32". Wt: .78 oz. P/N 11-16320.....

### MICROPOINT TRAILING DISCHARGER



For general aviation aircraft (speeds below 300 mph). Mounting: (2) #4-40 screws, 100% countersunk. Length: 8.75" Weight: 0.17 oz. P/N 11-16630.....

### MICROPOINT TRAILING DISCHARGER (FLEXIBLE)



For general aviation & business class aircraft. FAA/PMA, MIL-9129D. Mounting: 15401, 15488, 15660-1, or 16195 screw retainer. Length: 7-5/8" Wt: 0.53 oz. P/N 11-16606.....

### NULL FIELD TIP DISCHARGER



For general aviation & business class aircraft. FAA/PMA, MIL-9129D. Mounting: (2) #8-32 flat head screws. Length: 7-15/32". Wt: 0.53 oz.

P/N 11-16325.....

# CIRCUIT BREAKERS

## TYCO CIRCUIT BREAKERS

These bi-metallic single pole breakers weigh less than 2oz. and especially suitable for homebuilt aircraft. Used as original equipment in Beech, Cessna and Piper aircraft. Max. operating voltages: 32 VDC & 250 VAC (to 400 Hz).

### W23 SERIES



White band around body of reset button becomes visible if breaker trips. Has heater wire for fast tripping. 8-32 screw terminals.

### W31 SERIES



These are combination single pole switches and circuit breakers. Has a plain steel toggle w/ rating inscribed on tip. 8-32 screw terminals.

### W58 SERIES



Recessed reset button has red band around it for visible trip indication. 6-32 screw terminals.

P&B P/N	AMP Rating	Aircraft Application		Prices Ea.
		Beech	Cessna Piper	
W23X1A1G1	1		111-201-105	.
W23X1A1G2	2		111-202-105	.
W23X1A1G3	3		111-203-105	.
W23X1A1G4	4		111-204-105	.
W23X1A1G5	5	CB-2305A	S-1232-5	454656
W23X1A1G7.5	7.5	CB-2307A		.
W23X1A1G10	10	CB-2310A		454657
W23X1A1G15	15	CB-2315A		454658
W23X1A1G20	20	CB-2320A		454659
W23X1A1G25	25	CB-2325A		454660
W23X1A1G30	30	CB-2330A		454661
W23X1A1G35	35	CB-2335A		454663
W23X1A1G40	40	CB-2340A		454665
W23X1A1G50	50	CB-2350A		454662
W31X2M1G5	5			.
W31X2M1G10	10			.
W31X2M1G15	15			.
W31X2M1G20	20			.
W31X2M1G25	25			.
W31X2M1G30	30			.
W31X2M1G35	35			.
W31X2M1G40	40			.
W31X2M1G50	50			.
W58XC4C12A1	1	431-201-101	S-1360-1A,-1L	.
W58XC4C12A2	2	431-202-101	S-1360-2A,-2L	.
W58XC4C12A3	3	431-203-101	S-1360-3A,-3L	.
W58XC4C12A4	4	431-204-101	S-1360-4A,-4L	.
W58XC4C12A5	5	435-205-101	S-1360-5,-5L	454668
W58XC4C12A7	7	435-207-101	S-1360-7,-7L	.
W58XC4C12A10	10	435-210-101	S-1360-10,-10L	454669
W58XC4C12A15	15	435-215-101	S-1360-15,-15L	454670
W58XC4C12A20	20	435-220-101	S-1360-20,-20L	.
W58XC4C12A30	30	435-230-101	S-1360-30,-30L	.

## TYCO ROCKER TYPE CIRCUIT BREAKER



W33S2N1Q series breakers are 2 pole rocker actuated. Pole 1 is switch only, pole 2 is series trip overload sensing. These breakers are non-lighted with white rocker. W33S4B1Q series breakers are also 2-pole rocker actuated. Pole 1 is switch only, pole 2 is series trip overload sensing. These breakers feature 20 amp max. switch & amber plastic rockers.

Item / Description	Amp	Part No.	Price
W33S4B1Q-5 - Amber 24VDC	5	11-01887	.
W33S4B1Q-10 - Amber 120VAC	10	11-01888	.
W33S4B1Q-15 - Amber 120VAC	15	11-01889	.
W33S4B1Q-20 - Amber 120VAC	20	11-01976	.
W33S1N1Q-5 - Black	5	11-01977	.
W33S1N1Q-10 - Black	10	11-01978	.
W33S1N1Q-15 - Black	15	11-01979	.
W33S1N1Q-20 - Black	20	11-01980	.
W33S2N1Q-5 - White	5	11-01981	.
W33S2N1Q-10 - White	10	11-01890	.
W33S2N1Q-20 - White	20	11-01983	.

## FUSE HOLDERS



These fuseholders are non-indicating, plate mounted. The body is molded black phenolic. Knob grips fuse and pulls it from holder when knob is removed. Spring provides contact pressure on ends of fuse. For use with fuse size 1/4" x 1-1/4". Type HKP. P/N 11-13400 .....



Nylon Twist-Lock in-line fuseholder. Supplied with 8" loop of 14-gauge wire and 1 spring to accommodate AGC fuses. Simple "twist-lock" allows easy fuse removal & replacement. P/N 11-04010 .....



Bayonet knob in-line fuseholder. Supplied with 8" loop of 14-gauge wire and 1 spring to accommodate AGC fuses. Simple "twist-lock" allows easy fuse removal and replacement. P/N 11-01359 .....

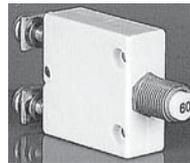
## CLI ON CIRCUIT BREAKERS



Feature a bi-metallic snap-acting disc as the sensing element. Widely used in production and military aircraft. The most popular models are illustrated. Models PSM and PSM-N are available in the following ampere ratings: 2, 3, 5, 10, 15, 20, 25, 35. When ordering specify if neck-mounting style is wanted by placing "N" after ampere rating. Example: PSM-10N (P/N 11-04244)..... Ea.

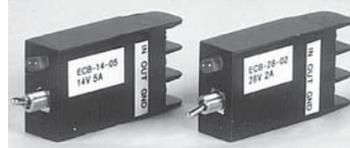
For weatherproof circuit breakers in ratings from 50 to 150 amperes, order Model PDLM. Example: PDLM-50 (P/N 11-04241) ..... . ea.

## 60 AMP CIRCUIT BREAKERS FOR ALTERNATORS



These heavy duty circuit breakers are ideal for use with aircraft alternators and other applications using high amperage. 10-32 screw terminals. Size: 1-3/8"d x 1-3/8"h x 1/2"w. 60 Amp P/N 11-02191 .....

## ELECTRONIC CIRCUIT BREAKERS



These circuit breakers have no mechanical parts, except for the reset switch. The power switching and control components are completely solid state. They have added benefit of overvoltage and undervoltage protection. Will turn off if the input voltage goes too high, protecting valuable avionics or other equipment. The circuit breakers operate differently than conventional ones in the following ways: If the circuit breaker 'trips', the switch will remain in the up or on position, but a red LED will illuminate indicating the condition. To reset the circuit breaker, the switch is set to off, then back to on. Removing power from the circuit breaker via a master switch and then restoring power will perform the same function. If a short or overcurrent condition exists at the output, the circuit breaker will continue to trip off after a reset.

The electronic circuit breaker is a 3-terminal device. In addition to the usual 2 terminals, a ground reference is required for the electronics to operate and as a reference for the overvoltage & undervoltage protection. The 14V circuit breakers will shutdown with an overvoltage of 16V & undervoltage of 10V. The 28V will shutdown with an overvoltage of 33V & undervoltage of 20V. Available in 14V & 28V versions, with the following current levels: 1A, 2A, 5A, 10A. Not FAA Approved. For experimental aircraft only.

Model No.	Amp	Volt	Part No.	Price
ECB-14-01	1	14	11-01152	.
ECB-14-05	5	14	11-01154	.
ECB-28-01	1	28	11-01156	.
ECB-28-02	2	28	11-01157	.
ECB-28-05	5	28	11-01158	.
ECB-28-10	10	28	11-01159	.



## FUSES

AGC-type fuses are glass-enclosed with a single fuse element. Fast acting to protect sensitive instruments and radios. Fuse dimensions 1/4" dia. x 1-1/4" long.

Part No.	Amp Rating	Price Each	Part No.	Ampere Rating	Price Each
11-03743	1	.	11-03745	15	.
11-03746	2	.	11-03747	20	.
11-03749	3	.	11-03748	25	.
11-03753	5	.	11-03750	30	.
11-03754	7	.	11-03751	35	.
11-03744	10	.			



# SWITCHES

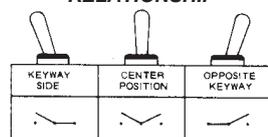
## ULTRA-MINIATURE TOGGLE SWITCHES



Ultra-miniature switches are rated at 6 amps at 125V AC and 4 amps at 28V DC. Solid silver contacts. Terminals are gold flashed to inhibit oxidation and to provide easier soldering. Case material is green diallyl phthalate resin. Bushing thread size: 1/4-40, usable in panel thickness up to 1/4". Micro Switch Co. have discontinued the manufacture of the 8A and 8H type switches, so switches by alternate manufacturers will be furnished. In most instances, Alco switches will be supplied. Switches furnished complete with locking ring and attaching hardware.

Alco Sw. Part No.	Micro Sw. Part No.	Contact	Toggle Circuit*	Price Each
MTA-106D	8A1011	SPST	01	.
MTA-106E	8A1021	SPDT	02	.
MTA-106G	8A1041	SPDT	04	.
MTA-206N	8A2011	DPST	01	.
MTA-206P	8A2021	DPDT	02	.
MTA-206S	8A2041	DPDT	04	.
JMT-226	8A2061	DPST	06	.
MTA-306D	8A3011	3PDT	01	.
MTA-406N	8A4011	4PDT	01	.

\* See Toggle Circuit Table  
LE ER/CIRCUIT  
RELATIONSHIP



Toggle Circuit	Circuitry*		
	One Side	Center	Other Side
01	On	None	On
02	On	Off	On
04	(On)	Off	(On)
05	On	Off	(On)
06	On	None	(On)

\*Use the "01" circuitry for On-Off switch. In hook-up, use center terminal & one side terminal. Leave other side terminal blank.

The operating sequence above is repeated in multipole devices. Each pole has double-throw circuitry and consists of three terminals which exit at the bottom of the switch case. The keyway is a helpful reference when you are applying a switch with the momentary (ON) circuit at one of the extreme lever positions.

## TWIN CESSNA SWITCH COVERS



Are your switch covers faded by the sun or just looking grimy? These replacement switch covers fit on nearly every typical switch in Cessna Twins. Switch cover sets are available for 300 series twins (4 red, 3 black, and 18 white switches) and 400 series twins (4 red, 3 black, & 23 white switches). Also available are sets of 30 mini-switch covers for audio panels, prop sync, fuel transfer pumps, DME, etc.

- 300 Series ..... P/N 11-22210
- 400 Series ..... P/N 11-22220
- Mini Switch Package ..... P/N 11-22230

## TOGGLE SWITCH COVERS



Dress up the appearance of your panel and color code your toggle switches with high quality vinyl covers that do not have a nipple at the end of the cover. Available in various colors.

### Standard Size

- Red ..... 11-00815
- White ..... 11-00816
- Yellow ..... 11-01698
- Green ..... 11-00817
- Blue ..... 11-00819
- Black ..... 11-02823

### Mini Size

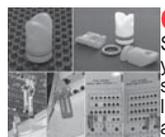
- Red ..... 11-00820
- White ..... 11-00821

## SUBMINIATURE PUSHBUTTON SWITCH



One-piece bushing and case construction, furnished with beveled nut for finished appearance. It has a relatively high current carrying capacity (3 amps at 125V AC) and a life expectancy of 10,000 operations at rated current. Momentary type SPDT switch, ideal for use as a mic switch on control wheel. Furnished with .205" dia. black pushbutton. Body is .354" dia. x .650" long. Mounts in 1/4" dia. hole. P/N MPA-103F

## CIRCUIT BREAKER SAFETY LOCKS



Skylox™ is a unique product that will provide safety to your aircraft ground service crews. The circuit breaker safety lock is easy to use and is an innovative safety solution, all at a very low price. Simple to use. Just squeeze and place over an open circuit breaker to prevent accidental closing of breaker circuits being serviced.

Regular round Skylox™ for standard size breakers and Skylox™ L for larger sizes. Hexagonal shape easily differentiates between the two sizes. Add Skytags™ for added safety. Red with white letters and all white backs for adding notes or special instructions. NOTICE! Skylox™ are designed for use by ground maintenance crews during ground maintenance procedures only! Skylox™ are NOT to be used during flight operations.

- Danger ..... P/N 11-07737
- Warning ..... P/N 11-07738
- Large ..... P/N 11-07734
- Standard .. P/N 11-07736



## MS25224 SWITCHGUARDS

Prevents inadvertent operation of the switch. Switch can be operated only when the spring-loaded guard is lifted up. Returning guard to the down position forces the switch lever to the off position. Single-hole type for neck-mount switches such as AN3021 and AN3027. 3-hole type for panel-mounted switches such as AN3023. Color: Red.

- MS25224-1 (one hole) ..... Ea.
- MS25224-2 (3 holes) ..... Ea.



## EATON SWITCH GUARDS

Spring Loaded Switch Guards - Eaton switch guards can be used with 2 or 3 position switches. Cover closure transfers toggle lever and is molded out of quality thermostat molding materials. Guard covers are spring loaded to either close or lock in an open position.

Description	Pos.	Color	Code	Part No.	Price
Phenolic	2	Red	2	11-06221	.
Metal	2	Green	4	11-06222	.
Phenolic	3	Red	9	11-06223	.
Phenolic	2	Red	10	11-06224	.
Phenolic	2	Red	11	11-06225	.



## CESSNA SPLIT MASTER SWITCH

This versatile split red master switch has been used in virtually all single engine Cessna models since 1970 and can be used in most light aircraft with single alternator systems. Left rocker normally used for alternator and right half for battery. Order mount separately.

- Red Switch ..... P/N 11-15900
- Beige Switch ..... P/N 11-05733
- Mount ..... P/N 11-15910



## BEACON/STROBE SPLIT SWITCH

This is a split switch used in many production aircraft featuring an On-Off switch on left for rotating beacon and On-Off switch on right for anti-collision strobe. Switch is grey. New manufacture. P/N 11-14910



## TOGGLE SWITCHES

Toggle switches are available with 2 or 3 operating positions, one or three hole mounting and a variety of circuitry and electrical ratings. Contacts are made of solid silver. Wide usage is found in aircraft, mobile, marine, electronic and industrial applications. Available in full "AN" standard size and Ultra Miniature 1/2" size. The leading manufacturers of toggle switches are Micro Switch, Alcoswitch, Cutler Hammer, and JBT (now Cutler Hammer). Orders will be filled with switches of manufacturer whose product is available in local stock.

AN No.	MS No.	Mfgs. P/N	Size	Contact	Toggle Circuit*	Price
AN3021-1	MS35058-21	JBT - MS No.	1/2 Miniature	SPDT	1*	.
AN3021-2	MS35058-22	JBT - MS No.	1/2 Miniature	SPST	2*	.
AN3021-3	MS35058-23	JBT - MS No.	1/2 Miniature	SPDT	3*	.
AN3027-1	MS35059-21	JBT - MS No.	Full Standard	DPDT	1*	.
AN3027-2	MS35059-22	JBT - MS No.	Full Standard	DPST	2*	.
AN3027-3	MS35059-23	JBT - MS No.	Full Standard	DPDT	3*	.
AN3027-7	MS35059-27	JSBT-MS No.	Full Standard	DPDT	5*	.

\* See Toggle Circuit Table

TOGGLE CIRCUIT CODE (*)	Circuitry with Toggle at:		
	UP	CENTER	DOWN
1	On	Off	On
2	On	None	Off
3	On	None	On
4	On	Off	On**
5	On*	Off	On**

## TOGGLE CIRCUIT TABLE

\*Available toggle lever positions & circuits

\*\*Momentary contact - when the toggle lever is placed in a momentary position and then released, the toggle lever automatically returns to a neutral position.



## PUSH BUTTON SWITCH

A quality momentary SPST switch, perfect as a starter button. Comes with a special boot that keeps out dust and weather.

- P/N SPB01



## MINIATURE MOMENTARY PUSHBUTTON SWITCH

Normally open. Found in many Piper aircraft. Color: Black.

- #8631ZBD2 ..... P/N 11-01899

# OTTO SWITCHES & PISTOL GRIPS



## T7 COMMERCIAL TOGGLE SWITCHES

T7 commercial toggle switch, waterproof bushing seal switches up to 16 amps 15/32-32 thread mount. Includes mounting hardware.

### SPECIFICATIONS

Electrical: (at 28 DC or 115 AC, 60/400 Hz.)		
Load	Amperes	Life (Nominal)
Resistive	16	25,000
Inductive	10	25,000
Motor	1/2 HP	25,000

No. of Poles	OTTO No.	Circuit	Our P/N	Price ea.
1	T7-131A1	on-off	11-00755	.
1	T7-131B1	on-on	11-00756	.
1	T7-131C1	mom-off	11-00757	.
1	T7-131D1	mom-on	11-00758	.
1	T7-131E1	mom-of-mom	11-00759	.
1	T7-131F1	on-off-on	11-00760	.
1	T7-131G1	mom-off-on	11-00761	.
2	T7-231A1	on-off	11-00762	.
2	T7-231B1	on-on	11-00763	.
2	T7-231C1	mom-off	11-00764	.
2	T7-231D1	mom-off	11-00765	.
2	T7-231E1	mom-off-mom	11-00766	.
2	T7-231F1	on-off-on	11-00767	.
2	T7-231G1	mom-off-on	11-00768	.

Note: MOM designates Momentary On.



## T3 MINIATURE TOGGLE SWITCHES

Military MS27718 qualified. High reliability, rugged. Solder turret for wire attachment. 303 stainless toggle, 15/32" bushing version has a waterproof seal. Specifications Electrical: (at 28VDC or 115VAC, 60/400 Hz.)

Load	Amp	Life (full load)	Load	Amp	Life (full load)
Resistive	5	30,000	Lamp	1	30,000
Inductive/Motor	2	30,000	Mechanical Life	n/a	100,000

No. of Pole	MIL No.	OTTO No.	Circuit	Our P/N	Price ea.
1	MS27718-21-1	T3-11111	on-off-on	11-00772	.
1	MS27718-22-1	T3-11121	off-on	11-00773	.
1	MS27718-23-1	T3-11131	on-on	11-00774	.
1	MS27718-26-1	T3-11141	mom-on	11-00775	.
1	MS27718-27-1	T3-11151	mom-off-mom	11-00776	.
1	MS27718-31-1	T3-11161	mom-off-on	11-00777	.
2	MS27719-21-1	T3-11211	on-off-on	11-00778	.
2	MS27719-22-1	T3-11221	off-on	11-00779	.
2	MS27719-23-1	T3-11231	on-on	11-00780	.
2	MS27719-26-1	T3-11241	mom-on	11-00781	.
2	MS27719-27-1	T3-11251	mom-off-mom	11-00782	.
2	MS27719-31-1	T3-11261	mom-off-on	11-00783	.

Note: MOM designates Momentary On.

## P5 ON-OFF ALTERNATE ACTION SWITCH



Push and the P5 series switch holds "on" push again and the P5 switch turns "off". Positive tactile feedback is featured so the operator is clearly aware the switch mode has been executed. The button returns to the original position after each actuation.

To guard against front panel splash and dirt, the P5 series is sealed at the button with OTTO's patented rolling sleeve principle. The terminals are sealed with epoxy, providing a seal against flux during wiring and behind panel dirt and moisture. The combination of sealing provides smooth operation over a wide temperature range. Watertight sealing to 1meter (IP68) pressure is also available.

Load	Amp	Life (full load)	Load	Amps	Life (full load)
Resistive	10	25,000	Motor	3	25,000
Inductive	5	25,000	Lamp	1	25,000

Switch	Part No.	Price	Switch	Part No.	Price
Press Fit-red	11-00796	.	Thread Mount Red	11-00769	.
Press Fit-black	11-00797	.	Thread Mount Black	11-00770	.
Press Fit-white	11-00798	.	Thread Mount White	11-00771	.

## OTTO PISTOL GRIPS



Cobra

Otto Controls has been making the switches used in a majority of military and commercial flight grips manufactured for the last 40 years. Otto has evolved from a switch supplier into a major gri supplier with flight grips in numerous military and commercial aircraft. These rugged grips are the same as our military qualified grips but without the expensive threaded connector. Grips have a 1.15" ID which can be adapted to a 3/4" or 7/8" joystick with separate sleeves sold below.

Grip Kit	Otto Part No.	2-position Trigger	4-Way Trim Switch	Push-Button Switch	Our Part No.	Price Each
B8	G2-0048	1	1	3	11-00751	.
Cobra	G2-0049	1	1	4	11-00752	.

Grip/Joystick Sleeve			
Joystick O.D.	Part No.	Our Part No.	Price
3/4" shaft	302379	11-00753	.
7/8" shaft	302380	11-00754	.

## P1 MOMENTARY SWITCHES

MIL qualified. Dustproof, snap action, solder terminals, rugged reliable construction.

### SPECIFICATIONS

Electrical: (at 28 DC or 115 AC, 60/400 Hz.)		
Load	Amperes	Life (Nominal)
Resistive	10	25,000 cycles
Inductive/Motor	5	25,000 cycles
Lamp	3	25,000 cycles

PRESS FIT				
MIL No.	Otto No.	Button Color	Our Part No.	Price
MS25089-1AL	P1-12121	Red	11-00745	.
MS25089-1A	P1-12122	Black	11-00746	.
MS25089-1AW	P1-12129	White	11-00747	.

THREADED BEZEL				
MIL No.	Otto No.	Button Color	Our Part No.	Price
MS25089-1CR	P1-32121	Red	11-00748	.
MS25089-1C	P1-32122	Black	11-00749	.
MS25089-1CW	P1-32129	White	11-00750	.



## T3 1/4-40 UNSEALED BUSHING TOGGLE SWITCHES

No. of Pole	MIL No.	OTTO No.	Circuit	Our Part Number	Price each
1	MS27716-21-1	T3-21111	on-off-on	11-00784	.
1	MS27716-22-1	T3-21121	off-on	11-00785	.
1	MS27716-23-1	T3-21131	on-on	11-00786	.
1	MS27716-26-1	T3-21141	mom-on	11-00787	.
1	MS27716-27-1	T3-21151	mom-off-mom	11-00788	.
1	MS27716-31-1	T3-21161	mom-off-on	11-00789	.
2	MS27717-21-1	T3-21211	on-off-on	11-00790	.
2	MS27717-22-1	T3-21221	off-on	11-00791	.
2	MS27717-23-1	T3-21231	on-on	11-00792	.
2	MS27717-26-1	T3-21241	mom-on	11-00793	.
2	MS27717-27-1	T3-21251	mom-off-mom	11-00794	.
2	MS27717-31-1	T3-21261	mom-off-on	11-00795	.

Note: MOM designates Momentary On.

EL

# SWITCHES – LIGHTS – BUSS BARS

• SILVER SWITCH CONTACTS (MOST)

## SWITCHES & INDICATOR LIGHTS

• .25" TAB TERMINAL (UNLESS SHOWN)

Commercial 12 VDC Illuminated & Non-Illuminated Toggle, Rocker, Push-Button, Pull Switches...  
Incandescent & L.E.D. Indicator Lights...Switch Guards...Lever Covers



### LEVER SWITCHES 20 AMP SILVER CONTACTS

Non-Illuminated	Single Pole	Price	Double Pole	Price	
ON-OFF	11-103	---	11-200	---	
OFF-(ON)	---	---	11-211	---	
ON-ON	11-107	---	---	---	
ON-OFF-ON	11-123	---	---	---	
( )=MOMENTARY					
Illuminated	Red	Green	Amber	Blue	Clear
11/16" Lever	11-115	11-116	11-117	---	---
. Ea.					

### DASH LIGHTS



17-420



17-410



17-210

Replaceable Lamp					
Red	Green	Amber	Blue	MTG. HOLE	Price
17-410	17-411	17-412	17-413	1/2"	---
Replacement bulb.....				P/N BA7-12.....	---
Jumbo					
17-420	17-421	17-422	17-423	3/4"nut	---
17-440	17-441	17-442	17-443	1"nut	---
Non-Replaceable Lamp - *4" Wire Leads					
*17-457	*17-458	*17-459	--	1/2"	*
17-210	17-211	17-212	--	9/32"	---

### LEGEND LIGHTS

Illuminated words.  
Dimensions: 7/8" x 11/16" x 1-3/8"  
Mounting Hole: .608 Diameter (18 mm)

Color	Part No.	Price	Color	Part No.	Price
Red	11-06000	---	Orange	11-06050	---
Green	11-06060	---	Yellow	11-06055	---
Blue	11-06065	---	Clear	11-06070	---

### REPLACEMENT BULBS

12 Volt ..... P/N 31-963.1 .....  
24 Volt ..... P/N 31-963.2 .....

NOTE: Order labeling (words) separately from list below.

### LEGEND LIGHT LABELS

Description	Part No.	Price	Description	Part No.	Price
Alarm	17-538	---	Hi Oil Pressure	17-625	---
Auto-Pilot	17-710	---	Hi Oil Temp	17-518	---
AUX Lights	17-501	---	Interior Lights	17-679	---
AUX Rank	17-606	---	Lock	17-711	---
Battery	17-536	---	Loran	17-716	---
Carb Heat	17-712	---	Low Fuel	17-512	---
Caution	17-714	---	Mags	17-715	---
Danger	17-540	---	Main Tank	17-507	---
De-ice	17-713	---	Oil Filter	17-609	---
Flaps Up	17-730	---	Pitot Heat	17-709	---
Flashing Lights	17-560	---	Radio	17-717	---
Fuel Pumps	17-587	---	Strobe Lights	17-631	---
Gear Down	17-718	---	Wing Lights	17-614	---

### MS25041 PRESS-TO-TEST INDICATOR



Miniature press-to-test indicator with built-in bulb testing device. Adjustable dimmer. Uses #330 (12V) or #327 (24V) bulb. Bulbs NOT included, order separately.

Clear .....11-04226 ..... Red.....11-03910 .....  
Green.....11-03911 ..... Amber.....11-03912 .....  
Blue .....11-04227 .....

### ROCKER SWITCHES SILVER CONTACTS

Non-Illuminated	Single Pole	Price	Double Pole	Price
ON-OFF*	14-100	---	14-200	---
OFF-(ON)	14-101	---	---	---
ON-ON	14-102	---	14-210	---
ON-OFF-ON	14-103	---	14-220	---
(ON)-OFF-(ON)	14-104	---	14-225	---
ILLUMINATED SINGLE POLE (20 AMP, ON-OFF)				
RED	GREEN	AMBER	BLUE	PRICE
14-305	14-306	14-307	14-308	---

### PUSH BUTTON



OFF-(ON), 5 AMP  
Mounting Hole: 1/2"  
Aluminum Guard..... P/N 15-112 .....



OFF-(ON) / PUSH ON-PUSH OFF, 20 AMP  
Mounting Hole: 1"  
Red Button ..... P/N 15-132 .....  
Black Button..... P/N 15-133 .....



OFF-(ON), 40 AMP, SEALED  
Mounting Hole: 5/8"  
Screw Terminal ..... P/N 15-100 .....

### PULL SWITCHES



PULL ON/PUSH OFF, 75 AMP  
Chromed..... P/N 16-140..... ea.

### METAL LEVER SWITCHES

• .25" TAB TERMINAL • 20 AMP at 12/24VDC • 15 AMP at 125VAC

Operation	Single Pole	Price	Double Pole	Price
ON-OFF	*12-100	---	12-200	---
OFF-(ON)	*12-101	---	12-201	---
ON-ON	*12-102	---	12-202	---
ON-OFF-ON	12-103	---	12-203	---
(ON)-OFF-(ON)	12-104	---	12-204	---
( )=MOMENTARY (*FOR 15-530 SWITCH GUARD ABOVE)				

### SWITCH LEVER COVERS



Fits most metal switches with 15/32" bushing  
Black Neoprene - Hex Nut  
P/N 19-516 .....

### BUSS BARS

These MS25226 series buss bars are used as replacement bars for MS27212 board assemblies.



Part No.	Hole Size	# of Holes	Length	Our Part No.	Price
MS25226-10-4	3/16	4	2 5/8"	11-04676	---
MS25226-10-8	3/16	8	5 5/8"	03-00133	---
MS25226-10-16	3/16	16	11 5/8"	03-00131	---
MS25226-4-8	1/4	8	5 3/4"	03-00134	---
MS25226-8-4	1/2	4	5 1/8"	03-00135	---

# WIRE — SLEEVING — VINYL TUBING

## UNSHIELDED WIRE MIL-W-22759/16

This top quality aircraft unshielded wire is manufactured to Specification MIL-W-22759/16. It features standard tin-plated copper conductor and is insulated with extruded Tefzel (ethylene/tetrafluorobethylene) which has a maximum temperature rating of 150°C. This wire is rated for 600 volts.

COLOR: WHITE					
Wire Gauge	Wt./1000 Ft. Lbs.	Part No.	Price per ft.	Price (100ft)	Price (1000ft)
24	2.4	11-14524			
22	4.2	11-14522			
20	6.0	11-14520			
18*	8.6	11-14518			
16*	10.7	11-14516			
14	16.7	11-14514			
12	25.0	11-14512			
10	40.1	11-14510			
8	66.6	11-14508			
6	104.6	11-14506			
4	160.1	11-14504			
2	244.1	11-14502			
0	381.3	11-14501			
00	485.8	11-14500			

COLOR: BLACK			COLOR: BLUE						
Wire Gauge	Part No.	Price per ft.	Price (100ft)	Price (1000ft)	Wire Gauge	Part No.	Price per ft.	Price (100ft)	Price (1000ft)
24	11-06254				24	11-07790			
22	11-06257				22	11-07791			
20	11-06260				20	11-07792			
18	11-01596				18	11-01599			
16	11-01601				16	11-01604			
14	11-07788				14	11-07793			
12	11-07789				12	11-07794			

COLOR: GREEN			COLOR: RED						
Wire Gauge	Part No.	Price per ft.	Price (100ft)	Price (1000ft)	Wire Gauge	Part No.	Price per ft.	Price (100ft)	Price (1000ft)
24	11-07795				24	11-06253			
22	11-07796				22	11-06256			
20	11-07797				20	11-06259			
18	11-07798				18	11-01597			
16	11-07799				16	11-01602			
14	11-07801				14	11-07806			
12	11-07802				12	11-07807			

COLOR: YELLOW			*STRIPED WIRE						
Wire Gauge	Part No.	Price per ft.	Price (100ft)	Price (1000ft)	Wire	Part No.	Price per ft.	Price (100ft)	Price (1000ft)
24	11-06252				18 - white w/ blk stripe	11-15601			
22	11-06255				18 - white w/ red stripe	11-15607			
20	11-06258				16 - white w/ blk stripe	11-15501			
18	11-06261				16 - white w/ red stripe	11-15507			
16	11-01603								
14	11-07804								
12	11-07805								

## SHIELDED WIRE MIL-C-27500

This shielded and jacketed aircraft wire conforms to MIL-C-27500 and replaces MIL-C-7078/3. It incorporates MIL-W-22759/18 basic wire and features a Tefzel insulation, a shield of tin-plated copper braid and a jacket of Tefzel. It is temperature rated to 150°C & voltage rated at 600V. Top quality wire to military specifications.

Wire Gauge	Wt./1000 Ft. Lbs.	Part No.	Price Per Foot	Price 100 Ft.
22	10.8	11-14422		
20	13.1	11-14420		
18	16.5	11-14418		
16	19.3	11-14416		
14	26.2	11-14414		
12	36.0	11-14412		
8*	88.6	11-14408		

15% Discount on 100ft. (Per Part No.)

\* 8 Gauge shielded wire is used in converting generator systems to alternators. Conforms to MIL-C-27500.

2-Conductor Shielded Wire ..... P/N 27500/18-22-2 ..... ft.

3-Conductor Shielded Wire ..... P/N 27500/18-22-3 ..... ft.

5-Conductor Shielded Wire for ELT Installations recommended by Artex. 22 Gauge.O.D. .165..... P/N 11-06580..... ft.

## COAXIAL CABLE

**RG 400** - Standard cable for radio installations. Double shielded stranded conductor, MIL-DTL-17 spec. Approved for certified aircraft. P/N 11-09202.....

**RG 142** - Low loss coax cable for GPS, TPX, and DME installations. Double shielded solid conductor, MIL-C-17 spec. Approved for certified aircraft. P/N 11-00043.....

**RG 58A/U** - Standard cable for experimental avionics installations. Single shielded stranded conductor, jacket type - PVC. For experimental aircraft only. P/N 11-03920.....

**RG 58C/U** - Standard cable for experimental avionics installations. Single shielded stranded conductor, jacket type - Non-PVC. For experimental aircraft only. P/N 11-04258.....

## THIN WALL HEAT-SHRINKABLE TUBING

This is a general purpose heat shrinkable tubing with a wide scope of applications including harnessing, wire bundling, strain reliefs or any application where components or cables must be insulated or packaged. Material is an irradiated, thermally stabilized, modified polyolefin which is vastly superior to thermoplastic type materials. Flexible & flame retardant. Shrinkable by any hot air source such as an electric hair dryer or any heating device delivering at least 250°F. One person can complete installation in seconds. No need for special skills. Meets spec. MIL-I-23053B. Standard length - 4 ft. Color: black. Min. purchase 4 ft. per size. Sold only in full 4 ft. lengths.

Expanded Size	Expanded I.D.	Recovered I.D.	Nominal Wall	Part No.	Price / 4 ft. Piece
1/16"	.063	.031	.017	11-00700	
3/32"	.093	.046	.020	11-00800	
1/8"	.125	.062	.020	11-00900	
3/16"	.187	.093	.020	11-01000	
1/4"	.250	.125	.025	11-01100	
3/8"	.375	.187	.025	11-01200	
1/2"	.500	.250	.025	11-01300	
3/4"	.750	.375	.030	11-01400	
1"	1.000	.500	.035	11-01500	
White					
1/8"	.125	.062	.020	11-04029	
1/4"	.250	.125	.025	11-04028	
3/8"	.375	.187	.028	11-04030	
1/2"	.500	.250	.025	11-04027	

Discount: 25% Discount on 12 or more 4' Lengths (Per Size)

Always order the largest size which will fit snugly over the component being covered. Wall thickness will be less if recovery is restricted during shrinking.

## IGNITION SHIELDING BRAID

Tinned copper tubular braid. Very flexible multi-strand braid. Excellent way to shield spark plug wires to reduce radio frequency interference (RFI). Fits over standard spark plug wire. Use 1/2" heat shrink to secure the ends.

Shielding Braid per foot ..... P/N 11-02463 .....  
Heat Shrink Tubing, 1/2", 4 ft. length ... P/N 11-01300 .....

## TINNED COPPER BRAID

Used for static shielding on short lengths of wire or cable and for flexible bonding connections and ground straps. Made of extra flexible tinned copper wire. Rolled flat for spooling.

P/N	Nominal Flat Width	Current *Capacity Amps.	Wt./100 Ft. Lbs.	Price Per Ft.	Price 100 Ft.
858	1/8"	16	0.7		
863	1/4"	32	1.5		
864	3/8"	46	2.5		
868	1/2"	53	3.3		
865	5/8"	53	3.4		

## VINYL TUBING

Clear PVC tubing for cable protection. Commonly called "spaghetti". Meets Spec. MIL-I-631D.

AWG Size	I.D.	Wire Wall	Size	Part No.	Price/Ft.	100 Ft.
9	.118	.020	20-22	11-02200		
7	.148	.020	16-18	11-02300		
5	.186	.020	12-14	11-02400		
2	.263	.020	8-10	11-02500		
5/16	.312	.025	6	11-02600		
3/8	.375	.025	4	11-02700		

Vinyl tubing for gas lines, 1/4" I.D. x 3/8" O.D. ... P/N 0500-071 ..... Ft.

## PREMIUM VINYL TUBING

This premium vinyl tubing is recommended for use in extremely cold temperatures where tubing can be prone to becoming stiff and brittle. Manufactured to Spec. MIL-I-7444B, this tubing can be coiled and bent easily and will retain some flexibility even in extreme temperatures. Sold in 50 ft. and 100 ft. coils in the sizes listed below.

AWG Size	Wire Size	I.D. (In.)	Wall (In.)	50 Ft. Coil		100 Ft. Coil	
				Part No.	Price	Part No.	Price
9	20-22	.118	.020	11-16195		11-16190	
7	16-18	.148	.020	11-16175		11-16170	
5	12-14	.186	.020	11-16155		11-16150	
2	8-10	.263	.020	11-16125		11-16120	
5/16	6	.312	.025	11-16165		11-16160	

## EXPANDABLE SLEEVING

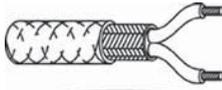
This expandable sleeving is used in many aircraft applications and is used extensively in warbirds and in race cars. Flame retardant. Color: black. Sold in 100ft. lengths.

Size Rng	Part No.	Price	Size Rng	Part No.	Price
3/32-1/8	11-01900		1/2-1-1/4	11-01904	
1/8-3/8	11-01901		3/4-1-1/2	11-01905	
1/4-3/4	11-01902		1-1/4-2-1/2	11-01906	
3/8"	11-01903		1-1/2-3	11-01907	

NOTE: SOME WIRE ON THIS PAGE IS SOLD IN SPECIAL INCREMENTS ONLY (i.e.: 10 FT., 20 FT., 30 FT., ETC.) (As Noted)  
- Extra 15% discount for 1000 ft. (off the 100 ft. price) on all items on this page.



# WIRE — SWITCHES — SPLICES

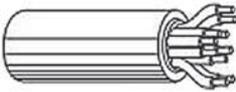


## SHIELDED TEFLON WIRE

This hook-up wire is standard in the aviation industry for installation of electronics equipment. Sold in 1' increments and spooled as a continuous length.

- 16G 2 CON..... P/N 11-04473.....
- 18G 2 CON..... P/N 11-04474.....
- 18G 3 CON..... P/N 11-04475.....
- 24G 1 CON..... P/N 11-04476.....
- 24G 2 CON..... P/N 11-04477.....
- 24G 3 CON..... P/N 11-04478.....

## 10 CONDUCTOR GRAY CODE TEFLON WIRE



Excellent for carrying gray code information from the encoder to other devices that take gray code input such as transponder, Garmin 430 GPS, serializer etc. Instead of running individual 24AWG wires and running them in a bundle, use this handy all in one, color coded, 10 conductor cable, saving time and effort. Sold in 1' increments.

P/N 11-04479.....

## BATTERY CABLE



6-gauge multi-strand copper core cable. Meets SAE Spec J1127-SGT. Price is per foot.

- Black..... P/N 11-03942.....
- Red..... P/N 11-03943.....
- Lug (6 Gauge)..... P/N 11-05110.....



## SOLDER SLEEVE

Raychem's Solder Sleeve one-step, heat-shrinkable wire and cable interconnection devices are a labor saving alternative to conventional wire and cable termination methods such as craft-sensitive, time-consuming, hand soldering or crimping. The one-step terminators create strong, soldered connections. They consist of a heat-shrinkable sleeve and a premeasured, fluxed solder band. When heated, the tubing shrinks and the solder melts, making reliable, insulated terminations.

- .125"SM..... P/N 11-04480.....
- .200"MD..... P/N 11-04481.....
- .300"LG..... P/N 11-04482.....

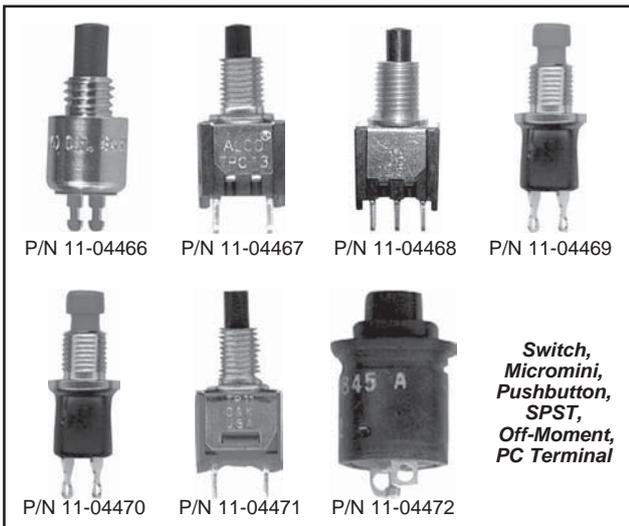
## MU-METAL MAGNETIC SHIELDING



Provides shielding when placed around electronic equipment prior to installation. 4"x4 mil. Sold by the inch.

P/N 11-04483..... /inch

## MOMENTARY PUSH-BUTTON SWITCHES



- P/N 11-04466
- P/N 11-04467
- P/N 11-04468
- P/N 11-04469

- P/N 11-04470
- P/N 11-04471
- P/N 11-04472

Switch,  
Micromini,  
Pushbutton,  
SPST,  
Off-Moment,  
PC Terminal

- Normally Open, Black..... P/N 11-04466.....
- SPST, Normally Open, Black..... P/N 11-04467.....
- SPDT, Momentary, Black..... P/N 11-04468.....
- 1/4" Threads, Normally Open, Red..... P/N 11-04469.....
- 1/4" Threads, Normally Open, Black..... P/N 11-04470.....
- SPDT, Momentary, Black..... P/N 11-04471.....
- Mason Switch, .710"L, PTT Switch..... P/N 11-04472.....

## HEAT SHRINK BUTT SPLICES



PN 11-04427 (TIN PLATED)



PN 11-04428 (NICKEL PLATED)

Heat-Shrinkable crimp butt splices completely insulate and protect electrical connections from water, condensation, salt and corrosion. Provides strain relief and protects against wire pull-out and vibration in the most rugged environments. Qualified to MIL-S-81824/1.

### BLUE

AWG: 20-16 -- I.D. dimensions (mm/in) Crimp barrel size range 779-2680(CMA) 0.39-1.34(mm)

Sold by the Piece

Side 1	
Sealing Insert	Max. no. of wires
2.79(.110)	2
Side 2	
Sealing Insert	Max. no. of wires
2.79(.110)	2

- Blue (Tin-plated)..... P/N 11-04427.....
- Blue (Nickel-plated)..... P/N 11-04428.....



PN 11-04425 (TIN PLATED)



PN 11-04426 (NICKEL PLATED)

### RED

AWG: 26-20 -- I.D. dimensions (mm/in)Crimp barrel size range 1900-6755(CMA) 0.95-3.37(mm)

Sold by the Piece

Side 1	
Sealing Insert	Max. no. of wires
4.32(.170)	2
Side 2	
Sealing Insert	Max. no. of wires
4.32(.170)	2

- Red (Tin-plated)..... P/N 11-04425.....
- Red (Nickel-plated)..... P/N 11-04426.....



PN 11-04429 (TIN PLATED)



PN 11-04430 (NICKEL PLATED)

### YELLOW

AWG: 16-12 -- I.D. dimensions (mm/in) Crimp barrel size range 1900-6755(CMA) 0.95-3.37(mm)

Sold by the Piece

Side 1	
Sealing Insert	Max. no. of wires
4.32(.170)	2
Side 2	
Sealing Insert	Max. no. of wires
4.32(.170)	2

- Yellow (Tin-plated)..... P/N 11-04429.....
- Yellow (Nickel-plated)..... P/N 11-04430.....

## COLOR CODED CIRCUIT BREAKER CAPS



These color coded caps can easily be installed and removed from Klixon and similar type circuit breakers. Colored caps are used to "flag" designated circuit breakers for flight check and other purposes. In addition, they greatly improve grip. Won't shake loose and rattle like others can.

- White..... P/N 11-04455.....
- Red..... P/N 11-04457.....
- Yellow..... P/N 11-04459.....
- Gray..... P/N 11-04461.....
- Orange..... P/N 11-04456.....
- Blue..... P/N 11-04458.....
- Black..... P/N 11-04460.....
- Green..... P/N 11-04462.....

Discount: 10% Discount on 6 or more of the same Part number.



## CIRCUIT BREAKER LOCKS

Circuit Breaker Safety Locks - With & Without Tags. Prevents the inadvertent closing of circuit breakers connected to equipment that is under repair or removed from the aircraft. Easily installed and removed from Klixon and similar type circuit breakers. Safety locks come both with and without tags. All locks are red, tags are red with white lettering. Tags measure 2"x3/4".

- No Tag..... P/N 11-04463.....
- Remove Before Flight..... P/N 11-04464.....
- Inoperative..... P/N 11-04465.....

# BNC/TNC CONNECTORS — AVIONICS TOOLS



## BNC COAXIAL ANTENNA CONNECTORS

Male.....P/N 11-03992  
Female.....P/N 11-03993

## BNC CONNECTOR RIGHT ANGLE BNC MALE TO FEMALE

Male to Female.....P/N 11-04454



## BNC CONNECTOR RG58

Male, Right angle, dual crimp.  
P/N 11-04444

## BNC FEMALE BULLDOG DUAL CRIMP

P/N 11-04445



## TNC CONNECTOR AMP MALE, DUAL CRIMP RG58

P/N 11-04446

## TNC CONNECTOR AMP MALE, DUAL CRIMP RG142-400

P/N 11-04447



## TNC CONNECTOR AMP MALE, DUAL CRIMP RG8-213

P/N 11-04448

## TNC CONNECTOR AMP RIGHT ANGLE, MALE, DUAL CRIMP RG58

P/N 11-04449



## TNC CONNECTOR AMP RIGHT ANGLE, MALE, DUAL CRIMP RG142-400

P/N 11-04450



## TNC CONNECTOR AMP RIGHT ANGLE, MALE, DUAL CRIMP RG214

P/N 11-04451



## TNC CONNECTOR RIGHT ANGLE SOLDER/ SCREW RG58

P/N 11-04452



## TNC CONNECTOR FEMALE, DUAL CRIMP RG58

P/N 11-04453



## LITTLE BLUE CRIMPER

The Daniels AFM8 is designed for most of the miniature and sub-miniature connector types that are so widely used in all types of electronic systems. Originally developed for the Air Force, the AFM8 meets the need for a miniature tool accommodating wire sizes 20 thru 32 AWG. The cycle controlled precision ratchet assures consistently accurate crimps every time. The tool has a built-in eight step selector knob for ease in dialing the correct crimp depth setting for the wire being used.

P/N 11-04443



## BIG BLUE CRIMPER

The Daniels AF8 has virtually limitless application within the specified wire range of 12 thru 26 AWG. Over 1,000 turret heads or positioners are available to adapt the tool frame to your specific military or proprietary contact/wire combination. The eight impression crimp, which is standard in the AF8, assures absolute maximum tensile strength with almost every closed barrel contact. The precision ratchet controls cycling on the tool in both directions of handle movement. This assures the same, accurate crimp every time. It's like having a quality control inspector at every work station.

P/N 11-04442

## HAND INSERTION TOOL

This inexpensive, manual tool is lightweight and easy to use in the placement and/or removal of a terminal in a housing.



P/N 11-04439



## MATE-N-LOK INSERTION PIN & SOCKET TOOL

Insertion tool for grounding blocks and locking connectors. The AMP insertion tool for MATE-N-LOK pins. Contact sizes 20-24 AWG.

P/N 11-04437



## MATE-N-LOK EXTRACTION PIN & SOCKET TOOL

Insertion tool for grounding blocks and locking connectors. The AMP insertion tool for MATE-N-LOK pins. Contact sizes 20-24 AWG.

P/N 11-04438



## PIN & SOCKET TOOL W/ INTERCHANGEABLE TIPS

This insertion & extraction tool consists of a handle, a cap, six insertion/extraction tips, a plug, and a .050-in. hex wrench. The handle of the tool provides storage for the tips, plug and hex wrench. The insertion/extraction tips convert the tool for the appropriate product and are used to insert or extract connector contacts. Each tip is color coded according to specific type and wire size. The hex wrench is used to tighten the set screw which secures the tip in the tool handle.

P/N 11-04436



## PIN INSERTION & EXTRACTION TOOL

The insertion of contacts during assembly or replacement during repair is quick and easy with the appropriate tools. The tools have to fit the contacts and the connectors if assembly and repair are to be carried out correctly. Plastic Body, Metal Tip Insertion & Extraction Tool After you've installed the pins on the wiring to a connector, this tool will help you set the pins correctly into the connector housing. This tool is also absolutely necessary to use for extracting a broken pin for replacement or moving a misplaced pin for relocation. Insert and extract all your connector pins & sockets with this premium tool. It will work with both standard and high-density pins.

6 AWG Blue/White.....P/N 11-04431  
20 AWG Red/White.....P/N 11-04432  
24-20AWG Red/White.....P/N 11-04433  
22 AWG Green/White.....P/N 11-04434  
22-28AWG Green/White.....P/N 11-04435



# ELECTRICAL TERMINALS

## KOROSEAL LACING

Excellent lacing material. Permanently flexible. Resists oxidation, impervious to petroleum products. Holds tension on knots indefinitely. Perfect for holding wire bundles, tubing, etc. Rectangular cross-section 3/32"x 5/32".



P/N 11-12200...../Ft.

## BREYDEN POLYESTER LACING TAPES

Flat braided tape manufactured from 100% high tenacity, continuous filament polyester fiber. This product conforms to the requirements of MIL-T-43435B; Type II, Size 3, Finish C. The tape is uniformly impregnated with a synthetic elastomer coating to improve knot holding and tying characteristics. Ideal for spot tying. 500 yd. rolls.

Width: .085" (±10%); Thickness: .014" (±.003"); Tensile Strength: 50 Lb. (min.); Elongation: 40% (max.)

Natural.....P/N 11-02012.....  
Black.....P/N 11-02013.....

## BREYDEN NYLON LACING TAPES

Flat braided tape manufactured from 100% high tenacity, continuous filament nylon yarn. This tape is impregnated with a specially formulated microcrystalline, fungicidal wax. Conforms to the requirements of A-A-52080-B-3. Recommended for continuous lacing. 500 yd. rolls. Width: .077" (min.) / .094" (max.); Thickness: .011" (min.) / .017" (max.); Tensile Strength: 50 Lb. (min.); Wax Content: 15-32%; Elongation: 40% (max.)

Natural.....P/N 11-12170.....  
Black.....P/N 11-12160.....

## MS25181 NYLON SPLICES

Butt-type, self insulated.



Part No.	Wire Range	Price
320559	22-18	.
320562	16-14	.
320570	12-10	.

## AMP BATTERY TERMINALS



Terminals may be crimped or soldered.

P/N	AWG Size	Amp	Stud Size	Price ea
33461	8	35	1/4"	.
33466	6	50	5/16"	.
33470	4	70	5/16"	.
321600	2	90	3/8"	.
321867	1/0	125	5/16"	.
321868	1/0	125	3/8"	.

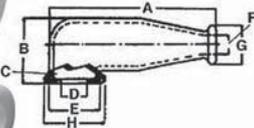
## MS25171 ELECTRICAL TERMINAL NIPPLES

Right angle nipples made of silicone rubber (MIL-R-5847, Class II, Grade 50).



PN 11-03913

PN 11-03915



Part No.	Dimension								Dash No.	Price Each
	A	B	C	D	E	F	G	H		
11-03913	1.38	.56	.06	.40	.63	.16	.41	.76	-1S	.
11-03914	2.50	1.00	.06	.56	.82	.31	.56	.95	-2S	.
11-03915	2.50	1.00	.06	.56	.82	.43	.68	.95	-3S	.
11-03916	2.50	1.00	.06	.56	.82	.56	.82	.95	-4S	.
11-04837	1.38	.56	.06	.40	.63	.16	.41	.76	-1	.

## LIQUID ELECTRICAL TAPE

Protects connections with applicator brush protects electrical connections and terminals against corrosion. Ideal for battery switches, instrument panel terminations, bilge pumps and electrical connections. Dielectric, resists moisture by filling in wire nuts and butt connector ends. The water-based formula is environmentally friendly, non toxic, non-flammable, odor free, will not harden in container, and easy to clean up with water. 4oz. Bottle

P/N 09-42565.....



## AMP® SOLDERLESS TERMINALS & SPLICES

AMP's solderless electrical terminals and splices meet and exceed today's requirements for reliable terminals in applications ranging from control circuits to heavy duty power wiring. A limited number of sizes and types of terminals and tools are featured in this catalog. Information and pricing on unlisted items furnished on request.

### RING TONGUE, NON-INSULATED TERMINALS

The barrel and tongue of these terminals are fabricated of the finest electrolytic copper and electro-tinned for optimum performance. The seam is brazed for uniform metal strength around the entire barrel area.



Part No.	AWG Size	Stud Size	Price
34104	22-16	4	.
34105	22-16	6	.
34108	22-16	8	.
34109	22-16	10	.
34113	22-16	1/4	.
321684	16-14	6	.
34122	16-14	8	.
34123	16-14	10	.
34124	16-14	1/4	.
32994	12-10	8	.
33457	12-10	10	.
35772	12-10	1/4	.
35135	12-10	1/2	.

### RING TONGUE, VINYL INSULATED TERMINALS

Each insulated terminal consists of a tin plated copper body, a tin plated copper wire support sleeve and a color-coded insulation sleeve.



Part No.	AWG Size	Stud Size	Price
31880	22-16 RED	4	.
31885	22-16	6	.
31890	22-16	8	.
36154	22-16	10	.
31894	22-16	1/4	.
32442	16-14 BLUE	6	.
31902	16-14	8	.
31903	16-14	10	.
31906	16-14	1/4	.
35149	12-10 YELLOW	6	.
35108	12-10	8	.
35109	12-10	10	.
35110	12-10	1/4	.
35112	12-10	3/8	.

### KNIFE DISCONNECTS

Nylon Insulated Two Required Per Assembly.



32446..... 22-16 ..... Red..... ea.  
32448..... 16-14 ..... Blue..... ea.

### BUTT TYPE SPLICES PLASTI-GRIP

34070..... 22-16 ..... Red..... ea.  
34071..... 16-14 ..... Blue..... ea.  
34072..... 12-10 ..... Yellow..... ea.

Discount: Less 20% on 100 pieces (per P/N)

### AMP TERMINAL KITS

Terminal & Splice Kit.....P/N 11-50000.....  
Above w/15 Drawer Cabinet .....P/N 11-50005.....  
Above w/Cabinet and 604252-1 tool.....P/N 11-50010.....

FOR KIT COMPONENTS VISIT  
[www.aircraftspruce.com](http://www.aircraftspruce.com)  
OR CALL OUR SALES TEAM AT:  
1-877-4-SPRUCE

### PIDG FASTON RECEPTACLES BY AMP



\*Style A:  
No dimple w/wire stop.  
\*\*Style B: Dimple w/wire stop.  
Less 20% on 100 pcs. (per P/N)

Part #	Tab Width	AWG	Tab Thk.	Price
640903-1**		22-18	.032	.
640905-1**	0.250"	16-14	.032	.
42844-1**		14-12	.032	.
11-00808**		12-10	.032	.
640909-1**		22-18	.020	.
640911-1**		22-18	.032	.
640913-1**	0.205"	16-14	.020	.
640915-1**		16-14	.032	.
640917-1**		22-18	.020	.
640919-1**	0.187"	16-14	.020	.
61048-1**		22-18	.016	.
61060-1*		22-18	.020	.
60894-1**	.110"	22-18	.032	.
640923-1*		22-18	.020	.
640925-1*		22-18	.032	.
640929-1*		16-14	.020	.

# SEAL-ALL CONNECTORS

Seal-All Connectors are an environmentally sealed connection system developed to withstand exposure to extreme temperatures, moisture and harsh engine compartment fluids and chemicals with unflinching performance. It consists of mating heat stabilized polyamide housings, male and female "pin and socket" terminals and self-lubricating silicone connector and cable seals. Seal-All connector configurations are available for one to six wires. -40 C to 125 C temperature range. Now you can have the same superior Plug/Connector that is used in vehicle OEM manufacturing.

## SEAL-ALL CONNECTORS (MALE AND FEMALE SHELLS ONLY)

### SINGLE CONDUCTOR KIT MANF P/N - WHT1C



### DOUBLE CONDUCTOR KIT MANF P/N - WHT2C



### TRIPLE CONDUCTOR KIT MANF P/N - WHT3C



### 4 CONDUCTOR KIT MANF P/N - WHT4C



### 4 CONDUCTOR KIT MANF P/N WHT4CSQ



### 5 CONDUCTOR KIT MANF P/N - WHT5C



### 6 CONDUCTOR KIT MANF P/N - WHT6C



## TERMINAL CONNECTOR KITS FOR SEAL-ALL CONNECTORS



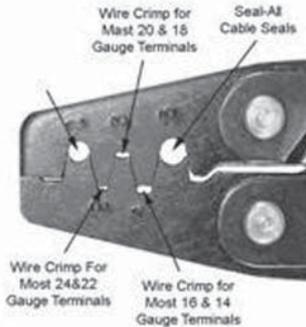
Terminal Kits (includes 6 each-male, female terminals and 12 seals). Will work with all Seal-All Shells.  
 24-22 Ga Wire MANF P/N - WHT2422..... P/N 11-06588 .....  
 20-18 Ga Wire MANF P/N - WHT2018..... P/N 11-06589 .....  
 16-14 Ga Wire MANF P/N WHT1614..... P/N 11-06590 .....

## SEAL-ALL HEAVY DUTY CONNECTOR



Heavy Duty Connector-42 amps continuous maximum current rating. For 12-10 gauge wire. Complete 2 conductor kit  
 P/N 11-06591.....

## SEAL-ALL CRIMP TOOL



Crimp tool works with all Seal-All terminals and seals. Its compact, low-cost parallel jaw design eliminates terminal rocking.

Seal-All Crimp Tool  
 P/N 11-06592 .....

## PROFESSIONAL SEAL-ALL CRIMPER



Crimps Seal-All terminals and seals in one cycle. Features two double Cavities, an orientation block and a ratchet mechanism to ensure that each crimp cycle is completed. Factory calibrated to be used only with Seal-All terminals and seals. Wire range 20-14.  
 Pro Seal-All Crimper  
 P/N 11-06593 .....

## SEAL-ALL TERMINAL RELEASE TOOL

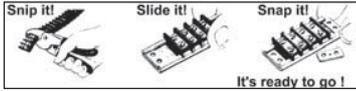


A must have tool for working with Seal-All shells and terminals. Designed to depress Seal-All retention bars to allow terminal removal from shells.  
 Seal-All Tool  
 P/N 11-06594 .....

EL

# CABLE TIES – SPIRAL WRAP

## AMP® FLEXI-BLOCK MODULAR TERMINAL BLOCK SYSTEM



Assemble terminal blocks to custom requirements in seconds:

1. Pull out the number of block assemblies required from dispenser box.
2. Cut the track with hacksaw or cutting tool two spaces longer than unit. Slip the block assembly into the track.
3. Insert end stops and assembly is complete.

**USER'S KIT** - Consists of 25 pcs Flexi-Block terminal block, 12 end stops and (2) 12" pcs. of track. Complete kit.

**PROFESSIONAL KIT** - No. 6 kit consists of 100 ea. P/N 604101-1 block assemblies, 25 ea. of P/N 604111-1 end stops & 2 ea. P/N 601805-1 track 3 ft. long. Complete kit.

**COPPER BUS BAR** - 0.125" x .5" Wide

## AMP® SPIRAP SPIRAL PLASTIC TUBING

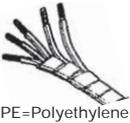
Spiral plastic tubing is a fast and economical way to bundle wires and harnesses. It is designed to protect wire insulation for the life of the circuit even under severe vibration. Spirap tubing obtains its gripping ability from the memory of the plastic. When 1/4" diameter Spirap is wrapped around a 3/4" diameter wire bundle, the Spirap tubing tries to return to its original 1/4" diameter size, effectively gripping the wire bundle. Flame retardant polyethylene. Color—white. Bundle diameter range: 3/16" to 2".

P/N 500004-1 ...../ft. .... /100 ft.

## SPIRAL WRAP WIRE PROTECTORS

Permits flexible routing of cable harness while forming a neat, protective bundle. It twists on easily and quickly and allows lead-outs at any point. When installed, it may be gapped for greater economy and flexibility or it may be butted tightly for maximum abrasion resistance, insulation protection and greater rigidity. Nylon type-for use in wider

temperature ranges with high resistance to abrasion and good solvent resistance. PE=Polyethylene NY=Nylon



Part No.	Size	Max. Dia.	Price/ft.
11-12318 (PE)	1/8"	1/2"	.
11-12316 (PE)	3/16"	1-1/2"	.
11-12314 (NY)	1/4"	2"	.
11-12338 (NY)	3/8"	3"	.
11-12312 (NY)	1/2"	4"	.
11-12334 (PE)	3/4"	6"	.
11-12311 (PE)	1"	8"	.

## STA-KON ELECTRICAL TERMINALS

Color-coded MS25036 nylon ring w/self-insulated grip. 20% Discount on 100

Wire Range: 22-18			Wire Range: 16-14 Cont.		
P/N	Bolt Hole	Price	P/N	Bolt Hole	Price
11-03864	4	.	RB14-8	8	.
11-03865	6	.	RB14-10	10	.
11-03866	8	.	RB14-14	1/4	.
11-03862	10	.	Wire Range: 12-10		
11-03863	1/4	.	RC10-6	6	.
Wire Range: 16-14			RC10-8	8	.
11-04093	4	.	RC10-10	10	.
11-03869	6	.	RC10-14	1/4	.
			RC10-38	3/8	.

## COBRA RUBBER MOUNTS

Part No.	Size	Color	Qty.	Price
11-02470	3/4"	Black	100	.
11-02472	3/4"	Natural	100	.
11-02474	1"	Black	100	.
11-02475	1"	Black	1000	.
11-02476	1"	Natural	100	.

## COBRA ACRYLIC MOUNTS

Part No.	Size	Color	Qty.	Price
11-02478	3/4"	Black	100ct	.
11-02479	3/4"	Natural	100ct	.
11-02481	3/4"	Natural	1000ct	.
11-02482	1"	Black	100ct	.
11-02483	1"	Black	1000ct	.
11-02484	1"	Natural	100ct	.

## STANDARD CINCH AND TRIM GUN

(C-200) Tension Adjust for 18 to 50 lb. Cable Ties  
P/N 11-02468 ..... /ft.



## CABLE TIES



This all nylon cable tie is designed to hold cables securely. Bundling strength military requirements. Installs in just seconds.

Part No.	Cat. #	Length	Price
11-04230	L-4-18	4"	.
11-04229	L-7-50	7"	.
11-04058	L-14-50	14"	.

## CABLE TIE ASSORTMENT PACK

P/N 11-03768 ..... 11-04039  
P/N 11-04230 ..... 11-04229  
P/N 11-04058 .....

## TYTON HORIZONTAL IDENTIFICATION CABLE TIES

Length: 8"; Strength: 50 lbs. .... P/N 11-12360 .....



## TYTON VERTICAL IDENTIFICATION CABLE TIES

Length: 4"; Strength: 18 lbs.  
P/N 11-12365 .....

## TYTON MOUNTING CABLE TIES

Length: 4"; Strength: 18 lbs. .... P/N 11-12350 .....

## ADHESIVE AND SCREW CABLE TIE MOUNTS

Part No.	Strength	Mounting	Price/50
11-01017	18 to 30 lbs.	#4 Screw	.
11-03854	18 to 50 lbs.	#8 Screw	.
11-03855	18 to 150 lbs.	#8 Screw	.

## CRADLE CABLE TIE MOUNTS

Part No.	Strength	Mounting	Price/50
11-03987	18 lbs.	#6 Screw	.
11-03988	18 lbs.	#8 Screw	.
11-03989	18 to 50 lbs.	#8 Screw	.
11-03990	18 to 50 lbs.	#10 Screw	.
11-03991	18 to 120 lbs.	1.4" Screw	.

## NYLON BULKHEAD SEALS

Nylon Bulkhead seals are used when electrical harnesses or tubing is passed through bulkheads in pressurized and non-pressurized aircraft.

Bulkhead Seal, Square, 1-1/8" Hole ..... P/N 11-04059 .....

Bulkhead Seal, Square, 3/4" Hole ..... P/N 11-04061 .....

Bulkhead Seal, Elliptical, 1/2" Hole ..... P/N 11-04060 .....

Bulkhead Seal, Elliptical, 1-3/8" Hole ..... P/N 11-04062 .....

## COBRA LOW PROFILE CABLE TIES

With an exceedingly low profile and a contoured locking head, the Cobra configuration is safer, more flexible and stronger than existing cable ties. Safer because the (often barbed) stub is now deflected into a pocket at the rear of the head. More flexible because the flat lock section curves to the bundle contour and stronger because the Cobra uses an inline geometry, eliminating the stress points of traditional cable ties. Bundles

down to 3/8" diameter and meets new AS 3361 specs. Features pick-proof underside lock & all rounded edges.

Color	Qty.	Tensil	Length/Width	Part No.	Price
UV Black	100	50 Lbs.	7.5" x .178"	11-01883	.
UV Black	1000	50 Lbs.	7.5" x .178"	11-01884	.
Natural	100	50 Lbs.	7.5" x .178"	11-01885	.
Natural	1000	50 Lbs.	7.5" x .178"	11-01886	.
Black	-	120 Lbs.	14" x .178"	11-02416	.
Natural	-	120 Lbs.	14" x .178"	11-02417	.
Black	-	18 Lbs.	4" x .178"	11-02464	.
Natural	-	18 Lbs.	4" x .178"	11-02466	.
Natural	-	18 Lbs.	4" x .178"	11-02467	.

## COBRA CABLE TIE KITS

### STANDARD

Contents of kit includes: 1 - C200 (Standard) Cinch and Trim Gun, 100 - 7.5" 50lb. Low Profile Cable Ties, 1 - Instruction Manual  
Black 7.5" Ties ..... P/N 11-06319 .....

Natural 7.5" Ties ..... P/N 11-06320 .....

### HEAVY DUTY

Contents of kit includes: 1 - C300 (Heavy Duty) Cinch and Trim Gun, 100 - 14", 120lb. Low Profile Cable Ties, 1 - Instruction Manual  
Black 14" Ties ..... P/N 11-04729 .....

Natural 14" Ties ..... P/N 11-04730 .....

# BOGERT CABLES



## BOGERT'S LOW LOSS COPPER CABLE KITS

Piper Service Bulletin No. 836, considered "mandatory" by Piper Aircraft Corporation, calls for the inspection and replacement of aluminum battery-to-starter cables at the next scheduled inspection, but not to exceed 50 hours of operation. The aluminum cables may generate a lot of heat and have caused melted and blackened cables. This excessive heat buildup could also result in an electrical fire. No replacement parts are available from Piper, and Piper has also specified replacement materials that are not readily available and are very expensive. The Piper-specified cables and sizes actually reduce the maximum allowable cranking amperage to the starter. The Bogert "low-loss" cable assembly kits replace the cables affected by SB 836. They are ready to install and are FAA-PMA approved with an STC. The "low-loss" cables have at least 55% greater capacity than those specified in SB 836 and 25% greater capacity than O.E.M. parts. With the Bogert "low-loss" cables your starter will turn

at its rated speed with greatly reduced current drain from your battery. Please provide year, make, S/N and "N" number of aircraft when ordering. Custom length cables available for home-built aircraft. Request quotation. Advise if plane has a lightweight starter. Extra length cable is provided at no extra charge for lightweight design.

### PIPER

Aircraft Application	Part No.	Our Price	Aircraft Application	Part No.	Our Price
PA-12	11-00247	.	PA-28-235	Cherokee	11-15150
PA-16	11-00248	.	PA-28-236	Dakota	11-15152
PA-18	Super Cub	11-15102	PA-30	Twin Comanche	11-15154
PA-20	Pacer	11-15104	PA-31-300	Navajo	11-15156
PA-22	Tripacer/Colt	11-15106	PA-31-310	Navajo	11-15158
PA-23-150/160	Apache	11-15108	PA31-325	Navajo	11-15160
PA-23-250	Aztec (4&6 place)	11-15110	PA-31-350	Navajo	11-15162
PA-24-180/250/260	Comanche (Battery AFT)	11-15112	PA-31P	Navajo	11-15164
PA-24-260	Comanche (battery fwd of firewall)	11-15114	PA-31T1	Cheyenne I	11-15168
PA-31T	Cheyenne	11-15166	PA-32R-301T	-----	11-15184
PA-24-260	Comanche (AFT)	11-15116	PA-32-260/300	Cherokee Six	11-15170
PA-24-400	Comanche	11-15118	PA-32R-300	Lance	11-15172
PA-25-235/260	Pawnee	11-15120	PA-32RT-300	Lance	11-15174
PA-25-235/260	Pawnee (SN25-7556153 & up)	11-15122	PA-32RT-300T	Lance	11-15176
PA-28-140	Cherokee	11-15124	PA-32-301	-----	11-15178
PA-28-150/160	Cherokee	11-15126	PA-32R-301	-----	11-15180
PA-28-151	Warrior	11-15128	PA-32-301T	Turbo Saratoga	11-15182
PA-28-161	Warrior II	11-15130	PA-34-200	Seneca I	11-15186
PA-28-180	Cherokee	11-15132	PA-34-200T	Seneca II	11-15188
PA-28R-180	Arrow	11-15134	PA-34-220T	Seneca III	11-15190
PA-28-181	Archer II	11-15136	PA-36-285		11-00250
PA-28R-200	Arrow II	11-15138	PA-36-300		11-00251
PA-28R-201	Arrow III	11-15140	PA-36-375		11-00252
PA-28R-201T	Turbo Arrow III	11-15142	PA-38-112	Tomahawk	11-15192
PA-28RT-201	Arrow IV	11-15144	PA-39 C/R		11-00253
PA-28RT-201T	Turbo Arrow IV	11-15146	PA-44-180	Seminole	11-15194
PA-28-201T	Turbo Dakota	11-15148	PA-44-180T	Turbo Seminole	11-15196

### CESSNA - BEECHCRAFT - BELLANCA - GRUMMAN - LUSCOMBE - MOONEY - STINSON - COMMANDER - SWIFT

Aircraft Application	Part No.	Our Price
Cessna 150 A, B, C	11-00273	.
Cessna 150 D, E, F, G, H	11-00274	.
Cessna 150 J, K, L, M	11-00275	.
Cessna 152 no APU	11-00276	.
Cessna 152 with APU	11-00277	.
Cessna 170 A	11-00278	.
Cessna 170 B	11-00279	.
Cessna 172 A	11-00280	.
Cessna 172 B, C	11-00281	.
Cessna 172 D, E (rear), F	11-00282	.
Cessna 172 G, H	11-00283	.
Cessna 172 I, K, L, M	11-00284	.
Cessna 172N	11-00285	.
Cessna 172P	11-00286	.
Cessna 175 A, B, C	11-00287	.
Cessna 177 B	11-00288	.
Cessna 177 RG	11-00289	.
Cessna 180	11-00290	.
Cessna 180 A, B, C, D, E	11-00291	.
Cessna 180 J	11-00292	.
Cessna 180 K	11-00293	.
Cessna 182 1956 model	11-00294	.
Cessna 182 A	11-00295	.
Cessna 182 J	11-00296	.
Cessna 182 E, F, G, H, J, K, L, M, N, P, Q	11-00297	.
Cessna 185 E & A185E	11-00298	.
Cessna A185F 12 VOLT	11-00299	.
Cessna A185F 24 VOLT	11-02211	.

Aircraft Application	Part No.	Our Price
Cessna U206 C-G	11-00301	.
Cessna 210 D	11-00302	.
Cessna 210 E	11-00303	.
Cessna T210 F	11-00304	.
Cessna 210 K, T210K	11-00307	.
Cessna 210 N, T210N	11-00306	.
Beechcraft BE-35-C33	11-00254	.
Beechcraft BE-V35	11-00255	.
Beechcraft BE-C35	11-00256	.
Beechcraft BE-S35	11-00257	.
Bellanca BL-14-19-2	11-00258	.
Bellanca BL-14-19-3	11-00259	.
Bellanca BL-17-30	11-00260	.
Bellanca BL-17-30A	11-00261	.
Bellanca/Champion 7GCBA, 7ECA	11-00262	.
Bellanca/Champion 7GCAA, 7KCAB	11-00263	.
Bellanca/Champion 8KCAB	11-00264	.
Bellanca/Champion 7GCB	11-00265	.
Bellanca/Champion 7GCBC	11-00266	.
Grumman GRUM-AA5, 5A, 5B	11-00267	.
Grumman GRUM-AA-1A, 1B, 1C	11-00268	.
Luscombe LU-8E	11-00269	.
Mooney MO-M20C	11-00270	.
Mooney MO-M20F	11-00271	.
Stinson STI-108 1, 2, 3	11-00272	.
Rockwell Commander RW-112	11-00308	.
Rockwell Commander RW-114	11-00309	.
Swift GC-1A, 1B	11-00311	.



# WHELEN AVIATION LIGHTING

## POSITION LIGHTS AND ANTI-COLLISION LIGHT DISTRIBUTION PATTERNS REQUIREMENTS



An approved anti-collision strobe light system must project light 360° around the aircraft's vertical axis. One or more strobe lights can be used.



An approved anti-collision strobe light system must project light + or - 30° above and below the horizontal plane of the aircraft. One or more strobe lights can be used. The + or - 75° projected light is required since July 18, 1977.



## LOCATIONS ON THE AIRCRAFT FOR ANTI-COLLISION STROBE LIGHTS, TO COMPLY TO THE LIGHT PATTERN REQUIREMENTS



### VERTICAL FIN

One anti-collision strobe light mounted on the vertical fin will meet the minimum requirements on most aircraft. A half red and half white lens is recommended.



### WING TIP

Two wing tip strobe lights that protrude beyond the wing tip.



### ENCLOSED WING TIP

Enclosed wing tip anti-collision strobe lights, require a third strobe light on the tail or vertical fin, to fill in the required light envelope. This is an approved anti-collision system.



### FUSELAGE

In a fuselage mounted anti-collision strobe light system, a minimum of two strobe lights are necessary to get the required vertical coverage. This is an approved anti-collision system.

## ANTI-COLLISION AND POSITION LIGHT REQUIREMENTS, LOCATIONS, & DISTRIBUTION PATTERNS

All aircraft must have an approved anti-collision light and position light system for nighttime operations. The position lights consist of an Aviation Red on the left side, an Aviation Green on the right and an Aviation White taillight (REF. FAR 23.1389).

The anti-collision lighting system is required under FAR PART 91.205(c).

There are different requirements affecting different aircraft. These aircraft are categorized by the date of application for type certificate. Home built aircraft are determined by the date of issuance of the Experimental Operating Limitations.

The different categories are as follows:

Aircraft for which type certificate was applied for after

April 1, 1957 to August 10, 1971:

These anti-collision systems must produce a minimum of 100 effective candela in Aviation Red or White (REF. FAR 23.1397), 360° around the aircraft's vertical axis, 30° above and below the horizontal plane (REF. FAR 23.1401).

**Aircraft for which type certificate was applied for after August 11, 1971 to July 18, 1977:**

These anti-collision systems must produce a minimum of 400 effective candela in Aviation Red or White (REF. FAR 23.1397), 360° around the aircraft's vertical axis, 30° above and below the horizontal plane (REF. FAR 23.1401).

**Aircraft for which type certificate was applied for after July 18, 1977:**

These anti-collision systems must produce a minimum of 400 effective candela in Aviation Red or White (REF. FAR 23.1397), 360° around the aircraft's vertical axis, 75° above and below the horizontal plane (REF. FAR 23.1401).

**Note:** The position lights must be wired independently of anti-collision lights.

## INSTALLATION LOCATIONS

### WING TIP:

The major difference in systems is the location of the strobe power supplies which can be mounted locally, one in each wing tip, or a single power supply can be mounted in the fuselage. Installation time can be greatly reduced if done in conjunction with an annual or one hundred-hour inspection. Properly installed power supplies and cabling are necessary for the safe operation of Whelen or any light systems.

### FUSELAGE:

Fuselage mounted units can be either self-contained with the power supply and lighthouse as one unit, or remote lighthouses run off a separate power supply. To meet the field of coverage, one must be on the top of the fuselage and one on the bottom.

### VERTICAL FIN:

Finally, if applicable, a single anti-collision light can be mounted on the vertical stabilizer. It can be either a self-contained or remote lighthouse depending on the aircraft.

## HOME BUILT & KIT AIRCRAFT

For Aircraft with Standard Wing Tips – The most widely used system on the market, this provides all of the components for anti-collision and position lights without the need for a taillight. The power supply is mounted in the fuselage and shielded cable is run to the strobe lights. The following is recommended:

Quantity	Model	Part #	Description
1 each	HDACF	01-0770028-05	Power supply
1 each	A600PG14	01-0790006-00	Wing tip strobe/position/taillight, 14 VDC
1 each	A600PR14	01-0790006-02	Wing tip strobe/position/taillight, 14 VDC
<b>Note:</b> Model 9034001 and 9034002 can replace Model A600 for a LED solution			
1 each	HD60	01-0750206-00	Installation package

For Aircraft with Enclosed Wing Tip Fairings – If the position and strobe lights are mounted under a clear fairing, a third tail strobe is required. The following is recommended:

Quantity	Model	Part #	Description
1 each	HDACF	01-0770028-05	Power supply
1 each	A650PG14	01-0770054-00	Wing tip strobe/position light, 14 VDC
1 each	A650PR14	01-0770054-02	Wing tip strobe/position light, 14 VDC
<b>Note:</b> Model 7111001 and 7111002 can replace Model A650 for a LED solution			
1 each	A500AV14	01-0770024-00	Tail position/strobe light assembly
1 each	HDT390	01-0750205-00	Installation package

For Aircraft with Enclosed Wing Tip Fairings & Wing Tip Mounted Power Supplies – If position and strobe lights are mounted under a clear fairing, the need for a third tail strobe is required. The following is recommended:

Quantity	Model	Part #	Description
2 each	A490ATSC	01-0770062-03	Power supply
1 each	A650PG14	01-0770054-00	Wing tip strobe/position/taillight, 14 VDC
1 each	A650PR14	01-0770054-02	Wing tip strobe/position/taillight, 14 VDC
<b>Note:</b> Model 7111001 and 7111002 can replace Model A650 for a LED solution			
1 each	A500AV14	01-0770024-00	Tail position/strobe light assembly, 14 VDC
3 each	HS5	01-0750215-00	Installation package

# WHELEN POWER SUPPLIES - LIGHT HEADS

## HOW TO CHOOSE A POWER SUPPLY AND ABOUT COMETFLASH

The power supply needed depends on the application, and the mounting location. Model HDACF Series is a fuselage mounted power supply that will power two or three lights. Model A490ATSC Series is designed for installation adjacent to the strobe lighthouse and will power one light assy. Model A490TCF Series is the most economical power supply when adding only one light. It mounts adjacent to the strobe lighthouse assembly (not legal for light output with red strobe light). Most other Whelen power supplies are application specific, call for details. Unless otherwise noted, all power supplies are CometFlash®. A major advancement in the field of safety lighting. By pulsing the flash tube four times in rapid succession, the effective "on-time" of the strobe is increased from 2/1000 of a second to 4/10 of a second. This increases your airplane's visibility.



**MODEL HDACF SERIES** - HDACF series provides simultaneous flashing, alternate flashing or both. It will operate one, two or three strobe lighthouses. Operating the wing tip strobes in the alternating mode will provide an accumulated 42 joules of power to each light. When in the simultaneous mode, the accumulated power to each light is 21 joules. In the three light mode, the wing tips will flash simultaneous at an accumulated 21 joules each, they alternate with a third light operating at an accumulated 42 joules. On the trigger selector outlet, a switch mounted in place of the jumper will allow wing tip outlets 2 & 3 to be turned off, while the tail outlet 1 will remain on. This function is commonly used when the third light is for ground operations. This power supply will operate from 10 to 30 VDC.

**SPECIFICATIONS:** • Power Consumption: 7.0 amps @ 14 VDC; 3.5 amps @ 28 VDC • Weight: 2.1 lbs. (953gm) • Length: 5.50" (140mm) • Width: 5.0" (127mm) • Height: 2.37" (60mm)

Model	Approvals	Part No.	Price
HDACF	FAA/PMA	11-16218	.

**MODEL A490ATSC SERIES** - A490ATSC series operates one strobe lighthouse. Its compact size allows mounting in the wing tip and/or the tail, adjacent to the lighthouse. It produces an accumulated 34 joules of power and can be equipped to flash simultaneously with up to 5 other like units by connecting an 18 gauge wire between outlet 3 on the input power connector. This power supply will operate from 10 to 30 VDC.

**SPECIFICATIONS:** • Power Consumption: 4.0 amps @ 14 VDC; 2.0 amps @ 28 VDC • Weight: 1.7 lbs. (771gm) • Length: 5.0" (127mm) • Width: 3.12" (79mm) • Height: 3.06" (78mm)

Model	Approvals	Part No.	Price
A490ATSC	FAA/PMA	11-02666	.

**MODEL A490TCF SERIES** - A490TCF series operates one strobe lighthouse. It is our most compact unit and can be mounted in the wing tip and/or the tail adjacent to the lighthouse. It produces an accumulated 19 joules of power. It will only meet 400 CP when used with the A470A-W. This unit cannot be synchronized. Operates from 10 to 30 VDC (not approved for use with red strobe light). **SPECIFICATIONS:** • Power Consumption: 1.7 amps @ 14 VDC; 0.85 amps @ 28 VDC • Weight: 1.2 lbs. (544gm) • Length: 5.0" (127mm) • Width: 3.12" (79mm) • Height: 2.38" (60mm)

Model	Approvals	Description	Part No.	Price
A490TCF	FAA/PMA	20" leads, amp connectors	11-14714	.
A490TCFM	—	20" leads, Molex connectors	11-06406	.
7000615	—	20" leads, no connectors	11-07600	.

**MODEL A490TCCF SERIES** - A490TCCF series is the same as the A490TCF but has a mounting plate with additional holes that directly replaces factory installed systems on single engine Cessna's, Aero Commanders, and Grumman Americans. **SPECIFICATIONS:** • Power Consumption: 1.7 amps @ 14 VDC; 0.85 amps @ 28 VDC • Weight: 1.2 lbs. (544gm) • Length: 5.0" (127mm) • Width: 3.12" (79mm) • Height: 2.38" (60mm)

Model	Approvals	Description	Part No.	Price
A490TCCF	FAA/PMA	20" leads, amp connectors	11-02661	.
7000612	—	9" output, 7" input, leads (Cessna 172)	11-04493	.
7000616	—	20" lds, ms conn on output ld	11-07601	.
7000617	—	3" output, 7" input & 4 pos. amp conn (Cessna) (182,206)	11-04494	.

**MODEL HDS SERIES** - HDS series produces 20 joules of energy, Single-Flash, alternating between two light assemblies. The SingleFlash allows for a low current draw. This power supply will operate from 10 to 30 VDC. **SPECIFICATIONS:** • Power Consumption: 4.0 amps @ 14 VDC; 2 amps @ 28 VDC • Weight: 2.0 lbs. (907gm) • Length: 5.50" (140mm) • Width: 5.0" (127mm) • Height: 2.37" (60mm)

Model	Approvals	Part No.	Price
HDS1428	—	11-03279	.

**NOTE:** All non-FAA approved whelwn parts are signified by a (—) in the approval column. Parts without FAA approval may still be purchased, however, installation of these parts on U. S. Type Certificated products may require additional FAA approvals.



## MODEL 90340 SERIES STROBE ANTI-COLLISION/LED POSITION LIGHT ASSEMBLY

90340 series is an all inclusive wing tip mounted strobe anti-collision/position light assembly utilizing LED's for both the forward & tail position lights, eliminating the need for a tail mounted position light. The LED's provide a significant reduction in current draw over conventional position light bulbs. The strobe light lens assembly is radio shielded for maximum EMI/RFI protection. Direct replacement (exact footprint) for the Whelen Model A600PG/PR series without replacing the current strobe power supply. Single set of flying leads operates both forward & tail nav on 28 VDC version, and one set each of flying leads for the forward & tail nav on the 14 VDC version.



## MODEL 90375 SERIES STROBE ANTI-COLLISION/LED POSITION LIGHT ASSEMBLY (FOR COMPOSITE WINGTIP STRUCTURE)

Same as 90340 series with addition of 3 feet of braided bonded protection. **SPECIFICATIONS:** • LED Navigation Light Power Consumption: 0.5 amps @ 14 VDC, 0.25 amps @ 28 VDC • Weight: 0.60 lbs. (272gm) 14 VDC, 0.65 lbs. (295gm) 28 VDC • Exposed Height: 2.70" (69mm) • LED Colors: Aviation Red, Aviation Green & Aviation White 1.1 lbs. (499gm) • Lens: Clear RFI coated glass: strobe, Clear Polycarbonate: Navigation Lights

Model	Approvals	Description	Part No.	Price
9034001	FAA TSO-C96a/TSO-C30c Typ II & III	Pos Grn, 14V	11-05625	.
9034002	FAA TSO-C96a/TSO-C30c Typ I & III	Pos red, 14V	11-05626	.
9034003	FAA TSO-C96a/TSO-C30c Typ II & III	Pos Grn, 28V	11-05627	.
9034004	FAA TSO-C96a/TSO-C30c Typ I & III	Pos red, 28V	11-05628	.
9037501	FAA TSO-C96a/TSO-C30c Typ II & III	Pos Grn, 28V	11-06598	.
9037502	FAA TSO-C96a/TSO-C30c Typ I & III	Pos red, 28V	11-06599	.



## MODEL A600 PG/PR SERIES

A600 PG/PR series wing tip anti-collision, forward position and tail position lights, all in one compact unit. Tail position light eliminates the need for a tail mounted position light. Available in 14 or 28 VDC and in a radio-shielded version. The forward position lamp is 26 watts and the tailight lamp is 25 watts. **SPECIFICATIONS:** • Weight: 0.8 lbs. (363gm) • Position Lamps Power Consumption: 4 amps @ 14 VDC; 2 amps @ 28 VDC • Exposed Height: 2.4" (61mm) • Length: 5.63" (143mm) • Width: 1.7" (43mm)

Model	Approvals	Description	Part No.	Price
A600PG14	FAA TSO-C30b / FAA/PMA	Pos Grn, 14V	11-03220	.
A600PG28	FAA TSO-C30b / FAA/PMA	Pos Grn, 28V	11-03245	.
A600PR14	FAA TSO-C30b / FAA/PMA	Pos red, 14V	11-03221	.
A600PR28	FAA TSO-C30b / FAA/PMA	Pos red, 28V	11-03246	.
A600PGD1	FAA TSO-C30b / FAA/PMA	Pos green, 14V, radio-shielded	11-03636	.
A600PGD2	FAA TSO-C30b / FAA/PMA	Pos Grn, 28V, radio-shielded	11-03732	.
A600PRD1	FAA TSO-C30b / FAA/PMA	Pos red, 14V, radio-shielded	11-03638	.
A600PRD2	FAA TSO-C30b / FAA/PMA	Pos red, 28 V, radio-shielded	11-06335	.
9000612	FAA TSO-C30b used on Cirrus	Pos green, 28V, radio-shielded	11-07602	.
9000613	FAA TSO-C30b used on Cirrus	Pos red, 28V, radio-shielded	11-07603	.



## MODEL 71110 SERIES STROBE ANTI-COLLISION/LED POSITION LIGHT ASSEMBLY

71110 series is a wing tip mounted strobe anti-collision/position light assembly utilizing LED's for the forward position lights. The LED's provide a significant reduction in current draw over conventional position light bulbs. The strobe light lens assembly is radio shielded for maximum EMI/RFI protection. Direct replacement (exact footprint) for the Whelen Model A650PG/PR series without replacing the current strobe power supply. Navigation light portion is wired with flying leads.

**SPECIFICATIONS:** • LED Colors: Aviation Red, Aviation Green • LED Navigation Light Power Consumption: 0.25 amps @ 14 VDC or 28 VDC • Weight: 0.45 lbs. (204gm) 14 VDC, 0.50 lbs. (227gm) 28 VDC • Exposed Height: 2.70" (69mm) • Lens: Clear RFI coated glass: strobe, Clear Polycarbonate: Navigation Lights

Model	Approvals	Description	Part #	Price
7111001	FAA TSO-C96a / TSO-C30c Type II	Pos Grn, 14 V	11-05630	.
7111002	FAA TSO-C96a / TSO-C30c Type I	Pos red, 14 V	11-05633	.
7111003	FAA TSO-C96a / TSO-C30c Type II	Pos Grn, 28 V	11-05635	.
7111004	FAA TSO-C96a / TSO-C30c Type I	Pos red, 28 V	11-05636	.

# WHELEN LIGHT HEADS



**MODEL A650 PG/PR SERIES** - A650 PG/PR series wing tip with anti-collision & forward position lights can be used to convert non-Whelen position lights into a position/anti-collision light system. The small size allows for mounting into a wing tip enclosure. Available in 14 or 28V and in a radio-shielded version. The forward position lamp is 26 watts. **SPECIFICATIONS:** • Weight: 0.6 lbs. (272gm) • Position Lamp Power Consumption: 2 amps @ 14V; 1 Amp @ 28V • Exposed Height: 2.4" (61mm) • Length: 4.0" (102mm) • Width: 1.7" (43mm)

Model	Approvals	Description	Part No.	Price
A650PG14	FAA/PMA	Pos Grn, 14V	11-03217	.
A650PG28	FAA/PMA	Pos Grn, 28V	11-03239	.
A650PR14	FAA/PMA	Pos red, 14V	11-03218	.
A650PR28	FAA/PMA	Pos red, 28V	11-03247	.
A650PGD1	FAA/PMA	Pos Grn, 14V, radio-shielded	11-03639	.
A650PGD2	FAA/PMA	Pos Grn, 28V, radio-shielded	11-06336	.
A650PRD1	FAA/PMA	Pos red, 14V, radio-shielded	11-03642	.
A650PRD2	FAA/PMA	Pos red, 28V, radio-shielded	11-06337	.



**MODEL A650 SERIES** - A650 series converts W1285 position lights into a position/anti-collision system by removing the existing retainer & replacing it with the A650 assembly. Radio-shielded version available. **SPECIFICATIONS:** • Weight: 0.2 lbs. (91gm) • Exposed Height: 2.4" (61mm)

Model	Approvals	Description	Part No.	Price
A650	FAA/PMA	Standard unit	11-03215	.
A650D	FAA/PMA	Radio-shielded	11-07604	.



**MODEL A625 SERIES** - A625 series has many different applications. It can be used for aircraft with tip-tanks with enclosed position lights (under a fairing), or as an add-on strobe on the wing or the tail. Available in a radio-shielded version. **SPECIFICATIONS:** • Weight: 0.2 lbs. (91gm) • Exposed Height: 1.7" (43mm)

Model	Approvals	Description	Part No.	Price
A625	FAA/PMA	Standard unit, clear lens	11-03228	.
A625D	FAA/PMA	Radio-shielded, clear lens	11-03659	.
A625R	—	Standard unit, red lens	11-07605	.
A625DR	—	Radio-shielded, red lens	11-07607	.
7005815	—	Radio-shld, 3/c cbl, 12" grnd braid	11-07608	.
7005816	—	Radio-shld, 24" 3/c cbl, w/MS conn	11-07609	.



**MODEL 70821 SERIES** - 70821 series remote streamlined strobe light assembly. Easily mounted on the wing tip for anti-collision or on the vertical fin for ground recognition. It is recommended for the wing tips on Cessna single engine aircraft 1970-71. Its sleek aerodynamic shape allows it to be mounted where surface area is at a premium, or to simply "clean-up" the look of the airplane. It can be added as a low profile ground recognition light when mounted on the vertical fin or fuselage. A mounting adapter plate facilitates mounting. **SPECIFICATIONS:** • Weight: 0.3 lbs. (136gm) • Exposed Height: 1.8" (46mm) • Length: 3.5" (89mm) • Width: 1.8" (46mm)

Model	Approvals	Description	Part No.	Price
7082100	—	Standard unit, clear lens	11-03287	.
7082101	—	Radio-shielded, clear lens	11-70821-01	.
7082102	—	Standard unit, red lens	11-07610	.
7082103	—	Radio-shielded, red lens	11-70821-03	.



**MODEL 50626 SERIES STROBE TUBE ASSEMBLY** - 50626 series strobe tube assemblies are used with the following model numbers listed in chart below:

Model	Description	Used on	Part No.	Price
5062600	6"	Model 9011102	11-07681	.
5062601	6" w/Grom	Model 9034000 - 07, 20, 21 Model 7111001 - 04	11-07682	.
5062602	12.5" w/Grom	Model 9034008, 09	11-07683	.
5062603	2" w/Grom	Model 9037501, 02	11-07685	.



**MODELS A610 & A612** - A610 flash tube and A612 glass lens are used for installing wing tip strobes in single engine Cessna's 1972 and later. The existing position light retainer is modified to accommodate the lens, and the flash tube is mounted directly behind. The unique magnifying design of the A612 lens increases the light intensity by two to three times in the horizontal plane. These items may be used for custom installations or as spare parts for existing light assemblies. The A612 lens is available in Aviation Red and an RFI coated version. Lenses meet material requirements of MIL-C-7989B Class B.

**SPECIFICATIONS:** • Drawing Number A612: 90005 • A610 Flash Tube Weight: 0.09 lbs. (41gm) • A612 Lens Weight: 0.08 lbs. (36gm)

Model	Approvals	Description	Part No.	Price
A610	FAA/PMA	Standard unit, 6" leads	11-03213	.
A610M	FAA/PMA	Molex connector, 6" leads	11-03734	.
5027601	FAA/PMA	14" leads	11-07611	.
5027602	FAA/PMA	12.5" leads	11-07612	.
A612	FAA/PMA	Standard clear lens	11-03222	.
A612D	—	Radio-shielded, clear lens	11-03735	.
A612R	—	Standard red lens	11-07613	.
A612DR	—	Radio-shielded, red lens	11-07614	.



**MODEL A500A SERIES** - A500A series combination strobe/tail navigation light used when the wing tip anti-collision lights are mounted in an enclosure and can't provide 360° of strobe coverage. It is a direct replacement for the standard tail position light. Available in a radio-shielded version. Voltage (14 or 28) and mounting (horizontal or vertical) must be specified when ordering. **SPECIFICATIONS:** • Weight: 0.3 lbs. (136gm) • Exposed Height: 1.7" (43mm) • Diameter: 1.5" (38mm)

Model	Approvals	Description	Part No.	Price
A500AV14	FAA/PMA, FAA TSO-C30b	Vert mnt, 14V	11-03223	.
A500AV28	FAA/PMA, FAA TSO-C30b	Vert mnt, 28V	11-03255	.
A500AH14	FAA/PMA, FAA TSO-C30b	Horz. mnt, 14V	11-03249	.
A500AH28	FAA/PMA, FAA TSO-C30b	Horz. mnt, 28V	11-03264	.
A500AVD1	FAA/PMA, FAA TSO-C30b	Vert mnt, 14V, radio-shielded	11-03721	.
A500AVD2	FAA/PMA, FAA TSO-C30b	Vert mnt, 28V, radio-shielded	11-06407	.
A500AHD1	FAA/PMA, FAA TSO-C30b	Horz. mnt, 14V, radio-shielded	11-03717	.
A500AHD2	FAA/PMA, FAA TSO-C30b	Horz. mnt., 28V, radio shielded	11-04281	.
A500ASP2	—	Vert mnt, 28V, 50" cables, no Connectors	11-03720	.
A500ABV1	—	Beech Special 14V, MS connector	11-03715	.
A500ABV2	—	Beech Special 24V, MS connector	11-03716	.



**MODEL A470A SERIES** - A470A series remote strobe light assembly is compatible with all Whelen power supplies. It can be installed on the fuselage or the vertical fin. The unique polycarbonate optic lens and reflector design, re-directs stray light rays into the horizontal plane to provide the maximum 360° of uniform light coverage possible. Available in three different lens colors, aviation red, aviation white and split aviation red/white. Available in radio-shielded configurations. All assemblies require either the model H102 or H103 mounting adapter. **SPECIFICATIONS:** • Weight: 0.3 lbs. (136gm) • Exposed Height: 3.75" (95mm) • Diameter: 2.5" (64mm)

Model	Approvals	Description	Part No.	Price
A470AR	FAA/PMA	Standard assembly, red lens	11-03273	.
A470AW	FAA/PMA	Standard assembly, white lens	11-03277	.
A470AS	FAA/PMA	Std assy, split red/white lens	11-03259	.
A470ADR	FAA/PMA	Radio-shielded asy, red lens	11-03714	.
A470ADW	FAA/PMA	Radio-shielded asy, white lens	11-03291	.
A470ADS	FAA/PMA	Radio-shielded asy, split red/white lens	11-04976	.



**MODELS H102 & H103** - Designed for the model A470A or model A450 series remote strobe lighthead assemblies. The model H102 allows flush mounting of the lighthead to the skin of the fuselage or the vertical stabilizer on later model Cessna Single engines. The H103 is designed for strobe assemblies to be installed in the standard 3-3/4" (95mm) dia. rotating beacon mounting hole.

Model	Approvals	Description	Part No.	Price
H102	FAA/PMA	Flush mount adapter	11-03243	.
H103	—	Rotating beacon mount adapter	11-03284	.



**MODEL A450 SERIES** - A450 series remote strobe light assembly is compatible with all Whelen power supplies. It can be installed on the fuselage or the vertical fin. The Pyrex® Glass lens (clear only) makes the assembly suitable for use in severe vibration, chemical and moisture conditions (i.e. agricultural aircraft). Requires either the model H102 or model H103 mounting adapter. **SPECIFICATIONS:** • Weight: 0.3 lbs. (136gm) • Exposed Height: 2.25" (57mm) • Diameter: 2.5" (64mm)

Model	Approvals	Description	Part No.	Prices
A450	FAA/PMA	Standard assembly, clear lens	11-03280	.



**MODEL 90358 SERIES SELF-CONTAINED LED ANTI-COLLISION/LED POSITION LIGHT ASSEMBLY** - (For Fixed Wing, TSO-C96a Class II (400 ecp) 90358 series is a self-contained all LED wing tip mounted anti-collision/position light assembly utilizing LED's for both the anti-collision, forward & tail position lights, eliminating the need for a tail mounted position light. The LED's provide a significant reduction in current draw over conventional position light bulbs, and strobe power supplies. The all inclusive LED design virtually eliminates EMI/RFI interference. All current source and flasher circuitry is contained within the attached flasher box. **SPECIFICATIONS:** • LED Navigation Light Power Consumption: 0.25 amps @ 28 VDC EACH • LED Anti-Collision Light Power Consumption: 0.5 amps @ 28 VDC • LED Colors: Aviation Red, Aviation Green & Aviation White • Weight: 1.3 lbs. (590gm) • Exposed Height: 2.80" (71mm) • Exposed Width: 2.64" (67mm) • Exposed Length: 7.29" (185mm) • Depth: 3.00" (76mm) • Lens: Clear Hard Coated Polycarbonate

Model	Approvals	Description	Part No.	Price
9035801	FAA TSO-C96a/TSO-C30c Typ II & III	Pos Grn, 28V	11-06170	.
9035802	FAA TSO-C96a/TSO-C30c Typ I & III	Pos red, 28V	11-06171	.

# WHELEN SELF-CONTAINED LIGHT ASSEMBLIES



**MODEL 70900 SERIES LED BEACONS** - (for fixed wing aircraft) 70900 series are FAA TSO compliant self-contained anti-collision lights for fixed wing aircraft. An external power unit is not required. Conservative lab life results greater than 20,000 hours. No EMI or RFI produced. All units meet the minimum requirements stated in FAR Parts 23 & 25 for anti-collision light systems used on fixed wing aircraft, Ref: Class III (100 effective candela) of SAE AS8017a minimum performance standards. STC SA615EA approved.

Models 7090004 & 7090005 are designed to replace existing light assemblies with the 3-3/4" (95mm) dia. mounting pattern (Ref. Whelen HRCFA series, 90081 series, and "old style" rotating beacons). Same mounting hole pattern, no modification to the aircraft is required. SPECIFICATIONS: • Power Consumption: P/N 11-02523: 0.85 amps @ 14 VDC • Power Consumption: P/N 11-02524: 0.425 amps @ 28 VDC • LED Color: Aviation Red • Weight: 1.1 lbs. (499gm) • Exposed Height: 3.1" (78mm) • Exposed Diameter: 2.8" (71mm)

Model #	Approvals	Description	Part No.	Price
7090004	FAA TSO-C96a Class III	Red, 3-3/4 dia. mount, 14 VDC	11-02523	.
7090005	FAA TSO-C96a Class III	Red, 3-3/4 dia. mount, 28 VDC	11-02524	.



**MODEL 90520 SERIES LED FLASHING BEACON (RED & WHITE LED'S)** - 90520 series LED beacons are FAA TSO compliant self-contained LED anti-collision lights (Ref. Class I - 100 effective candlepower). They are designed to replace strobe lightheads as small as the A470A with available models to replace HR self-contained beacons (HRCFA) or our legacy 70900 LED beacon. Mounting plate included with assembly. Refer to models and descriptions below.

ELECTRICAL:

Models ending: 2001, 2004, 2005, 2014, 2015, 2051, 2055: 12" Flying Leads  
Models ending: 2007, 2017, 2008, 2018: MS3102R10SL-3P Connector

**MECHANICAL:**

Models: 2004, 2014, 2008, 2018 are designed to replace existing beacons utilizing a 5 Hole mounting pattern on 4.656 diameter bolt circle (Whelen 70285 series / 7090501 series or 70900 with A440 adapter). Models: 2005, 2015, 2007, 2017 are 3 3/4" opening designed to fit inside an A440 mounting adapter, mounting holes to fit in place of rotating beacons, Whelen model HRCFA, or 7090004, -05 series LED beacons  
SPECIFICATIONS: • Current: 0.67 amps Average, 3.0 amps Peak • Weight: 0.65 lbs. (295gm) (-01 & -51) • Lens: Clear polycarbonate • Dimensions: 2.6" (66mm) Diameter, Exposed Height, 3.74" (95mm) (-01 & 51)

Model #	Approvals	Description	Part No.	Price
9052001	FAA TSO-C96a Class I	LED red/white, 28 VDC & mount	11-07615	.
9052051	FAA TSO-C96a Class I	LED red/white, 14 VDC & mount	11-07616	.
9052004	FAA TSO-C96a Class I	LED red/white, 28 VDC & 5 hole mount	11-07617	.
9052014	FAA TSO-C96a Class I	LED red/white, 28 VDC & 5 lower mount	11-07618	.
9052005	FAA TSO-C96a Class I	LED red/white, 28 VDC, 3.75" adapter	11-07619	.
9052015	FAA TSO-C96a Class I	same as 9052005, lower mount	11-07620	.
9052007	FAA TSO-C96a Class I	LED red/white, 28 VDC, 3.75" adapter	11-07621	.
9052017	FAA TSO-C96a Class I	same as 9052007, lower mount	11-07622	.
9052008	FAA TSO-C96a Class I	LED red/white, 28 VDC & 5 hole mount	11-07623	.
9052018	FAA TSO-C96a Class I	LED red/white, 28 VDC & 5 lower mount	11-07624	.



**MODEL HRCFA SERIES** - HRCFA series is a self-contained CometFlash® strobe anti-collision light. The unique polycarbonate optic lens and reflector design re-directs stray light rays into the horizontal plane to provide maximum 360° of uniform light coverage. Available in three different lens colors, aviation red, aviation white and split aviation red/white and in radio-shielded configurations. FAA approved as a direct replacement for any rotating beacon that uses a 3-3/4" (95mm) dia. mounting hole. Can be installed in the vertical fin or the fuselage. Fuselage installation requires the A440 mounting adapter. Operates between 10 to 30 VDC. SPECIFICATIONS: • Weight: 1.5 lbs. (680gm) • Height: 7.25" (184mm) • Diameter: 3.7" (94mm) • Power Consumption: 3.2 amps @ 14 VDC, 1.6 amps @ 28 VDC

Model #	Approvals	Description	Part #	Price
HRCFAR	FAA/PMA	Std. assy. red lens	11-16214	.
HRCFAW	FAA/PMA	Std. assy. white lens	11-16212	.
HRCFAS	FAA/PMA	Std. assy. split red/white	11-16216	.
HRCFADR	FAA/PMA	Radio-shielded, red lens	11-07625	.
HRCFADW	FAA/PMA	Radio-shielded, white lens	11-07626	.
HRCFADS	FAA/PMA	Radio-shielded, split red/white	11-07627	.



**MODEL 71080 SERIES LED BEACON FOR ROTORCRAFT, (150 EFF. CD) (14 VDC & 28 VDC)** - 71080 series LED beacons are FAA TSO compliant self-contained LED anti-collision lights (Ref. Class I - 150 effective candlepower). They are designed to replace a range of products. Refer to models and descriptions below.

ELECTRICAL:

7108051 Models ending: 8001, 8004, 8005, 8014, 8015, 8020, 8051, 8055: 12" Flying Leads

Models ending: 8007, 8017, 8008, 8018: MS3102R10SL-3P Connector

**MECHANICAL:**

Models: 8004, 8014, 8008, 8018 are designed to replace existing beacons utilizing a 5-Hole mounting pattern on a 4.656 diameter bolt circle (Whelen 70285 series/7090501 series or 70900 with A440 adapter). Models: 8005, 8015, 8007, 8017 are 3 3/4" opening designed to fit inside an A440 mounting adapter, mounting holes to fit in place of rotating beacons, Whelen Model HRCFA, or 7090004, -05 series LED beacons  
SPECIFICATIONS: • Current: 0.87 amps average, 3.0 amps peak • Weight: 0.65 lbs. (295gm) (8001 & 8051) • Lens: Clear polycarbonate • Dimensions: 2.6" (66mm) diameter, exposed height, 3.74" (95mm) (8001 & 8051)

Model #	Approvals	Description	Part #	Price
7108001	FAA TSO-C96a Class I (150 ecp)	LED red, 28 VDC & Mt.	11-06174	.
7108051	FAA TSO-C96a Class I (150 ecp)	LED red, 14 VDC & Mt.	11-07656	.
7108004	FAA TSO-C96a Class I (150 ecp)	LED red, 28 VDC & 5-Hole mount	11-07687	.
7108014	FAA TSO-C96a Class I (150 ecp)	Same as 8004, lower Mt	11-07688	.
7108005	FAA TSO-C96a Class I (150 ecp)	LED red, 28 VDC, 3.75" adapter	11-07689	.
7108015	FAA TSO-C96a Class I (150 ecp)	same as 8005, lower Mt	11-07690	.
7108007	FAA TSO-C96a Class I (150 ecp)	LED red, 28 VDC, 3.75" adapter	11-07691	.
7108017	FAA TSO-C96a Class I (150 ecp)	same as 8007, lower Mt.	11-07692	.
7108008	FAA TSO-C96a Class I (150 ecp)	LED red, 28 VDC & 5 hole mount	11-07693	.
7108018	FAA TSO-C96a Class I (150 ecp)	same as 8008, lower Mt.	11-07694	.



**MODEL 70905 SERIES LED BEACONS (FOR ROTORCRAFT)** - NOTE: Users of 70905 Series LED beacons should examine Model 71080 (above). At a lower cost and less weight 71080 is designed to replace all 70905 Series beacons.

70905 series are self-contained anti-collision lights for Rotorcraft. An external power unit is not required. All units meet the minimum requirements stated in FAR Parts 27 & 29 for anti-collision light systems used on rotorcraft, Ref: Class I (150 effective candela) of SAE AS8017a minimum performance standards. 28 VDC Only. 7090505 is designed to replace existing beacons on the Eurocopter EC120, 130, & 135, or any other rotorcraft that uses the 4 hole mounting as shown on the mounting plate. It incorporates an MIL-C-38999 Series III, 20FA98PN connector for input.

SPECIFICATIONS: • Power Consumption: 0.45 amps @ 28 VDC • LED Color: Aviation Red • Weight: 1.4 lbs. (635gm) • Exposed Height: 4.04" (103mm) • Exposed Diameter: 3.66" (93mm)

Model #	Approvals	Description	Part #	Price
7090505	FAA TSO-C96a Class I	Red	11-05006	.



**MODEL 70285 SERIES** - 70285 series self-contained CometFlash® strobe anti-collision light. It utilizes the same lens/reflector and strobe tube as the model HRCFA, however, its vibration resistant, heavy-duty construction is specially designed for helicopter applications. It has a fixed mounting adapter and an MS input connector. Available in three different lens colors, Aviation red, aviation white, and split aviation red/white and in radio-shielded configurations. FAA approved as a direct replacement for any rotating beacon that uses a 3-3/4" dia. mounting hole. Unit will operate between 10 to 30 VDC. SPECIFICATIONS: • Weight: 1.5 lbs. (680gm) • Height: 8.0" (203mm) • Diameter: 3.7" (94mm) • Power Consumption: 3.2 amps @ 14 VDC, 1.6 amps @ 28 VDC

Model #	Approvals	Description	Part #	Price
7028521	—	Shielded, red lens	70285-1	.
7028522	—	Shielded, red lens with .31 mask	11-07696	.
7028523	—	White lens	70285-3	.
7028524	—	Split red/white lens	70285-24	.
7028525	—	Red lens	70285-5	.
7028526	—	Shielded, red lens with .29 mask	70285-6	.
7028527	—	White lens, with lock wire	11-07698	.
7028528	—	Shielded, split red/white lens	70285-2	.

NOTE: All non-FAA approved whelen parts are signified by a (—) in the approval column. Parts without FAA approval may still be purchased, however, installation of these parts on U. S. Type Certificated products may require additional FAA approvals.



# WHELEN SELF-CONTAINED LIGHT ASSEMBLIES



**MODEL SACF SERIES** - SACF series self-contained Comet-Flash strobe anti-collision light which utilizes the same power supply & housing as the model HRCFA. It uses an aviation white glass lens only, ideal for agricultural applications where chemicals are used. Because the lens has no optics built-in, it produces 300 effective candlepower. It uses a 3-3/4" dia. mounting hole. Fuselage installation requires the A440 mounting adapter. Operates between 10 to 30 VDC. SPECIFICATIONS: • Weight: 1.5 lbs. (680gm) • Height: 5.50" (140mm) • Diameter: 3.7" (94mm) • Power Consumption: 3.2 amps @ 14 VDC, 1.6 amps @ 28 VDC

Model #	Approvals	Description	Part #	Price
SACF	FAA/PMA	Aviation white lens	11-03262	.



**MODEL A440 MOUNTING ADAPTER** - A440 mounting adapter is for fuselage installations for the HRCFA series and the SACF series.

Model #	Approvals	Description	Part #	Price
A440	FAA/PMA	Mounting adapter	11-03699	.



**MODEL 70509 SERIES** - 70509 series self-contained halogen flashing anti-collision light with the same mounting pattern as the factory installed beacon on single engine Cessna's 1967 & later. Available in three different lens colors, Aviation red, aviation white and split aviation red/white. When used in conjunction with the model 50519 mounting adapter, it can replace rotating beacons with the 3-3/4" (95mm) dia. mounting hole.



Note: Not recommended for installation on helicopters or twin engine aircraft.  
SPECIFICATIONS: • Weight: 0.27 lbs. (122gm) • Height: 3.75" (95mm) • Diameter: 2.65" (67mm) • Power Consumption: 2.7 amps @ 14 VDC, 1.3 amps @ 28 VDC

Model #	Approvals	Description	Part #	Price
7050900	FAA TSO-C96a	14V, red lens	11-03235	.
7050901	FAA TSO-C96a	14V, white lens	11-03268	.
7050902	FAA TSO-C96a	14V, red/white lens	11-03231	.
7050903	FAA TSO-C96a	28V, red lens	11-03276	.
7050904	FAA TSO-C96a	28V, white lens	11-05108	.
7050905	FAA TSO-C96a	28V, red/white lens	11-03292	.
7050907	FAA TSO-C96a	28V, red lens w/ mask, Cessna single engine	11-07628	.
50519001	—	option mounting adptr	11-03238	.

## MODEL 90350 SERIES SELF-CONTAINED LED GROUND RECOGNITION LIGHT ASSEMBLY



- 90350 series is a self-contained all LED ground recognition light assembly. The design is intended to provide a solution to the needs for ground recognition lighting on a wide variety of aircraft. All current source and flasher circuitry is contained within the

base plate. Unit is flush mounted to aircraft surface eliminating the need for large cutouts in the aircraft structure. Item ships with flying leads. SPECIFICATIONS: • Power Consumption: 0.28 amps Avg. @ 28 VDC • LED Colors: Aviation Red • Lens: Aviation Red, Polycarbonate • Weight: 0.2 lbs. (91gm) • Exposed Height: 1.48" (38mm) • Exposed Width: 1.64" (42mm) • Exposed Length: 4.61" (117mm)

Model #	Approvals	Description	Part #	Price
9035000	—	Red, 28 VDC	11-06172	.



**MODEL 71055 SERIES LED BEACON** - 71055 series beacons are FAA TSO compliant self-contained LED anti-collision lights. They are designed to replace existing quartz halogen flasher beacons installed as original equipment on single engine Cessna's from 1967 and later (contact factory for details). They can also replace remote mounted strobe lights (ref. Whelen A470 series) allowing for removal of the strobe power supply. Internal mounting plate provided with choice of mounting holes to retrofit most existing mounting patterns. STC SA615EA approved. SPECIFICATIONS: • Power Consumption: 01-0771055-00 - 1.2 amps Avg. / 11-04542 - 0.6 amps Avg. • LED Color: Aviation RED • Lens: Clear Polycarbonate • Weight: 0.52 lbs. (236gm) • Exposed Height: 3.09" (78mm) • Exposed Diameter: 2.60" (66mm)

Model #	Approvals	Description	Part #	Price
7105500	FAA TSO-C96a Class III	LED beacon 14 VDC, red	11-04541	.
7105501	FAA TSO-C96a Class III	LED beacon 28 VDC, red	11-04542	.

NOTE: All non-FAA approved whelwn parts are signified by a (—) in the approval column. Parts without FAA approval may still be purchased, however, installation of these parts on U. S. Type Certificated products may require additional FAA approvals.



**MODEL 90088 SERIES LED ANTI-COLLISION LIGHT** - 90088 series is a self-contained LED anti-collision beacon. It's solid-state circuitry and LED light source obsolete the "old style" mechanical oscillating beacons as well as the Whelen 90044 series quartz halogen flashing beacons. Benefits include no moving parts, no EMI/RFI, no inrush current spikes and crisp on/off cycles. There are several models available to provide compatibility with existing mounting patterns and profiles, thus eliminating the need to alter the aircraft.

SPECIFICATIONS: • Power Consumption: 0.45 amps @ 28 VDC • LED Color: Aviation RED • Weight: 1.8 lbs (816gm) (unless otherwise noted) • Exposed Height: 2.70" (69mm) • Lens Color: Clear glass • Replaces: Whelen: 90044 Series and Grimes: G9950(-), 40-0100(-), 30-2140(-), 40-0117(-), 40-0127(-), 30-2647(-)

To determine the model required for replacement, the following information is needed: upper or lower mounting, number of mounting holes (5 or 8), weight & position installed. Beacons installed on the rudder. Top replacement on Gulfstream II & III require a 9008812 in conjunction with the optional 16 hole mounting plate, P/N 06-170618-00.

Model #	Approvals	Description	Part #	Price
9008811	FAA TSO-C96a Class III	Lower, 5 hole, standard assembly, cable pigtail	11-05004	.
9008812	FAA TSO-C96a Class III	Upper, 5 hole, standard assembly, cable pigtail	11-05005	.
9008813	FAA TSO-C96a Class III	Upper, 5 hole, 2.25 lbs. rudder mount (Citations)	11-07629	.
9008814	FAA TSO-C96a Class III	Upper, 5 hole, 2.25 lbs. cable pigtail (Beech Barons)	11-07630	.
9008815	FAA TSO-C96a Class III	Lower, 5 hole, (MS27508E10A-5P connector)	11-07631	.
9008816	FAA TSO-C96a Class III	Upper, 5 hole, (MS27508E10A-5P connector)	11-07632	.
9008817	FAA TSO-C96a Class III	Lower, 5 hole, 2 drain holes (Hawker 800)	11-07633	.
9008818	FAA TSO-C96a Class III	Upper, 8 hole, 1.9 lbs, cable pigtail	11-07634	.
9008819	FAA TSO-C96a Class III	Lower, 8 hole, 1.9 lbs, cable pigtail	11-07635	.



**MODEL 90044 SERIES** - 90044 series self-contained, 150 watt, quartz halogen flashing anti-collision light. Factory installed on Lear 31, Falcon 900 and Cessna Citation X. It is also a direct replacement for oscillating beacons on most corporate aircraft.

SPECIFICATIONS: • Weight: 1.6 lbs. (726gm) to 2.5 lbs. (1134gm) • Height: 5.5" (140mm) • Power Consumption: 3.25 amps @ 28 VDC • Replaces: G9950(-), 40-0100(-), 30-2140(-), 40-0117(-), 40-0127(-), 30-2647(-)

To determine model required for replacement, the following information is needed: Lens color (red or white), upper or lower mounting location, number of mounting holes (5, 8, or 9), weight and position installed. Beacons installed on the rudder. Top replacement on GII and GIII require 9004401 or 9004402 in conjunction with the 16 hole mounting plate, P/N 06-170618-00.

Model #	Approvals	Remarks	Lens	Mount	Base	Part #	Price
9004401	FAA TSO-C96a	Std. Assy	red	upper	5 hole	11-03293	.
9004402	FAA TSO-C96a	Std. Assy	white	upper	5 hole	90044-02	.
9004403	FAA TSO-C96a	Std. Assy	red	lower	5 hole	90044-03	.
9004404	FAA TSO-C96a	Std. Assy	white	lower	5 hole	90044-04	.
9004417	FAA TSO-C96a	Std. Assy	red	upper	8 hole	90064-17	.
9004418	FAA TSO-C96a	Std. Assy	white	upper	8 hole	90044-18	.
9004419	FAA TSO-C96a	Std. Assy	red	lower	8 hole	90044-19	.
9004420	FAA TSO-C96a	Std. Assy	white	lower	8 hole	90044-20	.
9004435	FAA TSO-C96a	2.50 lbs. (Westwind)	red	upper	8 hole	90044-35	.
9004457	FAA TSO-C96a	2.25 lbs., cable pigtail (Beech Barons)	red	upper	5 hole	11-01968	.



**MODEL 90033 SERIES SELF-CONTAINED LIGHT ASSEMBLIES** - 90033 series self-contained, 150 watt, quartz halogen flashing anti-collision light which is factory installed on Beechcraft. It is also a direct replacement for oscillating beacons on most corporate aircraft.

SPECIFICATIONS: • Weight: 0.6 lbs.(272gm) to 0.9 lbs. (408gm) • Height: 4.4" (112mm) • Power Consumption: 5.5 amps @ 28 VDC

Model #	Approvals	Remarks	Lens	Mount	Base	Part #	Price
900331	FAA TSO-C96a	18" cable, no connector	red	lower	2 hole	90033-1	.
900332	FAA TSO-C96a	18" cable, no connector	white	lower	2 hole	90033-2	.

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# WHELEN POSITION LIGHT ASSEMBLIES

**MODEL 71105 SERIES LED POSITION LIGHT ASSEMBLY** - 71105 series are fully FAA TSO compliant forward position lights. LED's provide a significant reduction in electrical current draw over conventional light bulbs. The 71105 is our latest design and lowest priced forward position light. Direct replacement for Whelen Model W1285 series (Version STC'd on Learjet Aircraft).

SPECIFICATIONS: • LED Navigation Light Power Consumption: 0.25 amps @ 14 VDC or 28 VDC • LED Colors: Aviation Red, Aviation Green • Weight: 0.20 lbs. (91gm) 14 VDC, 0.25 lbs. (113gm) 28 VDC • Exposed Height: 2.70" (69mm) • Lens: Clear Polycarbonate

Model #	Approvals	Description	Part #	Price
7110501	FAA TSO-C30c Type II	Position grn. 14V	11-05629	.
7110502	FAA TSO-C30c Type I	Position red. 14V	11-05631	.
7110503	FAA TSO-C30c Type II	Position grn. 28V	11-05632	.
7110504	FAA TSO-C30c Type I	Position red. 28V	11-05634	.

**MODEL W1285 SERIES** - W1285 series wing tip position light which uses a 26-watt incandescent lamp. It is a direct replacement for the brand "G" A1285 series. Specify 14 or 28 VDC.

SPECIFICATIONS: • Weight: 0.2 lbs. (91gm) • Height: 1.25" (32mm) • Length: 4" (102mm) • Power Consumption: 2 amps @ 14 VDC, 1 amp @ 28 VDC

Model #	Approvals	Description	Part #	Price
W1285PG1	FAA TSO-C30b Type II	14V. position grn	11-03226	.
W1285PR1	FAA TSO-C30b Type I	14V. position red	11-03224	.
W1285PG2	FAA TSO-C30b Type II	28V. position grn	11-03891	.
W1285PR2	FAA TSO-C30b Type I	28V. position red	11-03283	.

**MODEL 71015 SERIES LED FORWARD POSITION LIGHTS** - 71015 series are FAA TSO compliant forward position lights. They are compatible with the Whelen W1250 position light mounting as well as any other make that uses the same mounting pattern.

SPECIFICATIONS: • Power Consumption: 0.3 amps @ 28 VDC • LED Color: Aviation Red; and Aviation Green • Weight: 0.2 lbs. (91gm) • Exposed Height: 1.33" (34mm) • Length: 2.41" (61mm)

Model #	Approvals	Description	Part #	Price
7101501	FAA TSO-C30c Type II	Grn position. 28V	11-05011	.
7101502	FAA TSO-C30c Type I	Red position. 28V	11-05012	.

**MODEL W1250 SERIES** - W1250 series wing tip position light is designed for use under a wing tip fairing. It uses a 26 watt incandescent lamp and is a direct replacement for the brand "G" A1815A Series. Specify 14 or 28 VDC.

SPECIFICATIONS: • Weight: 0.3 lbs. (136gm) • Height: 1.25" (32mm) • Length: 2.75" (70mm) • Power Consumption: 2 amps @ 14 VDC, 1 amp @ 28 VDC

Model #	Approvals	Description	Part #	Price
W1250PR1	FAA TSO-C30b Type II	Position red. 14 V	11-04264	.
W1250PR2	FAA TSO-C30b Type I	Position red. 28 V	11-03282	.
W1250PG1	FAA TSO-C30b Type II	Position grn. 14 V	11-04263	.
W1250PG2	FAA TSO-C30b Type III	Position grn. 28 V	11-03278	.

**MODEL A555A SERIES** - A555A series tail mounted position light which uses a 25 watt halogen lamp. The suffix "V" or "H" in the part number designates the aircraft mounting screw locations in respect to the light shield. "V" designates vertical mounting and "H" indicates horizontal mounting on the aircraft. Supplied with a 2 position "AMP" connector. Specify 14 VDC or 28 VDC. Replaces the brand "G" A2064 series.

SPECIFICATIONS: • Exposed Height: 1.4" (36mm) • Mounting Diameter: 1.06" (27mm) • Power Consumption: 2 amps @ 14 VDC, 1 amp @ 28 VDC • Weight: 0.1 lbs. (45gm)

Model #	Approvals	Description	Part #	Price
A555AV14	FAA TSO-C30b Type III	Vert. 14 VDC	11-03256	.
A555AV28	FAA TSO-C30b Type III	Vert. 28 VDC	11-03267	.
A555AH14	FAA TSO-C30b Type III	Horz. 14 VDC	11-03270	.
A555AH28	FAA TSO-C30b Type III	Horz. 28 VDC	11-03275	.



**MODEL 90377 SERIES LED POSITION LIGHT ASSEMBLY** - 90377 series is a wing tip mounted position light assembly utilizing LED's for both the forward & tail

position lights, eliminating the need for a tail mounted position light. The LED's provide a significant reduction in current draw over conventional position light bulbs. Direct replacement (exact footprint) for the Whelen Model A675PG/PR series. Single set of flying leads operates both forward & tail nav on 28 VDC version, and one set each of flying leads for the forward & tail nav on the 14 VDC version.

SPECIFICATIONS: • LED Navigation Lights Power Consumption: 0.5 amps @ 14 VDC, 0.25 amps @ 28 VDC • LED Colors: Aviation Red, Aviation Green and Aviation White • Weight: 0.35 lbs. (159gm) • Exposed Height: 1.08" (27mm) • Exposed Width: 1.87" (47mm) • Exposed Length: 5.69" (145mm) • Lens: Clear Polycarbonate

Model #	Approvals	Description	Part #	Price
9037701	FAA TSO-C30c Types II & III	Position grn. 14 V	11-06175	.
9037702	FAA TSO-C30c Types I & III	Position red. 14 V	11-06176	.
9037703	FAA TSO-C30c Types II & III	Position grn. 28 V	11-06177	.
9037704	FAA TSO-C30c Types I & III	Position red. 28 V	11-06178	.



**MODEL A675 SERIES** - A675 series wing tip position and taillight designed to eliminate the need for a tail mounted position light. It uses a 26 watt incandescent lamp for the forward position light and a 25 watt halogen for the tail position light. Specify 14 or 28 VDC.

SPECIFICATIONS: • Weight: 0.5 lbs. (227gm) • Height: 1.25" (32mm) • Length: 5.62" (143mm) • Power Consumption: 4 amps @ 14 VDC, 2 amps @ 28 VDC

Model #	Approvals	Description	Part #	Price
A675PG14	FAA TSO-C30b Type II & III	Position grn. 14V	11-01895	.
A675PR14	FAA TSO-C30b Type I & III	Position red. 14V	11-01896	.
A675PG28	FAA TSO-C30b Type II & III	Position grn. 28V	11-01897	.
A675PR28	FAA TSO-C30b Type I & III	Position red. 28V	11-01898	.



**MODEL 71011 SERIES LED TAIL POSITION LIGHTS** - 71011 series are LED tail position lights designed to replace the existing "old style" tail lights typically seen mounted on most general aviation, corporate, and helicopter applications. They have all the advantages associated with using LED's as a light source, improved reliability, and reduced operating costs. Now offered with a 14 Volt version.

SPECIFICATIONS: • Power Consumption: 0.5 amps @ 14 VDC; 0.3 amps @ 28 VDC • LED Color: Aviation White • Weight: 0.2 lbs. (91gm) • Exposed Height: 1.36" (35mm) • Mounting Hole Pattern: 1.75" (45mm)

Model #	Approvals	Description	Part #	Price
7101102	FAA TSO-C30c Type III	Vert 28V	11-05013	.
7101103	FAA TSO-C30c Type III	Horz. 28V	11-05014	.
7101112	FAA TSO-C30c Type III	Vert 14V	11-06325	.
7101113	FAA TSO-C30c Type III	Horz. 14V	11-06326	.



**MODEL 70966 SERIES** - 70966 series LED tail position light, is a high quality, long lasting, modern alternative to incandescent & halogen tail position lights. It offers significant technological upgrades over previous products. Utilizing LED technology, the following advantages are offered: Long Life (approx. 20,000 hours); Reduced Power Consumption (compared to alternative light sources); Shock & Vibration Resistant (no fragile filament to burn out); Light (produces bright white light) and No EMI or RFI Interference. 3 Year

Warranty. SPECIFICATIONS: • Exposed Height: 1.64" (42mm) • Length: 2.60" (66mm) • Width: 1.74" (44mm) • Power Consumption: 0.3 amps @ 28 VDC • Weight: 0.3 lbs. (136gm)

Model #	Approvals	Description	Part #	Price
7096600	FAA TSO-C30c Type III	28 VDC - no connectors	11-01228	.
7096601	FAA TSO-C30c Type III	28 VDC - connectors, case ground used on Beechjet	11-07699	.

NOTE: All non-FAA approved whelwn parts are signified by a (—) in the approval column. Parts without FAA approval may still be purchased, however, installment of these parts on U. S. Type Certificated products may require additional FAA approvals.



# WHELEN EXTERIOR & INTERIOR LIGHTING



**READING LIGHT** - The Model A325 ML reading light will replace original equipment on 14 volt Piper aircraft. It is designed for passenger convenience and is equipped with an on/off slide switch. Specify voltage (14V or 28V).  
 14V ..... P/N 11-03294 .....  
 28V ..... P/N 11-03682 .....



**COMPARTMENT FLOODLIGHT** - The Model A325 FL is a floodlight for compartmental flooding and general lighting. It is equipped with an on/off slide switch. Specify voltage.  
 14V ..... P/N 11-03681 .....  
 28V ..... P/N 11-03656 .....



**OVERHEAD CABIN LIGHT** - The Model A360 is designed for recessed overhead lighting. Aluminum housing & Pyrex lens. Weight: 0.25 Lb.  
 14V ..... P/N 11-03685 .....  
 28V ..... P/N 11-03686 .....



**MODEL 71144 'GOOSENECK' LED LIGHT ASSEMBLY** - 71144 assembly features a positive off position and rheostat controlled light intensity. Models including 'side' mounted intensity control are which is designed for the S76D. 28 VDC Only. SPECIFICATIONS: • Power Consumption: 0.06 amps @ 28 VDC • LED Colors: Aviation White • Weight: 0.46 lbs. (209gm) • Black Nylon Hood: fixed in position

Model #	Approvals	Description	Part #	Price
7114416	—	16" adj map light, 28V - Wht	11-07701	.
70190R12	—	16" adj map light, 28V - Red	11-07731	.
70190B12	—	16" adj map light, 28V - Blue	11-07732	.



**MODEL 70844 SERIES LED POST LIGHTS** - The model 70844 series are LED (Light Emitting Diode) instrument post light assemblies. They are designed to illuminate the instrument panel, and function as instrument mounting bolts. It is a high quality, long lasting, modern alternative to standard incandescent post lights. They offer significant technological upgrades over existing products. Utilizing LED technology, the following advantages are offered:

- Long life - approximately 20,000 hours.
  - Reduced power consumption - compared to alternative light sources
  - Shock and vibration resistant, no fragile filament to burn out
  - Light - produces bright white light
  - No EMI or RFI interference
- Specifications: • Wt: .03 lbs. • Exposed Height: 1" w/o spacer • Width: 1.74" • Power consumption: .02 amps @ 14 V / .02 Amps @ 28V

Model No.	Whelen P/N	Description	Part No.	Price
7084400	01-0770844-00	14V, 1.0" post	11-01215	.
7084401	01-0770844-01	14V, 1.5" post	11-01216	.
7084402	01-0770844-02	28V, 1.0" post	11-01217	.
7084403	01-0770844-03	28V, 1.5" post	11-01218	.



**A350 WHELEN POST LIGHTS** - For illuminating instrument face. The 1" long 8-32 threaded shank serves as instrument mounting screw. Terminal on end of shank mates with threaded connector on insulated wire lead. Overall length 1-7/8". Blue tinted filter or red filter. With #330 (12V) or #327 (24V) bulb. Order by Part No. ALL

Description	WHELEN P/N	OUR P/N
White 14V (Blue Tint)	A350CNIWBKSH14	11-03205
White 28V (Blue Tint)	A350CNIWBKSH28	11-03210
Red 14V	A350CNRDBKSH14	11-03214
Red 28V	A350CNRDBKSH28	11-03253



**A715-1 LANDING LIGHT**  
 The Model A715-1 landing light is standard equipment on new Beechcraft, and will retrofit into older aircraft, as well. Accommodates PAR 36 sealed beam lamp. Order lamp separately (#4509 - 100W, 12V; #4594 or #4613 100W, 24V; Wt. 1/2 lb. Size: 4-3/4" dia. x 6-1/2" long x 2-1/8" deep.  
 P/N 11-03281 .....



**MODEL 71141 SERIES LED LANDING LIGHT (INTERNAL MOUNT) PAR-36 STYLE** - 71141 series is a self-contained all LED landing light assembly. The design is intended to provide a solution to the needs for a taxi & landing light on a wide variety of aircraft.

All current source and electronic circuitry is contained within the housing. Unit is available in several mounting configurations to retrofit existing typical PAR-36 lighting. Unit is designed to be mounted internally behind existing lens. Item ships with flying leads. Contact your OEM for installation eligibility on your aircraft.  
 SPECIFICATIONS: • Power Consumption: 1.5 amps @ 28 VDC • Weight: 1.0 lbs. (454gm) • Exposed Diameter: 4.46" (113mm), Overall Depth: 1.90" (48mm) • Lens: Clear Polycarbonate

Model #	Approvals	Description	Part #	Price
7114112	—	LED landing/taxing light internal mount	11-06185	.
7114122	—	LED landing/taxing light internal mount	11-06186	.



**MODEL 90361 SERIES LED LANDING LIGHT (EXTERNAL MOUNT) PAR-36 STYLE** - 90361 series is a self-contained all LED landing light assembly. The design is intended to provide a solution to the needs for a taxi & landing light on a wide variety of aircraft. All current source and electronic circuitry is contained within the housing. Unit is available in several mounting configurations to retrofit existing typical PAR-36 lighting. Outer lens allows for mounting externally on aircraft, option of diffusion lens available upon request. Item ships with flying leads. Contact your OEM for installation eligibility on your aircraft. SPECIFICATIONS: • Power Consumption: 1.5 amps @ 28 VDC • Weight: 1.3 lbs. (590gm) • Exposed Diameter: 4.70" (119mm), Overall • Depth: 2.87" (73mm) • Lens: Clear Polycarbonate

Model #	Approvals	Description	Part #	Price
9036110	—	"U" bracket mounting	11-06181	.
9036115	—	LED taxi, assy with spreader optic, 14V	11-06182	.
9036120	—	"U" bracket mounting	11-06183	.
9036125	—	LED taxi, assy with spreader optic, 28V	11-06184	.



**MODEL 71125 SERIES LED RECOGNITION LIGHT** - 71125 series LED recognition light is designed to provide supplemental lighting for a wide variety of aircraft applications. Provides all of the advantages of LED's as a light source, no EMI/RFI, low current draw, low heat, long life. Perfect for vibration prone areas. Item ships with flying leads. Several different beam spreads available. Designed to replace the Whelen A775 series. Version containing integrated MS connector also available. Can be used in conjunction with 71115 Flasher control assembly. Contact your OEM for installation eligibility on your aircraft. SPECIFICATIONS: • Power Consumption: 0.9 amps @ 14 Volts, 0.45 amps @ 28 Volts • Lens: Clear polycarbonate • LED Color: Aviation White • Weight: 0.3 lbs. (136gm) • Overall Width: 3.25" (83mm) □ Overall Depth: 1.25" (32mm) • Overall Height: 1.95" (50mm)

Model #	Approvals	Description	Part #	Price
7112510	—	10 degree beam pattern, 14V	11-06164	.
7112511	—	20 degree beam pattern, 14V	11-06165	.
7112512	—	90 degree beam pattern, 14V	11-06166	.
7112513	—	30 degree beam pattern, 14V	11-07702	.
7112520	—	10 degree beam pattern, 28V	11-06167	.
7112521	—	20 degree beam pattern, 28V	11-06168	.
7112522	—	90 degree beam pattern, 28V	11-06169	.
7112523	—	30 degree beam pattern, 28V	11-07703	.



**MODEL A775 SERIES** - A775 series recognition light assembly which produces up to 22,000 beam candlepower using only a 35 watt lamp. SPECIFICATIONS: • Drawing Number: 70110 • Weight: 0.14 lbs. (64gm) • Width: 3.25" (83mm) • Height: 1.75" (44mm) • Depth: 2.25" (57mm) • Power Consumption: 2.5 amps @ 14 VDC, 1.25 amps @ 28 VDC

Model #	Approvals	Description	Part #	Price
7011001	FAA/PMA	Molex connector (Piper), 14V	11-07704	.
7011002	FAA/PMA	Molex connector (Piper), 28V	11-07705	.
A77514	—	12" leads, 14 VDC	11-03741	.
A77528	—	12" leads, 28 VDC	11-03742	.



**INSTALLATION CABLE KITS** - Cable kits include all required connectors for hooking up the strobe light to the power supply only. Warning placards and the Installation Service manual is included also. All cable is 16 gauge 3/C shielded. The cable diameter is .275" (7mm). Weight is .050 lbs. per linear foot. (Kits do not include switches or breakers)

Model #	Approvals	Description	Part #	Price
HS5	—	5' Cable kit	11-04204	.
HT10	—	10' Cable kit	11-03253	.
HS30	—	30' Cable kit	11-03285	.
HD60	—	60' Cable kit	11-02667	.
HDT390	—	90' Cable kit	11-02668	.
HT	—	Install kit only	11-02669	.

**REPLACEMENT CONNECTORS** - Replacement connector kits and assemblies for cables.

Model #	Approvals	Description	Part #	Price
A441	—	3 Position male with pins kit	11-03211	.
A442	—	3 Position female with sockets kit	11-03212	.
A444	—	2 Position male with pins ass'y	11-03700	.
A446	—	2 Position female with sockets ass'y	11-03702	.
A447	—	4 Position male with pins	11-07706	.
A448	—	4 Position female with sockets	11-07707	.

**CRIMP TOOL** - Pin and socket crimping tool.

Model #	Approvals	Description	Part #	Price
CRIMPAV	—	Pin/socket crimping tool, MILBAR #25E	11-07708	.

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# WHELEN STROBE SYSTEMS



## WHELEN LED STROBE SYSTEM #1

LED Navigation and White LED Tail Light with Strobe Anti-Collision Light. Whelen Strobe System #1 LED 14V Kit Includes: 1 ea. Whelen Green LED Navigation 14V 9034003 1 ea. Whelen Red LED Navigation 14V 9034004 1 ea. Whelen A413A,HDA-CF 14/28V 1 ea. Whelen HD60 Power Supply Installation Kit 14V Kit..... P/N 11-07596.....  
28v Kit..... P/N 11-07711.....

## WHELEN LED STROBE SYSTEM #2

LED Navigation and White LED Tail Light with Strobe Anti-Collision Light. Whelen Strobe System #2 LED 14V Kit Includes: 1 ea. Whelen Green LED Navigation 14V 9034001 1 ea. Whelen Red LED Navigation 14V 9034002 2 ea. Whelen A490A, TS, CF 14V-28V 1 ea. Whelen Power Install Info Pack 14V Kit..... P/N 11-05646.....  
28V Kit..... P/N 11-05647.....



## WHELEN LED STROBE SYSTEM #4

LED Navigation with Strobe Anti-Collision Light Whelen Strobe System #4 LED Navigation 14V Model 711 Series Kit Includes: 1 ea. Whelen Green LED Navigation 14V 7111001 1 ea. Whelen Red LED Navigation 14V 7111002 2 ea. Whelen A490A, TS, CF 14V-28V 1 ea. Whelen Power Install Info Pack 14V Kit..... P/N 11-05639.....  
28V Kit..... P/N 11-05640.....

## WHELEN LED STROBE SYSTEM #4A

LED Navigation with Strobe Anti-Collision Light. Whelen Strobe System #4A LED Navigation 14V Model 711 Series Kit Includes: 1 ea. Whelen Green LED Navigation 14V 7111001 1 ea. Whelen Red LED Navigation 14V 7111002 2 ea. Whelen A490T, TS, CF 14V-28V 1 ea. Whelen Power Install Info Pack 14V Kit..... P/N 11-05641.....  
28V Kit..... P/N 11-05642.....

## WHELEN LED STROBE SYSTEM #5

LED Navigation with Strobe Anti-Collision Light. Whelen Strobe System #5 LED Navigation 14V Model 711 Series Kit Includes: 1 ea. Whelen Green LED Navigation 14V 7111001 1 ea. Whelen Red LED Navigation 14V 7111002 1 ea. Whelen A413A, HDA-CF 14V/28V 1 ea. Whelen Power Supply HD60 Installation 14V Kit..... P/N 11-05648.....  
28V Kit..... P/N 11-05649.....



## STROBE SYSTEMS WITH A600-PG/PR STROBE/NAV LIGHTS

**NO. 1** Two A600-PG/PR Wingtip Strobe Lights, (1) A413A-HDA-CF-14/28, remote mounted Power Supply (400 Effective Candles) and HD-60 Installation Kit. P/N 11-03000 (14V)..... P/N 11-03100 (28V).....

**NO. 2** Two A600-PG/PR Wingtip Strobe Lights, (2) A490A,TS,CF Power Supplies (400 Effective Candles) and HT Installation Kit. P/N 11-03200 (14V).....

## STROBE SYSTEMS WITH A650-PG/PR STROBE/NAV LIGHTS

**NO. 4 TWO LIGHT SYSTEM** (With Local Power Supplies) - (2) A650-PG/PR Wingtip Strobe Lights, (2) A490A, TS, CF, Power Supplies (400 Effective Candles) and HT Information Packet. 14V..... P/N 11-03600..... 28V..... P/N 11-03610.....  
(Same Kit but w/A490T, CF Power Supplies below)  
14V..... P/N 11-03605..... 28V..... P/N 11-03615.....

**NO. 5 TWO LIGHT SYSTEM** (With Remote Power Supply) - (2) A650-PG/PR Wingtip Strobe Lights, (1) 413A,HDA-CF-14/28,CF remote mounted Power Supply (400 Effective Candles) & HD-60 Installation Kit. 14V..... P/N 11-03800.....  
28V..... P/N 11-03805.....

**NO. 6 THREE LIGHT SYSTEM** (With Local Power Supplies) - Two A650-PG/PR Wingtip Strobe Lights, one A500 Tail Position/Strobe Light, (vertical) three A490A,TS,CF Power Supplies (400 Effective Candles Wingtip Strobes, 300 Effective Candles Tail Strobe) and HT Information Packet. 14V (A-500-Vert) . P/N 11-04000-14-V.....  
14V (A-500-Hor) . P/N 11-04000-14-H.....  
28V (A-500-Vert) . P/N 11-04000-28-V.....  
28V (A-500-Hor) . P/N 11-04000-28-H.....  
(Same Kit but w/A490T, CF Power Supplies below)  
14V (A-500-Vert) . P/N 11-04010-14-V.....  
14V (A-500-Hor) . P/N 11-04010-14-H.....  
28V (A-500-Vert) . P/N 11-04010-28-V.....  
28V (A-500-Hor) . P/N 11-04010-28-H.....

**NO. 7 THREE LIGHT SYSTEM** (With Remote Power Supply) - (2) A650-PG/PR Wingtip Strobe Lights, (1) A500 Tail Position/Strobe Light, (vertical) one A413A,HDA-CF-14/28 remote-mounted Power Supply (400 Effective Candles Wingtip Strobes, 330 Effective Candles Tail Strobe) & HD,T3-90 Installation Kit. 14V..... P/N 11-04400.....  
28V..... P/N 11-04500.....



## STROBE SYSTEMS WITH A650 STROBES

### NO. 8 TWO LIGHT SYSTEM (WITH LOCAL POWER SUPPLIES)

(2)A650 Wingtip Strobe Lights,  
(2) A490A,TS,CF Power Supplies (400 Effective Candles)  
HT Information Packet.  
P/N 11-04600 (14-28V).....



Same but w/A490T, CF Power Supplies.  
P/N 11-04605 (14-28V).....

### NO. 9 TWO LIGHT SYSTEM (WITH REMOTE POWER SUPPLY)

(2) A650 Wingtip Strobe Lights  
(1) A413A,HDA-CF-14/28 remote-mounted Power Supply (400 Effective Candles)  
HD-60 Installation Kit..... P/N 11-04800 (14-28V).....

### NO. 10 THREE LIGHT SYSTEM (WITH LOCAL POWER SUPPLIES)

(2) A650 Wingtip Strobe Lights  
(1) A500 Tail Position/Strobe Light, (vertical)  
(3) A490A,TS, CF Power Supplies (400 Effective Candles Wingtip Strobes, 300 Effective Candles Tail Strobe)  
HT Info Packet.

Part No.	Description	Price
11-05000-14-V	A-500-Verticle - 14V	.
11-05000-14-H	A-500-Horizontal - 14V	.
11-05000-28-V	A-500-Verticle - 28V	.
11-05000-28-H	A-500-Horizontal - 28V	.
Same Kit but with A490T,CF Power Supplies		
11-05001-14-V	A-500-Verticle - 14V	.
11-05001-14-H	A-500-Horizontal - 14V	.
11-05001-28-V	A-500-Verticle - 28V	.
11-05001-28-H	A-500-Horizontal - 28V	.

### NO. 11 THREE LIGHT SYSTEM (WITH REMOTE POWER SUPPLY)

(2) A650 Wingtip Strobe Lights  
(1) A500 Tail Position/Strobe Light  
(1) A413A,HDA-CF-14/28 remote-mounted Power Supply (400 Effective Candles)  
HD,T3-90 Installation Kit.

Part No.	Description	Price
11-05400-14-V	A-500-Verticle - 14V	.
11-05400-14-H	A-500-Horizontal - 14V	.
11-05400-28-V	A-500-Verticle - 28V	.
11-05400-28-H	A-500-Horizontal - 28V	.



## HOMEBUILDERS WHELEN STROBE KIT

This compact, lightweight strobe kit is very popular with builders of a variety of todays homebuilt aircraft. Kit includes: 2-A610 flash tube assys., 2-A612 magnifying lenses, 2-A490T,CF power supplies and 1-HT installation Kit.

P/N 11-00923.....



## CUSTOM LOW ENERGY SYSTEM



Popular with Long-EZ, Q2, Q200 builders and others using a lightweight, low amperage generator or alternator. It consists of: (2) A600-PG/PR Wingtip Strobe Lights, (1) A413A, HDS-14/28 (Single Flash 20 Joules) remote mounted Power Supply, HD-60 Installation Kit (Draws less than 4A - 14V & produces 400 effective Candles.)

Kit # 11-05600

P/N 11-05600.....



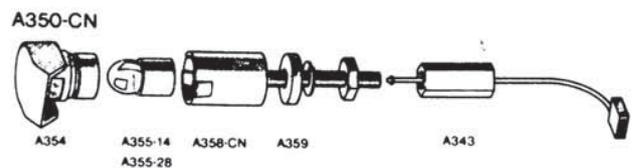
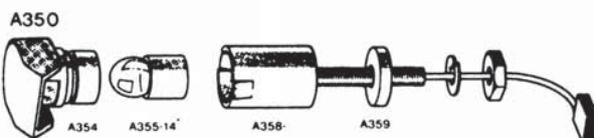
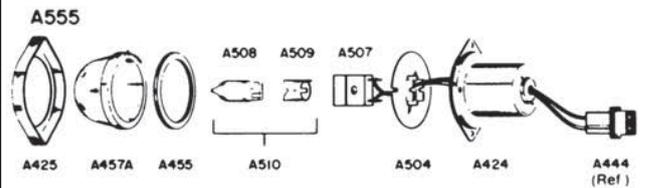
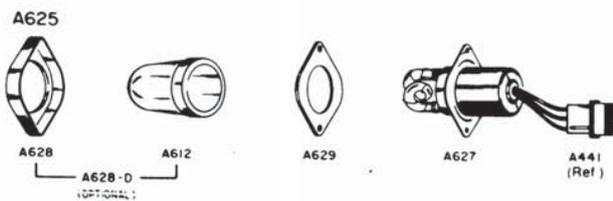
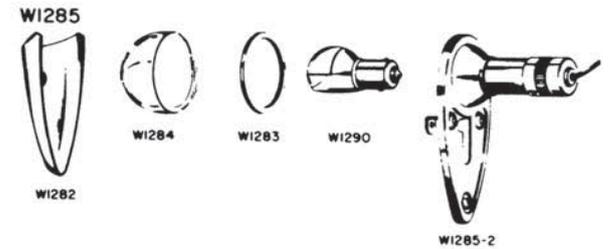
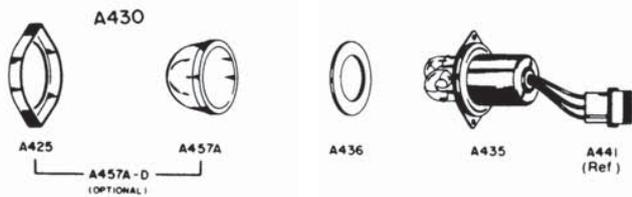
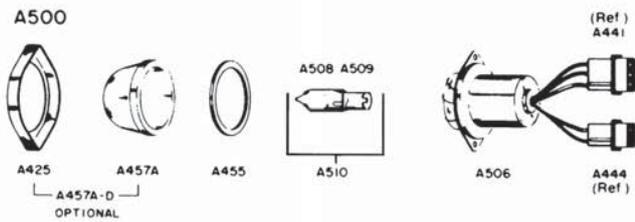
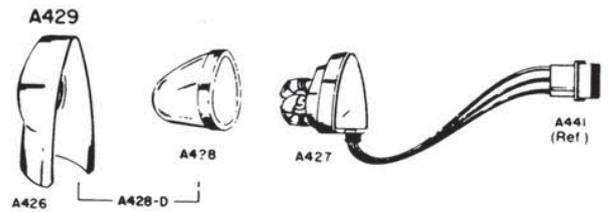
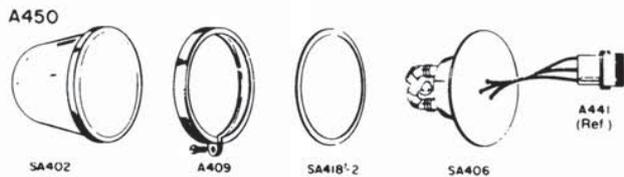
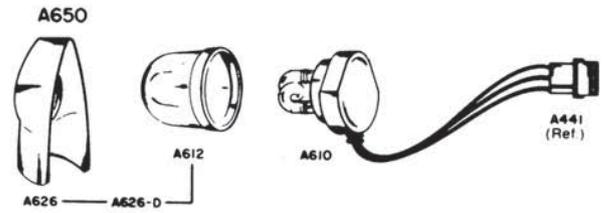
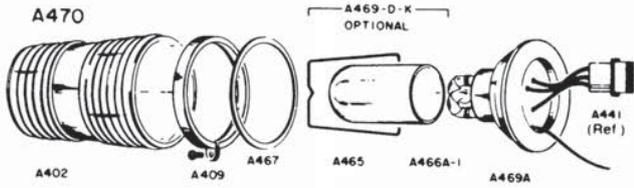
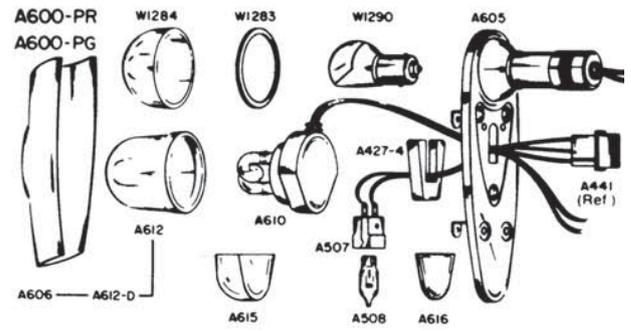
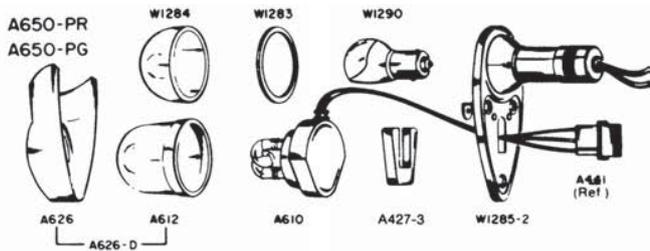
## WHELEN STROBE TESTER

Designed to determine whether power supply is operating normally. Kit contains troubleshooting procedures. Also contains adapter for testing some Grimes and Hoskins strobe light systems.

P/N 11-06800.....

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# WHELEN STROBE LIGHTS



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# WHELEN STROBES

## STROBE SYSTEM PARTS

Model #	Description	Part No.	Price
A402R	Red Optic Lens	11-03254	.
A402W	White Optic Lens	11-03271	.
A402R/W	Split Red/White Optic Lens	11-03248	.
A406	Flash Tube Assembly	11-03687	.
A409	Clamp Ring Assembly	11-03688	.
A414A, HDH, CF	HDH,CF Power Supply	11-03632	.
A417-1	Interconnecting Cable	11-03658	.
A421-1	Warning Decal	11-03691	.
A425	Tail Strobe Lens Retainer	11-03692	.
A426	Wingtip Strobe Lens Retainer	11-03233	.
A427	Flash Tube Assembly	11-03219	.
A427-M	Flash Tube Assembly with Molex Connector	11-03272	.
A427-4	Rubber Pad Spacer	11-03693	.
A428	Wingtip Strobe Lens	11-03236	.
A428-C	Wingtip Strobe Radio Shielded Lens	11-03694	.
A428-D	Wingtip Strobe Radio Shielded Lens plus A426 Retainer assy.	11-03290	.
A429	Wingtip Strobe Head Assembly (Replaced by A650)	11-03695	.
A430	Tail Strobe Head Assembly	11-03696	.
A435	Flash Tube Assembly	11-03697	.
A440	WRM-65 Mounting Adapter, for HR,DF & SA,DF	11-03699	.
A441	AMP Connector and 3 Pins	11-03211	.
A442	AMP Connector and 3 Sockets	11-03212	.
M441	Molex Connector and 3 Pins for Piper Installation	11-04215	.
M442	Molex Connector and 3 Sockets for Piper Installation	11-04216	.
A444	AMP Connector and 2 Pins	11-03700	.
M444	Molex Connector and 2 Pins for Piper Installation	11-04217	.
A445	Switch Label	11-03701	.
A446	AMP Connector and 2 Sockets	11-03702	.
A450	Strobe Head Assembly	11-03280	.
A455	Gasket	11-03703	.
A457A	Tail Light Lens for A500 and A555	11-03227	.
A457A-D	Radio Shielded Tail Light Lens Assembly for A500	11-03704	.
A465	Spring	11-03707	.
A466A-1	Radio Shielded Lens	11-03708	.
A467	Gasket for A470	11-03709	.
A469B	Flash Tube Assembly	11-03225	.
A469D-K	Radio Shielded Kit for A469A	11-03711	.

Model #	Description	Part No.	Price
A470-D	Radio Shielded Remote Strobe Head Assembly, Specify Color	11-03291	.
A470-A-D-S	Strobe Head Assembly, Shielded Red/White	11-04976	.
A470-D-R-SU	Radio Shielded Remote Strobe	11-03714	.
A490 TC CF	14V Power Supply	11-02661	.
A490 TC CF	28V Power Supply	11-06406	.
A500-V-D-14	14V Radio Shielded Tail Position Strobe Light Head Assy. Vertical Mount	11-03721	.
A500-V-D-28	28V Radio Shielded Tail Position Strobe Light Head Assy. Vertical Mount	11-06407	.
A500-H-D-14	Radio Shielded Tail Position & Strobe Light Head Assembly Horizontal Mount	11-03717	.
A500-H-D-28	Radio Shielded Tail Position & Strobe Light Head Assembly Horizontal Mount	11-06327	.
A500-V-D-M-14	Radio Shielded Tail Position & Strobe Light Head Assembly Vertical Mount with Molex Connector	11-03722	.
A500-V-D-M-28	Radio Shielded Tail Position & Strobe Light Head Assembly Vertical Mount with Molex Connector	11-06329	.
A500-H-D-M-14	Radio Shielded Tail Position & Strobe Light Head Assembly Horizontal Mount with Molex Connector	11-03719	.
A500B-V-14	Tail Position & Strobe Light Head Assembly (Beech)	11-03715	.
A500B-V-28	Tail Position & Strobe Light Head Assembly (Beech)	11-06330	.
A500SP-28	Tail Pos. & Strobe Assy. (Beech)	11-03720	.
A502	Flash Tube & Socket Assembly	11-03723	.
A506	Flash Tube & Socket Assembly	11-03274	.
A506-B	Flash Tube & Socket Assembly	11-03724	.
A506-M	Flash Tube & Socket Assembly	11-03725	.
A506-SP	Flash Tube & Socket Assembly	11-03726	.
A507	Lamp Socket Assembly for A555	11-03240	.
A508-14	Halogen Lamp for A500,A555, A600	11-03216	.
A508-28	Halogen Lamp for A500,A555, A600	11-03208	.
A509	Lamp Shield for A500 and A555	11-03727	.
A510-14	Lamp Assembly for A500 & A555	11-03728	.
A510-28	Lamp Assembly for A500 & A555	11-06332	.
A512-V-28	Tail Position & Strobe Light Head Assembly (Gulfstream Commander)	11-03729	.
A540	Long Mounting Adapter	11-03730	.
A600-PG-D-14	Radio Shielded Wingtip Strobe Light with Forward & Tail Position Light Assembly	11-03636	.
A600-PG-D-28	Radio Shielded Wingtip Strobe Light with Forward & Tail Position Light Assembly	11-03732	.
A600-PG-D-M-28	Radio Shielded Wingtip Strobe Light w/ Forward & Tail Position Light Assembly (Molex Connector)	11-03732	.
A600-PR-D-M-14	Radio Shielded Wingtip Strobe Light w/ Forward & Tail Position Light Assembly (Molex Connector)	11-03638	.
A600-PR-D-M-28	Radio Shielded Wingtip Strobe Light w/ Forward & Tail Position Light Assembly (Molex Connector)	11-06335	.
A605	Base Plate Assembly	11-03733	.
A606	Retainer	11-03260	.
A610	Flash Tube Assembly	11-03213	.
A610-M	Flash Tube Assembly	11-03734	.
A612	Magnifying Lens	11-03222	.
A612-D	Radio Shielded Lens Retainer Assembly	11-03735	.
A615	Lens for A600 Tail Light	11-03230	.
A616	Gasket for A600 Tail Light	11-03261	.
A625	Tail Strobe Head	11-03228	.
A625-D	Radio Shielded Tail Strobe Head Assembly	11-03659	.
A626	Retainer Lens	11-03229	.
A626-D	Radio Shielded Lens Retainer Assy.	11-03736	.
A627	Flash Tube Assembly	11-03263	.
A628	Retainer Lens	11-03737	.
A629	Gasket	11-03660	.
A650	Wingtip Strobe Head Assembly	11-03215	.

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# WHELEN STROBES

Model #	Description	Part No.	Price
A650-PG-D-14	Wingtip Position & Strobe (Radio Shielded) Head Assy.	11-03639	.
A650-PG-D-28	Wingtip Position & Strobe (Radio Shielded) Head Assy.	11-06336	.
A650-PR-D-14	Wingtip Position & Strobe (Radio Shielded) Head Assy.	11-03642	.
A650-PR-D-28	Wingtip Position & Strobe (Radio Shielded) Head Assy.	11-06337	.
A650-PG-D-M-28	Radio Shielded Wingtip Strobe & Position Light Head Assemble w/ Molex Connector .	11-06338	.
A730	Tail Flood Light Assembly	11-03740	.
A1610-14	Power Supply	11-03665	.
C-70178-1	Power Supply (Single Flash)	11-04132	.
C-70188-1	Power Supply	11-04133	.
C-70190-1	Goose Neck Light (12" Long)	11-04134	.
70285-1	Self Contained Strobe RadioShielded Red	70285-1	.
70285-2	Self Contained Strobe Radio Shielded Red with Mask	70285-2	.
70285-3	Self Contained Strobe White	70285-3	.
70285-5	Self Contained Strobe Red	70285-5	.
70285-6	Self Contained Strobe Radio Shield Red with Mask	70285-6	.
70294-1	Power Supply	70294-1	.
H102	"B" Mounting Adapter	11-03243	.
H103	"A" Mounting Adapter 3-3/4"	11-03284	.
HR-CF200-14	14V Power supply for HR or SA	11-03838	.
SA402	Lens Assembly for SA & A450	11-04259	.
SA406	Flash Tube Assembly for SA & A450	11-03250	.
W1282	Forward Position Light Lens Retainer	11-03232	.
W1283	Forward Position Light Gasket	11-03209	.
W1284-G	Forward Position Light Lens (Green)	11-03206	.
W1284-R	Forward Position Light Lens (Red)	11-03207	.
W1285-2	Forward Position Light Base	11-03244	.
W1290-14	14 Volt Position Light Bulb	11-02602	.
W1290-28	28 Volt Position Light Bulb	11-02604	.
90029-1	Combination Wing-tip Light Assy.	90029-1	.
90029-2	Combination Wing-tip Light Assy.	90029-2	.
90029-3	Combination Wing-tip Light Assy.	90029-3	.
90029-4	Combination Wing-tip Light Assy.	90029-4	.
90033-1	Anti Collision Beacon Assy. Red	90033-1	.
90033-2	Anti Collision Beacon Assy. White	90033-2	.
34-0226010-91	Lamp Quartz 150 Watt	11-05091	.

## INTERIOR LIGHTING

Model #	Description	Part No.	Price
A300-14	14V Map Light Assembly	11-03673	.
A300-28	28V Map Light Assembly	11-03674	.
A315-HI-B-14	14V Cockpit Utility Light	11-03675	.
A315-LO-B-14	14V Cockpit Utility Light	11-03679	.
A315-LO-B-28	28V Cockpit Utility Light	11-03680	.
A325-FL-14	14V Flood Light Assembly	11-03681	.
A325-FL-28	28V Flood Light Assembly	11-03656	.
A325-ML-14	14V Reading Light Assembly	11-03294	.
A325-ML-28	28V Reading Light Assembly	11-03682	.
*A350-14	14V Post Light Assembly	11-03205	.
*A350-28	28V Post Light Assembly	11-03210	.
A360-14	14V Dome Light Assembly Overhead	11-03685	.
A360-28	28V Dome Light Assembly Overhead	11-03686	.
A360SW	Dome Light Assembly w/Switch	11-03629	.
70339-1	Floodlight Assembly (14V)	70339-1	.
70339-02	Floodlight Assembly (28V)	70339-02	.
70339-03	Floodlight Assembly (14V Switch)	70339-03	.
70339-04	Floodlight Assembly (28V Switch)	70339-04	.
70348-00	Post Light (28V 10-32Thread) (IW)	70339-00	.
70348-01	Post Light (28V 10-32Thread) (RD)	70339-01	.

## PARTS FOR POST LIGHTS

Model #	Description	Part No.	Price
A343	Connector Assembly	11-03252	.
*A354	Head Assembly	CALL	.
*A358	Base Assembly	CALL	.
A359	Spacer	11-03684	.

\* Requires dash numbers for lens color and finish. Please contact factory.  
 ‡ For complete information contact factory.

## RECOGNITION LIGHT & LANDING LIGHT

Model#	Description	Part No.	Price
A715-1	14V Fixed Landing Light (PAR 36)	11-03281	.
A775-14	14V Recognition Light 35 Watt	11-03741	.
A775-28	28V Recognition Light 35 Watt	11-03742	.
A775-EXP-14	14V - Recognition Light 35W Explosion Proof	11-03648	.
A777	Lens for A775-EXP	11-03649	.
70346-00	Recognition Light (14V No Lens)	70346-00	.
70346-01	Recognition Light (28V No Lens)	70346-01	.
70346-02	Recognition Light (14V Clear Lens)	70346-02	.
70346-03	Recognition Light (28V Clear Lens)	70346-03	.
70346-04	Recognition Light (14V Optic Lens)	70346-04	.
70346-05	Recognition Light (28V Optic Lens)	70346-05	.
01-0790095-02	Fixed Landing Light (PAR 46)	01-070095-02	.
38-0240063-00	Sealed Beam Gasket (PAR 46)	11-05103	.
38-0240197-01	Sealed Beam Gasket (PAR 36)	38-0240197-01	.
19-270407-000	Clamp Ring (PAR 46)	19-270407-000	.
19-250147-000	Clamp Ring (PAR 36)	19-250147-00	.

## SURFACE ILLUMINATING LIGHTS

Model #	Description	Part No.	Price
A708-28	28V Halogen Lamp (50 Watt)	11-00023	.
A750	Flasher Assembly	11-00024	.

## PARTS FOR ROTATING BEACON

Rotating Beacon Replacement- The round mechanical rotating beacon was used on the vertical fin of all Barons from 1961 thru 1969. Models using this light are 95-55 (1961), A55 (1968-1969). Note: The B55 Baron continued to use this beacon until production stopped in 1982.

Model#	Description	Part No.	Price
WRM-10	Lexan Dome	11-03257	.
WRM-25	Clamp Ring	11-04272	.
WRM-30	Gasket	11-04273	.

## MISCELLANEOUS HARDWARE

Model#	Description	Part No.	Price
GLJ-106	Lamp Retainer	11-03811	.
GLJ-111	Lamp Assembly	11-03812	.
GLJ-126	Lens Retainer Assembly	11-03813	.

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# ELECTRONIC ACCESSORIES

## VOLT AND VAC ALERT



\*Provides an instantly recognizable voice warning directly in your headset if low vacuum (or pressure) or low voltage develops. \* Includes a red warning light mounted close to the gyro instruments. Many aircraft are equipped with backup vacuum systems, however you must first know that your instrument power system has failed before any of these backup systems are engaged. You must "know you have a problem before you have a problem". Volt & Vac Alert consists of a small electronic unit that can be mounted anywhere in the aircraft. It connects to aircraft voltage, instrument power (vacuum or pressure), and the aircraft audio system. If the voltage falls below 12v or 24v the voice message "CHECK VOLTAGE CHECK VOLTAGE" will be heard. Should the gyro power fail, the pilot will hear the voice message "CHECK GYROS, CHECK GYROS" directly in his headset. The voice message will sound once, and then the red warning light will illuminate until the problem is fixed. The unit can be used in 12v or 24v aircraft with either vacuum or pressure gyro power systems. It can be installed in pressurized or un-pressurized aircraft. Sold as a complete assembly with everything necessary for the installation except a 1 amp fuse or circuit breaker. STC'd for most general aviation aircraft.

P/N 10-00393 .....

## VOICE ALERT



Whenever the existing stall horn sounds, the pilot will hear the instantly recognizable voice message "STALL, STALL" from the built in speaker, and directly in his headset. If the gear warning horn sounds, the pilot will hear the voice message "CHECK LANDING GEAR, CHECK LANDING GEAR" alerting of the problem. No more confusion over which horn is sounding. These voice messages are in addition to the original horn sounds. The Voice Alert consists of a small electronic unit about 2-1/2" by 3-1/2" in size that can be mounted almost anywhere in the cockpit. The installed weight of the unit is less than 1 lb. The unit is supplied as a complete kit consisting of the electronic unit, a pre-wired cable assembly, and all the connectors and mounting hardware. The only other item required is a 1 amp fuse or circuit breaker. Installation is easy, and can be performed by an A&P mechanic or an avionics shop. The system is approved for both fixed and retractable gear aircraft.

Description	Part No.	Price
VOICE ALERT 2040-1-1 produces voice messages for gear and stall warnings, and can be programmed with up to 8 additional warning voices such as altitude, vacuum, fuel, pressures, etc. Supplemental system only.	10-03713	.
VOICE ALERT 2040-1-2 produces stall and gear voice messages in the pilot's headset. Supplemental system only.	10-00394	.
VOICE ALERT 2040-1-1P similar to the 2040-1-1 except approved for installation as primary replacement for existing warning units like Cessna Electronic Dual Warning units	10-03714	.
VOICE ALERT 2040-1-2P similar to the 2040-1-2 except approved for installation as primary replacement for existing warning units like Cessna Electronic Dual Warning units	10-03715	.

## GEAR WARNING SYSTEM (2048)



\* Provides both voice and visual warning if the landing gear is not in the correct position for either a runway landing or a water landing. \* Airspeed activated, activation speed is easily set from 45 to 90 mph. \* Works with aircraft having 2, 4, or 8 gear indicating lights or simple switches that provide gear position. Consists of a small electronic module (2.5 inch by 3.25 inch weighing less than 1 lb), and a panel mounted switch with light. The system is airspeed activated. The activation speed can be easily set using a screwdriver. On takeoff once the speed has exceeded the activation speed, the system activates. A time delay is built in to prevent false triggering due to speed fluctuations. The light in the switch illuminates when the system is activated. The pilot can perform a self test of the system. Can place in a disengage mode which temporarily disengages the system for slow flight. If the aircraft has flaps, a flap switch can be added to cause the landing sequence to be initiated whenever the flaps are fully extended. The unit also includes an airspeed activated switch which closes whenever the airspeed is above 45 mph. This can be used to activate a transponder, Hobbs meter etc. The unit is sold as a complete system including the electronic unit, a pre-made cable assembly, a pre-wired switch, connectors, mounting hardware etc. Experimental aircraft. P/N 11-02258 .....

## POWER GUARD BUS MANAGEMENT SYSTEM



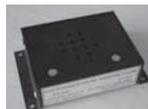
An essential bus management circuit designed to protect power sensitive and critical electronics. Starting currents are usually high enough to cause battery voltage to drop below tolerable limits for many electronics systems. The result could leave you without engine instrumentation until EFIS "reboots" (up to 30 seconds). Protection includes low voltage drop out and essential backup in the event of primary power loss. Filtration on the secondary supply and secondary battery charging are also an integral parts of the circuit. A secondary battery is required for the Power Gauge we recommend a 5-12 Amp battery for emergency supply. Several control modes are possible with the system allowing for installation and operational flexibility. Load Ratings: 7A continuous, 10A 10% duty. Dims: 4.75"l x 2.75"w x 1.2"h P/N 11-02044 .....

## AMPHIBIAN GEAR WARNING SYSTEM



Designed to provide an additional margin of safety for amphibian pilots by providing a backup electronic means of verifying landing gear position for both water and runway landings. Consists of a small electronic box (about 2.5 inch by 3.25 inch weighing less than 1 lb) that can be mounted anywhere in the aircraft, and 2 panel mounted switches with lights. The system is activated by airspeed. The activation speed can be set by a simple screwdriver adjustment. On takeoff, as the airspeed exceeds the activation speed, the system becomes active. There is a time delay built in to prevent false triggering. When the system becomes active, the lights in the panel switches will illuminate for 6 sec, to alert the pilot that the system is active. The pilot can perform a self test. Can be temporarily disengaged for slow flight. As the aircraft slows below the activation speed for a landing, the landing sequence is initiated. Panel switches are marked "L" for land, and "W" for water. If the gear is in the correct position, the voice message "GEAR O.K." will be heard. If the gear is not in the proper position, the voice message "CHECK LANDING GEAR, CHECK LANDING GEAR" will be heard. This message will continue until the speed is increased above the activation speed, or the gear is placed in the proper position. When installed in aircraft having multiple gear indicating lights, the system will respond with the "CHECK LANDING GEAR" voice warning if it determines that any of the wheels are in the wrong position. Also responds with the warning if the gear indicating lights loose power. Also incorporates an airspeed activated electronic switch which closes whenever the airspeed is above 45 mph. This can be used to activate a transponder, Hobbs meter etc. Supplied as a complete kit consisting of the electronic module, a pre-wired, color coded cable, switches, connectors, mounting hardware etc. The only other item required is a 1 amp fuse or breaker. STC'd for many amphibian aircraft and aircraft on amphibian floats P/N 11-07537 .....

## GEAR ALERT SYSTEM 2050



NOTE: This system is not FAA approved. It is intended for installation in Experimental category aircraft only.

For Experimental amphibian aircraft consists of a small electronic module (2.5 inch by 3.25 inch weighing less than 1 lb), and a panel mounted switch with light. The system is airspeed activated. The activation speed can be easily set using a screwdriver. On takeoff, once the speed has exceeded the activation speed, the system activates. A time delay is built in to prevent false triggering due to speed fluctuations. The light in the switch illuminates when the system is activated. The pilot can perform a self test of the system. Disengage mode which temporarily disengages the system for slow flight. During this period, the light in the switch flashes indicating the system is disengaged. Pushing the switch again re-engages the system. As the aircraft slows for landing, the system enters the landing mode. The light turns off, and the electronics then checks the gear position lights to determine the gear position. If the aircraft has flaps, a flap switch can be added to cause the landing sequence to be initiated whenever the flaps are fully extended. A switch can be added to the throttle so that closing the throttle with the gear up will cause the warning voice message to be heard. The unit also includes an airspeed activated switch which closes whenever the airspeed is above 45 mph. This can be used to activate a transponder, Hobbs meter etc. The unit is sold as a complete system including the electronic unit, a pre-made cable assembly, a pre-wired switch, connectors, mounting hardware etc. P/N 11-07538 .....

## POWER BUSS 2075



An electronic device that provides 12 volt DC overload monitoring and protection for 18 electrical circuits. The Power Buss also monitors (high amperage) generator supply and landing gear actuator circuits. Protection is provided by 18 solid-state PTC current limiters that automatically remove power when a circuit becomes overloaded. Just as mechanical circuit breakers can be reset, the PTC can be reset if power to the PTC, or the load (or service) supplied by the PTC is manually shut off for approximately 15 seconds. Monitoring is provided by a red warning light (that includes the function of a momentary push switch) and an electronic voice annunciator system that provides an audio identification of the overloaded circuit through a built in speaker. Voice warnings can also be output into the pilot's headset. Includes an avionics buss that automatically removes power from sensitive avionics systems during engine start. Weighing only 13 oz. and self-contained the Power Buss module can be mounted anywhere behind the panel with only the warning light visible in the cockpit. Interconnect is made by quick connect terminals. The system's 18 PTC's provide an economical replacement for heavy circuit breakers. 18 different voice messages corresponding to the 18 circuits provide instant recognition of which circuit has tripped. The sophisticated electronic audio alert system removes the requirement for a separate (difficult to read and interpret) circuit display module. On power up the Power Bus automatically tests all circuits. Pressing the red warning light also tests the system with a "Test OK" annunciation. Experimental aircraft only. P/N 10-03716 .....

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# ELECTRONIC ACCESSORIES - STROBES



## MASTER NAG-THE MASTER SWITCH WARNING SYSTEM

An audible warning system for 12V or 24V aircraft designed to prevent leaving the master switch turned on in an aircraft. It is fully automatic and requires no attention from the pilot. It is armed by presence of engine oil pressure after the engine has been started and will alert the pilot if the master is left on after engine shutdown. Since the unit is triggered on engine shutdown by a loss of oil pressure a short time delay is experienced between shutdown and alarm activation. No sound will be heard when the master switch is first turned on. This allows the pilot to talk to ground control, clearance delivery etc., without the distraction of an alarm. The unit is constructed with MIL-SPEC components and printed circuit board construction. It is capable of 12 or 24 volt operation and is polarity protected, internally fused (no external circuit breakers or fuses required for installation) and can be triggered from a positive or negative signal from the Hobbs meter switch as described in the installation manual. Weighs less than two ounces, 8 milliamps. All mounting hardware and connectors are provided. P/N 11-15200



## ELECTRONIC FLAP CONTROL

Move aircraft flaps to 4 predefined positions/steps (Flaps Full Up, Flaps 1, Flaps 2, and Flaps Full Down). The positions may be defined by user at any time, when system is fully mounted and installed. The Box can be installed between Flap-switch, Position-indicator, Flap-motor and position sensor. Works with standard switches and position sensors. Has built-in Relays to drive directly the Flap Motor or solenoid-valves in hydraulic systems. Features: • Flap limit-switch (upper and lower) input • Auto/Manual-Switch input, to disengage Electronic-/Automatic-Mode in case of electronic failure. • Flap-Position-Sensor-Input (adjustable, to meet user requirements) • Flap-Position-Indicator-Output (adjustable, to meet user requirements) • Built-in mode switch to ease define Flap-stop-positions and working modes of device • Full aluminum case • Detailed wiring diagram & setup-description • Dims: 4.72"x2.56"x2.13" • Weight: .474 lbs. • Output: Relays • Max input/Output-Current: 10A • Supply voltage: +12VDC  
Electronic Flap Control ..... P/N 11-01825  
Flap Position Sensor ..... P/N 11-01826  
Spare Relays (12V, pluggable) ..... P/N 11-01827

## GRETZ AERO WARNING TONE

### GENERATOR & AUDIO MIXER

**GRETZ AERO AUDIO WARNING TONE GENERATOR** - Warning tone can be used to get your attention for one of variety of events through your headset advising of a user selected function. P/N 11-06491



**GRETZ AERO AUDIO MIXER** - A must have economical item if you have two or more audio sources in your aircraft. If you do not want to install a very costly and panel-space-hungry audio panel, the GA-AM is for you. Up to nine audio sources can be fed into this device.

These audio sources could come from your com radio, a second com radio, your nav radio, GPS, marker beacon, or warning devices. You can even have music into your headset from your stereo CD player however it will be monaural. All that is needed is a music player.. The two stereo channels are fed into the Audio Mixer by using two of the Audio Mixer's nine audio inputs. P/N 11-06490



## DIGITAL VOLTAGE MONITOR

Helps pilots monitor critical electrical system. STC approved. Features a Multi Color LED display, which is easily viewable from a wide angle. In the event of an alternator/generator failure, the LED display indicates the reserve battery capacity. The display automatically adjusts to the ambient light for IFR or night operation and also serves as a reminder to turn off the electrical system after flight. Comes in either 12V or 24V models and includes all necessary hardware and FAA Documents. The display must be set to Dot mode for FAA approved installations.

- 12 Volt Digital Voltmeter ..... P/N 10-00752
- 24 Volt Digital Voltmeter ..... P/N 10-00753

## CABIN POWER SYSTEM

The Cabin Power System provides a 12V outlet in the cabin. It consists of a Voltage Regulator Unit (VRU) assembly that is connected to a power outlet mounted within the aircraft cabin. The VRU (pictured) converts aircraft power to 12V @ 1.5A at the outlet. Size: 2-7/8"l x 3.5"w x 2-1/8"h; Wt: 5 oz., the VRU can easily be mounted in a variety of locations. In Cessna 172, 182, & 206 models it is approved for mounting on top of the map compartment behind the instrument panel. STC-PMA'd for Cessna 172,182, & 206 models. System is shipped complete w/Flight Manual Supplement, Instructions for Continued Airworthiness, and Installation Manual. P/N 11-01894



## SKYSPORTS BRIGHT STAR STROBE



Measuring only 4" high by 2 3/4" diameter, it weighs less than 5 ounces! Special dual xenon flashtube arrangement provides ultra-bright flash visible for over 3000' in daylight, much more at dusk and dawn. No separate power pack is required, all electronics are fully contained in the strobe itself. Lens is available in clear, red or green. Each strobe draws less than 300ma. Mounting bracket included. Buy two for wing-tip installation. Must be run from 12 volt battery. Dimensions: 4"x 2.75"(dia) Weight: 4.5 ounces.  
Strobe 12VDC Clear ..... P/N SS901C

### ACCESSORIES

- Strobe Lens Clear ..... P/N SS902C
- Strobe Lens Red ..... P/N SS902R
- Strobe Lens Green ..... P/N SS902G



## MINIATURE AEROFLASH ANTI-COLLISION SYSTEM

Mounted on vertical fin of many Cessna and other production aircraft models. Fully FAA-PMA approved. Only 2.5" dia., 2.5" high. Weighs 6 oz. Unit available with red or clear Fresnel dome. Has 125W quartz bulb. Draws 10 amps nominal at 12V. Use 12 or 14 Ga. wire for hookup. Kit consists of light assembly and 12V/24V power supply. Specify bulb voltage and red or clear dome.

- 12V Kit (Clear Lens) 157-0001C ..... P/N 11-05906
- 12V Kit (Red Lens) ..... P/N 157-0001R
- 24V Kit (Clear Lens) 157-0002C ..... P/N 11-05907
- 24V Kit (Red Lens) ..... P/N 157-0002R

Description	Ref. No.	Part No.	Price
Flasher	A	150-0015	.
Red Lens	B	111-0001	.
Clear Lens	C	111-0004	.
Quartz Lamp 24 Volt/150W	D	040-0003	.
Quartz Lamp 12 Volt/125W	D	040-0028	.
Gasket	E	080-0001	.
Clamp Ring	F	073-0002	.
Socket & Plate Assembly	G	073-0021	.
Mounting Plate Assembly	H	073-0055	.
Aeroflash Resistor 100 W	-	012-7426	.

## MINIATURE AEROFLASH SINGLE LIGHT STROBE

A high-intensity anti-collision strobe system producing 10 joules. FAA-PMA approved. Mount on top or belly of fuselage or on vertical fin. The Xenon lamp is designed to produce symmetrical illumination pattern of light 360° around the aircraft and 70° above and below the horizon. Less than 3" dia., 2-1/2" high. Mounts in 7/8" dia. hole and is secured by two screws. Draws 2 amps nominal at 12V. Kit includes light, remote power supply and 15 ft. cable. Light has clear Fresnel lens and strobe tube. Wts: Light 6 oz., Power Supply 20 oz. Hardware NOT included.

- 12V Kit ..... P/N 156-0007
- 24V Complete Kit ..... P/N 156-0002
- 12V Power Supply ..... P/N 152-0007
- 24V Power Supply ..... P/N 152-0010
- Flash Tube Only ..... P/N 073-0141
- Flash Tube Ass'y ..... P/N 153-0001

## AEROFLASH TWO-LIGHT STROBE KIT

Solid State Power Supply for each wing tip. Complete with two power supplies, two strobe tubes, lenses and retainer. Specify 12-14V or 24-28V. FAA approved. Used on Grumman aircraft.

Kits consist of:	Part No.	Price
(2)-152-007, 12V Power Supply, (2)-153-008, Light Assy.	156-0010	.
(2)-152-0010, 24V Power Supply, (2)-153-0008, Light Assy.	156-0011	.
(2)-152-0021, 24V Power Supply Explosion Proof, (2)-153-0008, Light Assy.	156-0011EX	.

## AEROFLASH NAV/ STROBE LIGHT KITS

These non-PMA'd remote nav/strobe light kits are excellent for ultralights and homebuilts. Kit includes one red light assembly, one green light assembly and two power supplies.

- Single flash, 12V kit..P/N 156-0039-12V
- Single flash, 28V kit..P/N 156-0039-28V
- Double flash, 12V kit..... P/N 11-04762

## AEROFLASH NAV/STROBE/POS. LIGHT KITS

These non-PMA'd remote nav / strobe /position light kits are excellent for ultralights and homebuilts. Kit includes one red light assembly, one green light assembly and two power supplies. The nav lights include clear position lights on rear of assemblies.

- Single flash, 12V kit....P/N 156-0049-12V
- Single flash, 28V kit....P/N 156-0049-28V
- Double flash, 12V kit ..P/N 11-04763

# AEROFLASH STROBES

## AEROFLASH FAA/PMA AIRCRAFT APPROVAL LIST

Aeroflash Original P/N	Current P/N	Manufacture P/N	Description	Aircraft Installation Eligibility	Price
40-6	040-0003	G.A.A.C P/N	24V/150W QUARTZ LAMP	AA1B, AA5A, AA5B	.
40-0010	040-0028		12V/125W Bulb		.
150-0002	Same		14V Single or Dual Flasher	AA1B, AA5A, AA5B	.
151-0001	Same		14V Light Assembly, Red Lens	AA1B, AA5A, AA5B	.
152-0004	152-0007		14V Power Supply	AA1B, AA5A, AA5B	.
153-0008	Same		Strobe Assembly	AA1B, AA5A, AA5B	.
073-0270	Same	Varga P/N	U-Type Flash Tube Assembly	2150A	.
152-0004	152-0007		14V Power Supply	2105A	.
152-0008	152-0007		12V Power Supply Single Flash		.
150-0015	Same	Rockwell P/N	14V or 28V, Sgls. Dual Flasher DVA-2	112, 112B, 112TC, 112TCA, 114	.
151-0001	Same		14V Light Assembly Red Lens	112, 112B, 112TC, 112TCA, 114	.
150-0015	Same	Great Lakes P/N	14V or 28V, Sgls. Dual Flasher DVA-2	2T-1A-1, -2	.
151-0001	Same		14V Light Assembly Red Lens	2T-1A-1, -2	.
40-6	040-0028	C17312-3	12V/125W Bulb	150, 172, 177, 177RG, 180,	.
40-0010	040-0028		12V/125W Bulb	182, 185, 188, 206, 207	.
40-14	040-0003	C17312-1	24V/150W QUARTZ LAMP	210, 337, 28 Volt Version of	.
40-0027				185, 188, 206, 207	.
73-0165	073-0270	C622006-0108	U-Type Flash Tube	150, 172, 177, 177RG, 180	.
111-0016	Same	C622006-0103	Wing Tip Clear Dome	150, 172, 177, 177RG, 180, 182, 185, 188, 206, 207, 210	.
150-0008	Same	C594501-0204	28 Volt Single or Dual Flasher A2F	337	.
150-0010	150-0015	C594502-0102	14V or 28V, Single/ Dual Flasher DVA-2	150, 172, 177, 177RG, 180,	.
				185, 188, 296, 207, 120	.
151-0002	151-0001	C621001-0106	14V Lamp Assembly	150, 172, 177, 177RG, 180,	.
			Red Lens X1F-6	182, 185, 188, 206, 207	.
151-0006	151-0005	C621001-0102	28V Lamp Assembly	210, 337, 28 Volt Version of	.
			Red Lens X2F	206, 207, 185, 188	.
152-0004	152-0007	C622008-0101	14V Power Supply	150, 172, 177, 177RG, 180, 182, 185, 188, 206, 207, R172, 210	.
152-0010	152-0010	C622008-0102	28V Power Supply	210, 28 Volt Version of 185, 188, 206, 207, R182, 150, 172, 177, 177RG, 180, R172	.
153-0006	153-0009	C622006-0107	Wing Tip Strobe Assembly	150, 172, 177, 177RG, 180, 182, 185, 206, 207, 210	.
151-0008	11-02103	Not FAA Approved	24-28V Red Tear Drop Lt Assy	Helicopter	.
151-0009	11-02104	Not FAA Approved	24-28V Red Light Assy w/ Mt Plate	Helicopter	.



### AEROFLASH TAIL STROBE/ POSITION LIGHT KIT

This non-PMA'd kit for experimental aircraft only includes (1) 12V clear lens assy. & (1) 12V single flash remote power supply, output 10 joules.

Model 156-0029SF Kit..... P/N 11-00979.....  
Replacement Clear Dome..... P/N 11-00980.....  
Replacement Gasket..... P/N 11-00981.....  
Replace. Flashtube w/pos. lamp..... P/N 11-00982.....

### AEROFLASH FUSELAGE MOUNT SYSTEM



P/N 156-0017 consists of:  
One-152-0007 12 Volt Power Supply  
One-163-0001 Light Assembly  
One-073-0217 Cable Assembly  
P/N 156-0018 consists of:  
One-152-0010 24 Volt Power Supply  
One-163-0001 Light Assembly  
One-073-0217 Cable Assembly  
P/N 156-0018EX consists of:  
One-152-0021 24 Volt Power Supply Explosion Proof  
One-163-0001 Light Assembly  
One-073-0217 Cable Assembly  
Spare Parts for Light Assemblies:

Ref #	P/N	Description	Price
A	152-0007	12V Power Supply Clear Anodized	.
	152-0010	24V Power Supply Gold Anodized	.
	152-0021	24V Power Supply Explosion Proof Blue Anodize	.
B	073-0271	Cable Assembly	.
C	073-0055	Mounting Plate Assembly	.
D	101-0020	Hold Down Ring	.
E	080-0008	Gasket	.
F	073-0141	Strobe Flashtube	.
G	111-0001	Red Lens	.
	111-0004	Clear Lens	.
H	080-0001	Gasket	.

### AERO FLASH PIGGYBACK WING TIP STROBES

Original equipment on many Cessnas. Kit includes two strobe units with wiring which mount on Grimes Model "E" wing position lights (not furnished), two power supplies which mount on wing tip ribs, and two lens retainers. Strobes simply plug into power supplies - no interconnecting cables. Draw just 2.5 amps nominal at 12 volts.



P/N 156-0003 consists of:  
Two-152-0007 12 Volt Power Supply  
Two-153-0009 Light Assembly  
P/N 156-0004 consists of:  
Two-152-0010 24 Volt Power Supply  
Two-153-0009 Light Assembly  
P/N 156-004EX consists of:  
Two-152-002124 24V Power Supply  
Explosion Proof Ideal for  
wet-wing aircraft  
Two-153-0009 Light Assembly

Ref #	P/N	Description	Price ea.
A	152-0007	12 Volt Power Supply Clear Anodized	.
	152-0010	24 Volt Power Supply Gold Anodized	.
	152-0011	24 Volt Double Flash Power Supplies (each draws 2.7 amps and weighs 1.33 lbs.)	.
		24 Volt Power Supply Explosion Proof Blue Anodize	.
B	073-0270	Strobe Flashtube	.
C	101-0084	Lens Retainer	.
D	080-0018	Gasket	.
E	111-0016	Clear Dome	.

### AEROFLASH NAVIGATION/STROBE COMBINATION SYSTEM

Red..... P/N 156-0019R.....  
Green..... P/N 156-0019G.....  
Spare Parts:



Ref #	P-N	Description	Price ea.
A	152-0024	24V Power Supply	.
B	111-0068	Clear Dome	.
C	040-0043	Strobe Flashtube	.
D	101-0238A	Hold Down Bracket	.
	111-0066	Red Navigation Dome	.
	111-0067	Green Navigation Dome	.
E	040-0046	Navigation Lamp	.
	*080-0046	O-Ring Gasket	.
	*080-0042	Flange Gasket	.

\*Not Shown

### AEROFLASH REPLACEMENT FLASHERS



P/N 150-0002 consists of:  
12 Volt Single and/or Dual Flasher  
Replaces Old Style Flashers in Cessna Aircraft  
P/N 150-0003 consists of:  
24 Volt Alternating Flasher Replacement  
for Helicopters

Aeroflash flashing lights have been used on Cessna aircraft since 1964. The strobes have been original equipment since 1977 on Cessna, Varga and Aero Commander.

P/N 150-0008 consists of:  
24 Volt Single and/or Dual Flasher  
Replaces Old Style Flashers in Cessna Aircraft  
P/N 150-0013 consists of:  
24 Volt Single Flasher

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# STROBES – POSITION LIGHTS - LED LIGHTS

## ILLUSION AIRCRAFT STROBE



Powered by the lighting coil of Rotax and other two-cycle engines, this is the most efficient strobe light on the market because it uses only the power normally wasted by the voltage regulator in a battery charging system. It has no effect on the charging system, so you can still connect other equipment to the lighting coil. The two strobe lights flash alternately an average of 55 times per second. Lesser strobe systems fire their lights simultaneously, resulting in a much longer firing cycle because the lighting coil can only develop so much power in a given time. The Illusion Strobe uses a specialized prismatic Fresnel lens. This lens increases the strobe's effective light intensity up to 8 times. The Illusion Strobe works with the new Rotax 170W dual-ignition lighting coils and the standard 125W single-ignition type. It meets Part 103 requirements to add to an extra hour of legal flying time each day. The Illusion Strobe comes with 2 lights rated at 25 joules; driver, wire, hardware, instructions, and a two-year manufacturer's warranty.

Dual Wingtip Strobe Sys.....P/N 10-00819 .....  
Single Strobe System .....P/N 11-05911 .....

## FLIGHT STROBE FS 4400



This precision compact unit mounts easily on top or below fuselage, and directly replaces rotating beacons. It features a high-intensity Xenon arc lamp, a high-efficiency push pull inverter circuit for stable flash voltage and a flame-resistant military circuit board assembly. The lamp is readily replaceable without removing the unit from the aircraft, and the unit weighs only 1 lb. 4 oz. The Flight Strobe FS-4400 is visible

for over 50 miles at night, in haze, smog or bright sunlight and is manufactured using the highest quality components for maximum reliability and service life. Amp draw 3 Amp. (14V) & 1.5 Amp (28V). STC'D for Cessna 180. FAA form 337 for field approval is required for installation of other certified aircraft. Order adapter separately.

14V (FS-4400-14V) ..... P/N 11-01018 .....  
28V (FS-4400-28V) ..... P/N 11-01019 .....  
FS-4400 Adapter ..... P/N 11-06500 .....  
FS-227 Repl. Bulb 14V/28V ..... P/N 11-06510 .....  
FS-210C Clear Lens ..... P/N 11-01024 .....  
FS-210C/R2 (1/2 Clear-1/2 Red) ..... P/N 11-01026 .....  
FS-210R Red Lens ..... P/N 11-01021 .....  
Fuse for FS-4400 ..... P/N 11-02027 .....

## PSA TRIMCRAFT LED BASED LIGHTS



**8000 SERIES (LED) ANTI-COLLISION BEACON** - LED based self-contained, High Impact Polycarbonate Optical Lens. Lighter, Brighter, Cooler Longer Life (up-to 50,000 hrs.) and draws less than 1 amp. (.13 amps) @ 12vdc. Weighing in at 3.5oz. it stands 3" high and 2.5" in diameter.

P/N 11-07241 (Red) .....  
P/N 11-07246 (Clear) .....

**MODEL 918 (LED) TAIL LIGHT TL918 TAIL LIGHT** - LED based Tail Light that weighs only 1.5oz. High Impact Polycarbonate Optical Lens. Up-to (50,000 hrs.) life. Draws .13 amps @12vdc. It measures approximately 1.6" high and 1.4" diameter.

P/N 11-07242 .....



**MODEL 927 (LED) ANTI-COLLISION BEACON** - Completely Self-Contained LED Based Anti-Collision Beacon 927ACB (RED OR CLEAR) High Impact Polycarbonate Optical Lens. Up-to (50,000 hr.) life. Draws .14 amps@12vdc. It measures approximately 1.6" high and 1.4" diameter. That's right, it is in the same package as the Tail Light! Lighter, Brighter and Cooler, and weighs only 1.6 oz.

P/N 11-07243 (Red) .....  
P/N 11-07244 (Clear) .....



**ELECTRONIC (IN LINE) FLASHER MODEL PSA-EF** - High Impact Polycarbonate Case. An (in line) 12vdc up-to 5amp flasher to flash all those lamps you always wanted to flash. 1" x 1" x 1/2", wt. .8oz. P/N 11-07245 .....

## LED REPLACEMENT LAMPS FOR NAVIGATION LIGHTS

Upgrade your Red & Green Navigation Lights to LED's. Replaces standard lamps in Whelen, Grimes, and Hoskins Navigation lights. It's simple! Just replace your old incandescent bulbs with our new LED lamps and you are ready to go. Longer life, runs cooler, draws less than .2 amps, 43 candle power, meets FAR 23-1391, and is Mil Spec.

Description	Part No.	Price
LED7512-12V Red Lamp	11-07744	.
LED7512-12V Green Lamp	11-07745	.
LED7512-24V Red Lamp	11-07746	.
LED7512-24V Green Lamp	11-07747	.
LED75TPL-12 Tail Position Lamp	11-07748	.
LED75TPL-24 Tail Position Lamp	11-07749	.

## WING LIGHTS



W1285

W1285 series are the same design as Grimes Model E. Available with red or green lens and 12V or 24V bulb. W1250 PG/PR are FAA approved position lights and are designed to fit underneath the wing tip fairings.



W1250

W1285		
14V Green W1285 Assembly	11-03226	.
28V Green W1285 Assembly	11-03891	.
14V Red W1285 Assembly	11-03224	.
28V Red W1285 Assembly	11-03283	.
W1250		
14V Green W1250 Assembly	11-04263	.
28V Green W1250 Assembly	11-03278	.
14V Red W1250 Assembly	11-04264	.
28V Red W1250 Assembly	11-03282	.
Replacement Bulbs		
14V W1290 Bulbs	11-02602	.
28V W1290 Bulbs	11-02604	.



Model B wing

**GRIMES MODEL B** - Early type wing light with flat mounting pad. Mounts on tip of wing. Wt. 7oz Order by part number.

### SINGLE CONTACT -

w/#93 Bulb New Surplus .....  
Green, 14V ..... P/N A-2430-1-G  
Red, 14V ..... P/N A-2430-1-R



## STEEL FORMED NAVIGATION LIGHT PLATES

Wing tip light plate is welded or screwed to wing tip bows to attach teardrop type position lights. Tail light plate is welded to rudder to attach Model S tail light. Model E Wing Light Plate .P/N 11-06900 ..... ea  
Model S Tail Light Plate.... P/N 11-07000..... ea

## "C-LITE" WING TIP NAV LIGHT INDICATORS

These indicators identify your wingtips when taxiing at night, and assure your nav lights are working. Installs in minutes with just a screwdriver, and you don't disconnect the lights to do it. Works with high-or-low-wing aircraft, thick wing too. Designed for use with Grimes #A-1285 & #B-6345 nac lights, which means practically all aircraft. P/N 5122.....

## TAIL LIGHTS

**GRIMES MODEL S** - For tailcone or rudder installation. Wt: 3oz. Single contact. 15 Candlepower. With #93 (12V) bulb.

P/N 11-03652.....

**GRIMES EARLY MODEL C** - Mounts on trailing edge of rudder. Wt. 5 oz. Double contact. 15 Candlepower. With #94 (12V) bulb.

Model B-1943-4 (New Surplus)..... P/N 11-07200 .....

### REPLACEMENT PARTS FOR POSITION LIGHTS

Lenses for Grimes A, B, C Wing or Tail Lights

Clear.....P/N 11-03662..... Red.....P/N 11-03655.....

Green.....P/N 11-03663.....

Lenses for Grimes Model E or Whelen Wing Tip Lights

Red.....P/N 11-02754..... Green.....P/N 11-02755.....

Lens for Model S Tail Light (Clear)..... P/N 11-07400.....

Bale Wire - Grimes..... P/N 11-03664.....

## ULTRALIGHT POSITION LIGHTS & STROBES

The new LED technology allows excellent navigation lights with only approximately 10% of the input power, compared with conventional navigation lights. The casting in a high-optical plastic makes the EPL (Electronic Position Light) absolutely insensitive against water, vibrations and other environmental influence. The efficiency of the output is much higher than with conventional electric light bulbs. The self-warming of the EPL is low and can be determined as safe. To avoid overheating, the heat balance is controlled electronically. As a precaution you must pay attention to ventilation with a cover installed, so that no heat accumulation within the casing can appear. This may be assumed by suitable constructive measures. These lights are manufactured in Germany.

Ultralight EPL Wing Tip Light Set.....P/N 11-05120 .....

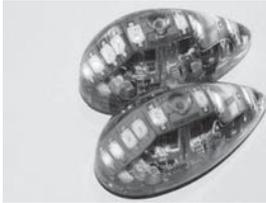
Ultralight EPL Tail Light ..... P/N 11-05121 .....

Ultralight EPL Beacon/Strobe..... P/N 11-05122 .....

Ultralight EPL Complete Light Set..... P/N 11-05123 .....

# AVEOFLASH LIGHTING - ROCKRACK SWITCHES

## AVEOFLASH - 14V LED AIRCRAFT POSITION LIGHTS



The AveoFlash™ aircraft lights are patented designs, with unmatched technology and performance features that are finally available at affordable prices. This incredible series of lights incorporate the exclusive SmartStrobe™ synchronizer circuitry, which is integral to the lights, no external flash unit/strobe power unit is required. Another unique and exclusive feature is the Aveo PowerOptimizer™ technology designed into the circuit board, it means less power consumption from even brighter lights.



**TAIL POSITION/STROBE** - Consists of one aerodynamic oval Red/White/White Flash

AveoFlash 14V Tail Light - Red ..... P/N 11-06630.....



**ANTI-COLLISION** - Consists of All Red flashing 360° AveoFlash 14V Anti-Collision - Red . P/N 11-06631.....

## AVEOFLASH - E-SERIES™ AIRCRAFT LED LIGHTS



E-Series AveoFlashLP™ Aircraft lights meet both TSO C30c and C96a design specifications, and EXCEED the requirements of TSO C30c, C96a, SAE AS 8037 and AS8017a, and DO-160B. E-Series AveoFlashLP™ are unbreakable lights with a lifetime warranty at an affordable price for your kit, sport, ultralight or experimental aircraft. No more broken expensive lens to replace, no more bulbs to replace! With the

Exclusive free-replacement lifetime warranty they are the last lights you will ever need to purchase. Integrating the most technologically-advanced and brightest LEDs available in the world to the amazing and all-new exclusive AveoOptimizer™ circuitry, the futuristic E-Series are marked as "LP", for "low profile". At a fully 25 mm (1 inch) lower overall height than the 2008 AveoFlash™ lights, the E-Series lights feature:



- A 9-32 volt input range, no more separate lights by voltage
  - Light synchronization feature as standard
  - Combined 3-in-1 Nav/Position/Strobe
  - An even lighter overall weight
  - Minimum drag profile
  - And of course the industry-exclusive Lifetime Warranty
- Combined with the unbreakable AveoDiamidium™ encasing, and a blinding output of strobe, position and nav lights, AveoFlashLP™ is sure to make you BE SEEN, NOT SORRY™.



Description	Part No.	Price
AveoFlashLP™ E-Series Winglights Pair - strobe navigational green and red wingtips.	11-07360	.

## AVEOFLASH - POSISTROBE™ & POSISTROBE XP™ LED AIRCRAFT LIGHTS



The E-series PosiStrobe™ and PosiStrobeXP™ aircraft lights are patented designs, with unmatched technology and performance features that are finally available at affordable prices. This incredible series of lights incorporate the exclusive SmartStrobe synchronizer circuitry, which is integral to the lights, no external flash unit/strobe power unit is required. Another unique and exclusive feature is the Aveo PowerOptimizer™ technology designed into the circuit board, it means less power consumption from even brighter lights. The PosiStrobe™ is universal voltage input of 14-28 volts.

PosiStrobe is for Part 103 craft, trikes and ultralights. PosiStrobeXP is for light sport and experimental class.

At only 1.76 ounces, there is not a better solution to tail position/strobe needs in the world. The PosiStrobeXP™ meets both TSO C30c and C96a design specifications.

POSISTROBE™		
Description	Part No.	Price
White / White AveoFlash PosiStrobe™ 9-32V	11-06632	.
Red / White *SPECIAL ORDER* AveoFlash PosiStrobe™ 9-32V	11-07118	.
Red / Red AveoFlash PosiStrobe™ 9-32V	11-07119	.

POSISTROBEXP™		
Description	Part No.	Price
White / White AveoFlash PosiStrobeXP™ 9-32V	11-07361	.

## AVEO ROCKRACK SWITCHES



SWITCHES		
Description	Part No.	Price
Lighting 10 pk - Nav, Strobe, Taxi, landing, Beac/AC, Cock-pit, map, Panel, Wig-Wag, On/Off	11-07826	.
Avionics 10 pk - Autopilot, Nav1, Nav2, Generator, Avionics Master, Weather, Standby Vacuum, Comm, Camera, Music	11-07827	.
Ice & Heat 10 Pk - De-ice, Prop De-ice, Cabin Heater, Fan, Defrost, Carb heater, Boots, TKS, Pitot Heat, Seat Heat	11-07829	.
Pumps 10 Pk - Fuel Pump, Fuel Pump, AUX, Transfer Pump, HUD Pump, Boost Pump, Boost Pump High/Boost Pump Low, Prime, High/Low, On/Off	11-07832	.
General 10 Pk - Emerg Bus, Up/Down arrow, MagL, MagR Aux, On/Off, High/Low, Aux Master, Avionics Master, Pitot heat	11-07830	.
Engine & Airframe 10 Pk - Standby ALT, Battery Master, Starter, Alternator, Elec Ignition, Speed Brake, parachute, Elec Trim, Left Mag, Right Mag	11-07831	.
Red switch top with icon Battery Master	11-06641	.
Red switch top with icon Avionics Master	11-06642	.
14 Gauge Tab Terminals - 12 Pack	11-07833	.
14 Gauge Tab Terminals - 24 Pack	11-07834	.
14 Gauge Tab Terminals - 60 Pack	11-07835	.
Switch Bottom part - red	11-06643	.
Switch Bottom part - green	11-06644	.
Switch Bottom part - blue	11-06645	.
Switch Bottom part - white	11-06646	.

EXTRA MOUNTS		
Description	Part Number	Price
End Module	11-06648	.
Middle Module	11-06649	.
Single Module	11-06650	.
Connector	11-06651	.
Removing Tool - 2 required to remove the switch.	11-06652	.

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# KUNTZLEMAN STROBE SYSTEMS

## KUNTZLEMAN MAGNUM STROBES

The **SINGLE MAGNUM SMART STROBE** Driver is a state of the art single strobe light system. There is not another system on the market like this one. It will operate on 10 to 80 volts of AC or DC input power. It can be powered directly from the engine lighting coil (AC) or from a battery (DC) without any change in brightness or its double wink flash pattern at a 74 per min. rate. There are NO options to change and NO special equipment needed. This model is a favorite for king post installations and with the PPC flyers. It is also available with either the standard STREAMLINE HEAD or the COMBO STREAMLINE WHITE HEAD. Both are popular for tail mounting. Average current draw is less than 2 Amps. The driver measures 4 1/2" X 3 1/2" X 1 1/2" and weighs 10 ounces.

Smart Strobe Driver Box only - Single Magnum Smart Strobe driver only, without a strobe head. SS-DO  
P/N 11-05116.....

Single Magnum Smart Strobe with round clear Fresnel Head - The globe style is a Fresnel lens. The head comes with 6' of wire and plug attached. SS-TM  
P/N 10-01609.....

Streamline Model with Driver and Streamline Head - Includes 25' of 3 conductor wire, plug, pins and mounting hardware (includes adaptor plate for curved surface mounting if needed). SS-SLM P/N 10-01611.....

SINGLE MAGNUM SMART STROBE DRIVER with a Round Taillight Strobe - Includes 25' of wire and mounting hardware. SS-TL-STR... P/N 11-07345.....

STREAMLINE COMBO Head, White Led & Strobe Combination - Includes 25' of 5 conductor shielded wire, plug, pins and mounting hardware (includes adaptor plate for curved surface mounting if needed). SS-SLCW  
P/N 11-05114.....

ROUND TAILLIGHT COMBO Head - White Led & Strobe Combination Includes 25' of wire and mounting hardware. SS-TL-L/S ..... P/N 11-07346.....

The **DOUBLE DUAL MAGNUM STROBE** Driver is available in two models, the DDM 12 volt DC model and the SDDM smart model. The SMART Model simply means it can be powered by 10 to 80 volts of AC or DC. The 12 volt model is powered by the 12 volt electrical system of your aircraft. The strobe bulb fires a rapid double flash on one head and then the other in an alternating pattern. The first flash catches the eye and the second identifies your position. Total flash rate is 74 per min. Average current draw is less than 2 Amps. The driver measures 4 1/2" X 3 1/2" X 1 1/2" and weighs 10 ounces.

Double Dual Magnum Driver Box Only - 12VDC Driver Box Only 12 volt Model DDM-DO ..... P/N 11-05118.....

Double Dual Magnum Smart Driver Box Only - Smart Model (10 to 80 volts of AC or DC)SDDM-DO ..... P/N 11-05117.....

Double Dual Magnum Driver Box with round clear Fresnel Heads - Two Round Fresnel Heads, driver, 6' of 3 conductor wire, plugs, pins, and installation hardware (Tang Mount used on PPC, TRIKES, or where bolting heads to frame is desired).

STANDARD - 12 VDC Model with /ROUND FRESNEL heads DDM-RH  
P/N 10-01610.....

SMART - with /ROUND FRESNEL headsSDDM-RH  
P/N 11-04956.....

Double Dual Magnum Driver Box with standard streamline Heads - Two Streamline Heads, driver, 50' of 3 conductor wire, plugs, pins, and installation hardware (includes adaptor plates for curved surface mounting if needed).

STANDARD 12 volt Model with Driver and Two STANDARD STREAMLINE Heads ..... P/N 10-00824.....

SMART - model with with Driver and Two standard streamline Heads SDDM-SL ..... P/N 11-04995.....

Two STREAMLINE COMBO heads, driver, 50' of 5 conductor shielded wire, plugs, pins, adaptor plates (for curved or flat surface mounting) and installation hardware. SONEX Aircraft adapter plates available at no additional charge when mentioned at time of purchase.

COMBO - 12 VDC Model with Streamline Combo Heads DDM-SLC  
P/N 11-04835.....

SMART - with Streamline Combo Heads SDDM-SLC  
P/N 11-04957.....

**KIT #1 IS A SET OF SPECIAL HEADS** - For builders of RV 7, 9, & 10 aircraft or any other kit that has like mounted wing lights. Due to the wing light configuration on these aircraft, the white rear facing LED on the regular Combo head is of no use, because it can't be seen from the rear. A white position or tail light is then needed. These are strobe and red / green position light equipped heads NO white LEDs, a 2 strobe driver box, that fires both wing strobes in an alternating double wink pattern, a white round LED equipped tail light to be mounted at the rear of the aircraft. 50 feet of 5 conductor shielded wire for the wings, plugs, pins and mounting hardware. Total power draw for this system is about 2 1/2 Amps at 14 volts. P/N 11-05833.....

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The **TRIPLE MAGNUM 3 LIGHT STROBE** Driver is a 12 volt DC operated system. It fires 3 strobe heads in a double wink pattern. The two wing tip lights alternate between left and right while the tail, or third light is synchronized to flash every time one of the wing tips are flashing. Resulting in about 140 flashes per minute. The driver box measures 4 1/2" X 7" X 1 1/2" and weighs 17.2 ounces. The current draw with 3 standard heads is about 3 amps. If using two COMBO heads and one standard head it is about 3 3/4 Amps. This makes it the most power conservative triple strobe system on the market.

Triple Magnum 3 Light DRIVER BOX ONLY - 12 volt Model TRI3-DO ..... P/N 11-01355.....

TRI 3 DRIVER with 3 STANDARD HEADS, Streamline or Round. - with 3 standard SL or ROUND FRESNEL heads, please specify. Complete with 75' of wire, plugs, pins, adaptor plates (for flat or curved surface mounting) and all the installation hardware. TRI3-SLP/N 11-01829.....

TRI 3 DRIVER with 2 COMBO HEADS & 1 STREAMLINE, ROUND FRESNEL or TAIL-LIGHT HEAD - The TRIPLE MAGNUM 3 light system with 2 COMBO & a choice of either 1 Standard Streamline Head, 1 Round Fresnel head or 1 Round Tail Light without LEDs (Additional cost for the Round Tail Light) for the third head, please specify. Complete with 75' of shielded wire, plugs, pins, adaptor plates (for flat or curved surface mounting) and all the installation hardware. (Please specify choice at time of order) TRI3-SLC..... P/N 11-05125.....

TRI 3 DRIVER with 3 COMBO HEADS - The TRIPLE MAGNUM 3 light system with 3 COMBO heads, please specify Streamline Combo or Round Tail light Combo for third head. Complete with 75' of shielded wire, plugs, pins, adaptor plates (for flat or curved surface mounting) and all the installation hardware. The tail COMBO heads both have a strobe and white LEDs to be used as a STROBE and WHITE tail light. TRI3-SLWC ..... P/N 11-05119.....

**KIT #2 IS A SET OF SPECIAL HEADS** - For builders of RV 7, 9, & 10 aircraft or any other kit that has like mounted wing lights. Due to the wing light configuration on these aircraft, the white rear facing LED on the regular Combo head is of no use, because it can't be seen from the rear. A white position or tail light is then needed. A set of special heads. They are STROBE and RED / GREEN Position light equipped heads WITHOUT the white LEDs, a 3 strobe driver box, that fires both wing strobes in an alternating double wink pattern and a third STROBE and LED equipped round tail light for mounting at the rear of the aircraft. The tail strobe fires in sync with each wing. Also, included is 75 feet of 5 conductor shielded wire, plugs, pins and mounting hardware. Total power draw for this system is about 4 Amps at 14 volts. TRI3-RV..... P/N 11-05834.....

### KUNTZLEMAN REPLACEMENT PARTS AND ACCESSORIES

Standard Streamline Head Assembly - Silicon and lexan head measures 3-1/4" x 1" and weighs 1.8 ounces each. (bulb unit, clear lens, adapter plate, 25 feet wire, plug, pins, hardware and heat shrink) SL-HA  
P/N 11-05127.....

Standard Streamline Bulb Unit - Less lensSL-BU  
P/N 11-05128.....

Standard Streamline Lens Only - SL-L P/N 11-05130.....

Round head Assembly - Round clear Fresnel lens. Measures 2-1/2" dia. at the base and 3-1/2" tall. Weighs 6 ounces, and standard 6 ft. wire and plug installed. RND-HA -CLEAR ..... P/N 11-05135.....

Round Clear Fresnel Lens - RND-L..... P/N 11-05139.....

Round Wire Bulb Unit - Works on all Magnum drivers.  
RND-3WBU - 3 Wire.... P/N 11-05137.....

Combo Streamline Head Assembly - Also fitted with LED position lights. Measures 3-1/4" x 1" and weighs 2.8 ounces. 12 volt LEDs draw only (complete 2 head & wire) SL-HAC-S. P/N 11-07465.....

**SL-HAC-G** - Green & White aft LEDs (1 head & wire)  
SL-HAC-G..... P/N 11-07466.....

W/O Strobe Bulb SL-HAC-WG ..... P/N 11-07348.....

**SL-HAC-R** - Red/Wh aft LED SL-HAC-R... P/N 11-07467.....

W/O Strobe Bulb SL-HAC-WR ..... P/N 11-07349.....

**SL-HAC-W** - White aft LEDs SL-HAC-W ... P/N 11-07469.....

W/O Strobe Bulb SL-HAC-W ..... P/N 11-05132.....

Combo Streamline - REPLACEMENT Strobe Bulb Unit Only, fits SL and ROUND Combo tail light heads..... P/N 11-05133.....

Combo Streamline - LENS Only SL-LC... P/N 11-05134.....

Round Taillight with Strobe Only..... P/N 11-05805.....

Round COMBO Taillight..... P/N 11-05804.....

Round Taillight with LEDs TL-LED ..... P/N 11-05806.....

Strobe Head Plug Set - SH-PS..... P/N 11-05140.....

Inline Plug Set - IL-PS..... P/N 11-05141.....

Trike Mount Adaptor Kit - TRK-MT ..... P/N 11-05143.....

3 Wire Cable Extension - EXT-3W ..... P/N 11-05142.....

Mounting Kit - RND-MK ..... P/N 11-07347.....

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# ULTRALIGHT STROBES - AEROSUN LIGHTING



## KUNTZLEMAN SELF CONTAINED 12 VDC STROBE

The SC103 STROBE is a self contained 12 volt DC operated light designed specifically for Ultralight use where an external 12 vdc power source (battery) is available. Its physical size is the smallest of any self contained strobe light in its class. Measuring 2 1/2" dia. At the base and 4" tall. Using the same xenon flash tube and Fresnel lens that is currently being used on its big brother the Single Magnum Smart Strobe. The brightness has been actual flight tested before sunset and is visible at 3 statute miles (FAR 103 requirement). The flash is in a single wink pattern at about 42 per minute, power consumption is 500 ma (1/2 Amp) and it weighs only 7 1/2 ounces. The SC103 is mounted with a 1/4 X 20 stud located in the center on the bottom of the unit. Also, a stainless steel tang is supplied. Its rugged construction makes it a great economical stand alone unit. P/N 11-04098.....

**SHOCK MOUNT** - Designed to be used when mounting the SC103 strobe in an area of high vibration. P/N 11-06251.....



## KUNTZLEMAN LANDING/TAXI/ RECOGNITION (LTR) LIGHTS

LSA and EXPERIMENTAL aircraft line of lights. Made in the USA, called the LTR which stands for Landing-Taxi-Recognition. The LTR consists of 9 extremely bright LEDs, focused through special lenses. This results in a white beam of light that has been measured with a light meter to be 2 1/2 times the brightness of a 55 watt halogen lamp while drawing 1/3 the current and 1 1/2 that of an HID lamp at about the same current. Powered by 12 to 14 volts DC it uses only 1.35 Amps of power. The LTR dimensions are 3" Dia. X 1" deep and weighs less than 6 ounces. Flashing it on & off can be accomplished with an led flasher from your local auto parts store. You must see the LTR in operation to believe the light output. Sold with a money back satisfaction guarantee. P/N 11-06854.....

## KUNTZLEMAN HOT BOX

The HOT BOX is a complete electrical system intended for use with an electric starter equipped engine. The box contains a heavy duty regulator, starter solenoid, custom length cables, labeled terminal strips, a fuse panel and many more features.

Hot Box with Regulator HB..... P/N 11-05144.....  
Hot Box no Regulator HB..... P/N 11-05145.....

## RED LED AIRCRAFT BEACON



This self contained 14 Volt beacon uses surface mounted LED (Light Emitting Diode) technology and meets FAA requirements for anti-collision light systems in both airplane and rotorcraft categories. This rugged little unit measures 1.7 inches in diameter, 3.5 inches tall and weighs 8.4 ounces. The average current draw at 14 volts is 0.6 Amps with a peak input current of 1.2 Amps. It has a flash rate

of 60 per minute and will not produce EMI or RFI interference. The color is Aviation Red LEDs through a clear Polycarbonate Fresnel lens. The manufacturers projected life for their LEDs is up to 100K hours. Mounting is accomplished by a #10-32 stainless steel stud that is in the bottom center of the base. NOT TSO'D P/N 11-05111.....

## LED TASK LIGHTS



**BEZEL MOUNT** - 12V - Wires exit out the side, white dimmer light .16 amp P/N 11-05682.....  
**SURFACE MOUNT** - 12V - Wires exit out the back, brighter light .60 amp P/N 11-05683.....

P/N 11-05682

## SUN SPOT

SUNSpot is designed as a certified, drop-in replacement for your existing GE4509, PAR36 aircraft lights. It is mounted in place of the conventional clamp mount with a single bolt attach point, or can be ring-clamped to the existing mount. SUNSpot delivers 2800 lumens at 36W compared to a 100W halogen at 2000 lumens; 30% the power and greater light output. AeroSUNSpot has the same great design features as other aircraft light designs: \* Wide Input Voltage Range (9VDC-36VDS) \* Built in Wig/Wag (stand-alone or synchronous with any of our other products) \* Over-temp Sense Protection; ensures our 50,000 hour lifetime guarantee \* Low-voltage Sense (shuts down half the LED's in emergency, low voltage conditions)sold each P/N 11-06578.....

## SUNTAIL



SunTail is designed to perform the tail position/strobe functionality on the rudder of the aircraft. The design addresses all the shortcomings of the existing line of competitive products and can synchronize its strobe with any of the AeroLEDs' wingtip family of nav/strobe and nav/position/strobe products. As with the EXP, SunTail™ was intended to meet or exceed all of the FAA requirements for certification. The product is expected to receive certified approval by the third quarter of 2009. P/N 11-07781.....

## COURTESY LIGHTS FOR CESSNA AIRCRAFT



This unique LED lighting system operates from a standard 9 volt battery. The system is designed to replace one or more inspection panels on the bottom of each wing with a new inspection panel and a battery operated LED light. This LED will provide lighting around the aircraft for loading passengers or assisting in pre-flight inspections during night time operations.

The LED has been designed and tested specifically for aircraft applications where altitude and temperature fluctuations can destroy certain components of a standard LED. The unit is also equipped with an indicator to assist the pilot in finding the switch in the dark. A timing feature allows the operator to run the light for either 3 or 15 minutes after which time the unit will shut itself off. Available with your choice of 5 different sized inspection panels. STC'd for many models of Cessna Aircraft. Visit or website for aircraft eligibility list.

Description	Part No.	Price
Courtesy Light with 5-1/16" Inspection Panel (Most Common)	11-05741	.
Courtesy Light with 5-11/16" Inspection Panel	11-05742	.
Courtesy Light with 6-1/32" Inspection Panel	11-05743	.
Courtesy Light with 6-13/64" Inspection Panel	11-05744	.
Courtesy Light with 7-9/16" Inspection Panel	11-05745	.

## SUNLITE LANDING LIGHTS



The SUNLite is protected against overheating with a built in protection circuit, is protected from lightning transients and ESD, voltage spikes, reverse voltage, and undervoltage conditions. Polycarbonate leading edge windows are commonly used with wing-mounted landing lights, and are typically available for most airplane types from a number of third-party suppliers. The AeroSUNLite dimensions are shown below in units of inches. This light is small enough to fit in the wingtip cutout found in Van's RV kits. AeroSun Lite 800 2 Lumen Lights (Single)..... P/N 11-06280.....

## 1600 LED LANDING LIGHT



The 1600 is a wing-mounted LED (Light Emitting Diode) landing light with a built-in wig wag mode in addition to its standard operation as a landing/taxi light. The 1600, made from extruded aluminum, is a very intense light source that uses 8 high power LEDs to produce up to 1600 lumens of light using just 24 Watts of power. The product is ideal of open airflow environments. Each uses one fourth the power of an equivalent 100 Watt halogen light while producing as much usable light. The LED light sources last up to 50,000 hours of constant operation. The unit is completely sealed and is very rugged. Completed and passed formal DO-160E testing for chapter 21 RFI and conducted emissions to category H, which is the most stringent level required. For installation on experimental category airplanes. Sold each.....P/N 11-05797.....

## X-TREME



The X-treme is a wing-mounted LED (Light Emitting Diode) landing light with a built-in wig wag mode in addition to its standard operation as a landing/taxi light. The X-treme, made from a heavy T6-6061 aluminum, is a very intense light source that uses 8 high power LEDs to produce up to 1600 lumens of light using just 24 Watts of power. Ideal for non-airflow closed environments. Meets our internal Safety of Flight Designs (SoFD) criterion that surpasses all other manufacturers. Sold each P/N 11-06465.....

## AERO-LEDS AERO PULSAR



The world's first LED-based Nav/Strobe lighting product that meets TSOs C30C and C96C. Will exceed the requirements which have traditionally been relegated to legacy technologies such as Xenon strobes and incandescent lighting. The design addresses all the shortcomings of the existing line of competitive products and was intended to meet or exceed all of the FAA requirements for certification. The product is expected to receive certified approval. P/N 11-06577.....

## SUNRAY



The SunRay is a wing-mounted LED (Light Emitting Diode) landing light with a built-in wig wag mode in addition to its standard operation as a landing/taxi light. The SunRay is a very intense light source that uses 4 high power LED's to produce up to 500+ lumens of light using 12 Watts of power. The SunRay is equivalent to 1/2 of an AeroSUN 1600. P/N 11-07778.....

## MICROSUN



The MicroSun is a wing-mounted LED (Light Emitting Diode) landing light with a built-in wig wag mode in addition to its standard operation as a landing/taxi light. The MicroSun is a very intense light source that uses 12 high power LED's to produce up to 1500+ lumens of light using 20 Watts of power. The MicroSun is equivalent to an AeroSUN 1600.

P/N 11-07779.....

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# LED LIGHTS - BEACONS - DIMMERS

## AC-POWERED FLASHER



This anti-collision flasher meets Part 103 ultralight dawn to dusk flying requirements. The units draw 2.7 amps at 14V (nominal). It has a clear Lexan Polycarbonate lens and a 35W halogen lamp. Mounting bracket shown is also included..... P/N 10-01490 .....

## ULTRALIGHT BEACONS



These miniature self-contained units use solid state circuitry for reliability and a lexan lens that is UV protected and shatter resistant for durability. The beacon uses a commonly available 35W halogen DC lamp. 12V DC power source required for both units Wt: less than 7oz. Size: 3" x 2-5/8". For Experimental Aircraft Only

Beacon, clear lens..... P/N 11-03007.....  
Beacon, red lens ..... P/N 11-03008.....

## LIGHTMAN HIGH INTENSITY STROBE

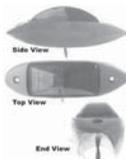


Lightman is a high quality portable battery operated strobe which is an ideal addition to a pilot survival kit. Its brilliant flash can be seen up to 3 miles and operates for 3-7 hours on AA batteries. It is impact & weather resistant; size: 3.5" on each triangular side; wt: 3.5oz. w/batteries.

Includes storage pouch, belt/visor clip, magnet, & other attachment accessories. Furnished with clear dome..... P/N 11-08200 .....

Dome only (Price/ea.)  
Amber..... P/N 11-08205..... Red .P/N 11-08210.....  
Green..... P/N 11-08215..... Blue.P/N 11-08220.....  
Clear..... P/N 11-08225.....

## ULTRALIGHT RED/GREEN POSITION LIGHTS



Made for easy installation to fit the tube that makes up the wing tip of most Ultralights. Powered by 12VDC and drawing only 1/3 amp each, these lights are just the thing for the Ultralight flyer that wants to add that special touch of position lights to his bird for those twilight flights. These

easy to mount lights measure 1-3/8" x 4-3/8". Please note that these lights are NOT TSO'd for VFR night flight...P/N 11-01356 .....

## NFLITE'S LOW VOLTAGE ANNUNCIATOR



The EA-1050 is designed for experimental aircraft. The microcontroller-based design is reliable, light-weight, consumes minimal current, and uses very little panel real estate. The industrial grade surface mount components used are shock/vibration resistant and

provide a wide operating temperature range.

The large red LED flashes for 60 seconds when alternator output voltage drops to 13V (normal output is ~14V). It then goes to continuous illumination until the condition is rectified. The flashing draws immediate attention to the condition -- continuous illumination is not a pilot distraction thereafter.

The voltage drop could be the result of an alternator malfunction or an overloaded system. Check by switching off a high load device, like landing light or strobes. If the ALT light goes off, the alternator is not malfunctioning but you are sourcing more voltage from your battery than the alternator is replacing. If the ALT light remains on, the alternator is malfunctioning and all non-essential electrical systems should be shut down immediately to conserve remaining battery voltage.

The LED activates when the master switch is turned on and goes out after engine start, assuming the alternator side of the master is on and alternator output is normal. Observing this should be a checklist item, as it indicates that conditions are normal and the annunciator unit is functioning prior to flight.

The flashing LED serves as a reminder to turn off the master switch after engine shutdown. It's also a helpful reminder to turn on the alternator switch after engine start (recommended starting procedure).

The entire unit is less than 1 sq. in. x 0.5" deep. A drill template is provided for attaching the LED bezel unit to the panel.

Complete installation and electrical connection instructions are also provided. P/N 11-02451.....

## BLACK FLUTED CONTROL KNOB



Black Bakelite knob. Fluted grip. 1/4" brass bushing with set screw. 3/4" in diameter x 7/16" high. Fits potentiometers for Superior Panel Technology dimmers.

P/N 11-07344.....

## SINGLE / 2 CHANNEL PWM DIMMERS



The two dimmers include a single channel model. Both use pulse wave modulation, or PWM electronic design for precise control of LED lighting such as LED instrument panel lighting, baggage, utility, map or post lights. The self-contained products are designed for easy installation and feature integrated on/off switches on each rheostat.

Rated at 18 Watts per dimmer channel, the dimmers are capable of operating a large number of interior lighting products and are engineered to provide additional over-current, over-voltage and reverse polarity protection.



Single Channel Pilot's Light Dimmer  
Single Channel Dimmer is ideal for LED Light Strips, General Panel Lighting or Series of Lights (such as map or baggage lights). The rotating control has its own on/off switch.

- \* 1.5A (18W) 12V dimmer using PWM (pulse wave modulation) for precise control
- \* Integrated on/off switch and smooth action rotating control
- \* Just 1.75" x 1.75" inches square. 1/4" shaft with high quality knob
- \* Screw down terminals for input and output wiring. Very easy to install.
- \* Powerful enough to operate numerous panel lights and convenience lights
- \* To install, drill 1/4" hole, wire input and output to screw terminals and install.



2-Channel Pilot's Light Dimmer  
Dual Channel (2 channel) Dimmers can be used with any combination of lighting - Dual Color LED Light Strips or for controlling 2 different sets of lights. Each channel has its own ON/OFF switch and dimmer control.

- \* Each channel controls 1.5A (18W) using pulse-wave modulation for precise control
- \* Controls LED or incandescent lighting, up to 18W each channel
- \* Dual integrated on/off switches and smooth action rotating control
- \* Permits complete independent operation of each channel (on/off & dimming)
- \* Just 2.5" x 1.75" inches square. Dual 1/4" shafts with push-on knobs
- \* Screw down terminals for input and output wiring. Very easy to install.
- \* Powerful enough to operate numerous panel lights and convenience lights

### Specifications:

- \* Mode of Operation: Continuously variable, pulse width modulation (PWM)
- \* Supply Voltage: 8 to 20 VDC working voltage, up to 30VDC momentary. Dimmer must be fused at power source
- \* Output Voltage Range: From zero VDC to supply voltage
- \* Output Current Range: Up 1.5A
- \* Max Continuous Output Current: Full rated current up to 105F (40C), 75% of rated current up to 115F (46C)
- \* Ambient Temp Range: Minus 40F (-40C) to 115F (46C), with restriction as noted
- \* Size: About 1-3/4" inch square
- \* Weight: 30 to 40 gm, depending on wired connection type
- \* Heat Sink: Electrically isolated from voltage and acts as a circuit enclosure. Max. temperature rise under load is about 40 F (22C) above ambient.

Description	Part No.	Price
Single Channel PWM Dimmer 12V	11-06674	.
Single Channel PWM Dimmer 24V	11-07286	.
Two Channel PWM Dimmer	11-06675	.

# COCKPIT LIGHTS — STROBE POWER SUPPLIES

## 754 SERIES LED COCKPIT LIGHTS



These versatile cockpit lights can be used to illuminate the instrument panel. They can be repositioned to illuminate your charts with their 110 degrees of angle adjustment while being able to rotate a full 360 degrees. Dimensions: 3/4" diameter, 1-5/8" tall fully-extended, 7/8" tall at 90 degrees.

The mounting stud is 1/4" in diameter and can be mounted onto a surface up to .200" thick. Switchable models facilitate wiring an SPDT switch (not included) to the light, allowing either red or white operation. We also offer a flush-mount flange to mount the light if the back side of the light is unreachable.

Flush Mount - (Pictured above) This part is for mounting and LED light Model 754 from the front side. The adapter base is 1-1/2" in diameter, stands 1-2" tall, and has a 1" bolt hole circle.

Model	Description	Body	Part No.	Price
754R-14V	4 Red 14V L.E.D.s	Alum.	11-04393	.
754R-28V	4 Red 28V L.E.D.s	Alum.	11-04394	.
754W-14V	4 White 14V L.E.D.s	Alum.	11-07481	.
754W-28V	4 White 28V L.E.D.s	Alum.	11-07482	.
754RW-14V	2 Red 2 White 14V L.E.D.s	Alum.	11-04395	.
754RW-28V	2 Red 2 White 28V L.E.D.s	Alum.	11-04396	.
754R-14V	4 Red 14V L.E.D.s	Black	11-07483	.
754R-28V	4 Red 28V L.E.D.s	Black	11-07484	.
754W-14V	4 White 14V L.E.D.s	Black	11-07485	.
754W-28V	4 White 28V L.E.D.s	Black	11-07486	.
754RW-14V	2 Red 2 White 14V L.E.D.s	Black	11-07487	.
754RW-28V	2 Red 2 White 28V L.E.D.s	Black	11-07488	.

Accessories	Body Color	Part No.	Price
Flush Mount	ALUMINUM	11-04397	.
Flush Mount	Black	11-07502	.

## LED MAPLIGHTS



The body of the maplight is constructed of aircraft grade 6061 T6 aluminum and black anodize treated for protection from corrosion. The LED bulbs and internal components are high quality components, and are engineered to withstand 150% of their rated voltage without damage. The wire is

teflon coated mil-spec wire used in certified aircraft and the component potting material is a two part epoxy making this maplight highly vibration and shock resistant. The average bulb life of the LED used in this product in excess of 20,000 hours of use and the maplight draws only 20 milliamps of power with virtually no heat produced.

The red LED used in this maplight gives the most light available in environments where night vision must be retained. This "LED Maplight" is built to be durable, simple to operate, lightweight and compatible with dimming systems. Each "LED maplight" is tested twice during production for maximum quality and customer satisfaction. The "LED maplight" is intended for use in Experimental, Amateur-Built aircraft only.

MAPLIGHT I - 4 LEDs			
Color	Voltage	Part No.	Price
Red	12	11-04387	.
Green	12	11-04388	.
White	12	11-04389	.
Red	24	11-04390	.
Green	24	11-04391	.
White	24	11-04392	.
MAPLIGHT II - 6 LEDs			
Color	Voltage	Part No.	Price
Red	12	13-06620	.
White	12	13-06621	.
Blue	12	13-06622	.
Green	12	13-06623	.
Red	24	13-06624	.
White	24	13-06625	.
Blue	24	13-06626	.
Green	24	13-06627	.
MAPLIGHT II - 6 LEDs Dual Color			
White/Red	12	13-06628	.
White/Blue	12	13-06629	.
White/Green	12	13-06630	.
White/Red	24	13-06631	.
White/Blue	24	13-06632	.
White/Green	24	13-06633	.

Accessories

Surface Mount Adapter SMA/MMII .....P/N 13-06651 .....



## 1512 SERIES LED EYE-BALL COCKPIT LIGHTS

These lights work great in overhead consoles and tight spaces. 30 degree adjustable angle, 360 degree adjustable rotation. LED technology draws less current (40 mA max.) and last much longer, (20,000+ hours.) and are fully dimmable.

The light is available in three light color version, two housing colors, and two voltages. The light colors are four red LED's, four white LED's, and two red/two white LED's that can be lit separately with a SPDT switch (not included.) The housing colors are black or clear anodize. There are two voltages: 14 and 28. The light has a 1.45" flange and mounts in a 1.25" hole. The light requires 1" behind the mounting surface and is only 5/8" in front. It will accept up to 0.2" thick mounting surface.

Model	Description	Body	Part No.	Price
1512R-14V	4 Red 14V L.E.D.s	Alum.	11-07489	.
1512R-28V	4 Red 28V L.E.D.s	Alum.	11-07490	.
1512W-14V	4 White 14V L.E.D.s	Alum.	11-07491	.
1512W-28V	4 White 28V L.E.D.s	Alum.	11-07492	.
1512RW-14V	2 Red 2 White 14V L.E.D.s	Alum.	11-07493	.
1512RW-28V	2 Red 2 White 28V L.E.D.s	Alum.	11-07494	.
1512R-14V	4 Red 14V L.E.D.s	Black	11-07495	.
1512R-28V	4 Red 28V L.E.D.s	Black	11-07496	.
1512W-14V	4 White 14V L.E.D.s	Black	11-07497	.
1512W-28V	4 White 28V L.E.D.s	Black	11-07498	.
1512RW-14V	2 Red 2 White 14V L.E.D.s	Black	11-07499	.
1512RW-28V	2 Red 2 White 28V L.E.D.s	Black	11-07501	.

## PRECISE FLIGHT HID LANDING & TAXI LIGHTS



HID Lighting provides the brightest illumination available. Increase Safety Increase Visibility 6X Brighter than Standard Lights 5000 Hour Bulb Life Reduce Heat & Power Consumption For Experimental Aircraft Only Only 35 Watts, Equivalent to 200

Type	Shape	Voltage	Part No.	Price
Landing Lights	Round	12V	11-05588	.
	Round	24V	11-05589	.
	Rectangle	12V	11-05590	.
	Rectangle	24V	11-05591	.
Taxi Lights	Round	12V	11-05582	.
	Round	24V	11-05583	.
	Rectangle	12V	11-05584	.
	Rectangle	24V	11-05586	.

## SUPER NOVA STROBE

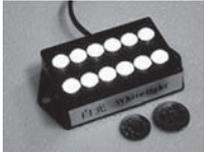


Provides the most powerful flash circuitry available to the light-plane market. Computer-controlled design allows the pilot to select from several different flash patterns, sequencing four ultra-bright compact flash heads, alternating two pairs of flashes, or operating either two or four flash heads with either a fast double or quadruple flash. A powerful 60 joules of energy.. Operates from any 12-30 volt DC source. Current draw: 5.5 amps @ 12VDC Input power: 70 watts Output power: 60 watts System weight: 4 lbs Power pack size: 5 x 6 x 2

P/N SUPERNOVA .....

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# LED LIGHTING - INSTRUMENTS LIGHTING



## LED CABIN LIGHTS

- 12 very bright LEDs in an ABS housing.
- 12 or 24 volts, very low current draw (under 80 mA);
- Compact size - just 3 x 2 x 1" with side mounting flanges for easy installation.
- Broad, "flood" lighting distribution
- Extremely resistant to vibration, shock and

moisture

- Ideal for baggage area and utility light illumination

Description	P/N	Price
Pilot LED Cabin W003-12 LED Red	11-05521	.
Pilot LED Cabin W003-12 LED White	11-05522	.
Pilot LED Cabin W003-12 LED Blue	11-05524	.



## CABIN LIGHTS

Designed for use in experimental aircraft, these LED lights are excellent for cabin lighting, work station lighting, interior lighting, or cargo space illumination. They feature small size (2" x 3"), low power draw (less than 95ma, and weigh less than 3 ounces. The basic module consists of 3 rows of LED's potted with epoxy in a strong plastic housing. This makes it extremely resistant to vibration and moisture. The modules are very efficient, and are available in 12 or 24V and in super bright white or red colors. Furnished with a diffused light pattern and a 3 ft. cable length. No on-off switch.

Example Uses for These Convenient Lights Include:

- Cabin Lighting
- Work Station Lighting
- Interior Illumination of Work Area (Without Loss of Night Vision)
- Illumination of Operator Controls
- Cargo Space Illumination

Benefits:

- Small Size - Only 2" x 3"
- Low Power Draw - Typically Less Than 95mA
- Customizable to Meet your Unique Needs
- Low Cost
- Weight is Less Than 3 Ounces

12V Red LED.....	P/N 11-02880.....
24V Red LED.....	P/N 11-02883.....

## MINI LED SPOT LIGHTS



- For experimental aircraft
- High intensity, dimmable multi-LED lamps
- Easy to install
- Flexible pivot mounts
- 1.75" length, 1" wide (at lens), 1.75" height (with base)
- 12 volts, less than 50mA
- Metal housing available in Black and Aluminum
- Red and White LED Colors

W003-MiniSpot (Silver/Red)

Description	P/N	Price
Silver Case / Red LED - P/N #W003-MINISPOT (Silver/Red)	11-05517	.
Silver Case/ White LED - P/N#W003-MINISPOT (Silver/White)	11-05518	.
Black Case/ Red LED - P/N#W003-MINISPOT (Black/Red)	11-05519	.
Black Case / White LED - P/N#W003-MINISPOT (Black/White)	11-05520	.

## LED MAP LIGHT, DOME, AND BAGGAGE AREA LIGHTS



### LED UNDER-PANEL MAP LIGHT

- Three very bright LEDs in an ABS housing.
- Compact size, just 2" long. #4 holes for horizontal mountning

- 12 volts, low current draw (under 40 mA)
- Ideal for map lighting or utility installations
- When located under dash or instrument panels, this map light places light horizontally - to light console panels, maps, etc..



### LED DOME AND BAGGAGE AREA LIGHTS

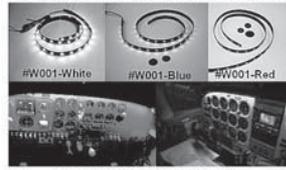
- Compact (1-1/2") chrome housing with four very bright 4 LEDs
- 12 volts, very low current draw (under 40 mA)

For experimental aircraft only

Description	P/N	Price
Pilot LED Under Panel W003- Map Light	11-05527	.
Pilot LED Dome W002-4 White	11-05525	.
Pilot LED Dome W002-4 Red	11-05526	.

## INSTRUMENT PANEL LIGHT STRIP

### Flexible LED Instrument Lights



for Experimental Aircraft

Flexible LED Instrument Lights

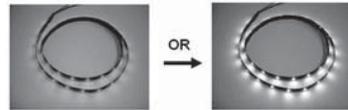
- Dimmable LEDs encased in a flexible resin strip
- Ideal for mounting under glare shields for instrument panel lighting
- Available in White, Red and Blue LEDs
- Can be trimmed every 2-1/2 inches (every 3 LEDs)

- Easy-to-install, waterproof, shockproof and requires no inverter to operate.
- Draws only 83 mA, 12 volts DC, and has a service life of over 10,000 hours
- 35" length, 3/8" width and 1mm high. Installs in minutes with double-sided tape

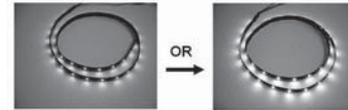
Description	P/N	Price
12V LED Light Strip - Red	11-05224	.
12V LED Light Strip - Blue	11-05225	.
12V LED Light Strip - White	11-05226	.
24V LED Light Strip - Red	11-06828	.
24V LED Light Strip - Blue	11-06829	.

## FLEXIBLE LED INSTRUMENT LIGHTS - DUAL COLOR

- Dimmable LEDs encased in a flexible resin strip.



Dual Color - Blue/White



- Identical to standard Flexible LED strips but with twice the LEDs. Permits independent control of the RED and White or Blue and White colors.
- Ideal for using White lights for loading/unloading or in cloudy conditions and MIX or use of colored lighting during dusk or night conditions.
- Same dimensions and features of standard Flexible LED

Lights: power consumption no greater than 160mA

Description	P/N	Price
Dual Flexible LED Instrument Light W001-Dual Red	11-05511	.
Dual Flexible LED Instrument Light W001-Dual Blue	11-05512	.

## FLEXIBLE LED INSTRUMENT LIGHTS - WITH CIGARETTE LIGHTER AND DIMMER



For production aircraft OR experimental aircraft

- The same quality Dimmable LEDs as our standard Flexible LED instrument Lights but with a Cigarette Lighter plug and in-line dimmer control
- Ideal for non-permanent installation in aircraft and other vehicles
- Power is supplied by the Cigarette Lighter plug (12 Volt systems only)

- In-line dimmer controls lighting level
- Available in Red, White or Blue LEDs.
- Ideal for mounting under glare shields for instrument panel lighting
- Can be trimmed every 2-1/2 inches (every 3 LEDs)
- Easy-to-install, waterproof, shockproof and require no inverter to operate.
- Draws only 83 mA, 12 volts DC, and has a service life of over 10,000 hours
- LED is 35" length, 3/8" width and 1mm high.

Description	P/N	Price
Flexible LED With Cigarette Lighter W003- CLA Red	11-05513	.
Flexible LED With Cigarette Lighter W003- CLA White	11-05514	.
Flexible LED With Cigarette Lighter W003- CLA Blue	11-05515	.
Flexible LED With Cigarette Lighter Dimmer Kit	11-05516	.



## BATTPACK BATTERY BACKUP

The BattPack Battery Backup System can be used as an emergency/secondary power source for aircraft lighting. The 14V or 28V system will provide up to one hour or more of lighting for the FiberLite instrument lighting system (that uses LED light sources) or the Glow Strip (electroluminescent lamp) glare shield lighting system or for other low current draw lighting such as internally lighted instruments. The system includes the battery holders, a three position switch (normal, off, emergency), engraved placard and tefzel hook-up wire.

14V - BP12V....11-06595 ..... 28V - BP24V...11-06596 .....

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# DIMMING SYSTEMS - COCKPIT LIGHTS

## AMERI-KING LIGHT DIMMERS

Linear Designed, Single, Triple, Quad outputs. FAA TSO-C71 approved. Input: +14 Vdc or + 28 Vdc. One year warranty. Optional extension of three years.

Features: • Short Circuit Protection. Solid State Linear Design. D-Sub/Miniature AMP connector included



Description	Part No.	Price
AK-551-LD-S 1 POT 6 AMP 0-14V	11-06227	.
AK-551-LD-S 1 POT 6AMP 0-28V	11-06228	.
AK-551-LD-S 1 POT 12AMP 0-14V	11-06229	.
AK-551-LD-S 1 POT 12AMP 0-28V	11-06230	.
AK-551-LD-S 1 POT 18AMP 0-14V	11-06231	.
AK-551-LD-S 1 POT 18AMP 0-28V	11-06232	.
AK-551-LD-S 1 POT 24AMP 0-14V	11-06233	.
AK-551-LD-S 1 POT 24AMP 0-14V	11-06234	.
AK-551-LD-D 2 POT 12AMP 0-14V	11-06235	.
AK-551-LD-D 2 POT 12AMP 0-28V	11-06236	.
AK-551-LD-D 2 POT 24AMP 0-14V	11-06237	.
AK-551-LD-D 2 POT 24AMP 0-28V	11-06238	.
AK-551-LD-O 4 POT 24AMP 0-14V	11-06239	.
AK-551-LD-O 4 POT 24AMP 0-28V	11-06240	.
AK-551-LD-O 8 POT 24AMP 0-14V	11-06241	.
AK-551-LD-O 8 POT 24AMP 0-28V	11-06242	.

## SOLID STATE LIGHT DIMMING KIT

Economical solution for the dimming of aircraft interior lighting. This heavy-duty solid state dimming kit by Superior Panel Technology includes a potentiometer with built-in off switch and 115W power transistor mounted to a heat sink. The supplied colored Mil

Spec wire and very easy to follow wiring diagram allows the aircraft builder to customize the wiring harness to fit individual needs. When compared to rheostats, this unit provides more even dimming when a combination of LEDs, incandescent bulbs and electroluminescent lamps (such as SPT's Glow Strips) are used. Appropriate for both 14V and 28V systems. P/N 11-00846



## LIGHT DIMMING KIT

Kit includes a Mil.Spec Potentiometer, Mil. Spec Power transistor mounted to a heatsink and a wiring harness. Breaker Size: 2A @ 14V, 1.5A @ 28V, Operating Range: 0-32 VDC, Current: 1.4A @ 14V, P/N 11-02082



## PANEL LIGHT DIMMING RHEOSTATS

These high-quality rheostats are used in production aircraft to dim instrument panel lights. Size: 1-9/16" dia. x 2-1/4" long. Mounts in 3/8" dia. panel hole. Shaft is 1/4" dia. w/ flat for knob set screw. New manufacture. Power Rating: 25 Watts.

0-8 OHM Panel light dimming retrostat... P/N 0144  
0-15 OHM Panel light dimming retrostat... P/N 5150



## FINGER GRIP KNOB

Finger grip knob or rheostats. 1-1/2" Diameter, 1/4" Hole. P/N 5150



## LC-40E/LC-40 LIGHTING CONTROLLERS

The LC-40e comes in an anodized brushed aluminum chassis. Features extra control knob sensitivity at dim end of the lighting range where it is needed most. It is microcontroller controlled and has continuous over voltage, current limit & fault protection. Each channel can handle 1.5 amps. LC-40E P/N 11-03366



## MULTIPLE CIRCUIT SOLID STATE LIGHT DIMMERS



Choose from 2, 3, or 4-circuit heavy-duty 115W light dimming systems by Superior Panel Technology. Circuit board design with pin connector allows for easy and neat wiring. Mil Spec Tefzel color-coded wire is included. Unlike rheostats, this system will provide even dimming of incandescent lights, electroluminescent lamps (such as the SPT Glow Strips) and LEDs when used in combination on the same circuit. A separate control switch (with circuit breaking off position) is included for each circuit.

2 Circuit.....P/N 11-02046  
3 Circuit.....P/N 11-02047  
4 Circuit.....P/N 11-02049

## VAL CLA 500 COCKPIT LIGHTING ASSEMBLY



The CLA 500 is a Multiple Circuit, Solid State Cockpit Lighting Assembly that will accommodate (4) independent dimmer lighting circuits such as instruments, sub panels, avionics, eyebrow, overhead, flood, and post lamps etc. The CLA 500 unit itself measures 5"l x 4.7" w x 1.5" h; wt: 0.8 lbs. The unit is rated at 14/28VDC input at 2.5 amps max per circuit. The CLA 500 comes complete with 4 on/off dimmer control switches and connector assembly. The CLA 500 carries a full 1-yr. factory warranty.

P/N 11-05700(14v)  
P/N 11-04592(28v)

## COCKPIT LIGHTS



**TYPE C4A** - A multi-purpose light providing narrow spot-light or floodlight beam. Rotate dial for red or white lens. Push-button for instant full light. Adjustable rheostat. Coiled cord & snap-in mounting base makes light portable in cockpit area. New mfg. Most suitable for larger aircraft. 12V P/N 11-03921  
24V P/N 11-03922

## MINIATURE EYEBALL COCKPIT LIGHTS

A low power, low intensity light for continuous use as chart or instrument light, allowing easy viewing of magenta lines and figures on sectional charts as well as red lines on instruments without wiping out night vision. Black acrylic ball with 1/4" aperture rotates in ABS housing for full swivel adjustment. 1.5" dia. overall. Mounts with 3 screws. Wt: .5 oz. Power consumption 1.12W @ 14V. Bulb life approx. 3500 hrs. Ideal for small homebuilts. Used on Voyager's world flight. P/N 11-07800



**MOD1 OVERHEAD CONSOLE** - The Mod1 Overhead Console is mounted to top of cabin or top wing skin with four stainless steel screws into the four standoffs or posts on Console. All lights are ordered separately. Weight: 3.8 oz. P/N 11-06003



## EYEBALL COCKPIT LIGHTS

These high quality cockpit lights are engineered to match the eyeball swivel vents on the page on Air Vents in this catalog. Simple twist on/off operation provides white beam for cockpit lighting. Made from 2024T351 aluminum. Diameter: 2.75". Has 4 mounting holes (1/8" dia.) which are spaced 2-3/8" apart on a mounting plate with a thickness of .71". Made in USA.

Black (no bulb)..... P/N 05-01401  
Gray (no bulb)..... P/N 05-01402  
Order 14V or 28V 14V..... P/N 11-04197  
bulb separately 28V..... P/N 11-04172

## NIGHT FLIGHT LIGHT

Red, Blue and Green lights independently dimmable with emergency battery that automatically operates in case of total power failure at the same adjustment. The unit is attached with Velcro in any position and connected to the power with cigarette lighter cord (provided), or directly connected to the harness in the vehicle with a fuse of 2 Amp in line. The combination of the 3 colors creates the perception of white light. Measurements: 2.36"x1.58"x1.22". Input Power: 12 volts to 28 volts. Warranty: One year warranty parts and labor in the factory (the lifetime of the components of this unit is approximately 50,000 hours.) P/N 11-06482



## K11 AIRCRAFT PANEL DIMMER

The A & T Labs panel light dimmer provides features and functionality not available in other commercial dimmer products. Features: • 3 outputs with a tracking capability - One output is the "Master", and the other two can be set to track the master from 0 to any set volt behind the master. This allows items on the dimmer bus to be grouped according to their relative brightness for better overall tracking. For example, the Vision Micro- systems products are typically way out of line in brightness compared to others at the same voltage • Quiet analog design • Multi-channel tracking capability • Daylight full-on over-ride capability for GPS annunciators, etc. • Current limiting/short circuit protection • Thermal protection • Low drop-out voltage (ability to adjust the dimmer bus up as close to the battery voltage as possible) • Photocell light sensor automatic control capability • Low cost • Performance: • Voltage range: 0 to Input supply - .6V • Output current - Depends on ventilation - Each channel is capable of 5 amps, practical dissipation limitation is ~ 5 amps total for all channels. (For 28 volt systems, current limit is 1 A per channel) Unit connections are made through a DB15 connector, and are easy to integrate into the rest of the aircraft wiring. P/N 11-02244



EL

# INSTRUMENT LIGHTING

## MAX DIM DIMMER CONTROL UNIT



5-35 VDC 0-12.5A Control 350 Watts in a 1-1/4" Diameter package. Complete compact, light weight, powerful, solid state dimmer. Great for light wedges. FAA STC Approved. PMA'd. Features: • Aircraft Lighting Boat Cruiser Cabins. • Instrument Panels. • Hundreds of DC Lighting Control applications  
P/N 11-05738.....



## MAXPULSE LANDING LIGHT CONTROL/PULSER - (STC'D)

The MaxPulse is a solid state landing light controller. The small size and one ounce weight places this controller in a class of its own. Extreme long life, low temperature operation, high current capability, noise free operation and small size makes it a ideal landing light controller for all aircraft. This new STC version sports eight functional pulse, flash and steady state modes of operation. It is also an ideal replacement for old technology controllers requiring large heavy heat sinks and or noisy relays as part of the installation. STC'd ..... P/N 11-06998.....  
NON-STC'd ..... P/N 11-05737.....

For Complete info on the Non-STC'D version please visit our website at [www.aircraftspruce.com](http://www.aircraftspruce.com)

## UMA INSTRUMENT LIGHTING - PMA'D



Advanced lighting system to replace your existing post or indirect lighting system with a electroluminescence

light strip contained in a bezel allowing a bright 360° uniform light. EL lighting does not use bulbs which create heat and require replacements. The specially designed EL light is placed in a bezel and is simply mounted between the instrument and the panel in just minutes without modification to the panel or instrument. Only the white lighting color is PMA'd. Copies of approved 337 installations are available upon request.

3-1/8" Lighting Bezel	2-1/4" Lighting Bezel
Knob Cut-out	Knob Cut-out
P/N 2-30-G, 2-30-W or 2-30-R	P/N 2-20-G, 2-20-W or 2-20-R
No Cut-out	No Cut-out
P/N 2-31-G, 2-31-W or 2-31-R	P/N 2-21-G, 2-21-W or 2-21-R
Center Cut-out	Double Cut-out
P/N 2-33-G, 2-33-W or 2-33-R	P/N 2-24-G, 2-24-W or 2-24-R
Double Cut-out	
P/N 2-34-G, 2-34-W or 2-34-R	

Standard lighting colors are White(W), Green(G) or Red(R). Inverter is required.

Price per Bezel .....

### INVERTERS FOR UMA LIGHTING -

5V (JETS) .....	P/N 10-02086.....
14V .....	P/N 10-02083.....
28V .....	P/N 10-00986.....

Each inverter will run up to 12 lighting wedges.  
Rheostat..... P/N 6002.....  
Elec. Wire Kit\*..... P/N 10-02085.....

\*Contains AMP connector and connecting pins



## UMA ELECTRO-LUMINESCENT LIGHT STRIPS

UMA, Inc. now offers an ultra-thin (0.006") flexible self-adhesive long-life light strip based on the same technology that is used in our EL Light Bezel. Since there is no filament, these light strips are not bothered by vibration or rapid changes in temperature. Perfect for use under a glare shield, or for any other interior lighting need (both aircraft and automotive). Length may be cut as needed. Available colors are Aviation Green & White/Blue. Power Inverter required.

Dimensions	Color	Part No.	Price
0.5"W x 25"L	White/Blue	10-00321	.
0.5"W x 25"L	Aviation Green	10-00322	.
1.5"W x 18"L	White/Blue	10-00323	.
1.5"W x 18"L	Aviation Green	10-00324	.



## LEADING EDGE LANDING LIGHT KIT

Kit consists of (2) GE #4509 12V, 100W sealed beam lamps, brackets for installation, switch, switch plate, 60 ft. of 2-conductor hookup wire & instructions. Size: 4.5"hx5.25"W x2.25"D w/ bulbs installed.

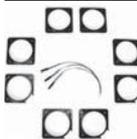
Complete Kit .....	P/N 11-08000.....
Replacement #4509 Bulbs .....	P/N 11-03796.....

## NULITE INSTRUMENT LIGHTING SYSTEM



Replace your existing lighting system of post lights or indirect lighting using the latest technological developed in optical enhancements. The NULITE uses dual incandescent bulbs with a rated life of 10,000 hours in a translucent material designed to look like an internally lighted unit. Nulites are easily installed by anyone in just minutes and are pre-cut to fit all standard instruments operating on 14, or 28 Volts. NULITE light wedges can be installed over the instrument or between the panel and the instrument. One wire is connected to ground and the other to a dimmable buss. Installation takes about 30 minutes for each unit and does not require any special tooling. The instrument is not altered in any way therefore only a log book entry is required. FAA/PMA approved.

Description	Part No.	Price	Description	Part No.	Price
14V 2-1/4"	11-03851	.	28V 3-1/8" for VSI	11-01230	.
14V 2-1/4" Left cutout	11-01257	.	14V 3-1/8" Rt. cutout	11-02574	.
14V 2-1/4" Rt. cutout	11-04373	.	28V 3-1/8"	11-03852	.
28V 2-1/4"	11-02571	.	28V 3-1/8" Lt. cutout	11-02762	.
28V 2-1/4" Left cutout	11-04374	.	28V 3-1/8" Altimeter	11-02851	.
28V 2-1/4" Rt. cutout	11-04375	.	28V 3-1/8" Rt. cutout	11-03853	.
14V 3-1/8"	11-02572	.	14V 3-1/8" R/L cutout	11-00818	.
14V 3-1/8" Lt. cutout	11-02673	.	28V 3-1/8" R/L cutout	11-01352	.
14V 3-1/8" Altimeter	11-02573	.	14V, 4" light bar	11-02788	.
14V 3-1/8" for VSI	11-01099	.	28V, 4" light bar	11-02789	.



## FIBERLITE INSTRUMENT LIGHTING SYSTEM

FiberLites, by Superior Panel Technology, offers an innovative FAA approved instrument and label lighting system that uses fiber optics to evenly illuminate aircraft instruments with easily accessible, long lasting, LED light sources. Fiber-optics are affixed to specially designed bezels that are sandwiched between the instrument and the panel for appearance of an internally lighted instrument. The advantages of using FiberLites over other lighting devices are a) easier wiring, three LED light sources will light up all the instruments on most panels b) the LEDs are very long lasting, however, if they ever do need to be replaced, they are easily replaced without having to remove any instruments c) FiberLites provide even 360 degree lighting around the instrument, d) the instrument is not altered in any way e) FiberLites can be used to backlight printed labels. The following items are included in the FiberLite package: a) Three LED light sources with appropriate resistor (must specify 14 or 28V system). b) Eight 3/8" instrument bezels c) You can substitute TWO 2 1/4" inch bezels for each 3/8" inch instrument light. For example a package could consist of SIX 3/8" and FOUR 2 1/4" instrument lights. Bezels come in 3 sizes (3/8" standard with four screw holes (FL318), 3/8" with cut-out in corner that can be rotated either for a right or left hand cut-out (FL318CO) and the 2 1/4" bezel with four screw holes (FL214). Please specify the bezel sizes, and quantity and the voltage of the aircraft. A solid state dimmer is needed to dim LEDs. Order Superior Panel Technology's single circuit dimmer (part number 11-00846). A great compliment to this product is the BattPack battery backup system.

FiberLite Package Price .....	P/N 11-04009 .....
Individual Parts Pricing:	
2-1/4" inst .....	P/N 11-04000 .....
3-1/8" inst .....	P/N 11-04002 .....
3-1/8" inst w/cut out .....	P/N 11-04003 .....
14V LED Light Source .....	P/N 11-03998 .....
28V LED Light Source .....	P/N 11-04001 .....
Solid State Dimming Kit .....	P/N 11-00846 .....

## FIBERLITE ILLUMINATED LABELING

**BATT INST RADIO TRIM PROP GEAR LIGHT**

Backlite the wording on your panel with FiberLite fiberoptics and custom printed labels. A single fiber optic ribbon can illuminate a label strip up to 8.2" in length. You can use two fiber optic ribbons for labels up to 14" in length. Fiber optic tails are 30" in length to allow for remote light source placement. Use either the FiberLite 8-port light source (see above) or an ultra-bright small LED light source. One port on the 8-port light source will illuminate two 8" labels (or one longer label that utilizes two fiber optic ribbons). The LED light source can illuminate up to seven fiber optic ribbons. Mounting channel is 5/16" in height and the label has a black background with white lettering. The FiberLite fiber optic ribbons can also be used to backlite reverse engraved panels.

Labels	Part No.	Price
Single line label up to 8.2" in length	11-00224	.
Label 8.3" - 14" in length	11-00225	.

Above labels include mounting channel, custom printed label, fiber optic ribbon and connectors

Light Sources	Part No.	Price
14V LED Light Source	11-03999	.
28V LED Light Source	11-07838	.

8-port light source see above. The LED light sources are wired using appropriate resistor.

Fiber Optic ribbons - for Backlighting Reverse Engraved Panels					
Size	Part No.	Price	Size	Part No.	Price
1/4" x 6"	11-04005	.	1/4" x 8.7"	11-04006	.

Ribbons come with 30" leads and connectors for light source chosen

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# PULSE LIGHT SYSTEMS - LANDING/TAXI LIGHTS



## PULSAR LANDING LIGHT PULSE LIGHT SYSTEM

Pulses your landing or taxi light with a steady solid state electronic controller I/C. Filtered for quiet operation. Bulb life is not shortened, in fact bulb life is extended 10Xs longer; because the filaments never completely go out so there is no thermal shock turn-on. Pulsar's controlled pulse rate keeps the filament running much cooler than if the bulb was on continuously. Even longer life w/ GE Halogen lights. Your panel landing or taxi light switch is turned OFF, Pulsar's separate On/Off switch turned ON, your light will begin to pulse. If you are landing at night, and want your lights on steady, you simply reach to that landing light switch (which has been off during the pulse mode) and turn it ON. Your landing light or taxi light will come on steady because Pulsar has not changed or altered your aircraft wiring. Owner installed in 30 minutes. Pulsar is approved for all 100 Watt GE lights. Weight: 3.5 oz.; Size: 3.25" length x 2" width x 1" height. The Standard Pulsar system uses a relay switch. The MOSFET Pulsar system (Metal oxide semi-field effect transistors) uses advanced P-channel technology which does not fail (no transistors or relays) and each pulse is brighter, than other older Transistorized Pulse-Lights. Wing-Tip Aircraft Owners can easily look out the window to see their landing lights. AvTek's Green-LED allows pilot with a Nose-Landing-Light to know from the cockpit if the light is: Pulsing, on steady or out. Only AvTek's Pulsar has these extra features. MOSFET comes with all features. When ordering Pulsar, please indicate how many landing lights you wish to pulse and where they are in your aircraft, as well as your aircraft make and model. Dual Alternating Pulsing lights should never be side by side. Instead dual lights need to be located one in each wing. Two lights side by side can be pulsed together, or pulse just one light and leave the other light off.

Description	Bulb	Part No.	Price
Regular Pulsar with relay. Recommended for occasional flyers.	Standard halogen 50Watt Bulbs	11-01258	.
Pulsar for planes with one light on each wing. Recommended for frequent flyers, Mosfet Never needs repair, no transistors/relays	Quartz Q-4509 or Q-4591	11-04408	.
Pulsar for planes with two lights on each wing. Recommended for frequent flyers, Mosfet Never needs repair, no transistors/relays	Quartz Q-4509 or Q-4591	11-04625	.
AvTek Power MOSFET Pulsar Pulsing Light for 1 Light with speed select and built-in LED	Standard halogen Bulbs	11-05124	.

## LANDING LIGHT AND FLASHER KIT



This Superior Panel Technology kit includes two bright 14V halogen bulbs, the SPT landing light flasher unit with wiring, toggle switch with attractive reverse engraved cover plate and the needed material to install the two lights in the wings' leading edge outboard bays. These halogen lamps are significantly brighter than both 50 and 100W incandescent bulbs. The solid state flashing system alternately flashes your landing lights and greatly extends the life of the halogen bulbs. The landing lights are easily aimed with the spring-loaded adjusting screws. The flashing unit is easy to install by following the comprehensive installation instructions. One 4PDT switch is added to the panel, giving you the option to switch from the flashing mode to the steady landing light mode. 14V. FOR EXPERIMENTAL AIRCRAFT ONLY.

P/N 11-02051.....

## SPT LANDING LIGHT FLASHER

Increase the visibility of your aircraft and give yourself that extra margin of safety. This solid state flashing system alternately flashes your landing lights so pilots in other aircraft and controllers in the tower will be able to see our aircraft much easier. The flasher unit extends the life of your landing lights since they run much cooler and its easy to install by following the comprehensive installation instructions. One toggle switch is added to the panel, giving you the option to switch the lights from the flashing mode to the landing mode. Choose the flashing unit based on the wattage of bulb used in the aircraft. For 14V systems only

FOR EXPERIMENTAL AIRCRAFT ONLY.

50W bulbs..... P/N 11-02070.....  
100W bulbs..... P/N 11-02071.....



## LIGHTSAVER

The Lightsaver prevents this massive inrush allowing the filament to draw the rated current even at turn on with no change in typical light output performance. The filament life increases up to 10 times due to reducing the stress induced by inrush current. This is something the lamp manufacturers don't want you to know. After all they are in the business of manufacturing replacement lamps for your aircraft. Installation is simple.

Description	Part No.	Price	Description	Part No.	Price
12 V 100W	11-07316	.	24 V 150W	11-07318	.
24 V 100W	11-07317	.	24 V 250W	11-07319	.

## XEVISION LANDING & TAXI LIGHTS



XeVision™ super bright Xenon metal halide arc discharge landing & taxi lights for experimental aircraft. Light so bright and white you'd swear it's daylight; 500,00 candle power (3200 lumens) for our 35 Watt and more than 750,000 candle power (5400 lumens) for our 50 Watt systems – up to more than 8 times brighter than a standard 100 watt incandescent sealed

beam. High HID efficiency means less than half the amp draw and about 1/2 of the radiated heat of standard or Halogen lamps.

XeVision™ offers reliable HID pulsing capability based on the proprietary XeStrike™ series ballasts and the XePulse™ (patent pending) pulsing module. All XeVision HID lighting systems are tested up to 100,000 feet altitude. XeVision systems are warranted up to 35,000 feet for continuous fail-safe operation.

XeVision offers retrofit kits for direct replacement or complete lighting system kits for new aircraft installation, different lamp shapes/sizes available. Many installation locations are possible now with a variety of lamp shapes and sizes, extremely small form factor, and lower lamp housing temperatures. They are especially suited for tight spaces in composite aircraft. XeVision reflectors are made of metal, not plastic. High Intensity Discharge (HID) lighting is the most significant breakthrough in aviation lighting since the development of modern sealed beam lamps. XeVision offers "Certified" quality at a very competitive price with a 5 year warranty and up to 3,000 hour typical lamp life.

The XeStrike™ proprietary ballasts XV1D or XV4D are an integral part of all XeVision aircraft lighting systems with the following features: \* 12 or 24 VDC voltage input. \* Designed for pulsing or dimming of HID Xenon bulbs with the XePulse™ HID control module. \* Designed for 35 watt or 50 watt output, 75 watt for special applications only. \* Extremely low EMI/RFI in combination with third generation D1S bulbs with integrated igniter and double shielded silicone cables. \* Digital power control for pre-programmable start-up algorithm.

XeVision conversion kit & components	Key features & other information
XeVision XV-36-SL - Standard landing light conversion kit. With XV1D or XV4D ballast and D1S bulb.	Beam angle 9° horizontal & vertical. PAR 36 size. Preferred Application - PAR 36 conversion, lamp diameter 4-5/16"
XV-36-SL 35 Watt	P/N 11-01760
XV-36-SL 50 Watt	P/N 11-05038
XeVision XV-36-ST - Standard taxi light conversion kit. XV1D or XV4D ballast and D1S bulb.	Beam angle 55° horizontal & 10° vertical. Preferred Application - PAR 36 conversion, lamp diameter 4-5/16"
XV-36-ST 35 Watt	P/N 11-01761
XV-36-ST 50 Watt	P/N 11-05037
XeVision XV-46-SL - Landing light conversion kit. XV1D or XV4D ballast and D1S bulb.	Beam angle 10° horizontal & vertical. Preferred Application - PAR 46 conversion, lamp diameter 5-11/16"
XV-46-SL 35 Watt	P/N 11-01762
XV-46-SL 50 Watt	P/N 11-05204
XV-46-ST - Taxi light conversion kit. XeVision XV-46-ST taxi light conversion kit XV1D or XV4D ballast and D1S bulb.	Beam angle 50° horizontal & 8° vertical. Preferred Application - PAR 46 conversion, lamp diameter 5-11/16"
XV-46-ST 35 Watt	P/N 11-01763
XV-46-ST 50 Watt	P/N 11-05208
XV-22 - Landing or taxi light for external use like gear struts. XV1D or XV4D ballast and D1S bulb.	15° horizontal & 10° vertical. Landing/taxi light conversion designations Preferred Application - Lamp fixture, rectangular, only 2.25" high 4.7" wide, and 4.2" deep.
XV-22 35 Watt	P/N 11-01765
XV-22 50 Watt	P/N 11-05209
XV-23 - Landing or taxi light in wing area or externally as on a gear structure. With XV1D or XV4D ballast and D1S bulb.	20° horizontal & 8° vertical. Preferred Application - Lamp fixture, rectangular, only 2.25" high 4.7" wide, and 4.2" deep.
XV-23 35 Watt	P/N 11-01764
XV-23 50 Watt	P/N 11-05210

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# REPLACEMENT LAMPS – GLARESHIELDS

## UNIVERSAL REPLACEMENT LAMPS

All Universal Corporation lamps are appropriately approved by the FAA. Our long life incandescent and halogen lamps offer greater light output with increased life and reduced costs. All lamps feature heavy filament construction. Improved design and manufacturing techniques produce a lamp far superior in service with lower cost to the user and packaging provides maximum protection in shipping, handling and storage.



Universal	Grimes	Whelen	Gen. Electric	Cessna	Piper	Aeroflash	Our P/N	Price
12V125W				C17312-3		40-0028	040-0028	.
24V150W						40-0003	040-0003	.
U303			GE-303	303			11-01948	.
U327			GE-327	327			11-01949	.
U330			GE-330	330			11-01950	.
U387			GE-387				11-01951	.
U1163	11631						11-01953	.
U1512	1512			1512			11-01954	.
U1524	1524			1524			11-01955	.
U1687	1687						11-01956	.
U1940	1940	WRM-1940	GE-1940	1940			11-01958	.
U1982-SP	LP-1982SP		GE-1982SP		761-214		11-01960	.
UA-7079B-12	1-7079B-12			A-7079B-12			11-01962	.
UA-7079B-24	A-7079B-24			A-7079B-24			11-01963	.
UA-7512-12	A-7512-12	W1290-14		A-7512-12			11-01964	.
UA-7512-24	A-7512-24	W1290-28		A-7512-24	753-478		11-01965	.

## GALAXY LANDING LIGHT BULBS

Bulb #	Volts	Watts	Par #	Part No.	Price ea
4313	13	250	36	11-03524	.
4509	13	100	36	11-02219	.
4509O	13	100	36	11-02220	.
4522	13	250	46	11-03525	.
4537	13	100	46	11-03526	.
4553	28	250	46	11-03527	.
4570	28	150	46	11-03528	.
4580	28	450	46	11-03529	.
4581	28	250	46	11-03530	.
4587	28	250	36	11-03531	.
4591	28	100	36	11-03532	.
4594	28	100	36	11-03533	.
4595	13	100	36	11-03534	.
4596	28	250	36	11-03535	.
4626	28	150	36	11-03536	.

## GRAIN OF WHEAT INSTRUMENT BULBS



Replace burnt out Grain of Wheat Bulbs that are used to illuminate many instrument panels & instruments. These blue-white silicone booted lamps are filtered for illuminating integrally white-lighted aircraft instruments and panels as called out in MIL-L-27160.

Available in 14/28V.

14V..... P/N 11-02052.....  
28V..... P/N 11-02053.....

## GRIMES REPLACEMENT FLASH TUBE



Replaces Grimes Part No. 5S-0221-1  
P/N 11-10000.....

## GRIMES LAMPS FOR EXTERIOR LIGHTS

Lamp No.	Volts	Application	Price
11-02601	12	Wing Tip Lights, Model E	.
11-02604	24	Wing Tip Lights, Model F	.
11-03661	12	Rot. Bcn G7740A, G8400, D7080A	.
11-03739	24	Rot. Bcn G7740A, G8400, D7080A	.

## WHELEN LAMPS FOR EXTERIOR LIGHTS

Lamp P/N	Application	Price
11-03219	Wing Tip Strobe, Xenon Flash	.
11-03697	Tail Strobe, Xenon Flash	.
11-03225	Flash Tube for SA & A450	.
11-03274	Flash & Socket for A500	.
11-03216	Halogen Lamp, A500/A555/A600	.
11-02602	Replacement bulb (14V)	.
11-02604	Replacement bulb (28V)	.
11-03897	(12V) Rotating Beacon	.

## RAPCO REPLACEMENT LAMPS

Rapco P/N	Our P/N	Price	Rapco P/N	Our P/N	Price
RAC17312-1	11-04356	.	RA327	11-04363	.
RAC17312-3	11-04357	.	RA7079B-12	11-04364	.
			RA7079B-24	11-04365	.
			RA7512-12	11-04366	.
			RA7512-24	11-04367	.

SEE RAPCO LAMP CROSS REFERENCE CHART  
AT WWW.AIRCRAFTSPRUCE.COM

## WHELEN FLASH TUBE FOR GRIMES STROBES



This flash tube replaces Grimes P/Ns 30-0467, 30-1467, 30-1331, 30-1172-5, & 30-0515 series. Used on many Cessna aircraft.

W55-0221-1 ..... P/N 11-02780 .....

## GLARE SHIELD KIT



This Glare Shield kit provides the materials to produce a professional custom padded glare shield. The composite lay-up of material has passed the FAR 25.853 burn requirements and a burn certificate is provided with each kit. Kit includes 1.5 linear yards x 54" wide black SPT Leather-Like Vinyl, 1.5 linear yards x 48" wide 1/8" SPT open cell foam cushioning, two 1/16" x 8" x 50" ABS base material, aluminum stiffener, bull nose trim, template foam and cardboard template material. Complete easy to follow instruction sheet is provided to help you produce a professional looking padded glare shield that has the look and feel of leather. The electroluminescent Glow Strip Glare Shield Lighting (P/N 11-00848) fits nicely under this Glare Shield.

P/N 11-06324 .....

## GLOW STRIPS



Superior Panel Technology has developed a brighter, more uniform and longer lasting Glare Shield lighting system. The 18" x 1" Glow Strip electroluminescent lamps provide a beautiful, even (no hotspots) aviation green light output that is very easy on the eyes. The ultra-thin lamps (.065 including the adhesive backing) are very flexible and conform to the curves of the underside of the glare shield. The Glow Strips meet the FAA 23.853 burn test and FAA approval is pending. A solid state dimmer is recommended for dimming the lamps and the part number is listed below. A great compliment to this product is the BattPack battery backup system

Single Lamp - 14V ..... P/N 11-00847 .....  
Double Lamp - 14V ..... P/N 11-00848 .....  
Double Lamp - 28V ..... P/N 11-00849 .....  
Solid State Dimmer ..... P/N 11-00846 .....

### Accessories

BattPack Battery Backup 14V - BP12V ..... P/N 11-06595 .....  
BattPack Battery Backup 28V - BP24V ..... P/N 11-06596 .....

# GE REPLACEMENT LAMPS

## MINIATURE LAMPS FOR COCKPIT/WING/TAIL LIGHTS

Lamp No.	Primary/Application	Volts	Amps/Watts	Part No.	Price	Lamp No.	Primary/Application	Volts	Amps/Watts	Part No.	Price
B-31/2 Bulb 7/16" (11mm) Diameter						T-21/4 Bulb 9/32" (7.5mm) Diameter					
GE-PR2	Flashlight-2D Cells	2.38	50A	11-03069	.	GE-786	Emergency-Halogen	6	2.0A	11-03046	.
GE-PR3	Flashlight-3D Cells	3.57	50A	11-03071	.	T-3 Bulb 3/8" (9.5mm) Diameter					
GE-PR6	Flashlight-2D Cells	2.47	30A	11-03070	.	GE-1978X	Navigation	10	100W	11-03047	.
GE-PR7	Flashlight-3D Cells	3.70	30A	11-03072	.	GE-1982	Navigation	28	75W	11-03048	.
GE-PR12	Flashlight-5D Cells	5.95	50A	11-03073	.	T-31/4 Bulb 13/32" (10mm) Diameter					
GE-PR18	Flashlight-6D Cells	7.20	55A	11-03074	.	GE-43	Indicator	2.5	50A	11-03049	.
B-6 Bulb 3/4" (19mm) Diameter						GE-44	Panel Indicator	6.3	25A	11-04186	.
GE-1308	Reading Light	28	56A	11-03076	.	GE-316	Instrument	6	70A	11-03050	.
GE-1309	Aircraft Interior	28	52A	11-04162	.	GE-400	Aircraft	28	10A	11-03054	.
GE-1317	Emergency Landing	6	51A	11-03075	.	GE-757	Indicator	28	08A	11-03053	.
G-31/2 Bulb 7/16" (11mm) Diameter						GE-1813	Wing/Tail-All Frosted	14.4	10A	11-04166	.
GE-356	Map Light	28	17A	11-04184	.	GE-1815	Indicator	14.0	20A	11-03052	.
GE-1450	Indicator	24	035A	11-03077	.	GE-1816	Map/Dome Light	13	33A	11-04167	.
G-41/2 Bulb 9/16" (14mm) Diameter						GE-1818	Panel Indicator	24	17A	11-04168	.
GE-55	Panel Indicator	7	2 CP	11-04194	.	GE-1819	Panel Indicator	28	04A	11-04169	.
GE-57	Panel Indicator	14	2 CP	11-04195	.	GE-1820	Panel Indicator	28	10A	11-04170	.
GE-425	Lantern-4F Cells	5	50A	11-03079	.	GE-1873	Aircraft	28	17A	11-03056	.
GE-456	Instrument	28	17A	11-03080	.	GE-464	Aircraft	28	17A	11-03055	.
G-5 Bulb 5/8" (16mm) Diameter						GE-1864	Panel Indicator	28	17A	11-04171	.
GE-302	Aircraft	28	17A	11-03038	.	T-4 Bulb 1/2" (13mm) Diameter					
GE-1315	Emergency Lighting	2.5	1.0A	11-03078	.	GE-1986	Navigation	28	250W	11-03058	.
G-6 Bulb 3/4" (19mm) Diameter						GE-1987	Navigation	28	150W	11-03057	.
GE-81	Wing/Tail	6.5	1.02A	11-04196	.	T-5 Bulb 5/8" (16mm) Diameter Electric Discharge Lamps					
GE-303	Cockpit Light	28	30A	11-04172	.	GE-1978X	Navigation	10	100W	11-03047	.
GE-304	Cockpit Light	28	30A	11-04173	.	GE-1982	Navigation	28	75W	11-03048	.
GE-623	Aircraft - 2 Filaments	28	37A	11-03041	.	GE-5004CW	Cool White	A.C.	4W	11-03060	.
GE-1251	Aircraft - 2 Filaments	28	23A	11-03039	.	GE-5004WW	Warm White	A.C.	4W	11-03061	.
GE-1252	Aircraft - 2 Filaments	28	23A	11-03040	.	GE-5008CW	Cool White	A.C.	8W	11-03063	.
S-8 Bulb 1" (25mm) Diameter						GE-5008WW	Warm White	A.C.	8W	11-03064	.
GE-305	Wing/Tail	28	51A	11-04174	.	GE-5013CW	Cool White	A.C.	13W	11-03066	.
GE-305AF	Wing/Tail-All Frosted	28	51A	11-03027	.	GE-5013WW	Warm White	A.C.	13W	11-03067	.
GE-306	Wing/Tail	28	51A	11-04175	.	GE-5104WW	Warm White	A.C.	4W	11-03062	.
GE-307	Wing/Tail	28	67A	11-04176	.	GE-5108WW	Warm White	A.C.	8W	11-03065	.
GE-307AF	Wing/Tail-All Frosted	28	67A	11-04176	.	GE-5113WW	Warm White	A.C.	13W	11-03068	.
GE-308	Wing/Tail	28	67A	11-04177	.	T-7 Bulb 7/8" (20mm) Diameter					
GE-315	Wing/Tail	28	90A	11-04180	.	GE-1940	Rotating Beacon	14	3.57A	11-03794	.
GE-705	Aircraft	28	51A	11-03028	.	Cockpit & Wing/Tail Lights					
GE-1619	Instrument	6	4.1A	11-03025	.	GE-53	Panel Indicator	14.4	1 CP	11-04193	.
GE-1665	Aircraft	28	80A	11-03034	.	GE-89	Cockpit Light	13	6 CP	11-04197	.
GE-1665AF	Aircraft - All Frosted	28	80A	11-03035	.	GE-93	Wing/Tail	12.8	15 CP	11-04199	.
GE-1680	Wing/Tail	6	4.1A	11-04165	.	GE-94	Wing/Tail	12.8	15 CP	11-04200	.
GE-1691	Aircraft - 2 Filaments	28	61A	11-03029	.	GE-313	Cockpit Light	28	17A	11-04179	.
GE-1692	Marine - 2 Filaments	28	61A	11-03030	.	GE-336	Post Light	14	08A	11-04183	.
GE-1777	Aircraft Tail Light	12.8	1.52A	11-04014	.	GE-356	Map Light	28	17A	11-04184	.
GE-2232	Spiral Lead	28	6.43A	11-03031	.	GE-1073	Illuminator Lights	12.8	1.80A	11-04012	.
GE-2233	Spiral Lead	28	7.66A	11-03033	.	GE-1141	Wing/Tail	12.8	1.44A	11-04161	.
S-11 Bulb 1-3/8" (35mm) Diameter						GE-1495	Panel Indicator	28	30A	11-04164	.
GE-309	Aircraft	28	90A	11-03036	.						
GE-311	Wing/Tail	28	1.29A	11-04178	.						
T-1 Bulb 1/8" (3mm) Diameter											
GE-685	Aircraft	5.0	06A	11-03042	.						
GE-718AS15	Aircraft - 1 Filament	5.0	115A	11-03043	.						
T-13/4 Bulb 7/32" (5.5mm) Diameter											
GE-85	Indicator	28	04A	11-03044	.						



## SEALED BEAM LAMPS FOR LANDING & TAXI LIGHTS

Lamp No.	Primary/Application	Volts	Amps/Watts	Part No.	Price	Lamp No.	Primary/Application	Volts	Amps/Watts	Part No.	Price
PAR36 Bulb 41/2" (114mm) Diameter						PAR46 Bulb 53/4" (146mm) Diameter (Continued)					
GE-4509	Landing Spotlight	13	100W	11-03796	.	GE-4553	Landing	28	250W	11-03799	.
GE-4595	Navigation	13	100W	11-03081	.	GE-4554	Taxiing	28	450W	11-03095	.
GE-Q4509	Landing	13	100W	11-03902	.	GE-4570	Taxiing	28	150W	11-03801	.
GE-4313	Landing	13	250W	11-03795	.	GE-4571	Flood	28	150W	11-03092	.
GE-Q4631	Landing	13	250W	11-03083	.	GE-4580	Landing	28	450W	11-03901	.
GE-4505	Navigation	28	50W	11-04188	.	GE-4581	Landing	28	450W	11-03097	.
GE-4589	Cockpit Flood	28	50W	11-03084	.	GE-Q4681	Landing	28	450W	11-03101	.
GE-4593	In-Air Refueling	28	50W	11-03085	.	GE-4582	Helicopter Flood	28	450W	11-03098	.
GE-4591	Landing	28	100W	11-03802	.	GE-Q4566	Taxiing	28	450W	11-03096	.
GE-4594	Navigation	28	100W	11-03803	.	GE-Q4597	Flood	28	450W	11-03099	.
GE4627	Flood	28	100W	11-03088	.	PAR56 Bulb 7" (178mm) Diameter					
GE-4713	Logo	28	150W	11-03089	.	GE-4541	Landing	28	450W	11-03102	.
GE-4587	Taxiing	28	250W	11-03090	.	PAR64 Bulb 8" (203mm) Diameter					
GE-4596	Landing	28	250W	11-03806	.	GE-4557	Landing/Taxiing	28	1000W	11-04190	.
PAR46 Bulb 53/4" (146mm) Diameter						GE-4559X	Landing	28	600W	11-03104	.
GE-4551	Taxiing	28	250W	11-03093	.	GE-Q4559	Landing	28	600W	11-03103	.



## GALAXY 4509 LANDING LIGHT BULBS

The 4509Q lamp is a direct replacement for the standard 4509 lamp. While the amps & wattage are the same, the rated design life of the 4509Q is 4 times longer (100 hrs. vs. 25 hrs.) and 4509Q has nearly double the candlepower and narrower beam disbursement.

Galaxy 4509Q Landing Light Bulb .....P/N 11-02220 .....  
Galaxy 4509 Landing Light Bulb .....P/N 11-02219 .....