

# 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.



G-35

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 (quarts)	Application (Aircraft)	Part No.	Price
G-25	18	30	21	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	<b>\$104.95</b>
G-35	23	40	27	3	<b>Beech</b> 17-19,23,24,33,35,36,50,76; <b>Bell</b> 47G-5; <b>Cessna</b> 180,182,185,188,195,206,207,210; <b>Mooney</b> M20, M20B/D/G/J/K; <b>Piper</b> PA-11/12/14/16/18/22-25/28/30/32/34/39/44	11-01832	<b>\$117.95</b>
G-35M	23	40	26.3	3	<b>Maule</b> M-4-180C, M-4-210/-210C, M-4-230C, M-5-180C, M-5-200 M-5-210C/-220C/-235C, M-6-180/-235, M-7-235, MX-7-180/-235	G-35M	<b>\$150.30</b>
G-88	65	108	78	8	<b>Ayres Corp.</b> S-2R	G-88	<b>\$535.00</b>



G-242

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	3	<b>Cessna</b> 152, 172, 182	G-240	<b>\$217.95</b>
G-241	8	13	24	2	<b>Cessna</b> 152, 172, 182	G-241	<b>\$206.95</b>
G-242	10	17	27	2	<b>Cessna</b> 152,172,182,207,210,336,337; <b>Piper</b> PA-23/31/36	G-242	<b>\$218.95</b>
G-243	10	17	28	2	<b>Cessna</b> 152, 182	11-01658	<b>\$229.95</b>
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	G-244	<b>\$230.95</b>
G-245	18	30	39.5	4		G-245	<b>\$223.95</b>
G-246	19	32	41.5	4	<b>Air Tractor</b> AT-300, AT-400; <b>Piper</b> PA-23, PA-31	G-246	<b>\$247.95</b>
G-247	19	32	42.5	4	<b>Piper</b> PA-31P-350	G-247	<b>\$266.95</b>



G-25

12 VOLT VRLA BATTERIES FOR GENERAL AVIATION SINGLE & TWIN ENGINE AIRCRAFT							
Model	AH @ 1 hr. rate	30 Min. Emer. Cap.(amps)	Wt. (filled)	Application (Aircraft)	Part No.	Price	
G-25S	18	30	25	<b>Aerostar</b> 600,601,601P, 602P; <b>Cessna</b> 120,140,150,150A-M,170,170A-B,172,172A-S,175,175A-C,177,177A-C,310,310A-J,310J-1,310K-R,320,320A-F, 340; <b>Piper</b> PA-11, PA-36-285/-300/-375,PA-38-112; <b>Raytheon</b> 19A,23,A24,D55,E55,E55A,58,58A,77	11-01316	<b>\$129.95</b>	
G-35S	23	40	29	<b>Beechcraft</b> 23,35,36,50,76; <b>Bell</b> 47G-5; <b>Cessna</b> 180,182, 185,188,195,206,207,210; <b>Maule</b> M-4-180, M-4-210, M-4-220, M-5-180, M-5-200, M-5-210, M-5-210TC, M-5-220, M-5-235, M-6-180, M-6-235, M-7-235, MT-7-235, MX-7-160, MX-7-180, MX-7-180A/B, MX-7-325, MXT-7-160, MXT-7-180, MXT-7-180A, M-8-235; <b>Mooney</b> M20, M20B/D/G/J/K; <b>Piper</b> PA-12/14/16/18/22-25/28/30/32/34/39/44	G35S	<b>\$149.95</b>	



G-246

200 SERIES 24 VOLT VALVE REGULATED LEAD ACID BATTERIES							
Model	AH @ 1 hr. rate	30 Min. Emer. Cap.(amps)	Wt. (filled)	Application (Aircraft)	Part No.	Price	
G-240S	-	-	-	<b>Cessna</b> 152, 172, 182	11-01663	*	
G-241S	-	-	-	<b>Cessna</b> 152, 172, 182	11-01664	*	
G-242S	-	-	-	<b>Cessna</b> 152,172,177,182,207,210,336,337; <b>Piper</b> PA-23/31/36	11-01665	*	
G-243S	13	20	28.8	<b>Cessna</b> 152, 182; <b>Mooney</b> M20M, M20R	11-01666	<b>\$305.95</b>	
G-246S	-	-	-	<b>Air Tractor</b> AT-300, AT-400; <b>Piper</b> PA-23, PA-31	11-01667	*	

\* Call for availability and pricing

**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.

**FREE SHIPPING IN THE 48 CONTIGUOUS STATES ON BATTERIES UP TO 50 LBS.!**



**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. ... P/N 11-01540 .....**\$530.00**



**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. Microprocessor allows charging to be precisely tailored to match battery requirements. 'Smart' Circuit will not overcharge battery. Circuit Protection - reverse & short protection (No voltage at output when not connected to battery) •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 .....**\$247.50**

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# GILL BATTERIES

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



G-641



G-638E



G-6381C



GE-51E



GE-54C



G-6381ES



G-639ES

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; Beech 65-90,65-A90,99,99A,A99,A99A,100,200,200T,300,A100,A100A,B90,B100,C90,E90,F90; Bell 204B, 205A/-1, 212,412; Cessna 208,208B,425,500,501,550,551,S550,560,560XL; Embraer EMB-110P1,EMB-110P2; Learjet 23,31,55,55B, & series'24/25/28/29/31A/35/36/55C; Gulfstream Amer.G-159; Israel Aircraft Ind. 1121,1121A/B,1123,1124; Lockheed-GA Co. 1329-23 series; Mitsubishi MU-2B,-10,-15,-20,-25,-26,-26A,-30,-35,-36,-36A,-40,-60; Piper PA-31T,-31T1,-31T2,-42,PA-42-720 series; Rockwell NA-265 series; Aero Commander680T,680V,680W,690,690A	11-01545	\$896.00
G-638E	37	60	73	9	Dassault Fan Jet Falcon series C-F; Beech 65-90,65-A90,99,99A,A99,A99A,100,A100,A100A,B90,B100,C90,E90,F90; Embraer EMB-110P1,EMB-110P2; Gates Learjet, Inc. 23,31,55,55B, & series'24/25/28/29/31A/35/36/55C; Gulfstream Amer.G-159; Israel Aircraft Ind. 1121,1121A/B,1123,1124; Lockheed-GA Co. 1329-23 series; Mitsubishi MU-2B,-10,-15,-20,-25,-26,-26A,40,60; Rockwell NA-265 series; Aero Commander680T,680V,680W	11-02215	\$816.05
G-639E	24	40	55	5	British Aerospace DH.125-400A, HS.125-600A/-700A, BH.125-600A, BAE.125-800A; Messerschmitt-Bolkow-Blohm GMBH BO-105S Hawker Siddeley,Beechcraft Hawker DH-125, HS-125, BH-125	G-639E	\$767.95
G-640E	14	25	34	3	Beech 65, 70, Wing installation only	G-640E	\$463.85
G-641	18	30	41.5	4	Bell Helicopter 206,206A,206B,206B-1,206L,206L-1,206L-3	11-01684	\$705.00
G-6381C	43	70	80	9	Dassault Fan Jet Falcon series C-F; Beech 65-90,65-A90,99,99A,A99,A99A,100,A100,A100A,B90,C90,E90; EmbraerEMB-110P1,EMB-110P2; Learjet 23, Series'24/25/28/29/35/36; Gulfstream Amer.G-159; Israel Aircraft Ind. 1121 1121A/B,1123,1124; Lockheed-GA Co. 1329-23 series; Mitsubishi MU-2B,-10,-15,-20,-25,-26,-26A,-30,-35,-36,-36A,-40,-60; Rockwell NA-265 series	G-6381C	\$772.00
G-638C	37	60	73	9	Dassault Fan Jet Falcon series C-F; Beech 65-90, 65-A90, 99, 99A,100, A99, A99A,A100,A100A,B90,B100,C90,E90; Embraer EMB-110P1, EMB-110P2; Learjet 23, series'24/25/28/29/35/36; Gulfstream Amer.G-159; Israel Aircraft 1121, 1121A/B,1123,1124; Lockheed 1329-23 series; Mitsubishi MU-2B,-10,-15,-20,-25,-26,-26A,-30,-35,-36,-36A,-40,-60; Rockwell NA-265 series	11-01557	\$927.05
G-639C	24	40	55	5	British Aero. DH.125-400A,HS.125-600A/-700A,BH.125-600A,BAE.125-800A Hawker Siddeley,Beechcraft Hawker DH-125, HS-125, BH-125 Messerschmitt-Bolkow-Blohm GMBH BO-105S	G-639C	\$867.00
G-640C	14	25	34	3		G-640C	\$463.85
GE-50E	31	55	80	8		GE-50-E	\$562.80
GE-51E	22	35	56	4		GE-51E	\$497.85
GE-54E	10	16	34	3		11-01547	\$468.95
GE-50C	31	55	80	8	North Amer. AT6-C/-D/-F, T-6G, SNJ-5/-6/-7, (or any BC-1A, AT-6, AT6-A/-B, SNJ-2/-3/-4 converted to 24V per N. Amer. Dwg 121-954004.P-51); Gulfstream Commander 500, 520, 560, 560A, 560E, 680, 680E, 720	GE-50C	\$493.75
GE-51C	22	35	56	4	Air Tractor AT301, AT301A	GE-51C	\$411.95
GE-54C	10	16	34	3		11-01546	\$468.95

## 600 SERIES (VALVE REGULATED LEAD ACID BATTERIES)

Model	AH@1 hr.rate	30 Min. Cap.(amps)	Wt.(filled)	Application (Aircraft)	Part No.	Price
G-6381ES	44	70	88.5	Bell Helicopter 204B,205A,205A-1,212,412; Beech 65-90,65-A90,99,99A,A99,A99A,100,A100,A100A,B90,B99,B100,C90,E90,F90,200,200T,300, Cessna 208,208A,208B w/STC ST01117LA &Flight Man. Supplement# 0100-03FM, 500,501,525/525A series,550,S550,551,560,560XL,650 ser.; Dassault Fan Jet Falcon series C-F; Embraer EMB-110P1,EMB-110P2; GulfStream Amer.G-159, G-1159; Israel Aircraft Ind. 1121,1121A/B,1123,1124; Learjet 23,24,24A/B,24B-A,24B-A,24C/D,24D-A,24E/F,24F-A, 25,25A-D,25F,28,29,31,31A,35,35A,36A,55,55B/C; Lockheed 1329-23 series,-23D,-23E; Mitsubishi MU-2B,MU-2B-10,-15,-20,-25,-26,-26A,-30,-35,-36,-36A,-40,-60; Piper PA-31T,-31T1,-31T2,PA-42, PA42-720 series; Raytheon (Beechcraft) 200(A100-1(U-21),200C,200CT,200T,A200(C-12A)or(C-12C), A200CT(C-12D)or(FWC-12D)or(RC-12D)or(C12F),or(RC-12G)or(RG-12H)or(RC-12K)or(RC-12P),B200, B200C(C-12F)or(U-12F),B200CT,B200T,300,B300,300LW,B300C; Sabliner Corp.NA-265,NA-265-20,-30,-40,-60,-65,-70,-80; Twin Commander 680T, 680V, 680W, 690, 690A	11-01631	\$1,329.00
G-639ES	23	40	29	Beech (Raytheon) DH.125 series 400,600,700, BH.125 series 600, Bae.125 series 800; British Aerospace Jetstream series 3101; Eurocopter Deutschland BO-105S; SIAI-MARCHETTI Srl F.260	11-01632	\$1,029.00
G-641S	20	35	44	(Pending Approvals) Augusta AB-206; Bell Helicopter 206, 206A, 206B, 206B-1, 206B3, 206L, 206L-1, 206L-3; Enstrom 480; Hiller UH 12E, FH 1000; McDonnell Douglas/Hughes 369 series, 500N; Schweizer 333	11-01633	\$1,158.00

**FREE SHIPPING IN THE 48 CONTIGUOUS STATES ON BATTERIES UP TO 50 LBS.!**

### 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 1.268. Detailed filling & disposal instructions on container.

- 2 Qts. ....P/N 11-00300 .....\$6.95
- 3 Qts. ....P/N 11-00305 .....\$10.35

### 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.



# 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-35A / RG-35AXC**



**RG-2411 / RG-2411M**



**RG-2415 / RG-2415M**

Concorde's line of sealed lead acid batteries has been completely redesigned with larger positive and negative plates for more capacity and greater starting power even at sub-zero temperatures. They feature real aircraft quality terminals, new patented copper alloy internally threaded terminals new 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.	Connect Type	Ampere Hour	Weight Lbs	Volts	OEM equiv. Cessna#	Price	Part No.	Connect Type	Ampere Hour	Wght Lbs	Volts	OEM equiv. Cessna#	Price
RG-25	A	22	23	12	0511319-1	<b>\$133.95</b>	RG-24-11	A	11	27	24	C614002-0102	<b>\$285.95</b>
RG-25XC	A	24	23	12	0511319-1	<b>\$138.95</b>	RG-24-11M	A	11	27	24	C614001-0106	<b>\$304.95</b>
RG-35A	A	29	29	12	0712605-1	<b>\$161.95</b>	RG24-15	A	13	29	24	C614002-0102	<b>\$304.95</b>
RG-35AXC	A	33	32	12	0712605-1	<b>\$169.95</b>	RG-24-15M	A	13	29	24	C614001-0106	<b>\$328.95</b>

## CONCORDE PLATINUM SERIES LEAD ACID BATTERIES



**CB-35A / CB-35XC**



**CB24-11 / CB24-11XC**



**CB24-11M / CB24-11MXC**



The Platinum 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 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.

Part No.	Battery Type	Ampere Hour	Weight (Lbs.)		Volts	Price
			Bat	Ship		
CB-25	CB25-VP	20 Ah	22	28	12	<b>\$124.95</b>
11-01571	CB25XC-VP Platinum Series	25 Ah	24.5	30.5	12	<b>\$135.95</b>
11-01572	CB35AXC-VP Platinum Series	34 Ah	32.5	39	12	<b>\$169.95</b>
CB24-11	CB24-11-VP	10 Ah	27	35	24	<b>\$278.95</b>
11-01573	CB24-11XC-VP Platinum Series	15 Ah	31	39	24	<b>\$277.95</b>
CB24-11M	CB24-11M VP	10 Ah	28	36	24	<b>\$282.95</b>
11-01574	CB24-11MXC VP Platinum Series	15 Ah	31	39	24	<b>\$290.95</b>

**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.

**All batteries are furnished complete with electrolyte. Dry batteries without electrolyte are also available. FREE SHIPPING IN THE 48 CONTIGUOUS STATES ON BATTERIES UP TO 50 LBS.!**



**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: 27lbs  
P/N 11-02948 .....**\$1,562.00**



**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. Uninterruptible Power Supply (UPS) for instrumentation, emergency lighting, & avionics. Installation does not require alteration to onboard systems. First cap check at 12 months or 1000 hrs. 24V, Wt: 31lbs  
P/N 11-02947 .....**\$1,593.00**



**RG-380E/40L**

RG-380E/40L and temperature sensor TSC6A Concorde #5-0242. RG valve regulated sealed lead acid battery. PIAGIO P-180. Replacement for Ni-Cad battery. STC #SA01653LA. FAA-PMA Supplement #74 The RG-380E/40L is one of the new Platinum Series® with extra cranking power. 24V, Wt: 81lbs/P/N 11-02949 .....**\$1,894.00**

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# BATTERIES

## 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 stand-by 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 .....\$19.95

**18-AMP BATTERY** - Suitable for powering the electric starter of most Rotax and other 2-stroke engines as well as on-board electrical devices. May 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 .....\$41.25

**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 .....\$59.95

## 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 use **Ultrabat-13**.

**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 .....\$89.95

UltraBat-13 .....P/N 11-00378 .....\$128.75

Battery box for UltraStart-Red ....P/N 11-01997 .....\$23.95

## BATTERY LEVEL METER



The Battery Level Meter is designed to monitor Lead-Acid storage battery voltage levels for electrical systems with and without a charging device such as an alternator. The unique potted solid state design has no mechanical parts typical of other analog meters, making an extremely durable and reliable system. The meter is very useful to detect high or over voltage of a failed alternator regulator as well as normal charging levels. It is also useful to monitor voltage levels of homebuilt aircraft using auto engines as most of these rely on the 12V battery supply to operate their ignition systems. Developed by a BD-4 homebuilder & now available to aircraft builders worldwide. **Specifications:** Current Drain: 50mA @ 12.0 V; Volt Range: 8.6 - 16V 100mA @ 14.8V; Size: 1.85 x 2.80 x .5 in. Wt: 3 oz Reverse Polarity Protected

P/N 11-11669 .....\$33.40

## BATTERY CABLE GUARD



Battery Cable 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. 4 oz. can .....P/N 11-00310 .....\$7.40

7.5 oz can .....P/N 11-00320 .....\$11.50

16 oz. can .....P/N 11-00330 .....\$19.50

## 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 .....\$10.60

## SEALED IMMOBILIZED ELECTROLYTE 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.

AMPS/VOLTS	WEIGHT	BASE	HEIGHT	P/N	PRICE
32AH, 12V	22.9	7.75 x 5.2	7.1	07-06755	\$93.00

## SEALED LEAD ACID BATTERIES



Same characteristics as above batteries but these need to be mounted in a vertical position •Uses an absorbed electrolyte system. All of the electrolyte is in the plates and the separator material •Battery has good load dumping characteristics for starting applications •Warranty 1-yr or 100 hrs.

AMPS/VOLTS	WEIGHT	BASE	HEIGHT	P/N	PRICE
16AH, 12V	14.3	7.13 x 3.0	6.6	07-00716	\$127.95

## ODYSSEY DRYCELL BATTERIES



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 <sup>3</sup> / <sub>16</sub> " x 3 <sup>1</sup> / <sub>16</sub> " x 6 <sup>9</sup> / <sub>16</sub> "	15 Lbs.	Homebuilders 680	\$96.85
11-01651	6 <sup>9</sup> / <sub>16</sub> " x 6 <sup>7</sup> / <sub>8</sub> " x 5 <sup>11</sup> / <sub>16</sub> "	24 Lbs.	Homebuilders 925	\$142.95
11-01945	7 <sup>3</sup> / <sub>16</sub> " x 3 <sup>1</sup> / <sub>16</sub> " x 6 <sup>9</sup> / <sub>16</sub> "	15 Lbs.	680 Amps; FAA Approved for PA18/PA19	\$135.95

**Metal Jacket (Tray) for Odyssey 680Amp battery.....P/N 11-02234 ....\$22.50**

## HOLD DOWN BOX FOR ODYSSEY 680AMP BATTERY

This hold down box for the Odyssey PC 680 battery can be easily mounted in any orientation. Color: Black. P/N 11-01853.....\$39.00



## GELL CELL BATTERIES

**HOMEBUILDERS GELL CELL** - Weight: 23 Lbs.; Size: 7-3/4" x 5-3/16" x 7-1/4"; 12V-34 AH  
P/N U-134.....\$93.00

## YUMICROM BATTERIES

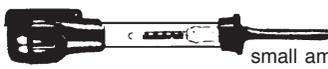
These manifold vented batteries work well in home built with low amperage requirements, putting out a lot of power for their size and weight. Made by Yuasa General in Reading, Pa. 27.1oz. electrolyte required to fill (not furnished).



**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. ....\$38.50

**YB16-B, 12V, 18AH** - Used in the Solitaire sailplane, VariEze, Long-EZ & other homebuilts without starter. Size: 7"l x 4"wx6.25"h. Wt: 12.7 lbs \$47.40

## 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 FR-1 .....\$19.70



# 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. Made in U.S.A. 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..... \$59.50



### 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..... \$64.95

## 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..... \$139.95

24V 20A-Wt. 29.5 lbs. ....P/N 11-00891 .....\$249.95

## 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..... \$117.95



### 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 .....\$67.95



### 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, movers, etc. 10 ft long cordset includes quick change battery clips and ring terminals. Wt: 2 lbs.53 lbs. P/N 11-04407 .....\$317.95



### 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 .....\$317.95

## KWIKSTART 6290 POWER SUPPLY



The Kwikstart 6290 rechargeable 12 / 24 VDC power supply is equipped with 2 UL listed 12V, 22amp hour DC High Performance batteries. This heavy duty product is ideal for jump-starting aircraft, cars, trucks, boats, RV's and tractors. This unit 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. The Kwikstart 6290 is also equipped with a bright emergency light. This heavy duty unit is designed for rough use. Comes equipped with a 110V, 1000 mil amp charger with built in overcharge protection to prolong battery life.

**Features:** • (2) 12V high performance 22 amp hour batteries • 66" - 2 AWG cables • 720/360 cold cranking amps • 3500/1750 peak amps • Complete with insulated clamps • Battery state of charge gauge • Comes with external charger • 3 position 12/off/24V switch located on front of unit • Wt; 44 lbs.

P/N 11-02487 .....\$265.95



### THE BATTERYMATE SOLAR BATTERY CHARGER

Batterymate is the best device available to insure that your battery will always be "topped off" and fully charged. It has the capacity to keep any 12V battery charged with as little as one full hour of sunlight per day. The life of your battery will be dramatically extended by using Batterymate. It features a diode to prevent the battery from discharging on cloudy days or at night plus a LED indicator which lights whenever Batterymate is charging the battery. 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 24V use two units

.....P/N 01-28312.....\$36.95



### 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, weatherproof, 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 .....\$129.95

12 Volt w/ Receptacle .....P/N 11-11691 .....\$141.95

24 Volt w/ Battery Clamps .....P/N 11-11692 .....\$291.95

## BATTERYMINDER® 12V BATTERY CHARGERS



BatteryMINDER safely charges and maintains all 12V storage batteries at peak capacity during prolonged periods (seasons) of non-use without fear of overcharging. Works on all types and brands of 12V batteries for aircraft, boats, motorcycles, RV's, cars, golf carts, etc. Pulse-charge mode helps breakdown sulfation. BatteryMINDER prevents damage to the battery from self discharging during prolonged periods of non-use. BatteryMINDER is fully automatic and can be left connected to the battery, features a charge indicator, & is polarity protected. 5yr limited warranty. Made in USA.

Small 12V Batt.Minder (charger/maint./cond.) .....P/N 11-11671 .....\$39.40

Large Bench Top Battery Minder (12V) .....P/N 11-02006 .....\$89.00

Large Bench Top Battery Minder (24V) .....P/N 11-02007 .....\$95.00

Battery Minder Solar Panel .....P/N 11-02008 .....\$89.00



### BATTERYMINDER® BATTERY & ALTERNATOR TESTER

**Instant & accurate battery condition status:** indicates if battery is "healthy" or in need of charging or replacement. **Instant status of your alternator/charging system:** determines whether battery or alternator is at fault. Designed for all sizes and types of 12V battery installations. Simple 2 wire connection. Waterproof construction. 5yr warranty, free replacement if unit fails within 5 years.

P/N 11-04302 .....\$14.95



### SS-6 CHARGE CONTROLLER

Morningstar'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 .....\$69.00

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# 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" were 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.

14V system .....P/N 11-01260.....\$295.00  
28V system .....P/N 11-01262.....\$695.00

## AVTEK 1<sup>st</sup> ALERT ELECTRICAL FAILURE SYSTEM



A true early warning detection system that is simple, flawless, and reliable. **1<sup>st</sup> Alert** will detect 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. **1<sup>st</sup> Alert** looks for reverse current from the ships battery, which is the first indication that the charging system has problems. 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. **1<sup>st</sup> Alert** is now armed & ready to detect any in-flight electrical problems. Size: 3.25"l x 2"w x 1.25"h P/N 11-01259 .....\$159.00

## 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 .....\$19.95

## AVTEK 3-WAY CIGARETTE LIGHTER SPLITTER



AvTek's cigarette lighter splitter accommodates 3 electronic devices. The AvTek unit is ridged and pivots in 3 directions to minimize clutter. P/N 11-01264 .....\$14.95

## STARTPAC MINI-POWER SUPPLY MODEL 53025

The new Start Pac Mini Power Supply is designed to power up 24 or 12 Volt aircraft systems. The voltage output is set to 28.5 or 14.2 Volts to simulate the same voltage as when the aircraft is running under power. Maximum amperage output is 25 or 50 amps which is adequate for most light aircraft. If overloaded, the Mini Power Supply will trip off and reset itself after a short period of time.



StartPac Mini-Power Supply 12V .....  
.....P/N 11-04536.....\$425.00  
StartPac Mini-Power Supply 24V .....  
.....P/N 11-04537.....\$425.00

## STARTPAC STARTER 24V MODEL 1324-1



Complete All In One air portable/carry-on START PAC with built in heater and charger, power plugs and cable. Cells are sealed, non-hazardous, operate in any position or at any altitude. Units are 24 VDC output, charger 110 or 220 VAC and international voltages. StartPac 1324-1 Starter 24V ..P/N 11-04538 .....\$985.00  
StartPac 1324-2 Starter 24V ..P/N 11-04539 \$1,285.00

## STARTPAC STARTER 24V MODEL 1324-1

Has float mode, can be left connected indefinitely without harming the battery. High tech, sophisticated electronic circuitry with microchips. Will fully charge most lead acid aircraft batteries in 24 hours. Indicator light showing orange when charging, green when fully charged. CE approved. StartPac Mini-Charger 11-04535 \$100.00



## 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. Designed for easy and quick handling, safety, and protection from weather. 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 .....\$425.95

## 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 .....\$96.25

## 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 .....\$133.95

## BATTERY TENDER CHARGER



Conventional or trickle chargers can easily overcharge a gel cell battery, diminishing if not ending its life. The Battery Tender is a new charger that cannot over charge. It's a set-and-forget charger that will fully charge your battery and maintain it at proper storage voltage. The red LED glows when the battery is low and is charging. The green LED means the Battery Tender senses a full charge and has switched to its maintenance mode. You can leave the Battery Tender attached indefinitely with no risk of overcharging. Works with most 6-12V batteries. Including quick-connect leads. Carries a 5-yr manufacturer's warranty. Wt: 3 lbs.

<b>Battery Tender Charger</b>	<b>Power Tender Plus</b>
6V .....P/N 11-04085 .....\$59.95	12V .....P/N 11-03016 ..\$74.85
6V .....P/N 11-03157 .....\$44.40	24V .....P/N 11-03015 ..\$74.85

## CIGARETTE LIGHTER RECEPTACLE



This 12V female cigarette lighter receptacle is made from stainless steel and is ideal for homebuilt panels. 292568 P/N 11-01294 .....\$9.85

## 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 battery 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 .....\$272.95



# BATTERY BOXES - STARTING COMPONENTS

## ALUMINUM BATTERY RACKS & BOXES



RACK

BOX

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 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.

BATTERY RACKS				BATTERY BOXES			
P/N	Model	Application	Price	P/N	Model	Application	Price
11-00105	HR-25	25 Amp, horizontal	\$92.35	11-00125	HB-25	25 Amp, horizontal	\$129.95
11-00110	VR-25	25 Amp, vertical	\$92.35	11-00130	VB-25	25 Amp, vertical	\$136.75
11-00115	HR-35	35 Amp, horizontal	\$96.90	11-00135	HB-35	35 Amp, horizontal	\$139.95
11-00120	VR-35	35 Amp, vertical	\$96.90	11-00140	VB-35	35 Amp, vertical	\$143.50



## FIBERGLASS BATTERY BOX

Sturdy, lightweight, corrosion-resistant. Accommodates both 25 amp and 35 amp batteries. With hold-down tabs and drain outlet. Size: 10-7/16" L x 5-5/8" W x 8-1/4"H. P/N 11007.....\$107.30

## BOGERT STAINLESS STEEL PA-28 BATTERY BOX



Address corrosion problems, broken vent tubes, warped lids and cracking with this new battery box. Bogert's battery box is a bolt in replacement for most Piper Cherokees regardless of original metal or plastic box installation. It is similar to Piper's metal sloped top box, but with several improvements. First, the box construction is welded stainless steel with stainless steel drain tube instead of soldered seams and copper drain tube. Secondly, if a vent tube becomes damaged, the screw in vent tube design allows for a quick and inexpensive change. Bogert also incorporated a previous STC, SA4008NM, The Battery Box Modification into this box. The modification's u-shaped nylon flanges offer extra protection against shorting, greater access to the battery and cleaner electrical connections resulting in reliable starting. The boxes are available in bare stainless steel finish, but they highly suggest taking advantage of the powder coating. It is a few dollars more but will provide maximum resistance to corrosion. Box Mod. PA28 Battery box - Stainless .....P/N 11-04420 .....\$599.00  
PA28 Battery box - Stainless .....P/N 11-04421 .....\$634.00

## BOGERT CONCORDE BATTERY POST ADAPTERS



PMA'd part. Eliminate modified battery box lids. Terminal aligns with battery box cut outs. Battery connection point moves away from the battery box wall. Raises terminal level to same level as standard G-35 series, without battery spacer. Compatible with Bogerts Battery Box Mod. P/N 11-02891 .....\$57.50



## 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 .....\$6.50 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 .....\$29.20  
Nylon Flanges STC'd / PMA'd .....P/N 11-02893 .....\$57.50

## GROUND STARTING COMPONENTS



P/N 6141



P/N 6142

## 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° below zero. Fully insulated clamps won't 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 2 styles:**

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

P/N 6141 .....\$136.95

Jumper Cable with special Piper single-pin plug on one end and alligator clamps on other end.

P/N 6142 .....\$148.95



**Replacement Pair of 500 amp Clamps** - Used on #6141 and #6142 jumper cables (above).

P/N 11-06202 .....\$18.85



**Jumper Plug** - Standard 3-pin female plug equivalent to AN2551 plug. Red Lexan construction is unbreakable & screws together in minutes. Sleeves are solid copper, silver plated. With solenoid pin. Corrosion proof. Mates

w/AN2552-3A external power receptacle. Used on #6141 jumper cables (shown above).

P/N 6216 .....\$53.75



**Wooden Plug** - Solid laminated ash plug with brass female sleeves. Functions same as AN2551 plug. Add cables & alligator clamps for economical ground starting cables. No soldering required. Solenoid activator element in small hole.

P/N 11-00400 .....\$29.85



**Piper Type Plug** - Single-pin female plug mates with Piper type male socket. Brass female terminal for cable connection & integral ground return terminal. Cables require soldering.

P/N 11042 .....\$19.85



**Piper Type Socket** - Attaches to any rigid location on aircraft. Single pole, self-grounding. Accommodates cable to size "0". A 3/8" dia. brass male contact has insulated tip to prevent short circuits. Brass female terminal for solder connection of cable. Spring loaded flap closes flush w/aircraft skin, protecting connection from weather.

P/N 11-00500 .....\$15.85



**External Power Receptacle** - AN2552-3A external power receptacle is designed to mount in hole in skin of aircraft. Hole is then covered with hinged access door (not included). Mates with AN2551 type plugs. Model 4621B.

P/N AN2552-3A.....\$68.85



**Master Relay (Battery Solenoid)** - Used on production aircraft. Applicable to all homebuilts. Continuous duty. 12V.

P/N 111-226.....\$17.90



**Starter Relay** - (Starter Solenoid) - For 12V intermittent duty. Adequate current capacity for most engines.

P/N 22735 .....\$9.85

## 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.....\$249.00

## 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 & Jump is a simple conduit of power from any external power source to the aircraft. It is not a battery in itself. The Plug & Jump can be used for either 28 or 14 V systems.

Universal Model .....P/N 11-00971 .....\$69.35  
Piper Model .....P/N 11-00972 .....\$74.95

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# VOLTAGE CONVERTERS - POWER PANELS



## AMERI-KING AK550 POWER BOOSTER CONVERTER

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. Its 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-550-6 (6 amp) .....P/N 11-00064 .....**\$286.95**
- AK-550-12 (12 amp) .....P/N 11-01453 .....**\$553.00**
- AK-550-24 (24 amp) .....P/N 11-01454 .....**\$1,198.00**

## 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. Its 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 .....**\$169.00**
- AK-551-18 (18 amp) .....P/N 11-01455 .....**\$273.00**
- AK-551-40M (40 amp) .....P/N 11-01456 .....**\$837.00**



## 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 .....**\$175.00**

## 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. The input cord also has a ferrite bead to protect your airplane from RF interference. Size: 1.3"x 1.3"x 2.3"; Weight: approx. 5.0 oz.

- 050C - 5amp Converter .....P/N 11-00399.....**\$149.95**
- 030C - 3amp Converter .....P/N 11-04330.....**\$69.95**
- 100C - 12amp Converter .....P/N 11-04331.....**\$99.95**

**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)

- 02YC Y-Coupler .....P/N 11-00401.....**\$14.95**

**INVERTER** - A device to produce Alternating Current out of a Direct Current Source. Will generate 110VAC from a 28/24VDC 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 electrically protected against overload, overtemperature, over and under voltage. Dims: 1.77"x 2.87"x 6.06"; Wt: 12.77 oz.

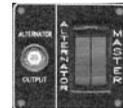
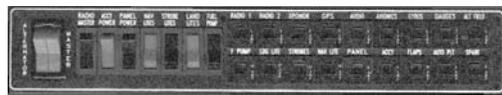
- 110I 28-110V Inverter .....P/N 11-00402.....**\$93.50**
- 220V Version (Euro.) .....P/N 11-00403.....**\$199.95**

## RED BARON AUXILLIARY POWER UNIT (APU)

RB-14/28 Red Baron APU is designed to operate avionics equipment in private and commercial aircraft. Red Baron will output 14 or 28VDC at up to 25amps. 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. 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 14V position. The RB-14/28-25 plugs directly into the APU receptacle on the aircraft. Comes equipped with either standard 3 prong connector or Piper coaxial connector. The housing is steel, powder coated in red, for optimum flight line safety. Rubber feet & handle are included. AC & DC cable lengths are 8ft. Std. 3 prong connector .....P/N 11-02142 .....**\$766.00**  
Std. & Piper connector .....P/N 11-02143 .....**\$761.00**

## POWER PANELS FOR HOMEBUILTS

### HOMEBUILDERS 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 an 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....**\$581.00 ea**
- Mini Power Panel.....P/N 11-11680....**\$455.95 ea**

## EXP BUS PRODUCTS



**EXP TRAY** - This is the ultimate quick build electrical system for the homebuilder. It includes the EXP2V load center PC board, with stylish rocker switches,

mounted on an aluminum slide out tray. The tray, sized to fit nicely in the panel of most kitplanes, and mounts in a single rectangular cutout in the panel. Once installed, removing only 4 screws allows the entire tray assembly (and the entire electrical system) to easily slide out of the panel for access (there are no parts that will ever need service). The builder simply connects the battery and the alternator power leads to the PC board, and connects all of the loads to the various switches or terminals. The tray faceplate is powdercoated flat black, and silkscreened with standard nomenclature. Furnished with Rocker switches Face Plate dims: 1.9" x 9.5" P/N 11-00430 .....**\$424.00**

**EXP 2V** - This product is truly an electrical system on a PC board. Solid state "fuses" prevent circuit overloads, and replace circuit breakers. The electrical system offers 8 switched outputs for lights and pumps, two "master-bus" outputs for gyros and other accessories, an instrument output for powering engine instrumentation, an instrument lighting output, and six outputs that are switched on as an "avionics bus". This replaces a total of 19 fuses and circuit breakers. In addition to saving build time, and panel space, many advanced features are provided by the system. Furnished with toggle switches. P/N 11-00431 .....**\$299.00**

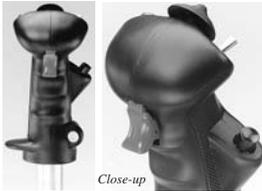
**IND 2** - An indicator module for the Tray or EXP 2V. The annunciator illuminates a status light if any circuit in EXP system is tripped. Also features ammeter function, high and low voltage warning lights, and a dimmer. P/N 11-00432 .....**\$129.95**

**BRKT 2** - These mounting brackets save time when mounting the EXP2V. The pre-formed aluminum brackets provide a rigid mounting system to mount the toggle switch board, support the PC panel, and simplify installation. Not applicable to the EXP Tray. P/N 11-00433 .....**\$21.95**



# 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	\$150.00
Military Stick Grip A/C with Flap/Brake (Left)	11-00032	\$150.00
Military Stick Grip A/C without Flap/Brake (R)	11-00033	\$150.00
Military Stick Grip A/C without Flap/Brake (L)	11-00034	\$150.00
Military Stick Grip with Spoilers (Right)	11-00036	\$150.00
Military Stick Grip with Spoilers (Left)	11-00667	\$150.00
Replacement Switches for extra customizing:		
Momentary push-button switch	11-00218	\$10.00
ON/OFF (8636) SPDT push-button	11-00219	\$10.00
Toggle [spring loaded-to-center - ON/OFF/ON]	11-00220	\$10.00
Toggle [ON/Center OFF/Momentary ON - ON/OFF/ON]	11-00221	\$10.00
Spacers/Adapters:		
1" OD x 3/4" ID (i.e.-for Lancairs & canard tubes)	11-00222	\$22.85
1" OD x 7/8" ID (i.e.-for Glasairs & RV co-pilot tubes)	11-00223	\$16.90
Infinity Switch with China Hat (Right)	11-04297	\$15.95
Infinity Switch with China Hat (Left)	11-04297	\$15.95

## B8 PISTOL GRIP



The B8 Pistol Grip is an exact replica of military high performance grips. Comfortable and heavy duty, the B8 grip is made of black high impact ABS halves, and it mounts with a single 10-32 thru bolt. All switches are functional, and wire connector is included. Switch rating: 30VDC / 5amp, 125/250 VAC / 5amp. Bore: 1-1/8" (can be bushed for smaller diameter). P/N 11-00343 .....\$144.00

## 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.

<b>3/4" Standard Grip (Right)</b> P/N 11-02910 .....\$49.95	<b>1" Standard Grip (Right)</b> P/N 11-02910-1 ..\$50.25	<b>3/4" Ultra Grip (Right)</b> P/N 11-02930 ..\$168.95
<b>3/4" Standard Grip (Left)</b> P/N 11-02915 .....\$49.95	<b>1" Standard Grip (Left)</b> P/N 11-02915-1 ..\$50.25	<b>3/4" Ultra Grip (Left)</b> P/N 11-02935 ..\$168.95
<b>3/4" Master Grip (Right)</b> P/N 11-02920 ..\$105.95	<b>1" Master Grip (Right)</b> P/N 11-00067 ..\$105.95	
<b>3/4" Master Grip (Left)</b> P/N 11-02925 ..\$105.95	<b>1" Master Grip (Left)</b> P/N 11-02925 ..\$105.95	

## RAC STICK GRIPS



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 or a switch to transfer 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 .....\$36.90

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 .....\$102.95

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 .....\$149.95

The **G303** stick grip has two trim switches, a faceplate slotted vertically for 1-axis trim and a PTT switch.  
P/N 11-02538 .....\$125.95

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 .....\$136.95

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 .....\$176.95

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

## PISTOL GRIP SWITCHES



These pistol grip switches from Automatic Flagman fit 1-1/8" O.D. control sticks and is STC'd for virtually all standard Ag aircraft. Excellent for use in homebuilts as well. The trigger switch controls two circuits which are both momentary contact circuits. The thumb operated switches in the grip cap control additional circuits. The pistol grip switch is available with 2 or 4 switches. The Model #2 pistol grip has one 2-position trigger finger switch (2 switches) and the Model #4 pistol grip has the same finger switches plus two thumb operated switches. On Model 4, one of the thumb operated switches is a black momentary switch and the other is a red latching switch.

Model #2 (2 Switches) .....P/N 11-02000 .....\$125.95  
Model #4 (4 Switches) .....P/N 11-02050 .....\$174.95

## 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 \$74.95. Add -1 to end of part number for PTT.

Grip	Bore	Part No.	Price
Right	Unbored	11-01010	\$63.25
Right	7/8" Bore	11-01015	\$63.25
Right	1" Bore	11-01020	\$71.50
Right	1-1/8" Bore	11-01025	\$63.25
Left	Unbored	11-01010-L	\$63.25
Left	7/8" Bore	11-01015-L	\$63.25
Left	1" Bore	11-01020-L	\$69.50
Left	1-1/8" Bore	11-01025-L	\$63.25
Neutral	Unbored	11-02010	\$72.00
Neutral	7/8" Bore	11-02015	\$63.25
Neutral	1" Bore	11-02016	\$63.25
Neutral	1-1/8" Bore	11-02017	\$63.25

## RUBBER STICK GRIPS



Rubberized urethane with granular like non-slip surface.  
7/8" I.D. Stick Grip .....P/N 11-00100 .....\$12.95 ea  
1" I.D. Stick Grip .....P/N 11-00101 .....\$12.95 ea  
1-1/8" I.D. Stick Grip .....P/N 11-00102 .....\$12.95 ea

EL

# 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. The 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 2A 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 System	Part Number	Output Shaft		Price ea.
		Movement	Travel Time	
T2-7A	11-11505	0.7 in.	10 sec.	\$242.95
T2-10A	11-11605	1.0 in.	16 sec.	\$242.95
T3-12A	11-11615	1.2 in.	19 sec.	\$264.95
T4-5	11-11620	0.5 in.	15 sec.	\$224.95

### Servos Only

RAC Servo System	Part Number	Output Shaft		Price ea.
		Movement	Travel Time	
T2-7A	11-02048	0.7 in.	10 sec.	\$127.95
T2-10A	11-02058	1.0 in.	16 sec.	\$127.95
T3-12A	11-02065	1.2 in.	19 sec.	\$149.95
T4-5	11-02066	0.5 in.	15 sec.	\$193.95

\*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.

## 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 1amp. The faceplate measures 1.75" (44mm) x 1.0" (25mm) x 1.47" (37mm) deep. Included with trim systems or can be purchase separately. P/N 11-02035 .....\$23.80

**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 . \$49.60



## 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	.....\$168.95
Trim Sys. with Lower Panel	.....P/N 11-09960	.....\$231.95
Trim Sys. Flap Mount	.....P/N 11-09965	.....\$185.95
Trim Sys. without Wheel	.....P/N 11-09970	.....\$98.00

## 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 .....\$93.25



**RP2 NEEDLE TYPE POSITION INDICATOR** - Functions the same as RP3 indicator. Faceplate measures 1.75"x1.0"x 1.8" deep. Can be installed horizontally or vertically. P/N 11-02045 .....\$84.25



**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-gage 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 .....\$82.75



### 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	.....\$0.25
Rudder - Small	.....P/N 11-01820	.....\$0.25
Aileron - Large	.....P/N 11-01816	.....\$0.25
Aileron - Small	.....P/N 11-01815	.....\$0.80
Elev 1 - Large	.....P/N 11-01822	.....\$0.25
Elev 1 - Small	.....P/N 11-01821	.....\$0.25
Wing Flap - Large	.....P/N 11-01818	.....\$0.25
Wing Flap - Small	.....P/N 11-01817	.....\$0.25
Cowl Flap - Large	.....P/N 11-01576	.....\$0.25
Cowl Flap - Small	.....P/N 11-01814	.....\$0.25



**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 .....\$41.70



**REL-1 SERVO RELAY DECK** - Converts the SPST momentary contact action of any pair of switches, or a 4-way switch like our ROS-4, into a DPDT action that is necessary to operate R.A. servos. The 2 internal relays are wired special for this and rated at 1amp. Size: 2"x 0.5"x 0.8" P/N 11-02076 .....\$37.85



**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 .....\$38.00



**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 .....\$38.00



**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 .....\$22.80  
T4 Pushrod Kit .....P/N 11-02042 .....\$10.90

**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-gage, 19-strand, silver-plated, FEP Teflon® insulated wires inside a tough, all Teflon® sheathing.

20 ft. roll	.....P/N 11-01577	.....\$24.50
25 ft. roll	.....P/N 11-01578	.....\$30.60
50 ft. roll	.....P/N 11-01579	.....\$61.25

# 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	\$16.70
RBS-P11	Bezel Switch - Push Button	11-01365	\$16.60
RBS-GS	Bezel Gear Switch	11-01366	\$55.25
RBS-L1	Bezel Switch label sheet	11-01367	\$3.85



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	PILOT 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



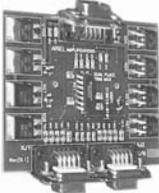
## TWO PLACE TRIM MIXER

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 .....\$193.00

## EXPERIMENTAL AIRCRAFT RUDDER TRIM TAB



**Features:**

- Weight (bare, uncoated): 1.1 oz. (31.4g)
- High Temp/Pressure injected molded plastic: Centrex 811
- Cut and sand to adjust dimensions to provide optimum rubber trim for your particular aircraft
- Operating Temp range -20°F to 210°F
- Strong and firm but can be drilled/threaded/flushed/sanded, etc.
- Accepts aircraft and automotive paints/ etc.
- Not attacked by immersion in paint thinner/denatured alcohol/
- Attacked by Acetone
- Easily attached to rudder with double-sided tape or epoxy resin
- Be sure to check location and dimensions of your trim tab with your aircraft designer/supplier
- Also run appropriate sample tests regarding mounting hardware, adhesives/paints/etc.

P/N 11-03613 .....\$9.95

## 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.

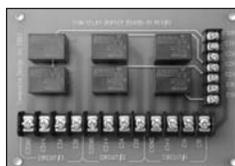
**Features:**

- 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 with Elev. Trim .....P/N 11-02980 .....\$269.00  
 FPS-PLUS without Elev. Trim .....P/N 11-02981 .....\$189.00



## 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.....\$101.95



# LAMAR COMPONENTS — VOLTAGE CONVERTERS

## LAMAR ALTERNATOR CONTROLS



Virtually every aircraft, certificated or experimental, which has an electrical system will require an alternator control as a basic system item. Besides regulating the level of aircraft bus voltage, these units provide over-voltage shutdown for protection of the aircraft equipment. These controls are specifically for use with alternators and cannot be used with the older DC generator systems because they lack the reverse current and over-current control features that are required with the DC generators. Alternators are self-protecting in those regards. These controls are proven and mature production designs and are being supplied to many leading aircraft OEM's, both domestic and foreign. The VR371 alternator control unit from Electrosystems is an FAA / PMA approved direct replacement for the 14V Lamar model B-00271-1 used in many general aviation aircraft including the Piper PA-28, 32 and 38 series under Piper part number 557-337.

- 14V, Control .....P/N B-00371-25 ....\$222.95
- 28V, Control .....P/N B-00368-25 ....\$254.95
- 14V, Control .....P/N VR371 .....\$139.95

## LAMAR PANEL LIGHT DIMMER ASSEMBLY



This is an assembly applicable to most aircraft which is ideal for dimming aircraft panel lights for night flight. It is a solid state unit which can be used on either 14V or 28V electrical systems. The assembly is protected against damage by electrical short circuit of its output, which is a common cause of damage to electronic items. Current: 3.0amps on 14V bus; 2.8amps on 28V bus Not FAA approved. For experimental aircraft use only .....P/N 11-03165 .....\$155.95



## LAMAR MC10 MASTER ELECTRICAL CONTROL UNIT

The Lamar MC10 is a master electrical control unit developed for 14V and 24V single engine experimental aircraft. It is designed to mount on the firewall or fuselage. It houses all the major electrical components except for the battery, starter, and alternator. The MC10 provides a greater degree of protection against moisture, dust and accidental electrical shorts along with the convenience of all the primary electrical components in one location. Features low installation cost, ease of installation and simplified troubleshooting and repair with several new performance & safety features.

**The MC10 embodies the following functions:**

- Master (battery) (solenoid) control closing the master switch on pilot's panel connects the battery to the primary bus.
- 3 aircraft bus outputs, protected via resettable circuit breakers.
- Alternator Control; voltage regulation, overvoltage protection, field output overload protection, alternator feeder fault protection
- Starter control (solenoid)
- Low voltage warning. (L model also includes overvoltage, over-current and reverse-current annunciation)
- Battery charge/discharge ammeter drive (current shunt)
- Clock output (always-on) protected with easily accessible external mounted fuse.
- Ground power receptacle & control (solenoid) with reverse polarity protection.

**NOTE:** P/N's 07-00835 & 07-00840 are kits which are complete systems including controller, starter, & alternator



Description	Part No.	Price
Lamar Master Controller only 14V Exper.	11-03295	\$1,076.00
Lamar PM120-H EXP O/H Starter	07-00836	\$465.00
Lamar NEW XT1260 Alternator Exper.	07-00837	\$614.00
Lamar PM2401-H O/H Starter Exper.	07-00838	\$324.00
Lamar Master Controller 28V Exper.	11-03298	\$1,076.00
Lamar PM2401-H O/H Starter Exper	07-00838	\$324.00
Lamar XT2860 New Alternator 28	07-00839	\$614.00
Lamar Master Control 14V Exp. kit	07-00835	\$1,985.00
Lamar Master Control 28V Exp. kit	07-00840	\$1,985.00

## LAMAR ELECTRICAL COMPONENTS

Part No.	Description	Aircraft Application	Price	Part No.	Description	Aircraft Application	Price
A00258-1	Alt InOp Switch	Piper PA23series,PA28series,PA30, PA38,39,PA32series,PA34-200T,220T	\$77.75	A00258-2	Alt InOp Switch	Piper PA23 series, PA31 series	\$83.85
B00375-2	Monitor low volt.	Piper PA31,PA31T ser., PA34 ser. PA46-310, PA46-350, PA31 series	\$77.75	B00371-1	Alt. Control,14V	Piper PA28,32,38,24-260,400 series	\$249.95
				B00392-1	Alt. Control,14V	Piper PA44-180, PA44-180T	\$450.35
				B00266-2	Overvolt. relay 28V	Piper PA23-235,PA23-250,PA31 ser.	\$160.95

## LONE STAR VOLTAGE CONVERTERS



With this TSO-C71 DC to DC converter you can operate 28V Radios, GPS's, & electronic devices in a 14V aircraft. **Features:** Size: 6.0"W x 5.0"D x 1.75"H Weight: 1.5 lbs. • Color: Gold Anodized • Material: Aluminum Extrusion

- 14VDC to 28VDC converter .....P/N 11-02888 .....\$328.95
- 24VDC to 12VDC converter .....P/N 11-03309 .....\$235.00

**Specifications for 14V to 28V:** • 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 24V to 12V:** • 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

## VOLTAGE REGULATOR/POWER SUPPLY



For all Rotax, Hirth, Kawasaki, & other engines equipped with an AC lighting coil. Dual purpose device that can be used to power all DC appliances, such as gauges, strobes, & radios in aircraft without batteries. May also be used as a voltage regulator in aircraft with batteries. Produces 15 amps of pure rectified DC power. Terminals included. 1-yr warranty. (Replaces Rotax P/N 264-870) 3.5"x2"x1". 10oz P/N 11-03168 .....\$69.00

## 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 ..... \$85.95

## STROBE / BEACON NOISE ELIMINATOR



This small lightweight unit will help eliminate avionics systems of power line noise caused by strobe lights, rotating beacons, or other sources of electronic noise. Easily installs to the source or affected radio. FAA approved. 10 amps P/N 11-08055 .....\$79.95

## AMERI-KING NOISE FILTERS



The Ameri-King AK-950-FTR is used to eliminate noise on the DC line, while the FTR1 is designed to reduce or eliminate noise from the alternator or generator. FAA PMA approved.

- AK-950-FTR (pictured).....P/N 11-00182 .....\$79.85
- AK-950-FTR1 .....P/N 11-00183 .....\$72.25



# 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.

**Model No. A-510-5 Without Starter Position.**, Supplied with switch plate and two keys. (diode not required)..... **\$78.95**

**Model No. A-510-2 With Starter Position.**, Supplied with switch plate two keys. (diode included)..... **\$88.95**

## 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) ..... **\$94.95**

**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)..... **\$112.95**

\* Baggage lock may be modified to second door lock if preferred.

<b>ACS Ignition Switch Plates</b>	Plate without start .....	P/N A-2255-A1 .....	<b>\$1.75</b>
	Plate With start.....	P/N A-2255-A .....	<b>\$1.75</b>

## 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 ..... **\$26.60**

Universal Blank Key (uncut) for ACS door and Baggage Lock.....P/N A-3546-A ..... **\$3.95**

## ACS LEVER TYPE IGNITION SWITCH

**MODEL NO. A-510-1 Lever Type** - Twist-Knob Without Starter Position. (diode not required)..... **\$99.95**

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

### 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 ..... **\$14.80**

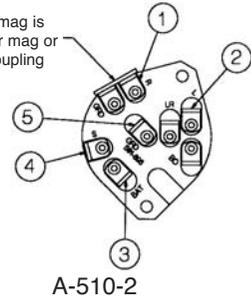
### Installation of Ignition Switch

- 1) Connect wire from RIGHT MAG to terminal 1.
- 2) Connect wire from LEFT MAG to terminal 2.
- 3) Connect wire from POSITIVE terminal of power supply to terminal 3.
- 4) Connect wire from STARTER SOLENOID to terminal 4.
- 5) Connect wire from terminal 5 (center GND terminal) to nearest structural member.

### NOTES:

- A) Use JUMPER on terminal 1 when LEFT MAG has IMPULSE COUPLING
- B) Use JUMPER on terminal 1 & use the LR and BO terminals for a 2-terminal starting vibrator when LEFT MAG is RETARD BREAKER MAGNETO.
- C) Use SHIELDED wire on all connections and ground shielding to nearest structural member.

JUMPER  
Use when left mag is Retard Breaker mag or has impulse coupling



A-510-2

### 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..... **\$7.40**

## BENDIX IGNITION SWITCHES

**MODEL NO. 10-357290-1**, Without Starter Position. Includes two keys. Furnished with Switch Plate ..... **\$180.95**

**MODEL NO. 10-357200-1**, With Starter Position. Includes two keys. Furnished with Switch Plate..... **\$218.95**

**MODEL NO. 10-357210-1**, With push to start feature. Includes two keys. Furnished with Switch Plate ..... **\$249.95**

**BENDIX SWITCH PLATES -** Without Starter Position ..... Switch Plate No. 10-51127 ..... **\$2.65**  
With Starter Position..... Switch Plate No .10-126676 ..... **\$3.10**

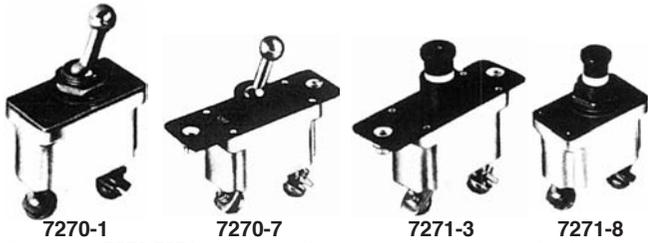
## BENDIX STARTING VIBRATORS



Part Number	Description	Used with Ignition System	Price
10-176487-121	12V DC	S-200, S-600, S-700	<b>\$258.95</b>
10-357487-241	24V DC	S-200, S-600, S-700	<b>\$420.95</b>
10-176487-122	12V DC	S-1200	<b>\$274.95</b>
10-357487-242	24V DC	S-1200	<b>\$496.95</b>
10-176485-121	12V DC W/Relay	S-200, S-600, S-700	<b>\$681.00</b>
10-176485-241	24V DC W/Relay	S-200, S-600, S-700	<b>\$645.00</b>
10-176485-242	24V DC W/Relay	S-1200	<b>\$643.00</b>

# 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	\$84.75	7270-7-10	\$120.95	7271-3-25	\$61.70
7270-1-5	\$84.50	7270-7-15	\$120.95	7271-3-30	\$82.50
7270-1-7.5	\$83.00	7270-7-20	\$114.95	7271-3-35	\$85.25
7270-1-10	\$86.50	7270-7-25	\$83.35	7271-8-3	\$86.50
7270-1-15	\$86.75	7270-7-30	\$241.95	7271-8-5	\$83.25
7270-1-20	\$87.50	7270-7-35	\$184.95	7271-8-71/2	\$85.75
7270-1-25	\$86.50	7271-3-3	\$89.75	7271-8-10	\$83.25
7270-1-30	\$86.50	7271-3-5	\$89.50	7271-8-15	\$79.25
7270-1-35	\$87.50	7271-3-7.5	\$74.50	7271-8-20	\$79.50
7270-7-3	\$126.95	7271-3-10	\$79.95	7271-8-25	\$72.00
7270-7-5	\$112.95	7271-3-15	\$83.25	7271-8-30	\$86.35
7270-7-7.5	\$131.95	7271-3-20	\$79.95	7271-8-35	\$77.00

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

## KLIXON 7277 CIRCUIT BREAKERS



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. °C	Min Ult Trip	Max Ult Trip	Trip Time - Seconds		
			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	\$29.95	7277-1-3	\$36.10	7277-2-2	\$16.95
7277-5-2	\$29.95	7277-1-4	\$34.95	7277-2-2.5	\$19.95
7277-5-3	\$29.95	7277-1-7.5	\$34.95	7277-2-3	\$16.95
4200-005-4	\$28.50	7277-1-10	\$34.95	7277-2-4	\$16.95
7277-5-7.5	\$29.95	7277-1-15	\$34.95	7277-2-5	\$16.95
7277-5-10	\$29.95	7277-2-1/2	\$57.25	7277-2-7.5	\$18.95
7277-5-15	\$33.40	7277-2-3/4	\$17.70	7277-2-10	\$16.95
7277-1-1	\$34.95	7277-2-1	\$16.95	7277-2-15	\$16.95
7277-1-2	\$34.95	7277-2-1.5	\$16.90	7277-2-20	\$16.95

## 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 and 24 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. The strain relief kits (not shown) are recommended for the 12, 18, and 36 pin connectors and come in pairs for both sides of the plug.

Connectors	Part No.	Configuration	Price
SPT015/16	11-02147	4 pin	\$8.95
SPT152/153	11-02148	6 pin	\$10.45
SPT017/18	11-02149	12 pin	\$11.95
SPT442/43	11-02150	18 pin	\$13.45
Pins	Part No.	Wire Gauge Size	Price
SPT103-1	11-02153	24/20	\$0.99
SPT099-1	11-02154	18/16	\$0.92
Sockets	Part No.		Price
SPT105-1	11-02155	24/20	\$1.29
SPT101-4	11-02156	18/16	\$1.29

## 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 ..\$28.85

## STATIC DISCHARGERS

### Static Wick



Used on Cessna and Piper aircraft. Comes with 2 holes to rivet to trainline edge and plain wire extension. P/N 11-04154 ..\$52.25

### Nullfield Trailing Discharger



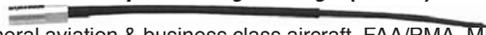
For general aviation & business class aircraft. FAA/PMA, MIL-9129D. Mounting: (2) #8-32 flat head screws. Length: 10-9/32". Wt: .78 oz. P/N 11-16320 ..\$65.00

### 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 ..\$45.40

### 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 ..\$51.00

### 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 ..\$58.50

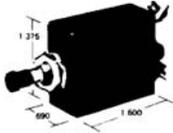


# CIRCUIT BREAKERS

## POTTER & BRUMFIELD CIRCUIT BREAKERS

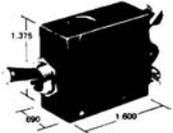
These bi-metallic single pole breakers weigh less than 2oz. and especially suitable for homebuilt aircraft. Used as original equipment in Beech, Cessna and Piper aircraft. Max. operating voltages: 32 VDC & 250 VAC (to 400 Hz).

### W23 SERIES



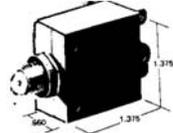
White band around body of reset button becomes visible if breaker trips. Has heater wire for fast tripping. 8-32 screw terminals.

### 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 Part No.	AMP RATING	AIRCRAFT APPLICATION			PRICE EACH
		Beech	Cessna	Piper	
W23X1A1G1	1			111-201-105	\$13.95
W23X1A1G2	2			111-202-105	\$13.95
W23X1A1G3	3			111-203-105	\$13.95
W23X1A1G4	4			111-204-105	\$58.25
W23X1A1G5	5	CB-2305A	S-1232-5	454656	\$13.95
W23X1A1G7.5	7.5	CB-2307A			\$13.95
W23X1A1G10	10	CB-2310A		454657	\$13.95
W23X1A1G15	15	CB-2315A		454658	\$13.95
W23X1A1G20	20	CB-2320A		454659	\$13.95
W23X1A1G25	25	CB-2325A		454660	\$13.95
W23X1A1G30	30	CB-2330A		454661	\$13.95
W23X1A1G35	35	CB-2335A		454663	\$13.95
W23X1A1G40	40	CB-2340A		454665	\$13.95
W23X1A1G50	50	CB-2350A		454662	\$13.95
W31X2M1G5	5				\$16.95
W31X2M1G10	10				\$16.95
W31X2M1G15	15				\$16.95
W31X2M1G20	20				\$16.95
W31X2M1G25	25				\$16.95
W31X2M1G30	30				\$16.95
W31X2M1G35	35				\$16.95
W31X2M1G40	40				\$16.95
W31X2M1G50	50				\$16.95
W58XC4C12A1	1	431-201-101	S-1360-1A,-1L		\$3.95
W58XC4C12A2	2	431-202-101	S-1360-2A,-2L		\$4.85
W58XC4C12A3	3	431-203-101	S-1360-3A,-3L		\$4.85
W58XC4C12A4	4	431-204-101	S-1360-4A,-4L		\$5.20
W58XC4C12A5	5	435-205-101	S-1360-5,-5L	454668	\$4.95
W58XC4C12A7	7	435-207-101	S-1360-7,-7L		\$3.95
W58XC4C12A10	10	435-210-101	S-1360-10,-10L	454669	\$3.30
W58XC4C12A15	15	435-215-101	S-1360-15,-15L	454670	\$4.75
W58XC4C12A20	20	435-220-101	S-1360-20,-20L		\$3.30
W58XC4C12A30	30	435-230-101	S-1360-30,-30L		\$4.85

## KLIXON 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.



PSM-N Manual Reset (Neck-Mounted)



PSM Manual Reset (Panel-Mounted)



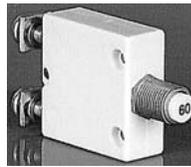
PDLM (Panel-Mounted)

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) \$54.75 Ea.

For weatherproof circuit breakers in ratings from 50 to 150 amperes, order Model PDLM. **Example:** PDLM-50 (P/N 11-04241) \$91.25 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 .....\$15.60

## 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.	Amps	Volts	Part No.	Price
ECB-14-01	1	14	11-01152	\$76.50
ECB-14-02	2	14	11-01153	\$76.50
ECB-14-05	5	14	11-01154	\$76.50
ECB-14-10	10	14	11-01155	\$76.50
ECB-28-01	1	28	11-01156	\$76.50
ECB-28-02	2	28	11-01157	\$76.50
ECB-28-05	5	28	11-01158	\$76.50
ECB-28-10	10	28	11-01159	\$76.50

## POTTER BRUMFIELD 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	Amps	Part No.	Price
W33S4B1Q-5 - Amber 24VDC	5	11-01887	\$27.40
W33S4B1Q-10 - Amber 120VAC	10	11-01888	\$41.90
W33S4B1Q-15 - Amber 120VAC	15	11-01889	\$27.60
W33S4B1Q-20 - Amber 120VAC	20	11-01976	\$23.95
W33S1N1Q-5 - Black	5	11-01977	\$25.60
W33S1N1Q-10 - Black	10	11-01978	\$34.40
W33S1N1Q-15 - Black	15	11-01979	\$25.60
W33S1N1Q-20 - Black	20	11-01980	\$32.95
W33S2N1Q-5 - White	5	11-01981	\$37.20
W33S2N1Q-10 - White	10	11-01890	\$35.60
W33S2N1Q-15 - White	15	11-01982	\$23.30
W33S2N1Q-20 - White	20	11-01983	\$40.00

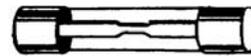
## FUSE HOLDERS



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 .....\$1.85

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 .....\$3.35

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. 6-amp fuse included. P/N 11-01359 .....\$3.75



## 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	\$0.48	11-03745	15	\$0.48
11-03746	2	\$0.25	11-03747	20	\$0.48
11-03749	3	\$0.48	11-03748	25	\$0.48
11-03753	5	\$0.48	11-03750	30	\$0.48
11-03754	7	\$0.48	11-03751	35	\$0.48
11-03744	10	\$0.48			

# SWITCHES

## ULTRA-MINIATURE TOGGLE SWITCHES

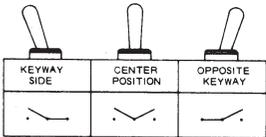


Ultra-miniature switches are rated at 6 amps at 125V AC and 4 amps at 28V DC. Solid silver contacts. Terminals are gold flashed to inhibit oxidation and to provide easier soldering. Case material is green diallyl phthalate resin. Bushing thread size: 1/4-40, usable in panel thickness up to 1/4". Micro 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	\$6.70
MTA-106E	8A1021	SPDT	02	\$8.60
MTA-106G	8A1041	SPDT	04	\$7.80
MTA-206N	8A2011	DPST	01	\$10.30
MTA-206P	8A2021	DPDT	02	\$12.20
MTA-206S	8A2041	DPDT	04	\$9.85
JMT-226	8A2061	DPST	06	\$11.70
MTA-306D	8A3011	3PDT	01	\$11.00
MTA-406N	8A4011	4PDT	01	\$16.90

\* See Toggle Circuit Table

### LEVER/CIRCUIT RELATIONSHIP



### TOGGLE CIRCUIT TABLE

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 .....	\$30.00
400 Series .....	P/N 11-22220 .....	\$29.95
Mini Switch Package .....	P/N 11-22230 .....	\$15.00

## 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 .....	\$1.35	Green ....11-00817 .....	\$1.35
White ..11-00816 .....	\$1.35	Blue .....11-00819 .....	\$1.35
Yellow 11-01698 .....	\$1.35		

### Mini Size

Red ....11-00820 .....	\$1.38	White .....11-00821 .....	\$1.27
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## 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 .....\$7.20

## 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) ....\$10.60 Ea. MS25224-2 (3 holes) .....\$12.60 Ea.

## 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. Switch .....P/N 11-15900 ....\$15.60 Mount .....P/N 11-15910 .....\$1.95

## 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 .....\$11.30

## TOGGLE SWITCHES



AN3021



AN 3027

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	Contact	Toggle Circuit*	Price
AN3021-1	MS35058-21	JBT - MS No.	SPDT	1	\$11.30
AN3021-2	MS35058-22	JBT - MS No.	SPST	2	\$9.60
AN3021-3	MS35058-23	JBT - MS No.	SPDT	3	\$10.75
AN3027-1	MS35059-21	JBT - MS No.	DPDT	1	\$19.00
AN3027-2	MS35059-22	JBT - MS No.	DPST	2	\$12.00
AN3027-3	MS35059-23	JBT - MS No.	DPDT	3	\$19.80
AN3027-7	MS35059-27	JSBT-MS No.	DPDT	5	\$18.30

\* 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 .....\$4.95

## MINIATURE MOMENTARY PUSHBUTTON SWITCH

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

#8631ZBD2.....P/N 11-01899 .....\$7.70



# 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 28VDC or 115VAC, 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 Part Number	Price each
1	T7-131A1	on-off	11-00755	\$8.50
1	T7-131B1	on-on	11-00756	\$8.50
1	T7-131C1	mom-off	11-00757	\$8.50
1	T7-131D1	mom-on	11-00758	\$8.50
1	T7-131E1	mom-of-mom	11-00759	\$8.50
1	T7-131F1	on-off-on	11-00760	\$8.50
1	T7-131G1	mom-off-on	11-00761	\$8.50
2	T7-231A1	on-off	11-00762	\$8.95
2	T7-231B1	on-on	11-00763	\$8.95
2	T7-231C1	mom-off	11-00764	\$8.95
2	T7-231D1	mom-off	11-00765	\$8.95
2	T7-231E1	mom-off-mom	11-00766	\$8.95
2	T7-231F1	on-off-on	11-00767	\$8.95
2	T7-231G1	mom-off-on	11-00768	\$8.95

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

No. of Poles	MIL No.	OTTO No.	Circuit	Our Part Number	Price each
1	MS27718-21-1	T3-11111	on-off-on	11-00772	\$17.50
1	MS27718-22-1	T3-11121	off-on	11-00773	\$17.50
1	MS27718-23-1	T3-11131	on-on	11-00774	\$17.50
1	MS27718-26-1	T3-11141	mom-on	11-00775	\$17.50
1	MS27718-27-1	T3-11151	mom-off-mom	11-00776	\$17.50
1	MS27718-31-1	T3-11161	mom-off-on	11-00777	\$17.50
2	MS27719-21-1	T3-11211	on-off-on	11-00778	\$18.50
2	MS27719-22-1	T3-11221	off-on	11-00779	\$18.50
2	MS27719-23-1	T3-11231	on-on	11-00780	\$18.50
2	MS27719-26-1	T3-11241	mom-on	11-00781	\$18.50
2	MS27719-27-1	T3-11251	mom-off-mom	11-00782	\$18.50
2	MS27719-31-1	T3-11261	mom-off-on	11-00783	\$18.50

Note: MOM designates *Momentary On*.



## P5 ON-OFF ALTERNATE ACTION SWITCH

Dust proof seal. Snap action. Solder terminals military grade. Rugged, reliable construction

### Specifications

Load	Amps	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	\$9.50	Thread Mount-red	11-00769	\$16.20
Press Fit-black	11-00797	\$9.50	Thread Mount-black	11-00770	\$9.95
Press Fit-white	11-00798	\$9.50	Thread Mount-white	11-00771	\$9.95



## OTTO PISTOL GRIPS

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	\$539.00
Cobra	G2-0049	1	1	4	11-00752	\$568.00

Grip/Joystick Sleeve			
Joystick O.D.	Part No.	Our Part No.	Price
3/4" shaft	302379	11-00753	\$25.95
7/8" shaft	302380	11-00754	\$10.95

## P1 MOMENTARY SWITCHES

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

### Specifications

Electrical: (at 28VDC or 115VAC, 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	\$8.70
MS25089-1A	P1-12122	Black	11-00746	\$9.85
MS25089-1AW	P1-12129	White	11-00747	\$8.20

THREADED BEZEL				
MIL No.	Otto No.	Button Color	Our Part No.	Price
MS25089-1CR	P1-32121	Red	11-00748	\$8.20
MS25089-1C	P1-32122	Black	11-00749	\$8.80
MS25089-1CW	P1-32129	White	11-00750	\$8.20



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

No. of Poles	MIL No.	OTTO No.	Circuit	Our Part Number	Price each
1	MS27716-21-1	T3-21111	on-off-on	11-00784	\$11.50
1	MS27716-22-1	T3-21121	off-on	11-00785	\$11.50
1	MS27716-23-1	T3-21131	on-on	11-00786	\$11.50
1	MS27716-26-1	T3-21141	mom-on	11-00787	\$20.80
1	MS27716-27-1	T3-21151	mom-off-mom	11-00788	\$11.50
1	MS27716-31-1	T3-21161	mom-off-on	11-00789	\$11.50
2	MS27717-21-1	T3-21211	on-off-on	11-00790	\$12.50
2	MS27717-22-1	T3-21221	off-on	11-00791	\$12.50
2	MS27717-23-1	T3-21231	on-on	11-00792	\$12.50
2	MS27717-26-1	T3-21241	mom-on	11-00793	\$12.50
2	MS27717-27-1	T3-21251	mom-off-mom	11-00794	\$12.50
2	MS27717-31-1	T3-21261	mom-off-on	11-00795	\$12.50

Note: MOM designates *Momentary On*.



# SWITCHES – LIGHTS – BUSS BARS

• SILVER SWITCH CONTACTS (MOST)

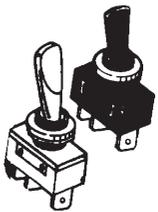
## SWITCHES & INDICATOR LIGHTS

• .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

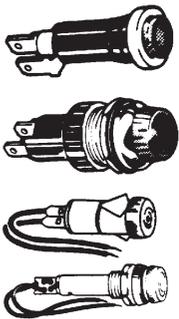
### LEVER SWITCHES

20 AMP Silver Contacts



NON-ILLUMINATED	SINGLE POLE	PRICE	DOUBLE POLE	PRICE	
ON-OFF	11-103	\$3.30	11-200	\$9.50	
OFF-(ON)	---	---	11-211	\$9.60	
ON-ON	11-107	\$4.95	---	---	
ON-OFF-ON	11-123	\$4.70	---	---	
( )=MOMENTARY					
ILLUMINATED	Red	Green	Amber	Blue	Clear
11/16" LEVER	11-115	11-116	11-117	---	---
\$6.40 Ea.					

### DASH LIGHTS



REPLACEABLE LAMP					
Red	Green	Amber	Blue	MTG. HOLE	Price
17-410	17-411	17-412	17-413	1/2"	\$5.10
Replacement bulb P/N BA7-12					\$3.55
JUMBO					
17-420	17-421	17-422	17-423	3/4"nut	\$6.40
17-440	17-441	17-442	17-443	1"nut	\$14.80
NON-REPLACEABLE LAMP					
*4" WIRE LEADS					
*17-457	*17-458	*17-459	--	1/2"	*\$3.95
17-210	17-211	17-212	--	9/32"	\$6.50

### LEGEND LIGHTS



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

LIGHTED INDICATORS W/MOUNTING NUT.....\$11.60 ea.

11-06000 (RED)	11-06050 (ORANGE)	11-06055 (YELLOW)
11-06060 (GREEN)	11-06065 (BLUE)	11-06070 (CLEAR)

Replacement bulbs  
12 Volt .....P/N 31-963.1 .....\$1.96  
24 Volt .....P/N 31-963.2 .....\$2.50

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

LEGEND LIGHT LABELS.....\$0.37 ea.

17-501 AUX Lights	17-512 Low Fuel	17-518 Hi Oil Temp.
17-536 Battery	17-538 Alarm	17-540 Danger
17-560 Flashing Lights	17-587 Fuel Pump	17-605 Hazard
17-606 AUX Tank	17-507 Main Tank	17-609 Oil Filter
17-614 Wing Lights	17-625 H Oil Pressure	17-631 Strobe Lights
17-679 Interior Lights	17-709 Pitot Heat	17-710 Auto-Pilot
17-711 Lock	17-712 Carb Heat	17-713 De-Ice
17-714 Caution	17-715 Mags	17-730 Flaps Up
17-717 Radio	17-718 Gear Down	



### 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 ...\$32.20 Red.....11-03910 ....\$32.20  
Green...11-03911 ...\$32.20 Amber...11-03912 ....\$32.20  
Blue ....11-04227 ...\$32.20 Blue ....11-04227 ....\$32.20  
Blue ....11-04227 ...\$32.20

### ROCKER SWITCHES

Silver Contacts



NON-ILLUMINATED	SINGLE POLE	PRICE	DOUBLE POLE	PRICE
ON-OFF*	14-100	\$1.75	14-200	\$4.75
OFF-(ON)‡	14-101	\$4.35	---	---
ON-ON‡	14-102	\$3.55	14-210	\$6.30
ON-OFF-ON‡	14-103	\$2.95	14-220	\$5.90
(ON)-OFF-(ON)‡	14-104	\$4.55	14-225	\$7.95
( )=MOMENTARY *20amp ‡16amp				

### ILLUMINATED SINGLE POLE (20 AMP, ON-OFF)

PRICE	RED	GREEN	AMBER	BLUE	PRICE
14-305	14-306	14-307	14-308		\$4.65

### PUSH BUTTON



OFF-(ON), 5 AMP  
Mounting Hole: 1/2"  
Aluminum Guard .....P/N 15-112 .....\$7.95



OFF-(ON) / PUSH ON-PUSH OFF, 20 AMP  
Mounting Hole: 1"  
Red Button .....P/N 15-132 .....\$6.20  
Black Button.....P/N 15-133 .....\$6.50



OFF-(ON), 40 AMP, SEALED  
Mounting Hole: 5/8"  
Screw Terminal .....P/N 15-100 .....\$6.00

### PULL SWITCHES



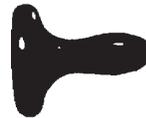
PULL ON/PUSH OFF, 75 AMP  
Chromed .....P/N 16-140 .....\$10.00 ea.

### 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	\$4.35	12-200	\$6.90
OFF-(ON)	*12-101	\$6.40	12-201	\$7.20
ON-ON	*12-102	\$6.40	12-202	\$4.65
ON-OFF-ON	12-103	\$3.45	12-203	---
(ON)-OFF-(ON)	12-104	\$7.90	12-204	\$6.20
( )=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 .....\$2.10

### BUSS BARS

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



Part No.	Thread	Hole Size	Price
MS25226-10-4	8-32	4	\$11.70
MS25226-10-8	8-32	8	\$9.50
MS25226-10-16	8-32	16	\$11.80
MS25226-4-8	10-32	8	\$6.80
MS25226-8-4	3/8-24	4	\$8.09

# 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 max. temp. rating of 150°C. This wire is rated for 600V. Color: white.

Wire Gauge	Wt./1000 Ft. Lbs.	Part No.	Price	
			Less than 100 Ft.	100 Ft.
22	4.2	11-14522	\$0.17	\$15.30
20	6.0	11-14520	\$0.22	\$19.80
18*	8.6	11-14518	\$0.26	\$23.40
16*	10.7	11-14516	\$0.28	\$25.20
14	16.7	11-14514	\$0.36	\$32.40
12	25.0	11-14512	\$0.68	\$61.20
10	40.1	11-14510	\$0.97	\$87.30
8	66.6	11-14508	\$2.15	\$193.50
6	104.6	11-14506	\$3.35	\$301.50
4	160.1	11-14504	\$3.75	\$337.50
2	244.1	11-14502	\$4.55	\$409.50
0	381.3	11-14501	\$7.30	\$657.00
00	485.8	11-14500	\$11.40	\$1,026.00

*STRIPED WIRE	P/N	Price	
		Per Ft.	100 ft.
18 GA white with black stripe	11-15601	\$0.38	\$34.20
18 GA white with red stripe	11-15607	\$0.45	\$40.50
16 GA white with black stripe	11-15501	\$0.47	\$42.30
16 GA white with red stripe	11-15507	\$0.39	\$35.10

## COLORED UNSHIELDED WIRE MIL-W-22759/16

Gauge	Color	Part No.	Price/ft.
18	Black	11-01596	\$0.23
18	Red	11-01597	\$0.28
18	Blue	11-01599	\$0.29
16	Black	11-01601	\$0.36
16	Red	11-01602	\$0.34
16	Yellow	11-01603	\$0.31
16	Blue	11-01604	\$0.31



## 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 tinned 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	
			Less than 100 Ft.	100 Ft.
22	10.8	11-14422	\$0.46	\$41.40
20	13.1	11-14420	\$0.53	\$47.70
18	16.5	11-14418	\$0.95	\$85.50
16	19.3	11-14416	\$0.61	\$54.90
14	26.2	11-14414	\$0.84	\$75.60
12	36.0	11-14412	\$1.42	\$127.80
8*	88.6	11-14408	\$4.60	\$414.00

\* 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 .....\$1.03 ft.  
3-Conductor Shielded Wire .....P/N 27500/18-22-3 .....\$1.22 ft.



## COAXIAL CABLE

**RG-400U** - Tinned copper conductor, solid polyethylene dielectric. Standard cable for radio installations. FAA approved for certificated aircraft. P/N 11-09202 .....\$2.40/Ft.

**RG-58U** - Tinned copper conductor, solid polyethylene dielectric. Standard cable for radio installations. For experimental aircraft only. 15% discount on 100 ft. P/N RG-58AU .....\$0.28/Ft.



## 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	\$32.40	1/2-1-1/4	11-01904	\$125.95
1/8-3/8	11-01901	\$47.70	3/4-1-1/2	11-01905	\$167.95
1/4-3/4	11-01902	\$86.00	1-1/4-2-1/2	11-01906	\$212.95
1/4-5/8	11-01903	\$58.00	1-1/2-3	11-01907	\$314.95

## 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	\$1.24
3/32"	.093	.046	.020	11-00800	\$1.24
1/8"	.125	.062	.020	11-00900	\$1.44
3/16"	.187	.093	.020	11-01000	\$1.80
1/4"	.250	.125	.025	11-01100	\$1.80
3/8"	.375	.187	.025	11-01200	\$1.83
1/2"	.500	.250	.025	11-01300	\$2.35
3/4"	.750	.375	.030	11-01400	\$2.50
1"	1.000	.500	.035	11-01500	\$3.60

Discount Schedule: (4) 4' lengths, 25%; (8) 4' lengths, 35%; (25) 4' lengths, 40%. Sizes may be assorted.

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 .....\$0.44  
Heat Shrink Tubing, 1/2", 4 ft. length .....P/N 11-01300 .....\$2.35



## 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.	100 Ft.
858	1/8"	16	0.7	\$0.30	\$27.00
863	1/4"	32	1.5	\$0.38	\$34.20
864	3/8"	46	2.5	\$0.85	\$76.50
868	1/2"	53	3.3	\$0.85	\$76.50
865	5/8"	53	3.4	\$0.99	\$89.10



## 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	\$0.14	\$11.20
7	.148	.020	16-18	11-02300	\$0.16	\$12.80
5	.186	.020	12-14	11-02400	\$0.17	\$13.60
2	.263	.020	8-10	11-02500	\$0.22	\$17.60
5/16	.312	.025	6	11-02600	\$0.24	\$19.20
3/8	.375	.025	4	11-02700	\$0.25	\$20.00

Vinyl tubing for gas lines, 1/4" I.D. x 3/8" O.D. ....P/N 0500-071 .....\$0.31 Ft.

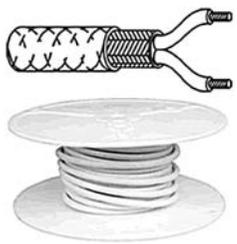
## PREMIUM VINYL TUBING

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	\$7.95	11-16190	\$15.00
7	16-18	.148	.020	11-16175	\$8.95	11-16170	\$16.70
5	12-14	.186	.020	11-16155	\$12.75	11-16150	\$23.40
2	8-10	.263	.020	11-16125	\$15.00	11-16120	\$30.00
5/16	6	.312	.025	11-16165	\$19.10	11-16160	\$38.20

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

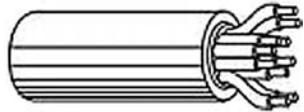


## SHIELDED TEFZEL WIRE

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 .....\$1.25
- 18G 2 CON ....P/N 11-04474 .....\$1.06
- 18G 3 CON ....P/N 11-04475 .....\$1.05
- 24G 1 CON ....P/N 11-04476 .....\$0.34
- 24G 2 CON ....P/N 11-04477 .....\$0.55
- 24G 3 CON ....P/N 11-04478 .....\$0.72

## 10 CONDUCTOR GRAY CODE TEFZEL 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 .....\$3.20



## 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 .....\$1.94
- .200"MD .....P/N 11-04481 .....\$1.50
- .300"LG.....P/N 11-04482 .....\$1.46

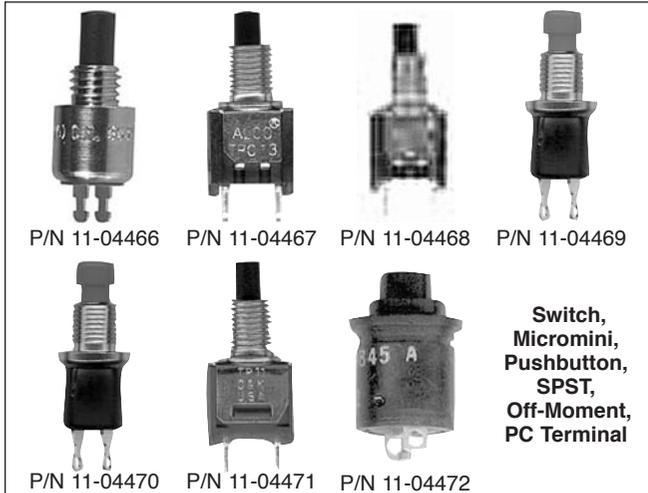
## MU-METAL MAGNETIC SHIELDING



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

- P/N 11-04483 .....\$2.35/inch
- 12 inches or more .....P/N 11-04484 .....\$1.82/inch

## MOMENTARY PUSH-BUTTON SWITCHES



- Normally Open, Black .....P/N 11-04466 .....\$6.75
- SPST, Normally Open, Black .....P/N 11-04467 .....\$15.75
- SPDT, Momentary, Black .....P/N 11-04468 .....\$15.75
- 1/4" Threads, Normally Open, Red .....P/N 11-04469 .....\$3.25
- 1/4" Threads, Normally Open, Black .....P/N 11-04470 .....\$2.95
- SPDT, Momentary, Black .....P/N 11-04471 .....\$6.00
- Mason Switch, .710"L, PTT Switch .....P/N 11-04472 .....\$182.95

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

## HEAT SHRINK BUTT SPLICES



**Tin 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. Sold in quantities of 100.

### YELLOW

AWG:12-10 -- I.D. dimensions (mm/in)			
Sealing Insert	Max No. of wires	Sealing Insert	Max No. of wires
4.32(.170)	2	4.32(.170)	2
Crimp barrel size range 1900-6755(CMA) 0.95-3.37(mm)			
Yellow .....P/N 11-04429 .....\$1.43		Yellow (Nickel-plated).....P/N 11-04430 .....\$4.60	

### RED

AWG:12-10 -- I.D. dimensions (mm/in)			
Sealing Insert	Max No. of wires	Sealing Insert	Max No. of wires
4.32(.170)	2	4.32(.170)	2
Crimp barrel size range 1900-6755(CMA) 0.95-3.37(mm)			
Red.....P/N 11-04425 .....\$1.43		Red (Nickel-plated) .....P/N 11-04426 .....\$3.30	

### BLUE

AWG:16-14 -- I.D. dimensions (mm/in)			
Sealing Insert	Max No. of wires	Sealing Insert	Max No. of wires
2.79(.110)	2	2.79(.110)	2
Crimp barrel size range 779-2680(CMA) 0.39-1.34(mm)			
Blue .....P/N 11-04427 .....\$1.54		Blue (Nickel-plated) .....P/N 11-04428 .....\$3.25	

## COLOR CODED CIRCUIT BREAKER CAB



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 & effort. Sold in 1' increments.

- White ....P/N 11-04455 .....\$5.20
- Orange....P/N 11-04456 .....\$6.25
- Red.....P/N 11-04457 .....\$5.90
- Blue .....P/N 11-04458 .....\$5.20
- Yellow....P/N 11-04459 .....\$5.20
- Black .....P/N 11-04460 .....\$6.25
- Gray .....P/N 11-04461 .....\$5.20
- Green.....P/N 11-04462 .....\$6.25

## 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 .....\$6.25
- Remove Before Flight.....P/N 11-04464 .....\$15.50
- Inoperative .....P/N 11-04465 .....\$12.50

EL

# BNC/TNC CONNECTORS — AVIONICS TOOLS



## BNC COAXIAL ANTENNA CONNECTORS

Male .....P/N 11-03992 .....\$4.85  
 Female .....P/N 11-03993 .....\$5.35

## BNC CONNECTOR RIGHT ANGLE BNC MALE TO FEMALE

Male to Female P/N 11-04454 .....\$4.90



## BNC CONNECTOR RG58

Male, Right angle, dual crimp.  
 P/N 11-04444 .....\$23.50

## BNC FEMALE BULLDOG DUAL CRIMP

P/N 11-04445 .....\$11.50



## TNC CONNECTOR AMP MALE, DUAL CRIMP RG58

P/N 11-04446 .....\$28.95

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

P/N 11-04447 .....\$21.40



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

P/N 11-04448 .....\$40.50

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

P/N 11-04449 .....\$39.95



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

P/N 11-04450 .....\$42.95

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

P/N 11-04451 .....\$57.25



## TNC CONNECTOR RIGHT ANGLE SOLDER/ SCREW RG58

P/N 11-04452 .....\$71.50

## TNC CONNECTOR FEMALE, DUAL CRIMP RG58

P/N 11-04453 .....\$59.95



## 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 .....\$345.25



## 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 .....\$345.25



## RATCHET CRIMPER

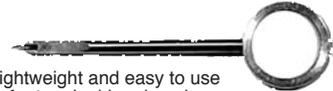
This ratchet crimper has an improved ergonomic design, which improves comfort and grip. Its small handle spread makes this tool ideally suited for the end user. The ratchet has a safety release that ensures consistent performance during use and can be used with wire sizes 30-18 AWG.

P/N 11-04440 .....\$298.75

## 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 .....\$27.50



## 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 .....\$27.25



## 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 .....\$25.75



## PIN & SOCKET TOOL w/ INTERCHANGEABLE

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 .....\$21.50



## 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 .....11-04431 .....\$14.25  
 20 AWG Red/White .....11-04432 .....\$11.10  
 24-20AWG Red/White .....11-04433 .....\$9.75  
 22 AWG Green/White .....11-04434 .....\$12.75  
 22-28AWG Green/White .....11-04435 .....\$8.30



EL

# 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 .....\$0.43/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 .....\$17.60  
Black .....P/N 11-02013 .....\$18.95

## 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 .....\$13.60  
Black .....P/N 11-12160 .....\$16.80

## MS25181 Nylon Splices

Butt-type, self insulated.

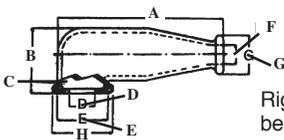
Part No.	Wire Range	Price
2RA18	22-18	\$0.60
2RB14	16-14	\$0.60
2RC10	12-10	\$0.86

## AMP® BATTERY TERMINALS



Terminals may be crimped or soldered.

Part No.	AWG Size	Amps	Stud Size	Price ea
33461	8	35	1/4"	\$0.37
33466	6	50	5/16"	\$0.54
33470	4	70	5/16"	\$0.74
321600	2	90	3/8"	\$0.97
321867	1/0	125	5/16"	\$2.40
321868	1/0	125	3/8"	\$1.89



## ELECTRICAL TERMINAL NIPPLES

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

Part No.	Dimension								Price Each
	A	B	C	D	E	F	G	H	
11-03913	1.38	.56	.06	.40	.63	.16	.41	.76	\$0.90
11-03914	2.50	1.00	.06	.56	.82	.31	.56	.95	\$1.00
11-03915	2.50	1.00	.06	.56	.82	.43	.68	.95	\$1.10
11-03916	2.50	1.00	.06	.56	.82	.56	.82	.95	\$1.10



## 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 .....\$9.30

## 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	\$0.13
34105	22-16	6	\$0.13
34108	22-16	8	\$0.12
34109	22-16	10	\$0.13
34113	22-16	1/4	\$0.13
321684	16-14	6	\$0.13
34122	16-14	8	\$0.13
34123	16-14	10	\$0.13
34124	16-14	1/4	\$0.14
32994	12-10	8	\$0.20
33457	12-10	10	\$0.20
35772	12-10	1/4	\$0.24
35135	12-10	1/2	\$0.32

### 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	\$0.30
31885	22-16	6	\$0.17
31890	22-16	8	\$0.16
36154	22-16	10	\$0.19
31894	22-16	1/4	\$0.25
32442	16-14 BLUE	6	\$0.18
31902	16-14	8	\$0.15
31903	16-14	10	\$0.17
31906	16-14	1/4	\$0.17
35149	12-10 YELLOW	6	\$0.28
35108	12-10	8	\$0.24
35109	12-10	10	\$0.22
35110	12-10	1/4	\$0.32
35112	12-10	3/8	\$0.32



### KNIFE DISCONNECTS - NYLON INSULATED

Two Required Per Assembly.

32446	22-16	RED	\$0.40 ea.
32448	16-14	BLUE	\$0.44 ea.



### BUTT TYPE SPLICES - PLASTI-GRIP

34070	22-16	RED	\$0.16 ea.
34071	16-14	BLUE	\$0.17 ea.
34072	12-10	YELLOW	\$0.25 ea.

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

### AMP TERMINAL KITS

Terminal & Splice Kit	P/N 11-50000	\$91.55
Above w/15 Drawer Cabinet	P/N 11-50005	\$73.20
Above w/Cabinet and 604252-1 tool	P/N 11-50010	\$88.85

### PIDG FASTON RECEPTACLES BY AMP



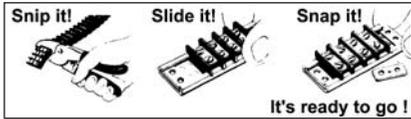
\*Style A: No dimple w/wire stop.  
\*\*Style B: Dimple w/wire stop.  
Less 20% on 100 pcs. (per P/N)

Part #	Tab Width	AWG	Tab Thk.	Price ea.
640903-1**	0.250"	22-18	.032	\$0.19
640905-1**		16-14	.032	\$0.19
42844-1**		14-12	.032	\$0.28
11-00808**		12-10	.032	\$0.27
640909-1**	0.205"	22-18	.020	\$0.24
640911-1**		22-18	.032	\$0.22
640913-1**		16-14	.020	\$0.22
640915-1**		16-14	.032	\$0.22
640917-1**	0.187"	22-18	.020	\$0.19
640919-1**		16-14	.020	\$0.22
61048-1**	.110"	22-18	.016	\$0.22
61060-1**		22-18	.020	\$0.22
60894-1**		22-18	.032	\$0.24
640923-1*		22-18	.020	\$0.29
640925-1*		22-18	.032	\$0.24
640929-1*		16-14	.020	\$0.24



# 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. P/N 601883-1 .....\$26.85

**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. P/N 601804-8 .....\$89.10

**COPPER BUS BAR** - 0.125" x .5" Wide P/N 03-40890 .....\$5.50/ft

## 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 .....\$0.76/ft. .....\$60.80/100 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.



Part No.	Size	Max. Dia.	Price/ft.
11-12318 (PE)	1/8"	1/2"	\$0.34
11-12316 (PE)	3/16"	1-1/2"	\$0.36
11-12314 (NY)	1/4"	2"	\$0.62
11-12338 (NY)	3/8"	3"	\$1.03
11-12312 (NY)	1/2"	4"	\$2.20
11-12334 (PE)	3/4"	6"	\$1.84
11-12311 (PE)	1"	8"	\$2.55

## 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	\$0.76	RB14-8	8	\$0.73
11-03865	6	\$0.73	RB14-10	10	\$0.73
11-03866	8	\$0.68	RB14-14	1/4	\$0.80
11-03862	10	\$0.73	Wire Range: 12-10		
11-03863	1/4	\$0.80	RC10-6	6	\$0.88
Wire Range: 16-14			RC10-8	8	\$0.67
11-04093	4	\$0.60	RC10-10	10	\$0.86
11-03869	6	\$0.73	RC10-14	1/4	\$0.93
			RC10-38	3/8	\$0.92

## COBRA RUBBER MOUNTS

Part No.	Size	Color	Qty.	Price
11-02470	3/4"	Black	100	\$13.95
11-02471	3/4"	Black	1000	\$19.95
11-02472	3/4"	Natural	100	\$14.80
11-02473	3/4"	Natural	1000	\$19.95
11-02474	1"	Black	100	\$17.95
11-02475	1"	Black	1000	\$23.95
11-02476	1"	Natural	100	\$17.00
11-02477	1"	Natural	1000	\$19.95

## COBRA ACRYLIC MOUNTS

Part No.	Size	Color	Qty.	Price
11-02478	3/4"	Black	100ct	\$16.95
11-02480	3/4"	Black	1000ct	\$14.95
11-02479	3/4"	Natural	100ct	\$16.95
11-02481	3/4"	Natural	1000ct	\$17.30
11-02482	1"	Black	100ct	\$21.95
11-02483	1"	Black	1000ct	\$25.95
11-02484	1"	Natural	100ct	\$18.95
11-02485	1"	Natural	1000ct	\$22.95

## CABLE TIES



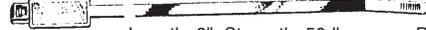
This all nylon cable tie is designed to hold cables securely. Bundling strength military requirements. Installs in just seconds.

Part No.	Cat. #	Length	Price ea
11-04230	L-4-18	4"	\$0.04
11-04229	L-7-50	7"	\$0.08
11-04058	L-14-50	14"	\$0.28

## CABLE TIE ASSORTMENT PACK

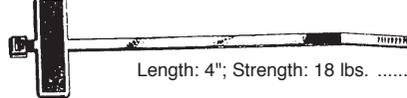
P/N 11-03768	.....\$4.50	11-04039	.....\$0.06
P/N 11-04230	.....\$0.04	11-04229	.....\$0.08
P/N 11-04058	.....\$0.28		

## TYTON HORIZONTAL IDENTIFICATION CABLE TIES



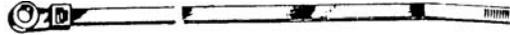
Length: 8"; Strength: 50 lbs. ....P/N 11-12360 .....\$0.99

## TYTON VERTICAL IDENTIFICATION CABLE TIES



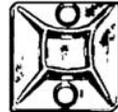
Length: 4"; Strength: 18 lbs. ....P/N 11-12365 .....\$0.51

## TYTON MOUNTING CABLE TIES



Length: 4"; Strength: 18 lbs. ....P/N 11-12350 .....\$0.53  
Length: 8"; Strength: 50 lbs. ....P/N 11-12355 .....\$0.38

## ADHESIVE AND SCREW CABLE TIE MOUNTS



Part No.	Strength	Mounting	Price/50
11-01017	18 to 30 lbs.	#4 Screw	\$29.80
11-03854	18 to 50 lbs.	#8 Screw	\$39.10
11-03855	18 to 150 lbs.	#8 Screw	\$43.90

## CRADLE CABLE TIE MOUNTS



Part No.	Strength	Mounting	Price/50
11-03987	18 lbs.	#6 Screw	\$12.70
11-03988	18 lbs.	#8 Screw	\$12.70
11-03989	18 to 50 lbs.	#8 Screw	\$27.50
11-03990	18 to 50 lbs.	#10 Screw	\$32.60
11-03991	18 to 120 lbs.	1.4" Screw	\$31.25

## 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	.....\$9.95
Bulkhead Seal, Square, 3/4" Hole	.....P/N 11-04061	.....\$10.60
Bulkhead Seal, Elliptical, 1/2" Hole	.....P/N 11-04060	.....\$2.45
Bulkhead Seal, Elliptical, 1-3/8" Hole	.....P/N 11-04062	.....\$4.60

## 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	\$4.45
UV Black	1000	50 Lbs.	7.5" x .178"	11-01884	\$39.90
Natural	100	50 Lbs.	7.5" x .178"	11-01885	\$3.95
Natural	1000	50 Lbs.	7.5" x .178"	11-01886	\$36.50
Black	-	120 Lbs.	14" x .178"	11-02416	\$15.85
Natural	-	120 Lbs.	14" x .178"	11-02417	\$14.80
Black	-	18 Lbs.	4" x .178"	11-02464	\$1.64
Black	-	18 Lbs.	4" x .178"	11-02465	\$13.70
Natural	-	18 Lbs.	4" x .178"	11-02466	\$1.65
Natural	-	18 Lbs.	4" x .178"	11-02467	\$13.60

# 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	\$206.95	PA-28-235	Cherokee	11-15150	\$299.95	
PA-16	11-00248	\$128.95	PA-28-236	Dakota	11-15152	\$296.95	
PA-18 Super Cub	11-15102	\$204.95	PA-30	Twin Comanche	11-15154	\$419.95	
PA-20	Pacer	11-15104	\$117.95	PA-31-300	Navajo	11-15156	\$426.95
PA-22	Tripacer/Colt	11-15106	\$112.95	PA-31-310	Navajo	11-15158	\$426.95
PA-23-150/160	Apache	11-15108	\$456.95	PA31-325	Navajo	11-15160	\$426.95
PA-23-250	Aztec (4&6 place)	11-15110	\$477.95	PA-31-350	Navajo	11-15162	\$499.95
PA-24-180/250/260	Comanche (Battery AFT)	11-15112	\$280.95	PA-31P	Navajo	11-15164	\$539.00
PA-24-260	Comanche (battery fwd of firewall)	11-15114	\$145.95	PA-31T1	Cheyenne I	11-15168	\$989.00
PA-31T	Cheyenne	11-15166	\$989.00	PA-32R-301T	-----	11-15184	\$183.95
PA-24-260	Comanche (AFT)	11-15116	\$256.95	PA-32-260/300	Cherokee Six	11-15170	\$193.95
PA-24-400	Comanche	11-15118	\$275.95	PA-32R-300	Lance	11-15172	\$159.95
PA-25-235/260	Pawnee	11-15120	\$279.95	PA-32RT-300	Lance	11-15174	\$189.95
PA-25-235/260	Pawnee (SN25-7556153 & up)	11-15122	\$141.95	PA-32RT-300T	Lance	11-15176	\$189.95
PA-28-140	Cherokee	11-15124	\$249.95	PA-32-301	-----	11-15178	\$204.95
PA-28-150/160	Cherokee	11-15126	\$286.95	PA-32R-301	-----	11-15180	\$188.95
PA-28-151	Warrior	11-15128	\$246.95	PA-32-301T	Turbo Saratoga	11-15182	\$379.95
PA-28-161	Warrior II	11-15130	\$244.95	PA-34-200	Seneca I	11-15186	\$569.00
PA-28-180	Cherokee	11-15132	\$299.95	PA-34-200T	Seneca II	11-15188	\$529.00
PA-28R-180	Arrow	11-15134	\$296.95	PA-34-220T	Seneca III	11-15190	\$529.00
PA-28-181	Archer II	11-15136	\$299.95	PA-36-285		11-00250	\$226.95
PA-28R-200	Arrow II	11-15138	\$299.95	PA-36-300		11-00251	\$226.95
PA-28R-201	Arrow III	11-15140	\$269.95	PA-36-375		11-00252	\$330.95
PA-28R-201T	Turbo Arrow III	11-15142	\$276.95	PA-38-112	Tomahawk	11-15192	\$84.25
PA-28RT-201	Arrow IV	11-15144	\$190.95	PA-39 C/R		11-00253	\$429.95
PA-28RT-201T	Turbo Arrow IV	11-15146	\$279.95	PA-44-180	Seminole	11-15194	\$649.00
PA-28-201T	Turbo Dakota	11-15148	\$279.95	PA-44-180T	Turbo Seminole	11-15196	\$649.00

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

AIRCRAFT APPLICATION	PART NO.	OUR PRICE	AIRCRAFT APPLICATION	PART NO.	OUR PRICE
Cessna 150 A, B, C	11-00273	\$160.95	Cessna U206 C-G	11-00301	\$194.95
Cessna 150 D, E, F, G, H	11-00274	\$64.00	Cessna 210 D	11-00302	\$193.95
Cessna 150 J, K, L, M	11-00275	\$75.00	Cessna 210 E	11-00303	\$190.95
Cessna 152 no APU	11-00276	\$136.95	Cessna T210 F	11-00304	\$172.95
Cessna 152 with APU	11-00277	\$162.95	Cessna 210 K, T210K	11-00307	\$194.95
Cessna 170 A	11-00278	\$124.95	Cessna 210 N, T210N	11-00306	\$194.95
Cessna 170 B	11-00279	\$124.95	Beechcraft BE-35-C33	11-00254	\$184.95
Cessna 172 A	11-00280	\$125.95	Beechcraft BE-V35	11-00255	\$107.95
Cessna 172 B, C	11-00281	\$162.95	Beechcraft BE-C35	11-00256	\$124.95
Cessna 172 D, E (rear), F	11-00282	\$115.95	Beechcraft BE-S35	11-00257	\$124.95
Cessna 172 G, H	11-00283	\$115.95	Bellanca BL-14-19-2	11-00258	\$251.95
Cessna 172 I, K, L, M	11-00284	\$162.95	Bellanca BL-14-19-3	11-00259	\$251.95
Cessna 172N	11-00285	\$162.95	Bellanca BL-17-30	11-00260	\$252.95
Cessna 172P	11-00286	\$306.95	Bellanca BL-17-30A	11-00261	\$251.95
Cessna 175 A, B, C	11-00287	\$230.95	Bellanca/Champion 7GCBA, 7ECA	11-00262	\$246.95
Cessna 177 B	11-00288	\$280.95	Bellanca/Champion 7GCAA, 7KCAB	11-00263	\$246.95
Cessna 177 RG	11-00289	\$300.95	Bellanca/Champion 8KCAB	11-00264	\$246.95
Cessna 180	11-00290	\$248.95	Bellanca/Champion 7GCB	11-00265	\$250.95
Cessna 180 A, B, C, D, E	11-00291	\$245.95	Bellanca/Champion 7GCBC	11-00266	\$246.95
Cessna 180 J	11-00292	\$281.95	Grumman GRUM-AA5, 5A, 5B	11-00267	\$96.00
Cessna 180 K	11-00293	\$276.95	Grumman GRUM-AA-1A, 1B, 1C	11-00268	\$96.00
Cessna 182 1956 model	11-00294	\$276.95	Luscombe LU-8E	11-00269	\$144.95
Cessna 182 A	11-00295	\$276.95	Mooney MO-M20C	11-00270	\$113.95
Cessna 182 J	11-00296	\$249.95	Mooney MO-M20F	11-00271	\$212.95
Cessna 182 E, F, G, H, J, K, L, M, N, P, Q	11-00297	\$310.95	Stinson STI-108 1, 2, 3	11-00272	\$162.95
Cessna 185 E & A185E	11-00298	\$263.95	Rockwell Commander RW-112	11-00308	\$399.95
Cessna A185F 12 VOLT	11-00299	\$276.95	Rockwell Commander RW-114	11-00309	\$433.95
Cessna A185F 24 VOLT	11-02211	\$276.95	Swift GC-1A, 1B	11-00311	\$115.95



#### BATTERY CABLE

6-gauge multi-strand copper core cable. Meets SAE Spec J1127-SGT. Price is per foot. Black.....P/N BCL01 .....\$1.06  
Red .....P/N BCL01.1.....\$1.05



#### BATTERY CABLE LUG

For 6-gauge battery cable, Red...P/N BCL02 ..\$0.48 /ft.

# ELECTRONIC ACCESSORIES



## VOLT AND VAC ALERT

Most aircraft have vacuum powered gyro instruments. Many aircraft have backup vacuum sources that can be employed in the event of a vacuum pump failure. However, one thing missing has been the ability to recognize a vacuum failure soon enough to transition to the primary panel, or energize the backup vacuum source and stay out of trouble. A gyro instrument can start giving false information in less than one minute, and it is important that the pilot become instantly aware of a vacuum loss. Volt & Vac Alert monitors instrument vacuum and electrical voltage. Should either fall below set values, the system will provide an instantly recognizable voice warning directly in the pilots headset, and then flash a light positioned within the normal gyro scan area, providing him with instant recognition of a problem. Volt & Vac Alert is STC/PMA approved. P/N 10-00393 .....\$329.00



## DIGITAL VOLTAGE MONITOR

Voltage monitor from Visual Instruments helps pilots monitor critical electrical system. STC approved. The instrument 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 in a fuel gauge fashion providing a better indication of how much time is left before battery exhaustion. 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. It typically takes a mechanic less than 1 hour to install and fill out the necessary paper work. The display must be set to Dot mode for FAA approved installations.

- 12 Volt Digital Voltmeter .....P/N 10-00752 .....\$87.95
- 24 Volt Digital Voltmeter .....P/N 10-00753 .....\$87.95



## VOICE ALERT

Most of the aircraft flying today were designed years ago, in a time when pilots did not wear headsets. The stall and gear warning horns were installed in the cockpit. Today all pilots wear headsets, including the ANR headsets designed to cutout cockpit noises, making it difficult to hear warning sounds. Voice Alert is designed to solve this problem. The system hooks to the existing aircraft stall horn, and gear horn if retractable. Whenever the existing aircraft horns sounds, the pilot will also hear an instantly recognizable voice warning directly in his headset. Separate voice messages are used for both stall and gear warnings. The Voice Alert is STC-PMA approved and comes as a complete kit for easy installation. One system works in both fixed gear and retractable gear aircraft. P/N 10-00394 .....\$434.95



## CABIN POWER SYSTEM

Newer aircraft not having a cigarette lighter, plugging in your personal portable electronic devices such as laptop computers, CD players, handheld GPS units and backup radios to keep from depleting the internal batteries is no longer impossible. 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. The VRU is installed with a minimal amount of wires and hardware. The outlet is a 9-pin circular connector, which meets ARINC 628 Part 2 requirements for commercial airline in-seat power connectors. An adapter cable that goes from the ARINC 628 connector to a cigarette-lighter style connector is also available. Cabin Power System is currently STC-PMA'd for Cessna 172,182, & 206 models. System is shipped complete w/Flight Manual Supplement, Instructions for Continued Airworthiness, and Installation Manual. It can also be installed on other aircraft under a field approval. P/N 11-01894 .....\$189.95

## AMPHIBIAN GEAR WARNING SYSTEM



If an amphibian lands on water with the landing gear in the down position, results can be disastrous. The gear warning system is designed to provide an additional margin of safety for amphibian pilots by providing visual and voice warnings of the gear position for both water and runway landings. The unit works on airspeed. As the aircraft slows for a landing, the system checks the gear position indicators to determine if the wheels are up or down. The pilot will hear a voice message which corresponds to the position of the landing gear (water landing, or runway landing). If the gear is in correct position for the type of landing being made, then pushes a panel switch acknowledging they are correctly positioned. Size: 2.5"x3.25"; Wt: 7 oz. Not FAA approved. For homebuilts only. P/N 11-02258 .....\$398.00



## ELECTRONIC FLAP CONTROL

Electronic Control to move aircraft flaps to 4 pre-defined 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 .....\$475.00
  - Flap Position Sensor .....P/N 11-01826 .....\$265.00
  - Spare Relays (12V, pluggable).....P/N 11-01827 .....\$14.50

## MASTER NAG-THE MASTER SWITCH WARNING SYSTEM



The Master Nag Master Warning System is an audible warning system for 12V or 24V aircraft is 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. The Master NAG weighs less than two ounces and current consumption is about 8 milliamps. All mounting hardware and connectors are provided.

P/N 11-15200 .....\$89.50

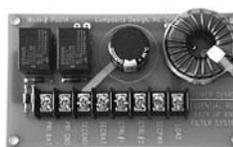


## MASTERMINDER CO

MasterMinder is a completely solid-state, electronic carbon-monoxide (CO) detector and voltage monitor designed for aircraft and other specialty vehicles. MasterMinder is a reliable, micro-processor controlled unit that continuously monitors the atmosphere

in the cockpit and will sound audible and visual alarms when unsafe levels of CO are present. **FEATURES:** • Auto-ranging for use in 14V or 28V vehicle electrical systems • Simple installation: Just plug into any cigarette-lighter-type DC power jack • Integrated, fused 3 Amp AUXILIARY DC jack to allow simultaneous use of other portable devices such as portable GPS receivers that also need DC power from the lighter jack (adapter cord available separately). • w/ tri-color bright LEDs clearly display alarm condition Easy-to-hear piezo audible alarm •Continuously monitors alternator output and battery voltage •Visual and audible alarms indicate charging system failure (alternator or generator systems) •Master Switch reminder alarm alerts pilot if Master Switch is left on for more than one minute after engine shut-down • Integrated, easy-to-replace fuse protects unit and aircraft from damage. P/N 11-04288 .....\$79.95

## POWER GUARD BUS MANAGEMENT SYSTEM



Power Guard is an essential bus management circuit designed to protect power sensitive and critical electronics. Many of today's aircraft are equipped with electrical components that are mission critical like electronic ignitions or are high power sensitive such as engine monitors and EFIS display systems.

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 Guage 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 .....\$94.50



# WHELEN LIGHTING

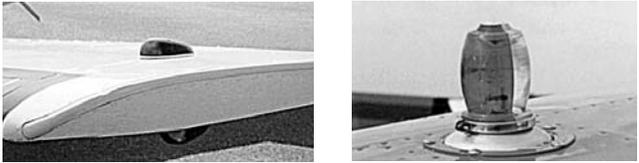
## INSTALLATION LOCATIONS

**WINGTIP:** The major difference in systems is the location of the strobe power supplies which can be mounted locally, one in each wingtip, 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 100-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 light head as one unit, or remote light heads 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 light head depending on the aircraft.

## RECOMMENDATIONS



### RAYTHEON/BEECH AIRCRAFT

**Early model twin engine through 1969**, the slanted wing-tip requires custom fabricated brackets for mounting the strobe lights. The following is recommended:

Qty.	Model	Part No.	Description
1 each	HDACF	11-16218	Power Supply
2 each	A625	A625	Wing-Tip Strobe Lt. Ass'y.
1 each	HD60	HD-60	Installation Package

**REF:** All Barons (95-55, A55, B55, C55, D55) & All Travel Airs. 1957 thru 1969

**Early model single engine through 1966**, excluding any modified wing-tip, use position lights at the wing-tip extremity. To convert to strobes, the following is recommended:

Qty.	Model	Part No.	Description
1 each	HDACF	11-16218	Power Supply
1 each	A650PG14	A650-PG-14	Wing-Tip Light
1 each	A650PR14	A650-PR-14	Wing-Tip Light
1 each	HD60	HD-60	Installation Package

**Single engine 1967 through 1973**, use position lights installed under clear fairings at the wing-tips most forward position. Specify 14 or 28V. To convert to Whelen strobes the following is recommended:

Qty.	Model	Part No.	Description
1 ea.	HDACF	11-16218	Power Supply
2 ea.	A625	A625	Wing-Tip Strobe Light
1 ea.	A500AV14 or A500AV28	A500A-14-V A500A-28-V	Tail Strobe/Position Lt. (lens may be removed to reduce heat build-up)
1 ea.	HDT390	HDT3-90	Installation Package

**Single engine 1974 and Later**, use a commonality wing-tip, that enlarged the clear fairing by approximately 6 inches. Specify 14 or 28V. To convert to Whelen strobes the following is recommended:

Qty.	Model	Part No.	Description
1 each	HDACF	11-16218	Power Supply
2 each	D900283	11-00712	Wing-Tip Strobe Light
1 each	A500AV14 or A500AV28	A500A-14-V A500A-28-V	Tail Strobe/Position Lt
1 each	HDT390	HDT3-90	Installation Package

## ANTI-COLLISION AND POSITION LIGHT REQUIREMENTS, LOCATIONS, AND 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 tail-light (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).

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

### RAYTHEON/BEECH AIRCRAFT

**Baron, Rudder Mount Oscillating Beacon replacement.** To convert the existing Rudder Mount Oscillating Beacon to a solid state Halogen Flasher, the following is recommended:

Qty.	Model	Part No.	Description
1 each	9004457	11-01968	Flashing Anti-Collision Light Assembly (Red)

The Oscillating Beacon first appeared in 1970 on the then new E55, until 1982. All Model 58's used it from 1970 thru 2000.

**Duke, Oscillating Beacon replacement.** To convert the existing Oscillating Beacon to a solid state Halogen Flasher, the following is recommended:

Qty.	Model	Part No.	Description
1 each	9004401	90044-01	Flashing Anti-Collision Light Ass'y (Red), 5 Hole Mnt.
1 each	9004417	90064-17	Flashing Anti-Collision Light Ass'y (Red), 8 Hole Mount

\*NOTE - Check mounting hole patterns before order (5 or 8 hole)

**Rotating Beacon replacement.** To convert the existing Rotating Beacon to a strobe, the following is recommended:

Qty.	Model	Part No.	Description
1 as req.	HRCFAR	11-16214	Standard Ass'y, Red Lens
1 as req.	HRCFAW	11-16212	Standard Ass'y, White Lens
1 as req.	HRCFAS	11-16216	Std. Ass'y, Split Red/White Lens
1 as req.	A440	A440	Mounting Adapter (req. for new Fuselage Mounting).

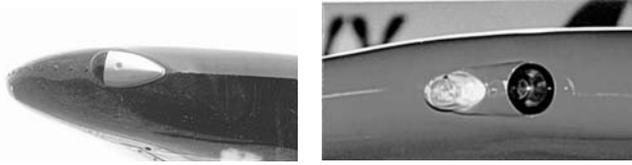
Round rotating beacon was used on the vertical fin of all Barons from from 1961 thru 1969. Models using this light are 95-55 (1961), A55 (1962-63), B55 (1964-1982), C55 (1966-1967), D55 (1968-1969).

**Note:** The B55 Baron continued to use this Beacon until production stopped in 1982.



# WHELEN LIGHTING

## CESSNA AIRCRAFT



**Wing-tip strobes for early model single engine through 1961** - excluding any modified wing-tip, use position lights at the wing-tip extremity. To convert to strobes, the following is recommended:

Qty.	Model	Part No.	Description
1 each	HDACF	11-16218	Power Supply
1 each	A650PG14	A650-PG-14	Wing-Tip Light
1 each	A650PR14	A650-PR-14	Wing-Tip Light
1 each	HD60	HD60	Installation Package

**Wing-tip strobes for single engine 1962 through 1969** - requires modification to the factory wing-tip to accommodate the light assemblies. To convert to strobes, the following is recommended:

Qty.	Model	Part No.	Description
1 each	HDACF	11-16218	Power Supply
1 each	A650PG14	A650-PG-14	Wing-Tip Light
1 each	A650PR14	A650-PR-14	Wing-Tip Light
1 each	HD60	HD60	Installation Package

**Wing-tip strobes for single engine 1970 and 1971** - excluding any modified wing-tip, also use position lights at the wing-tip extremity, however the retainers are too short to accommodate a custom installation. The Model A625 strobe lights are mounted aft of the position light lens retainers.

To convert to strobes, the following is recommended:

Qty.	Model	Part No.	Description
1 each	HDACF	11-16218	Power Supply
2 each	A625	A625	Wing-Tip Strobe Light Ass'y
1 each	HD60	HD60	Installation Package

**Wing-tip strobes for single engine 1972 and Later** - excluding any modified wing-tip, spare wires were installed at the factory from a switch position on the instrument panel to the farthest rib in each wing-tip. This allows mounting of the power supplies adjacent to the strobe light, which reduces installation time significantly. Wing-tip strobes were also an option in the early 70's. We estimate that 40%-50% had factory installed systems.

**Replacement parts for aircraft with factory installed systems:**

Qty.	Model	Part No.	Description
2 ea.	A490TCCF	A490.TC,CF-14	Wing-Tip Strobe Pwr Supply
2 ea.	A427	A427	Wing-Tip Strobe Tube
2 ea.	A428	A428	Wing-Tip Strobe Lens

**Recommended parts for aircraft without factory installed systems:**

Qty.	Model	Part No.	Description
2 ea.	A490TCCF	A490.TC,CF-14	Wing-Tip Strobe Pwr Supply
2 ea.	A610	A610	Wing-Tip Strobe Tube Ass'y
2 ea.	A612	A612	Wing-Tip Strobe Lens
1 ea.	HT	HT	Installation Package

**Note:** A small percentage of 1972 and later aircraft used the 1962-1969 wing-tip.

### Oscillating Beacon replacement

To convert the existing Rudder Mount Oscillating Beacon to a solid state Quartz Halogen Flasher, the following is recommended:

Qty	Model	Part No.	Description
1 each	9004433	11-01969	Flashing Anti-Collision Lt Assy

## WHELEN LED BEACON FOR CESSNAS



This new self-contained (no external power supply) LED beacon is designed to replace the quartz halogen flashers on single engine Cessna's 1967 & later, and Aero Commanders. That's well over 30,000 aircraft! Its size (2.5" dia. x 3" high) also permits replacing remote mounted strobe lights & power supplies on many different fixed wing platforms as well as some rotorcraft. Utilizing LED (Light Emitting Diode) technology, Whelen is able to provide the following advantages compared to existing light assemblies.

P/N 11-04542 .....\$468.75

### Rotating Beacon replacement for early model single engine through 1966.

The first form of anti-collision light for aircraft was a rotating beacon. These beacons were installed from the late 50's through 1966.

To convert the Rotating Beacon to a strobe, the following is recommended:

Qty.	Model	Part No.	Description
1 as req.	HRCFAR	11-16214	Standard Ass'y, Red Lens
1 as req.	HRCFAW	11-16212	Standard Ass'y, White Lens
1 as req.	HRCFAS	11-16216	Std. Ass'y, Split Red/White Lens
1 as req.	A440	A440	Mounting Adapter (required for new Fuselage Mounting).

### Quartz Halogen Flasher replacement for single engine vertical fin, 1967 & later.

In 1967 Cessna changed from a Rotating Beacon to a Quartz Halogen Flasher Beacon. This has a 150-watt 28 volt Quartz Halogen lamp, or a 125-watt 14 volt Quartz Halogen Lamp, operated from a solid state electronic module.

To convert to a strobe, the following is recommended:

Qty.	Model	Part No.	Description
1 as req.	A470AR	A470A-R	Strobe Light Assembly, Red
1 as req.	A470AW	A470A-W	Strobe Light Assembly, White
1 as req.	A470AS	A470A-R/W	Strobe Lt Ass'y, Split Rd/Wht
1 each	A490ATSC	A490A,TS,CF	Power Supply Assembly
1 each	H102	H102	Mounting Adapter
1 each	HT10	HT10	Installation Package

**Cessna 300A, B, C & D Twin Engines.** The system for these airplanes requires fabricated brackets for affixing the power supplies, and for attaching the strobe to a new position light bracket.

To convert to strobes, the following is recommended:

Qty.	Model	Part No.	Description
3 each	A490TCF	11-14714	Power Supply
2 each	A625	A625	Wing-Tip Strobe Light
1 each	A500AV	A500A-14-V	Tail Strobe/Position Light
1 each	HT	HTA500A-14-V	Installation Package

The remaining Cessna 300-400 Series Twin Engines. The system for these airplanes requires the same hardware as above, however, some had factory installed Grimes assemblies from approximately 1969 and later. To replace the existing system, all parts must be replaced and wiring must be changed. New fabricated brackets are required. Rotating Beacon replacement.

To convert existing Rotating Beacon to a strobe, the following is recommended:

Qty.	Model	Part No.	Description
1 as req.	HRCFAR	11-16214	Standard Ass'y, Red Lens
1 as req.	HRCFAW	11-16212	Standard Ass'y, White Lens
1 as req.	HRCFAS	11-16216	Std Ass'y, Split Rd/Wht Lens
1 as req.	A440	A440	Mounting Adapter (required for new Fuselage Mounting).

**Cessna Citation Series** - Whelen has an STC'd system to convert factory installed Grimes Wingtip strobes. The initial STC #ST22BO was for Citation 550, S550 and 560, Serial #128 through 256.

The following is recommended:

**System P/N - 01-0716164-03,** (STC #ST22BO) includes:

Qty	Model	Part No.	Description
2 each	9010104	11-01972	Power Supply
1 each	9015905	11-01974	Strobe Light Assembly
1 each	9015906	11-01973	Strobe Light Assembly

Brackets & hardware for Installation

The second system, STC #ST0010BO covers Serial #257 & later, and any aircraft that installed Cessna Service Bulletin #SB560-33-08 from serial #0001 thru #0256.

**System P/N - 01-0716164-05,** (STC #ST0010BO) includes:

Qty	Model	Part No.	Description
2 each	9010104	11-01972	Power Supply
1 each	9020603	11-01971	Strobe Light Assembly
1 each	9020604	11-01970	Strobe Light Assembly

Brackets & hardware for Installation

# WHELEN LIGHTING



## MOONEY AIRCRAFT

### Early Model Flat Wing with exterior position light mounting -

To convert to strobes, the following is recommended:

Qty	Model	Part No.	Description
1 ea.	HDACF	11-16218	Power Supply
1 ea.	A650PG14	A650-PG-14	Wing-Tip Strobe/Position Lt
1 ea.	A650PR14	A650-PR-14	Wing-Tip Strobe/Position Lt
1 ea.	HD60	HD60	Installation Package

**Enclosed Wing-Tip (New Installation)** - To convert to strobes, the following is recommended:

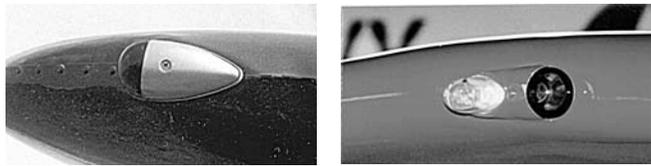
Qty	Model	Part No.	Description
1 ea.	HDACF	11-16218	Power Supply
1 ea.	A650PG14	A650-PG-14	Wing-Tip Strobe/Position Lt
1 ea.	A650PR14	A650-PR-14	Wing-Tip Strobe/Position Lt
1 ea.	A500AV14 or A500AV28	A500A-14-V A500A-28-V	Tail Strobe/Pos. Lt Assy, 14V Tail Strobe/Pos. Lt Assy, 28V
1 ea.	HDT390	HDT3-90	Installation Package

**Enclosed Wing-Tip (Hoskins/SDI Replacement)** - Slight modification required to convert to strobes, the following is recommended:

Qty	Model	Part No.	Description
3 ea.	A490TCF	11-14714	Power Supply
2 ea.	A625	A625	Wing-Tip Strobe Light Assy.
1	HT	HT	Installation Package
1 ea.	A500AV14 or A500AV28	A500A-14-V A500A-28-V	Tail Strobe/Pos. Lt Assy, 14V Tail Strobe/Pos. Lt Assy, 28V

**Rotating Beacon replacement** - To convert the existing Rotating Beacon to a strobe, the following is recommended:

Qty	Model	Part No.	Description
1 as req.	HRCFAR	11-16214	Standard Ass'y, Red Lens
1 as req.	HRCFAW	11-16212	Standard Ass'y, White Lens
1 as req.	HRCFAS	11-16216	Std. Ass'y, Split Rd/Wht Lens
1 as req.	A440	A440	Mounting Adapter (req. for new Fuselage Mounting.)



## PIPER AIRCRAFT

**Single Engines & Piper Aztec** - The same wing-tip strobe system can be used on most Piper aircraft models.

To convert to strobes, the following is recommended:

Qty	Model	Part No.	Description
1 ea.	HDACF	11-16218	Power Supply
1 ea.	A650PG14	A650-PG-14	Wing-Tip Strobe/Pos. Light 14V
1 ea.	A650PR14	A650-PR-14	Wing-Tip Strobe/Pos. Light 14V
1 ea.	HD60	HD60	Installation Package

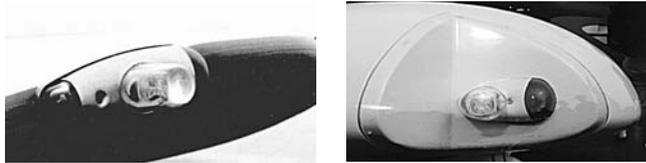
## PIPER AIRCRAFT

**Piper Navajo** - system is as follows:

Qty	Model	Part No.	Description
1 ea.	HDACF	11-16218	Power Supply
1 ea.	A650PG28	A650-PG-28	Wing-Tip Strobe/Pos. Light, 28V
1 ea.	A650PR28	A650-PR-28	Wing-Tip Strobe/Pos. Light, 28V
1 ea.	A500AH28	A500A-28-H	Tail Pos./Strobe Light Assy, 28V
1 ea.	HDT390	HDT3-90	Installation Package

**Piper Cheyenne I, II, & IIXL** - factory equipped with Whelen strobes. Rotating Beacon replacement. To convert the existing Rotating Beacon to a strobe, the following is recommended:

Qty	Model	Part No.	Description
1 as req.	HRCFAR	11-16214	Standard Assembly, Red Lens
1 as req.	HRCFAW	11-16212	Standard Assembly, White Lens
1 as req.	HRCFAS	11-16216	Std Assy, Split Red/White Lens
1 as req.	A440	A440	Mounting Adapter (required for new Fuselage Mounting.)



## HOMEBUILT & 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 tail-light. The power supply is mounted in the fuselage and shielded cable is run to the strobe lights. *The following is recommended:*

Qty	Model	Part No.	Description
1 ea.	HDACF	11-16218	Power Supply
1 ea.	A600PG14	A600-PG-14	Wing-Tip Strobe/Pos./Tail Lt14V
1 ea.	A600PR14	A600-PR-14	Wing-Tip Strobe/Pos./Tail Lt14V
1 ea.	HD60	HD60	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:*

Qty	Model	Part No.	Description
1 ea.	HDACF	11-16218	Power Supply
1 ea.	A650PG14	A650-PG-14	Wing-Tip Strobe/Pos. Light, 14V
1 ea.	A650PR14	A650-PR-14	Wing-Tip Strobe/Pos. Light, 14V
1 ea.	A500AV14	A500A-14-V	Tail Position/Strobe Light Ass'y
1 ea.	HDT390	HDT390	Installation Package

**For aircraft with wing-tip mounted power supplies.** To mount the strobe power supplies in the wings adjacent to the light head assemblies. *The following is recommended:*

Qty	Model	Part No.	Description
2 ea.	A490ATSC	A490A,TS,CF	Power Supply
1 ea.	A600PG14	A600-PG-14	Wing-Tip Strobe/Pos./Tail Lt, 14V
1 ea.	A600PR14	A600-PR-14	Wing-Tip Strobe/Pos./Tail Lt, 14V
2 ea.	HS5	HS-5	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:*

Qty	Model	Part No.	Description
2 ea.	A490ATSC	A490A,TS,CF	Power Supply
1 ea.	A650PG14	A650-PG-14	Wing-Tip Strobe/Pos./Tail Lt, 14V
1 ea.	A650PR14	A650-PR-14	Wing-Tip Strobe/Pos./Tail Lt, 14V
1 ea.	A500AV14	A500A-14-V	Tail Position/Strobe Lt Ass'y, 14V
3 ea.	HS5	HS-5	Installation Package



# WHELEN STROBES

**WE WILL NOT BE  
UNDERSOLD!**

**ANTI-COLLISION LIGHT SYSTEMS FROM**

**WHELEN®**

**POWER SUPPLY OPTIONS**

Selection of the proper power supply is the key to an effective lighting system. Reference should be made to the following table, which indicates the number of joules in each power supply and the effective candlepower produced with each lighting head. Consideration should be given to determine that the system will meet the requirements for each particular aircraft.

**EFFECTIVE CANDLES PRODUCED PER UNIT USING WHELEN POWER SUPPLIES**

Flash Strobe Unit	POWER SUPPLY MODEL NUMBER			
	A413A, HDA, CF Comet Flash	A49m0A,TS,CF Comet Flash	A490T,CF Comet Flash	A490TC,CF Come
	44 Joules Combined	34 Joules Combined	19 Joules Combined	19 Joules Combined
A600-PG/PR	660	600	380	380
A650-PG/PR	660	600	380	380
A650	660	600	380	380
A500	330	300	190	190
A625	660	600	380	380
A450	330	300	190	190
A470 Aviation White	825	825	500	500
A470 Aviation Red	180	165	(Unavailable)	(Unavailable)



**A413A, HDA-CF COMET FLASH POWER SUPPLY** - The A413A, HDA-CF-14/28 Comet Flash power provides four high-energy pulses per burst of light, 45 bursts of light per minute per light. This high-energy envelope of rapid multiple pulses per burst delivers almost twice the visible warning protection of any other strobe system available today, without increasing power requirements. Comet Flash on the aircraft wingtip appears as an extended streak of light rather than a single disjointed flash. Has the capacity for simultaneous flashing, alternate flashing or both. Wing outputs can be disabled when trigger function is engaged. Operates 1, 2, or 3 strobe lights. Operates on 14V. Current draw: 7 amps (14V), 3.5 amps (28V). Wt. 2.1 lbs. FAA-PMA Approved.

- A413A, HDA, CF - 14V/28V ..... P/N 11-16218 ..... **\$377.95 ea**
- 14/28V (powers 2 lights, single flash, 4 amps) ..... P/N A413A, HDS-14/28 ..... **\$395.95 ea**
- Installation Kit for 2 Lights (60' Cable) ..... P/N 11-02667 ..... **\$61.25 ea**
- Installation Kit for 3 Lights (90' Cable) ..... P/N 11-02668 ..... **\$85.95 ea**

**A490A, TS, CF COMET FLASH SINGLE POWER SUPPLY** - The A490A, TS, CF produces an accumulated 34 joules of energy. It can be equipped to flash simultaneously with up to 5 other TS, CF power supplies by connecting an 18 gauge wire between the synchronization mechanisms in each power supply. Its light weight and compact size allows for installation in the wingtips and tail of the aircraft thus eliminating long runs of high voltage interconnecting cables. An 18 gauge low voltage wire supplies power to each power supply. Flash rate - 50 FPM. Wt. 1.5 lbs. Size: 5"L x 3.12"W x 2.25"H. Current 1.7A - 14V, .85A - 28V. FAA-PMA Approved.

- For 14V & 28V (2) ..... P/N 11-02666 ..... **\$284.95 ea**
- Information Packet\* ..... P/N 11-02669 ..... **\$16.70 ea**



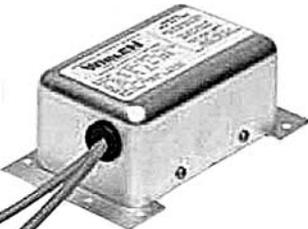
**A490T, CF SINGLE POWER SUPPLY** - Lightweight, compact unit for installation in the wingtips and tail of the aircraft, eliminating long runs of high voltage interconnecting cables. Only an 18 gauge low voltage wire supplies power to each power supply and between wingtip mounted power supplies and switch. This system is not synchronized. Flashes 50 times per minute (comet flash). Wt. 1.2 lbs. Size: 5"L x 3"W x 2-1/4"H. Current 1.7A -14V, 0.85A - 28V. FAA-PMA Approved.

- 14V & 28V ..... P/N 11-14714 ..... **\$223.95 ea**
- Information Packet\* ..... P/N 11-02669 ..... **\$16.70 ea**



**A490, TC, CF SINGLE POWER SUPPLY** - Same as Model T,CF but with a mounting plate that can directly replace factory installed systems on S/E Cessnas, S/E Aero Commanders and S/E Grumman Americans. Wt. 1.5 lbs. Size: 5"L x 3.12"W x 2.25"H. Current: 1.7A-14V DC; .85A@28V DC.

- 14V & 28V ..... P/N 11-02661 ..... **\$223.95 ea**
- Information Packet\* ..... P/N 11-02669 ..... **\$16.70 ea**



**A490TCCF SERIES POWER SUPPLIES** - The model HTCCF series is the same as the A490ATSCF but has a mounting plate with additional holes that directly replaces factory installed systems on single engine Cessnafs, Aero Commanders, and Grumman Americans.

- Specifications: •Drawing No.: 70006 •Weight: 1.2 lbs. •Length: 5.0 •Width: 3.12
- Height: 2.38 •Power Consumption:1.7 Amps @14VDC; 0.85 Amps @ 28VDC
- WHELEN A490TCCF Power Supply ..... P/N 11-04492 ..... **\$219.95**
- WHELEN 7000612 Power Supply ..... P/N 11-04493 ..... **\$225.00**
- WHELEN 7000617 Power Supply ..... P/N 11-04494 ..... **\$225.00**

*\*Note: When ordering, request (1) A490A,TS,CF, A490T,CF or A490, TC,CF per light and (1) HT Information Kit per system.*

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# WHELEN STROBES



## A600-PG-PR WINGTIP POSITION/STROBE LIGHT

A new lighting unit which incorporates the required red or green navigation light on the forward section, a strobe light with magnifying glass lens in the center and a clear tail position light on the aft portion. Three lights in one assembly. The A612 magnifying lens increases the light intensity by two to five times in the horizontal plane. The tail position light on the wingtips gives turning reference to the aircraft behind by displaying angle of bank while turning. Mounts with three screws. Exact replacement for conventional tear drop type navigation lights. Tail light may be omitted when using A600 lighting system. Designed with the home builder in mind. Approved for installation on general aviation type aircraft under FAR Part 37.141 (TSO-C30b & STC SA800EA). Specify 14V or 28V. Wt. 0.5 lb. Exposed height 2.4"

A600-PR-14 (14V)/A600-PR-28 (28v), w/ Red Nav Light.....\$189.95

## 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) .....\$835.00 P/N 11-03100 (28V) .....\$835.00

**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) .....\$945.00



## A650-PG/PR WINGTIP POSITION/STROBE LIGHT

Combines conventional navigation light with white strobe. Newly developed magnifying strobe lens (A612) concentrates the maximum xenon light energy in the horizontal plane. Wt. 0.4 lb. Specify voltage.

Green 14V (A650-PG-14).....P/N 11-03217 .....\$168.95 Red 14V (A650-PR-14) .....P/N 11-03218.....\$168.95  
Green 28V (A650-PG-28).....P/N 11-03239 .....\$168.95 Red 28V (A650-PR-28) .....P/N 11-03247.....\$168.95

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



Kit # 11-03800

**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 .....\$892.00 28V .....P/N 11-03610 .....\$892.00  
14V .....P/N 11-03605 .....\$770.00 28V (Same Kit but w/A490T, CF Power Supplies)..P/N 11-03615 .....\$770.00

**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 .....\$783.00 28V .....P/N 11-03805 .....\$783.00

**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-vertical)..P/N 11-04000-14-V ..\$1,312.00 14V (A-500-Horizontal) ..P/N 11-04000-14-H..\$1,312.00  
28V (A-500-vertical)..P/N 11-04000-28-V ..\$1,312.00 28V (A-500-Horizontal) ..P/N 11-04000-28-H..\$1,312.00

### Same Kit but with A490T, CF Power Supplies

14V (A-500-vertical)..P/N 11-04010-14-V ..\$1,129.00 14V (A-500-Horizontal) ..P/N 11-04010-14-H..\$1,129.00  
28V (A-500-vertical)..P/N 11-04010-28-V ..\$1,129.00 28V (A-500-Horizontal) ..P/N 11-04010-28-H..\$1,129.00

**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 .....\$955.00 28V .....P/N 11-04500.....\$955.00



## WHELEN STROBE 28 VOLT

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. • Exposed Height: 1.7" • Diameter: 1.5" P/N 11-04281 .....\$211.95



## A625 TAIL LIGHT STROBE

A versatile light assembly with many applications. Designed as a white tail light strobe, it lends itself well to installations as a position light on the Cessna conical camber wingtips, Twin Cessna tip tanks and as wingtip strobes on aircraft with enclosed position lights. See illustrations. All these systems use the A625 as wingtip strobes and the A500 for the tail strobe with A413A,HDA-CF-14/28 remote power supply or A490A,TS,CF local power supplies. 14V-28V P/N 11-03228 .....\$97.95



## A500A TAIL POSITION/STROBE LIGHT

Fits directly in place of the Grimes Model S position light, providing a conventional position light plus a third strobe light for perimeter anti-collision light system. Specify voltage and vertical or horizontal mounting screw position. 14V Horizontal .....P/N 11-03249 .....\$150.95  
14V Vertical .....P/N 11-03223 .....\$150.95  
28V Horizontal .....P/N 11-03264 .....\$150.95  
28V Vertical .....P/N 11-03255 .....\$150.95



## WHELEN MODEL 70821 SERIES STROBE LIGHT ASSEMBLY

The 70821 is designed as a remote streamlined strobe light assembly. It is easily mounted either on the wingtip for anti-collision, or on the fuselage or vertical fin for ground recognition. Its sleek aerodynamic shape allows it to be mounted where surface area is at a premium or to just simply "clean up" the look of the airplane. An optional adapter plate is supplied with each unit. Meets all FAA requirements for anti-collision lights when used with a clear lens and approved power supply. FAA-PMA approved.

Description	Part No.	Price	Description	Part No.	Price
Aviation White (3-Pin connector)	11-03287	\$155.95	Aviation Red (3-pin connector)	11-70821-02	\$208.95
Aviation White/RFI Shielded (4-pin connector)	11-70821-01	\$217.95	Aviation Red/RFI Shielded (4-pin connector)	11-70821-03	\$231.95



# WHELEN STROBES



## A650 WINGTIP STROBE LIGHT ADD-ON UNIT

White strobe light only, to be added Whelen W1285 lights. Requires only the drilling of a 1/4" dia. hole in the position light base. The A650 strobes provide an economical and practical means to update a lighting system on both homebuilts & certificated aircraft. Wt:0.2 lb. 14V-28V.  
P/N 11-03215 .....\$104.95



## 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) .....\$758.00

Same but w/A490T, CF Power Supplies.  
P/N 11-04605 (14-28V) .....\$637.00

## 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) .....\$649.00

## 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.

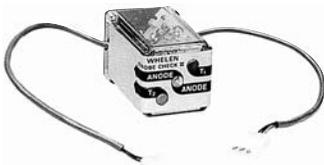
P/N 11-05000-14-V (14V) (A-500-vert.)	\$1,178.00
P/N 11-05000-14-H (14V) (A-500-Hori.)	\$1,178.00
P/N 11-05000-28-V (28V) (A-500-vert.)	\$1,178.00
P/N 11-05000-28-H (28V) (A-500-Hori.)	\$1,178.00
Same Kit but with A490T, CF Power Supplies	
P/N 11-05001-14-V (14V) (A-500-vert.)	\$995.00
P/N 11-05001-14-H (14V) (A-500-Hori.)	\$995.00
P/N 11-05001-28-V (28V) (A-500-vert.)	\$995.00
P/N 11-05001-28-H (28V) (A-500-Hori.)	\$995.00

## 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.

P/N 11-05400-14-V (14V) (A-500-vert.)	\$821.00
P/N 11-05400-14-H (14V) (A-500-Hori.)	\$821.00
P/N 11-05400-28-V (28V) (A-500-vert.)	\$821.00
P/N 11-05400-28-H (28V) (A-500-Hori.)	\$821.00

## 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 ..... \$103.95

## HOMEBUILDERS WHELEN STROBE KIT

This compact, lightweight strobe kit is very popular with builders of a variety of today's 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 .....\$658.90



## 90195 PAR 36 LANDING LIGHT

This landing light assembly accommodates PAR 36 lamps and can be purchased with or without a 4596 lamp. Weight w/lamp: 1.0 lb.; Dia.: 4.88", Depth: 3.03". w/o Lamp.....P/N 01-07901-9500..\$249.95  
With Lamp....P/N 11-03286 .....\$283.95



## PAR 36 LANDING LIGHT BULB

These quartz bulbs are for Models A715-1 and 90195 landing lights and all PAR 36 style landing light assemblies. True 150,000 beam candle power. 28V; 250 Watts; Average Life: 250 hrs.

G.E. Equivalent	Part No.	Price
4596 (28V, 250W)	34-07506-92	\$73.95
4587 (28V, 250W)	34-07507-07	\$73.95
4509 (12V, 100W)	34-07507-48	\$73.95
4591 (28V, 100W)	34-07507-67	\$73.95
4566 (28V, 450W)	34-08508-10	\$73.95



## 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 .....\$142.95



## 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 .....\$146.95  
28V .....P/N 11-03682 .....\$146.95



## 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 .....\$134.95  
28V .....P/N 11-03656 .....\$134.95



## 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 .....\$112.95  
28V .....P/N 11-03686 .....\$112.95



## WHELEN UTILITY LIGHT 28VOLT

Cockpit utility light assembly which rotates for convenience in reading maps and illuminating instrument panels. Furnished with a right angle bracket for ease of mounting. Available with Instrument White (blue) lens, Red or Clear. Uses a 14 VDC #1414 or a 28 VDC #1495 lamp.  
P/N 11-04279 ..... \$67.50

## 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.)  
P/N 11-05600 .....\$855.00

Kit # 11-05600



# WHELEN LED LIGHTING SYSTEMS

## MODEL 70805 SERIES TAIL POSITION LIGHT



FAA/TSO-C30c Type III approved. The model 70805 series LED Tail Position Light is a high quality, long lasting, modern alternative to incandescent and halogen tail position lights. It offers significant technological upgrades over previous products. Utilizing LED technology, the following advantages are offered:

- Long life - approximately 20,000 hrs.
- 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:** • Weight: 0.3 lbs. • Exposed Height: 1.64" • Length: 2.6" • Width: 1.74" • Power consumption: 0.3 amps @ 28 V

Model No.	Description	Part No.	Price
7080500	28V - no connectors	11-01228	\$438.95
7080501	28V - Connectors, Case ground used on Beechjet	11-01229	\$438.95

## MODEL 70844 SERIES LED POST LIGHT

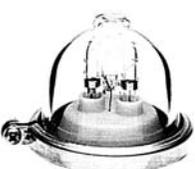


The model 70844 series are LED (Light Emitting Diode) instrument post light assemblies. They are designed to illuminate the instrument panel, and function as instrument mounting bolts. It is a high quality, long lasting, modern alternative to standard incandescent post lights. They offer significant 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

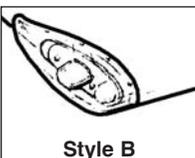
**Specifications:** • Wt: .03 lbs. • Exposed Height: 1" w/o spacer • Width: 1.74" • Power consumption: .02 amps @ 14 V / .02 Amps @ 28V

Model No.	Whelen P/N	Description	Part No.	Price
7084400	01-0770844-00	14V, 1.0" post	11-01215	\$29.90
7084401	01-0770844-01	14V, 1.5" post	11-01216	\$29.90
7084402	01-0770844-02	28V, 1.0" post	11-01217	\$29.90
7084403	01-0770844-03	28V, 1.5" post	11-01218	\$29.90



**MODEL A450** - White strobe light with clear Pyrex glass dome. Recommended for installations subject to severe vibration, moisture and chemical conditions such as Ag aircraft. This system was designed in 1968 when only 100 candles output was required. An economical system for daylight operation. Specify voltage.

P/N 11-03280	.....	\$99.95
A490T,CF Pwr Supply (14V/28V)	.....P/N 11-14714	\$223.95
TS,CF Pwr Supply (14V-28V)	.....P/N 11-02666	\$284.95
Mounting Adapter	.....P/N 11-03243	\$10.95
Mounting Adapter	.....P/N 11-03284	\$34.95
5' 3-Conductor Cable	.....P/N 11-04204	\$27.60
10' 3-Conductor Cable	.....P/N 11-03253	\$28.80



## WING TIP LIGHT COVERS

Made of durable clear plastic material. This cover was developed for use on a variety of homebuilt aircraft with the same wing tip contour such as the Vari Eze, Long Eze & the Cozy. This material can be trimmed with regular scissors and drilling is done without fear of shattering or splitting. This style is for the individual that does not want to cut his or her wing tips and has a light unit that is visual from three directions. Front, Back and Side views.

P/N 11-04055 ....\$84.25 Pr

## MODEL 70820 SERIES INTERIOR/MAP LIGHT



The model 70820 series are LED (Light Emitting Diode) interior map/reading light assemblies. They are designed for cabin or cockpit illumination. It has a 360° swivel base, allowing for infinite light angle adjustment.

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. **Specifications:** • Weight: .14 lbs. • Power consumption: .02 amps @ 14 V / .02 Amps @ 28V

Model No.	Whelen P/N	Description	Part No.	Price
7082000	01-0770820-00	14 volt	11-01072	\$135.95
7082001	01-0770820-01	28 volt	11-01073	\$135.95

## MODEL 70813 SERIES INTERIOR LIGHT



The model 70813 series LED Interior Cabin Light is a high quality, long lasting, dimmer controllable, modern alternative to the A360 series incandescent interior cabin lights. It offers significant technological upgrades over previous products.

Utilizing LED (Light Emitting Diode) technology, the following advantages are offered: • Long life - approximately 100,000 hours. • Reduced power consumption - compared to alternative light sources. • Shock and vibration resistant - no fragile filament to burn out. • Light - produces bright white light. • Small Profile - allows for shallow mounting depth • No EMI or RFI interference. **Specifications:** • Weight: 1 lbs. • Mounting Depth: .25" • Length: 4.0" • Width: 2.75"

Model #	Whelen P/N	Volts	Current	Part No.	Price
7081303	01-0770813-03	14	.08 amps	11-01222	\$136.95
7081304	01-0770813-04	28	.08 amps	11-01223	\$141.95
7081307	01-0770813-07	14	.16 amps	11-01224	\$187.95
7081308	01-0770813-08	28	.16 amps	11-01225	\$190.95
7081311	01-0770813-11	14	.24 amps	11-01226	\$254.95
7081312	01-0770813-12	28	.24 amps	11-01227	\$254.95

## SINGLE LIGHT REMOTE SYSTEMS



Designed to produce light 360° around the aircraft ±30° as required. Mount on top or bottom of fuselage or on vertical fin. Requires use of either H102 or H103 mounting adapters. Special three conductor shielded cable must be used between light assembly and power supply.

**MODEL A470A** - Incorporates vibration proof flash tube (A469B) which allows flush mounting. Available with Aviation Red, White or split Red/White optic lens. Specify voltage.

Red	.....P/N 11-03273	\$84.95
White	.....P/N 11-03277	\$84.95
Split Red/White	.....P/N 11-03259	\$84.95
TS,CF Pwr Supply (14V-28V)	.....P/N 11-02666	\$284.95
Mounting Adapter	.....P/N 11-03243	\$10.95
Mounting Adapter	.....P/N 11-03284	\$34.95
5' 3-Conductor Cable	.....P/N 11-04204	\$27.60
10' 3-Conductor Cable	.....P/N 11-03253	\$28.80

## LED X-PAK STROBE KIT



**LED-XPAK Strobe System:** • 2.5 - 5 amps •13-15 V P/N 11-04485 .....\$399.00  
**Includes:** • 1 XPak 604-hr Strobe Driver • 36 ft. of shielded strobe cable • 2 LED-002 Wingtip units w/LED position lights & replaceable strobe bulbs • All connectors.

**S001 Belly Strobe Bulb.** P/N 11-04508 .....\$106.00

**Includes:** • LED taxi lights (14 white LEDs pointing forward) .5amps Replaceable strobe bulb • 8 ft. of shielded cable • All connectors

# WHELEN BEACONS — POST LIGHTS

## LED LIGHTING PRODUCTS

These position lights, anti-collision lights, and ground recognition beacons utilize LED technology as a light source. The result is a high quality, long lasting modern alternative to existing lighting designs. The solid state LED light source has shown conservative lab life results greater than 20,000 hours. Shock and vibration resistant - no fragile filament to burn out, or replace. No EMI or RFI produced. Lens designs are one piece construction that is much less susceptible to environmental or chemical breakdown. Low current draw means no inrush current that is inherent with strobes & halogen flashers.



### MODEL 70875 LED FORWARD POSITION LIGHTS

The Model 70875 Series, are fully FAA TSO'd forward position lights. They result in a high quality, long lasting, modern alternative to existing incandescent and halogen forward position lights. The solid state LED light source has shown conservative lab life results greater than 20,000 hours. They are Shock & Vibration resistant due to no fragile filament to break or burn out. The lens design is hard-coated polycarbonate. These advantages will greatly reduce operating costs. All units comply with the color requirements stated in FAR Parts 23, 25, 27 & 29 for Aviation Red, and Aviation Green. They are compatible with existing position light mounting patterns and profiles.

**Specifications:** • LED Color: Aviation Red; Aviation Green • Weight: 0.26 lbs • Power Consumption: 0.35 amps @ 28 VDC • Length: 3.92" • Exposed Height: 1.39" • FAA/TSO-C30c

Green Pos. Light 28V Type II.....P/N 11-02519 .....\$279.95  
Red Pos. Light 28V Type I.....P/N 11-02520 .....\$279.95

## WHELEN POST LIGHTS



New manufacture. 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 \$35.95 ea

	WHELEN P/N	OUR P/N
White 14V (Blue Tint)	A350CNIWBKSH14	A350-14
White 28V (Blue Tint)	A350CNIWBKSH28	A350-28
Red 14V	A350CNRDBKSH14	A350-14R
Red 28V	A350CNRDBKSH28	A350-28R

## 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 oz. 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
- Illumination of Operator Controls
- Cargo Space Illumination
- Interior Illumination of Work Area (Without Loss of Night Vision)

- 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 .....	\$62.00
24V White LED .....	P/N 11-02881 .....	\$66.00
12V White LED .....	P/N 11-02882 .....	\$66.00
24V Red LED .....	P/N 11-02883 .....	\$62.00

## MODEL 70900 LED BEACONS (For fixed wing aircraft)

The Model 70900 Series are FAA TSO'd self-contained anti-collision lights for fixed wing aircraft. An external power unit is not required. The durability of LED's as a light source will result in a high quality, long lasting modern alternative to existing anti-collision lighting. The solid state LED light source has shown conservative lab life results greater than 20,000 hours. There is no EMI or RFI produced. The lens design is one piece construction that is much less susceptible to environmental or chemical breakdown. Low current draw means no inrush current that is inherent with strobes and halogen flashers. 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. (Specify voltage when ordering).



**MODELS 7090002 & 7090003** are designed to replace existing remote mounted strobe lights (Ref. Whelen A470A series). A strobe power supply is no longer required. **Specifications:** • Wt: 1.1 lbs. • Exposed Height: 4.14" • Exposed Diameter: 3.66" • LED Color: Aviation Red • Power Consumption (7090002): 0.85 amps @ 14 VDC • Power Consumption (7090003): 0.425 amps @ 28 VDC • FAA/TSO-C96a approved

7090002 - Red LED, 14V.....P/N 11-02521 .....\$680.00  
7090003 - Red LED, 28V.....P/N 11-02522 .....\$680.00



**MODELS 7090004 & 7090005** are designed to replace existing light assemblies with the 3-3/4" dia. mounting pattern. It has the same mounting hole pattern. No modification to the aircraft is required. (Ref. Whelen HRCFA series, 90081 Series, and the "old style" rotating beacons). **Specifications:** • Weight: 1.1 lbs. • Exposed Height: 3.1" • Exposed Diameter: 2.8" • LED Color: Aviation Red • Power Consumption 7090004: 0.85 amps @ 14 VDC • Power Consumption 7090005: 0.425 amps @ 28 VDC • FAA/TSO-C96a approved

7090004 - Red 3-3/4 Dia. Mount 14V ....P/N 11-02523 .....\$680.00  
7090005 - Red, 3-3/4 Dia. Mount 28V ....P/N 11-02524 .....\$680.00

## MODEL 70905 LED BEACONS (For Rotocraft)

The Model 70905 Series are FAA TSO'd self-contained anti-collision lights for rotorcraft. An external power unit is not required. The durability of LED's as a light source will significantly reduce operating costs associated with spare part replacement and premature failure of existing light sources. 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. (Available in 28 volts only).

**Model 7090501** is designed to replace existing beacons with the 5 hole-mounting pattern on a 4.656 Dia. bolt circle. (Ref. Whelen 70285 series). It incorporates an MS3102R10SL-3P connector for input.

**Specifications:** • Weight: 1.4 lbs. • Exposed Height: 4.04" • Exposed Diameter: 3.66" • LED Color: Aviation Red • Power Consumption 7090002: 0.45 amps @ 28 VDC • FAA/TSO-C96a approved

Red, 5 Hole Mount .....P/N 11-02516 .....\$841.00



**Model 7090502** is designed to replace existing remote mounted strobe lights (Ref. Whelen A470A series). A power supply is no longer required. **Specifications:** • Weight: 1.2 lbs. • Exposed Height: 4.14" • Exposed Dia.: 3.66" • LED Color: Aviation Red • Power Consumption (7090005): 0.45 amps @ 28 VDC • FAA/TSO-C96a approved

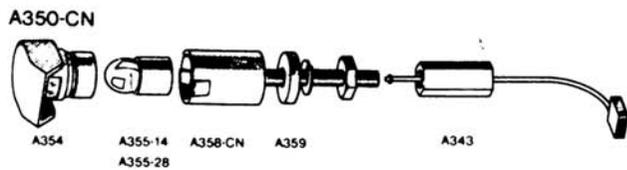
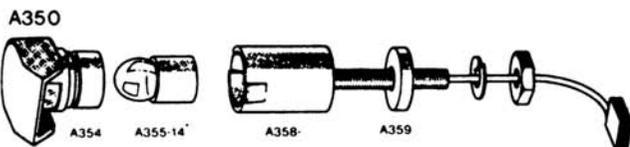
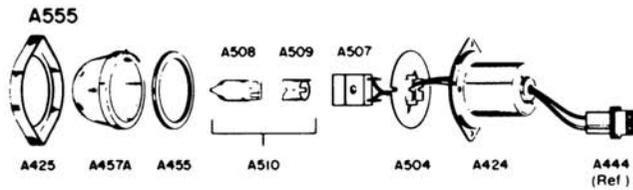
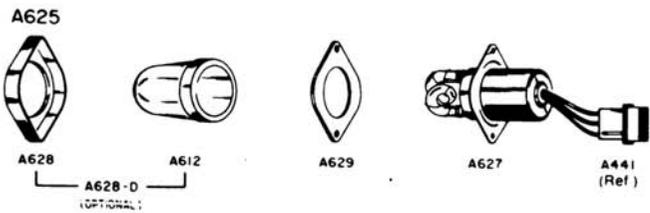
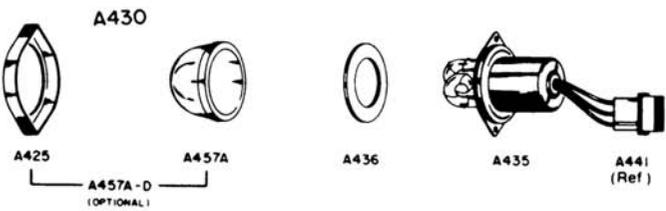
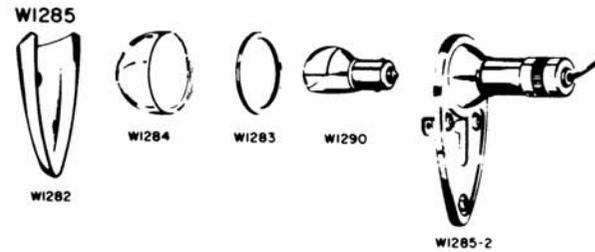
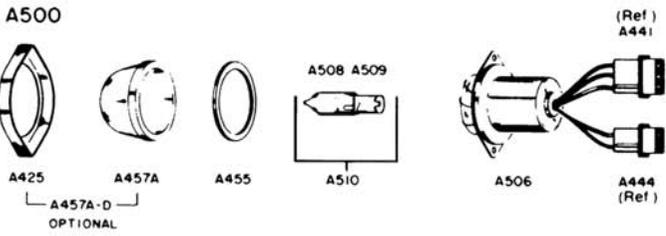
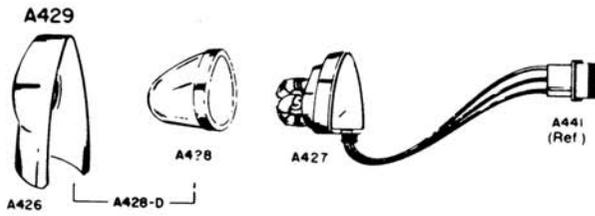
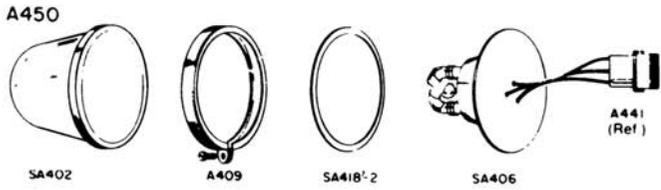
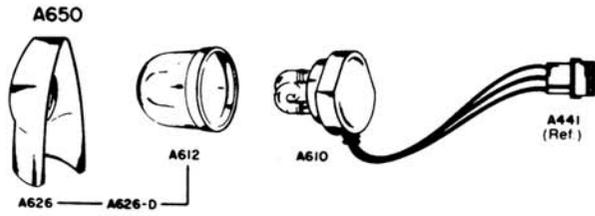
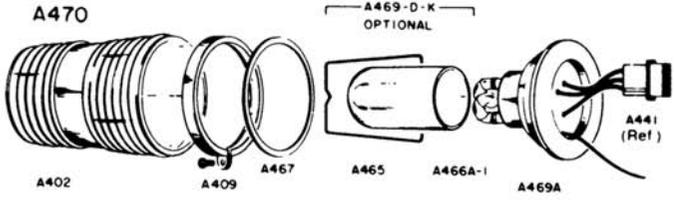
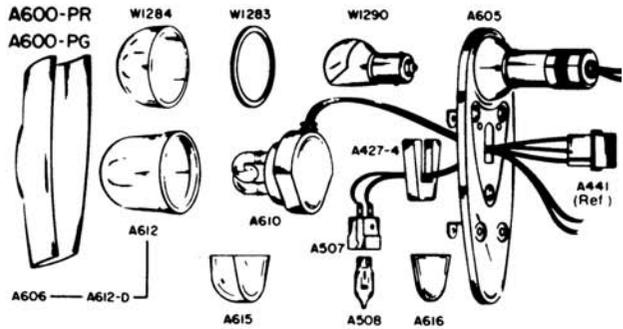
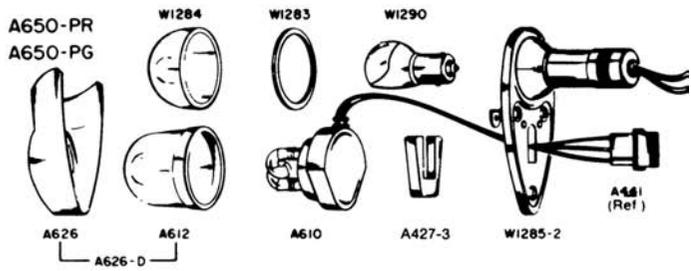
Red, LED Beacon .....P/N 11-02517 .....\$756.00

**Model 7090503** is designed to replace existing beacons with the 3-3/4" Dia. mounting pattern. (Ref. Whelen HRCFA series, 90081 Series, and the old style rotating beacons). It has the same Mounting hole pattern. No modification to the aircraft is required. **Specifications:** •Weight: 1.1lbs. • Exposed Height: 3.1" • Exposed Dia.: 2.8" • LED Color: Aviation Red • Power Consumption 7090002: 0.45 amps @ 28 VDC • FAA/TSO-C96a approved

Red, 3-3/4 Dia. Mount .....P/N 11-02518 .....\$841.00

EL

# STROBE LIGHTS



EL

# WHELEN STROBES

## STROBE SYSTEM PARTS

Description	P/N	Price	P/N	DESCRIPTION	OUR PRICE
A402R Red Optic Lens .....	11-03254 .....	\$26.45	#A470-D .....	Radio Shielded Remote Strobe Head Assembly, Specify Color .....	\$175.95
A402W White Optic Lens .....	11-03271 .....	\$26.30	#A470-D-R-SL .....	Radio Shielded Remote Strobe Head Assembly (Lower for Hughes 500) .....	\$176.95
A402R/W Split Red/White Optic Lens.....	11-03248 .....	\$30.30	#A470-D-R-SU .....	Radio Shielded Remote Strobe Head Assembly (Upper for Hughes 500) .....	\$169.95
A406 Flash Tube Assembly.....	11-03687 .....	\$78.95	A490,TC,CF-14 or -28 ..	HT-C,CF Power Supply .....	\$223.95
A409 Clamp Ring Assembly .....	11-03688 .....	\$11.60	A500-V-D-14 or-28 .....	Radio Shielded Tail Position Strobe Light Head Assembly Vertical Mount.....	\$184.95
A414A,HDH,CF HDH,DF Power Supply .....	11-03632 .....	\$455.95	A500-H-D-14 or -28 .....	Radio Shielded Tail Position & Strobe Light Head Assembly Horizontal Mount .....	\$189.95
A417-1 Interconnecting Cable.....	11-03658 .....	\$0.92	A500-V-D-M-14 or -28 ..	Radio Shielded Tail Position & Strobe Light Head Assembly Vertical Mount with Molex Connector .....	\$216.95
A418-2 Gasket .....	11-03690 .....	\$8.10	A500-H-D-M-14 or -28 ..	Radio Shielded Tail Position & Strobe Light Head Assembly Horizontal Mount with Molex Connector .....	\$216.95
A421-1 Warning Decal .....	11-03691 .....	\$3.00	A500B-V-14 or-28 .....	Tail Position & Strobe Light Head Assembly (Beech) .....	\$257.00
A425 Tail Strobe Lens Retainer .....	11-03692 .....	\$16.70	A500SP-28 .....	Tail Pos. & Strobe Assy. (Beech) .....	\$290.95
A426 Wingtip Strobe Lens Retainer .....	11-03233 .....	\$27.20	A502 .....	Flash Tube & Socket Assembly .....	\$198.95
A427 Flash Tube Assembly.....	11-03219 .....	\$74.50	A506 .....	Flash Tube & Socket Assembly .....	\$128.95
A427-M Flash Tube Assembly w/Molex Connector .....	11-03272 .....	\$73.50	A506-B .....	Flash Tube & Socket Assembly .....	\$247.95
A427-4 Rubber Pad Spacer .....	11-03693 .....	\$7.10	A506-M .....	Flash Tube & Socket Assembly .....	\$121.95
A428 Wingtip Strobe Lens .....	11-03236 .....	\$34.00	A506-SP .....	Flash Tube & Socket Assembly .....	\$236.95
A428-C Wingtip Strobe Radio Shielded Lens .....	11-03694 .....	\$75.75	A507 .....	Lamp Socket Assembly for A555 .....	\$17.50
A428-D Wingtip Strobe Radio Shielded Lens plus A426 Retainer Ass'y .....	11-03290 .....	\$103.95	A508-14 or -28 .....	Halogen Lamp for A500,A555, A600 .....	\$22.20
A429 Wingtip Strobe Head Ass'y (Replaced by A650).....	11-03695 .....	\$151.95	A509 .....	Lamp Shield for A500 and A555 .....	\$9.40
A430 Tail Strobe Head Assembly .....	11-03696 .....	\$102.95	A510-14 or -28 .....	Lamp Assembly for A500 & A555.....	\$30.60
A435 Flash Tube Assembly.....	11-03697 .....	\$75.95	A512-V-28 .....	Tail Position & Strobe Light Head Assembly (Gulfstream Commander) .....	\$144.95
A440 WRM-65 Mounting Adapter, for HR,DF & SA,DF.....	11-03699 .....	\$18.35	A540 .....	Long Mounting Adapter .....	\$111.95
A441 AMP Connector and 3 Pins .....	11-03211 .....	\$7.80	A600-PG-D-14 or -28 .....	Radio Shielded Wingtip Strobe Light w/Forward & Tail Position Light Assembly .....	\$257.95
A442 AMP Connector and 3 Sockets .....	11-03212 .....	\$7.80	A600-PR-D-14 or -28 .....	Radio Shielded Wingtip Strobe Light w/Forward & Tail Position Light Assembly .....	\$257.95
M441 Molex Connector & 3 Pins for Piper Installation .....	11-04215 .....	\$7.80	A600-PG-D-M-14or-28 ..	Radio Shielded Wingtip Strobe Light w/ Forward & Tail Position Light Ass'y. (Molex Connector) .....	\$263.95
M442 Molex Connector & 3 Sockets for Piper Installation .....	11-04216 .....	\$7.80	A600-PR-D-M-14or-28 ..	Radio Shielded Wingtip Strobe Light w/ Forward & Tail Position Light Ass'y. (Molex Connector) .....	\$263.95
A444 AMP Connector and 2 Pins .....	11-03700 .....	\$7.95	A605 .....	Base Plate Assembly .....	\$98.75
M444 Molex Connector & 2 Pins for Piper Installation .....	11-04217 .....	\$7.80	A606 .....	Retainer .....	\$25.00
A445 Switch Label .....	11-03701 .....	\$7.40	A610 .....	Flash Tube Assembly .....	\$65.50
A446 AMP Connector and 2 Sockets .....	11-03702 .....	\$7.95	A610-M .....	Flash Tube Assembly .....	\$71.25
A450 Strobe Head Assembly .....	11-03280 .....	\$99.95	A612 .....	Magnifying Lens .....	\$27.50
A455 Gasket .....	11-03703 .....	\$7.35	A612-D .....	Radio Shielded Lens Retainer Ass'y .....	\$90.00
A457A Tail Light Lens for A500 and A555 .....	11-03227 .....	\$30.70	A615 .....	Lens for A600 Tail Light .....	\$31.30
A457A-D Radio Shielded Tail Light Lens Ass'y for A500 .....	11-03704 .....	\$80.25	A616 .....	Gasket for A600 Tail Light .....	\$7.80
A458A-V orH-14 or-28 Incandescent Lamp for A460 & A480 .....	11-03705 .....	\$42.10	A625 .....	Tail Strobe Head.....	\$97.95
A465 Spring .....	11-03707 .....	\$9.30	A625-D .....	Radio Shielded Tail Strobe Head Ass'y .....	\$154.95
A466A-1 Radio Shielded Lens .....	11-03708 .....	\$74.75	A626 .....	Retainer Lens .....	\$25.95
A467 Gasket for A470 .....	11-03709 .....	\$7.50	A626-D .....	Radio Shielded Lens Retainer Assembly .....	\$81.25
A469B Flash Tube Assembly .....	11-03225 .....	\$67.50	A627 .....	Flash Tube Assembly .....	\$79.00
A469D Radio Shielded Flash Tube Ass'y .....	11-03710 .....	\$139.95	A628 .....	Retainer Lens .....	\$17.70
A469D-K Radio Shielded Kit for A469A .....	11-03711 .....	\$78.25	A629 .....	Gasket .....	\$7.80
			A650 .....	Wingtip Strobe Head Assembly .....	\$104.95

**NOTE:**  
**All Whelen Replacement parts reflect at least 30% discount off factory list price.**



# WHELEN STROBES

P/N	DESCRIPTION	OUR PRICE
A650-PG-D-14 or -28	Wingtip Position & Strobe (Radio Shielded)Head Ass'y	\$222.95
A650-PR-D-14 or -28	Wingtip Position & Strobe (Radio Shielded)Head Ass'y	\$222.95
A650-PG-D-M-14or-28	Radio Shielded Wingtip Strobe & Position Light Head Assembly w/Molex Connector	\$229.95
A650-PR-D-M-14or-28	Radio Shielded Wingtip Strobe & Position Light Head Assembly w/Molex Connector	\$229.95
A675-PG/PR-14or-28	Wingtip Forward & Tail Position Light Ass'y	\$197.95
A730	Tail Flood Light Assembly	\$305.95
A1610-14- to -28	Power Supply	\$372.95
C-70178-1	Power Supply (Single Flash)	\$365.95
C-70188-1	Power Supply	\$445.95
C-70190-1	Goose Neck Light (12" Long)	\$243.95
C-70232-1	Aisle Light	\$70.00
70232-2	Aisle Light Glazed White	\$74.20
70285-1	Self Contained Strobe Radio Shielded Red	\$795.00
70285-2	Self Contained Strobe Radio Shield Red w/Mask	\$612.00
70285-3	Self Contained Strobe White	\$506.00
70285-4	Self Contained Strobe Split Red/White Lens	\$506.00
70285-5	Self Contained Strobe Red	\$506.00
70285-6	Self Contained Strobe Radio Shield Red w/Mask	\$608.00
70294-1	Power Supply	\$542.00
70324-00	Remote Strobe Head Assembly (Red)	\$162.00
70324-02	Remote Strobe Head Assembly (Clear)	\$162.00
70324-03	Remote Strobe Head Assembly (Clear/Lower)	\$162.00
70324-04	Remote Strobe Head Assembly(Red, Radio Shielded)	\$213.00
70324-05	Remote Strobe Head Ass'y(Red, Radio Shielded/Lower)	\$213.00
70324-06	Remote Strobe Head Ass'y (Clear, Radio Shielded)	\$213.00
70324-07	Remote Strobe Head Ass'y (Clear, Radio Shielded/Lower)	\$213.00
H102	"B" Mounting Adapter	\$10.95
H103	"A" Mounting Adapter 3-3/4"	\$34.95
HR-CFA-D-14 or -28	Radio Shielded Self Contained Strobe	\$435.95
HR,CF 200-14 or -28	Power Supply for HR or SA	\$344.95
SA402	Lens Assembly for SA & A450	\$27.80
SA406	Flash Tube Assembly for SA & A450	\$68.75
W1250 PG/PR	Forward Position Light Ass'y -14 or -28 (Red or Green)	\$92.95
W1282	Forward Position Light Lens Retainer	\$16.70
W1283	Forward Position Light Gasket	\$7.80
W1284-G or R	Forward Position Light Lens (Red or Green)	\$18.95
W1285-2	Forward Position Light Base	\$57.75
W1290-14	14 Volt Position Light Bulb	\$16.90
W1290-28	28 Volt Position Light Bulb	\$16.90
90029-1	Combination Wing-tip Light Assembly	\$1,024.00
90029-2	Combination Wing-tip Light Assembly	\$1,024.00
90029-3	Combination Wing-tip Light Assembly	\$1,059.00
90029-4	Combination Wing-tip Light Assembly	\$1,059.00
90033-1	Anti Collision Beacon Assembly Red	\$501.00
90033-2	Anti Collision Beacon Assembly White	\$501.00
90033-1 Rd/-2 Wht	Anti Collision Beac. Ass'y w/various mounting plates	\$501.00
90079-00	Power Supply (14V MS-3 Light)	\$634.00
90079-01	Power Supply (28V MS-3 Light)	\$565.00
34-0226010-91	Lamp Quartz 150 Watt	\$39.40

P/N	DESCRIPTION	OUR PRICE
<b>INTERIOR LIGHTING</b>		
A300 -14 or -28	Map Light Assembly	\$87.00
A315-HI-B-14 or-28	Cockpit Utility Light	\$67.50
A315-LO-B-14 or-28	Cockpit Utility Light	\$30.30
A325-FL-14 or-28	Flood Light Assembly	\$134.95
A325-ML-14 or-28	Reading Light Assembly	\$146.95
*A350 -14 or-28	Post Light Assembly	\$35.95
A360 - 14 or-28	Dome Light Assembly Overhead	\$112.95
A360SW	Dome Light Assembly w/Switch	\$105.95
70339-1	Floodlight Assembly (14V)	\$98.75
70339-02	Floodlight Assembly (28V)	\$117.95
70339-03	Floodlight Assembly (14V Switch)	\$106.95
70339-04	Floodlight Assembly (28V Switch)	\$108.95
70348-00	Post Light (28V 10-32Thread) (IW)	\$54.00
70348-01	Post Light (28V 10-32Thread) (RD)	\$54.00

## PARTS FOR POST LIGHTS

A343	Connector Assembly	\$12.90
*A354	Head Assembly	\$19.40
*A358	Base Assembly	\$25.20
A359	Spacer	\$9.40

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

## RECOGNITION LIGHT & LANDING LIGHT

A715-1	Fixed Landing Light (PAR 36)	\$142.95
A775-14 or -28	Recognition Light 35 Watt	\$39.95
A775-EXP-14 or-28	Recognition Light 35W Explosion Proof	\$85.25
A777	Lens for A775-EXP	\$13.30
70346-00	Recognition Light (14V No Lens)	\$37.70
70346-01	Recognition Light (28V No Lens)	\$37.70
70346-02	Recognition Light (14V Clear Lens)	\$47.30
70346-03	Recognition Light (28V Clear Lens)	\$46.20
70346-04	Recognition Light (14V Optic Lens)	\$45.70
70346-05	Recognition Light (28V Optic Lens)	\$45.40
01-0790095-02	Fixed Landing Light (PAR 46)	\$203.95
38-0240063-00	Sealed Beam Gasket (PAR 46)	\$13.40
38-0240197-01	Sealed Beam Gasket (PAR 36)	\$14.20
19-270407-000	Clamp Ring (PAR 46)	\$29.60
19-250147-000	Clamp Ring (PAR 36)	\$35.40

## SURFACE ILLUMINATING LIGHTS

A708-14 or -28	Halogen Lamp (50 Watt)	\$32.60
A750	Flasher Assembly	\$94.25

## PARTS FOR ROTATING BEACON

WRM-10	Lexan Dome	\$24.40
WRM-25	Clamp Ring	\$18.70
WRM-30	Gasket	\$10.60

## MISCELLANEOUS HARDWARE

GLJ-106	Lamp Retainer	\$29.00
GLJ-111	Lamp Assembly	\$127.95
GLJ-126	Lens Retainer Assembly	\$122.95

**ALL PRICES ON THIS PAGE REFLECT AT LEAST 30% DISCOUNT OFF WHELEN FACTORY LIST PRICES.**

# STROBE LIGHTS

## FLASHING ANTI-COLLISION LIGHT ASSEMBLY MODEL 90044



FAA/TSO-C96 Approved. Whelen Engineering introduces Model 90044, an approved Anti-Collision Light Assembly for use on corporate aircraft. Designed for new or retrofit installation, the 90044 Series, with reliable, solid-state electronics, replaces expensive and hard to repair oscillating-type beacons.

Model 90044 is available in red or clear lens; meets all FAA requirements with 1000 effective candlepower in clear, 200+ effective candlepower in red. The streamlined design of the unique double reflector lens module, increases light intensity without increasing power requirements! The unit features a 28 Volt, 150 Watt quartz halogen lamp. MS connector wiring and pigtail are standard. A five or eight hole base mounting configuration is available.

Description	P/N	Price
Red Lens, 5 hole top mount	11-03293	<b>\$798.00</b>
White Lens, 5 Hole Top Mount	90044-02	<b>\$798.00</b>
Red Lens, 5 Hole Lower Mount	90044-03	<b>\$798.00</b>
White Lens, 5 Hole Lower Mount	90044-04	<b>\$798.00</b>
Red Lens, 8 Hole Top Mount	90064-17	<b>\$798.00</b>
White Lens, 8 Hole Top Mount	90044-18	<b>\$798.00</b>
Red Lens, 8 Hole Lower Mount	90044-19	<b>\$798.00</b>
White Lens, 8 Hole Lower Mount	90044-20	<b>\$798.00</b>
Red Lens, 8 Hole Rudder Mount	90044-35	<b>\$798.00</b>
White Lens, 8 Hole, Rudder Mount	90044-36	<b>\$798.00</b>

## WHELEN HR-CFA SELF-CONTAINED STROBE



The HR unit is an FAA approved self-contained anti-collision strobe beacon. It may be used as a direct replacement for any rotating beacon. Available with unique split Aviation Red and White lens. The red portion of the lens faces forward to reduce propeller reflection. Suitable for helicopter installation. Also available with all-red or all-white lens in unbreakable Lexan. ECP: Aviation Red - 165, Aviation White - 750. Power: 2.4 amps at 14V, 1.2 amps at 28V —Diameter: 3.7". Height: 7.25". Weight: 1.5 lbs. Furnished with SA/HR Installation Kit. Order A440 Mounting Adapter separately. Specify lens color. Uses 14V or 28V

power.

14V/28V White	P/N 11-16212	<b>\$349.95</b>
14V/28V Red	P/N 11-16214	<b>\$349.95</b>
14V/28V Red/White	P/N 11-16216	<b>\$349.95</b>

Mounting Adapter	P/N 11-03699	<b>\$18.35</b>
Installation Pkg	P/N 11-03265	<b>\$17.50</b>

### Replacement Lenses for HR,CFA

Red	P/N 11-03630	<b>\$29.95</b>
White	P/N 11-03631	<b>\$29.60</b>
Red/White	P/N 11-03258	<b>\$29.60</b>

### Replacement Lenses HR,CF (Old style)

Red	P/N 11-03254	<b>\$26.45</b>
White	P/N 11-03271	<b>\$26.30</b>
Red/White	P/N 11-03248	<b>\$30.30</b>

## WHELEN SA-CF SELF-CONTAINED STROBE



Self-contained white strobe light designed to fit any standard rotating beacon mount. Offers new Double-Flash feature. Uses a plug-in flash tube with 360° horizontal beam. Unit extends 3-3/4" above mounting surface. FAA approved. Power: 2 amps at 14V and 1 amp at 28V. Wt. 1-1/2 lbs. Furnished with SA/HR Installation Kit. aOrder A440 Mounting Adapter separately.

Mounting Adapter	P/N 11-03262	<b>\$366.95</b>
Installation Pkg	P/N 11-03699	<b>\$18.35</b>
Replacement Lens	P/N 11-04259	<b>\$27.80</b>

## 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)	P/N 157-0001C	<b>\$118.95</b>
12V Kit (Red Lens)	P/N 157-0001R	<b>\$118.95</b>
24V Kit (Clear Lens)	P/N 157-0002C	<b>\$118.95</b>
24V Kit (Red Lens)	P/N 157-0002R	<b>\$118.95</b>

Description	Ref No.	Part No.	Price
Flasher	A	150-0015	<b>\$56.85</b>
Red Lens	B	111-0001	<b>\$12.20</b>
Clear Lens	C	111-0004	<b>\$12.20</b>
Quartz Lamp 24 Volt	D	040-0003	<b>\$17.40</b>
Quartz Lamp 12 Volt	D	040-0028	<b>\$18.40</b>
Gasket	E	080-0001	<b>\$6.95</b>
Clamp Ring	F	073-0002	<b>\$7.90</b>
Socket	G	073-0021	<b>\$10.50</b>
Mounting Plate Assembly	H	073-0055	<b>\$24.80</b>

## 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	<b>\$153.95</b>
24V Complete Kit	P/N 156-0002	<b>\$153.95</b>
12V Power Supply	P/N 152-0007	<b>\$91.75</b>
24V Power Supply	P/N 152-0010	<b>\$92.25</b>
Flash Tube Only	P/N 073-0141	<b>\$29.85</b>
Flash Tube Ass'y	P/N 153-0001	<b>\$93.75</b>

## AEROFLASH TWO-LIGHT WING TIP STROBE SYSTEM

Miniature strobe system consisting of 2 flash tube assemblies and 2 power supplies. Used on Grumman aircraft.



Includes: (2)-152-007, 12V Power Supply (2) -153-008, Light Assembly P/N 156-0010 **\$294.95**

Includes: (2)Two-152-0010, 24V Power Supply (2)-153-0008, Light Assembly P/N 156-0011 **\$299.95**

Consists of: (2)-152-0021, 24V Power Supply Explosion Proof (2)-153-0008, Light Assembly P/N 156-0011EX **\$304.95**

Description	Ref No.	Part No.	Price
12V Power Supply Clear Anodized	A	152-0007	<b>\$91.75</b>
24V Power Supply Gold Anodized		152-0010	<b>\$92.25</b>
24V Power Supply Explosion Proof Blue Anodize		152-0021	<b>\$103.95</b>
Strobe Flashtube	B	073-0171	<b>\$36.90</b>
Hold Down Ring	C	101-0082	<b>\$7.70</b>
Gasket	D	080-0017	<b>\$5.20</b>
EMI Coated Dome	E	111-0018	<b>\$18.95</b>

## 3' EXTERNAL STROBE LIGHT



3' External Landing Strip Light (White-Strobe) Border Runway P/N 10-00711 **\$16.16**

# AEROFLASH STROBES

## AEROFLASH FAA/PMA AIRCRAFT APPROVAL LIST

AEROFLASH ORIGINAL P/N	CURRENT PART NUMBER		DESCRIPTION	AIRCRAFT INSTALLATION ELIGIBILITY	PRICE
40-6	040-0003	<b>G.A.A.C P/N</b>	28V QUARTZ LAMP	AA1B, AA5A, AA5B	\$17.40
40-0010	040-0028		12V Bulb		\$18.40
150-0002	SAME		14V Single or Dual Flasher	AA1B, AA5A, AA5B	\$106.95
151-0001	SAME		14V Light Assembly. Red Lens	AA1B, AA5A, AA5B	\$61.25
152-0004	152-0007		14V Power Supply	AA1B, AA5A, AA5B	\$91.75
153-0008	SAME		Strobe Assembly	AA1B, AA5A, AA5B	\$97.75
073-0270	SAME	<b>VARGA P/N</b>	U-Type Flash Tube Assembly	2150A	\$36.30
152-0004	152-0007		14V Power Supply	2105A	\$91.75
152-0008	152-0007		12V Power Supply Single Flash		\$91.75
150-0015	SAME	<b>ROCKWELL P/N</b>	14V or 28V. Sgls. Dual Flasher	112, 112B, 112TC, 112TCA, 114	\$56.85
			DVA-2		
151-0001	SAME		14V Light Assembly Red Lens	112, 112B, 112TC, 112TCA, 114	\$61.25
150-0015	SAME	<b>GREAT LAKES P/N</b>	14V or 28V. Sgls. Dual Flasher	2T-1A-1,-2	\$56.85
			DVA-2		
151-0001	SAME		14V Light Assembly Red Lens	2T-1A-1, -2	\$61.25
40-6	040-0028	C17312-3	12V Quartz Lamp	150, 172, 177, 177RG, 180,	\$18.40
40-0010	040-0028			182, 185, 188, 206, 207	\$18.40
40-14	040-0003	C17312-1	28V Quartz lamp	210, 337, 28 Volt Version of	\$17.40
40-0027				185, 188, 206, 207	
73-0165	073-0270	C622006-0108	U-Type Flash Tube	150, 172, 177, 177RG, 180	\$36.30
111-0016	SAME	C622006-0103	Wing Tip Clear Dome	150, 172, 177, 177RG, 180, 182,	\$18.95
				185, 188, 206, 207, 210	
150-0008	SAME	C594501-0204	28 Volt Single or Dual Flasher A2E	337	\$106.95
150-0010	150-0015	C594502-0102	14V or 28V. Single/ Dual Flasher DVA-2	150, 172, 177, 177RG, 180,	\$56.85
				185, 188, 296, 207, 120	
151-0002	151-0001	C621001-0106	14V Lamp Assembly	150, 172, 177, 177RG, 180,	\$61.25
			Red Lens X1E-6	182, 185, 188, 206, 207	
151-0006	151-0005	C621001-0102	28V Lamp Assembly	210, 337, 28 Volt Version of	\$114.95
			Red Lens X2E	206, 207, 185, 188	
152-0004	152-0007	C622008-0101	14V Power Supply	150, 172, 177, 177RG, 180, 182, 185	\$91.75
				188, 206, 207, R172, 210	
152-0010	152-0010	C622008-0102	28V Power Supply	210, 28 Volt Version of 185, 188, 206, 207	\$92.25
				R182, 150, 172, 177, 177RG, 180, R172	
153-0006	153-0009	C622006-0107	Wing Tip Strobe Assembly	150, 172, 177, 177RG, 180, 182	\$99.95
				185, 206, 207, 210	
151-0008	11-02103	Not FAA Approved	24-28V Red Tear Drop Lt Assy	Helicopter	\$99.95
151-0009	11-02104	Not FAA Approved	24-28V Red Light Assy w/ Mt Plate	Helicopter	\$111.95

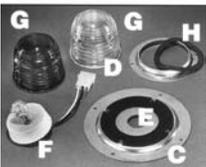
### AEROFLASH FUSELAGE MOUNT SYSTEM



<b>P/N 156-0017 consists of:</b>	\$149.95
One-152-0007 12 Volt Power Supply	
One-163-0001 Light Assembly	
One-073-0217 Cable Assembly	
<b>P/N 156-0018 consists of:</b>	\$149.95
One-152-0010 24 Volt Power Supply	
One-163-0001 Light Assembly	
One-073-0217 Cable Assembly	
<b>P/N 156-0018EX consists of:</b>	\$166.95
One-152-002124 Volt Power Supply Explosion Proof	
One-163-0001 Light Assembly	
One-073-0217 Cable Assembly	

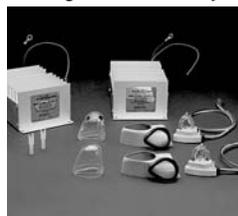
#### SPARE PARTS FOR LIGHT ASSEMBLIES:

Ref #	P/N	Description	Price
A	152-0007	12V Power Supply Clear Anodized	\$91.75
	152-0010	24V Power Supply Gold Anodized	\$92.25
	152-0021	24V Power Supply Explosion Proof Blue Anodize	\$103.95
B	073-0271	Cable Assembly	\$6.20
C	073-0055	Mounting Plate Assembly	\$24.80
D	101-0020	Hold Down Ring	\$6.40
E	080-0008	Gasket	\$8.00
F	073-0141	Strobe Flashtube	\$29.85
G	111-0001	Red Lens	\$12.20
G	111-0004	Clear Lens	\$12.20
H	080-0001	Gasket	\$6.95



### 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.



<b>P/N 156-0003 consists of:</b>	\$304.95
Two-152-0007 12 Volt Power Supply	
Two-153-0009 Light Assembly	
<b>P/N 156-0004 consists of:</b>	\$295.95
Two-152-0010 24 Volt Power Supply	
Two-153-0009 Light Assembly	
<b>P/N 156-004EX consists of:</b>	\$268.95
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	\$91.75
	152-0010	24 Volt Power Supply Gold Anodized	\$92.25
	152-0021	24V Power Supply Explosion Proof Blue Anodize	\$103.95
B	073-0270	Strobe Flashtube	\$36.30
C	101-0084	Lens Retainer	\$14.30
D	080-0018	Gasket	\$12.20
E	111-0016	Clear Dome	\$18.95

### AEROFLASH NAVIGATION/STROBE COMBINATION SYSTEM



Red .....	P/N 156-0019R .....	\$478.95
Green .....	P/N 156-0019G .....	\$514.00

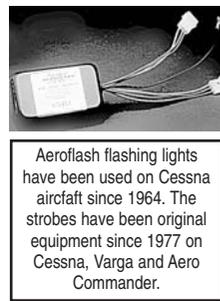
#### SPARE PARTS:

Ref #	P-N	Description	Price ea.
A	152-0024	24V Power Supply	\$159.95
B	111-0068	Clear Dome	\$33.80
C	040-0043	Strobe Flashtube	\$60.00
D	101-0238A	Hold Down Bracket	\$13.30
E	111-0066	Red Navigation Dome	\$16.70
E	111-0067	Green Navigation Dome	\$17.50
F	040-0046	Navigation Lamp	\$22.80
	*080-0046	O-Ring Gasket	\$9.30
	*080-0042	Flange Gasket	\$10.20

\*Not Shown



### AEROFLASH REPLACEMENT FLASHERS



<b>P/N 150-0002 consists of:</b>	\$106.95
12 Volt Single and/or Dual Flasher	
Replaces Old Style Flashers in Cessna Aircraft	
<b>P/N 150-0003 consists of:</b>	\$108.95
24 Volt Alternating Flasher Replacement for Helicopters	
<b>P/N 150-0008 consists of:</b>	\$106.95
24 Volt Single and/or Dual Flasher	
Replaces Old Style Flashers in Cessna Aircraft	
<b>P/N 150-0013 consists of:</b>	\$104.95
24 Volt Single Flasher	

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.

EL

# STROBES – POSITION LIGHTS



## 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 .....\$377.95
- Single flash, 28V kit.....P/N 156-0039-28V .....\$377.95
- Double flash, 12V kit.....P/N 156-0039-DF .....\$377.95

## 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 .....\$472.95
- Single flash, 28V kit.....P/N 156-0049-28V .....\$472.95
- Double flash, 12V kit.....P/N 156-0049-DF .....\$472.95



## 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 .....\$217.95
- Replacement Clear Dome .....P/N 11-00980 .....\$21.30
- Replacement Gasket .....P/N 11-00981 .....\$5.50
- Replace. Flashtube w/pos. lamp ....P/N 11-00982 .....\$113.95



## 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 .....\$136.95
- 28V (FS-4400-28V) .....P/N 11-01019 .....\$142.95
- FS-4400 Adapter .....P/N 11-06500 .....\$14.50
- FS-227 Repl. Bulb 14V/28V .....P/N 11-06510 .....\$30.30
- FS-210C Clear Lens .....P/N 11-01024 .....\$18.60
- FS-210C/R2 (1/2 Clear-1/2 Red).....P/N 11-01026 .....\$34.50
- FS-210R Red Lens .....P/N 11-01021 .....\$19.30
- Fuse for FS-4400 .....P/N 11-02027 .....\$2.75

## WHELEN MODEL 70509 FLASHER

Totally new self-contained, flashing anti-collision light assembly that is FAA TSO-C96a approved! Features a rugged polycarbonate lens with internal optics (patent pending), replaceable halogen lamp and flasher assemblies. Can be installed as a replacement on Cessna aircraft, 1967-1979; on most general aviation aircraft, home builts, and ultralights. A separate flasher power pack is not needed because the unit is completely self-contained! Wt. 1Lb. Current Draw 2.7 amps @ 14V & 1.35 amps @ 28V.

- 14V Flasher Assy. (Red/White) .....P/N 11-03231 .....\$123.95
- 14V Flasher Assy. (White) .....P/N 11-03268 .....\$123.95
- 14V Flasher Assy. (Red) .....P/N 11-03235 .....\$123.95
- 28V Flasher Assy. (Red/White) .....P/N 11-03292 .....\$123.95
- 28V Flasher Assy. (White) .....P/N 01-0770509-04 .....\$123.95
- 28V Flasher Assy. (Red) .....P/N 11-03276 .....\$123.95
- 14V Replacement Lamp Assy. ....P/N 11-03251 .....\$30.70
- 28V Replacement Lamp Assy. ....P/N 11-03237 .....\$29.95
- Optional Mount. Bracket (pictured) .....P/N 11-03238 .....\$40.00



W1285



W1250



A675

**Specifications:** • Wt: .5 lb • Size: 1.25" h x 5.62" l • Power Consumption: 4amps @ 14V, 2amps @ 28V.

- Model A675PG14 - 14V, pos. green ....P/N 11-01895 .....\$199.95
- Model A675PR14 - 14V, pos. red .....P/N 11-01896 .....\$207.95
- Model A675PG28 - 28V, pos. green ....P/N 11-01897 .....\$207.95
- Model A675PR28 - 28V, pos. red .....P/N 11-01898 .....\$207.95



Model B wing

**DOUBLE CONTACT** - With #94 Bulb .....New Surplus .....\$147.95  
Green, 14V .....P/N A-2430-2-G Red, 14V.....P/N A-2430-2-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 ..\$19.30 ea  
Model S Tail Light Plate.....P/N 11-07000 ..\$18.90 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 .....\$11.95

## TAIL LIGHTS



Model C Tail

**GRIMES Model S** - For tailcone or rudder installation. Wt: 3oz. Single contact. 15 Candlepower. With #93 (12V) bulb. P/N 11-03652 .....\$133.95

**WHELEN TAIL LIGHT** - This tail position light features an adjustable light pattern for horizontal or vertical mounting. Dome is Pyrex glass.

- Horizontal (14V) .....P/N 11-03270 .....\$84.95
- Horizontal (28V) .....P/N 11-03275 .....\$84.95
- Vertical (14V) .....P/N 11-03256 .....\$84.95
- Vertical (28V) .....P/N 11-03267 .....\$90.25

**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 .....\$139.95

## REPLACEMENT PARTS FOR POSITION LIGHTS

- Lenses for Grimes A, B, C Wing or Tail Lights**
- Clear ....P/N 11-03662.....\$32.40 Red....P/N 11-03655 .....\$57.25
- Green ..P/N 11-03663.....\$41.00
- Lenses for Grimes Model E or Whelen Wing Tip Lights**
- Red .....P/N 11-02754.....\$18.95 Green P/N 11-02755 .....\$18.95
- Lens for Model S Tail Light (Clear)** .....P/N 11-07400 .....\$15.50
- Bale Wire** - Grimes .....P/N 11-03664 .....\$6.90



# ULTRALIGHT STROBE SYSTEMS



## 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 use a specialized prismatic Fresnel lens. This lens increase 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 .....**\$291.95**  
Single Strobe System .....P/N 10-01605 .....**\$177.95**



## 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.

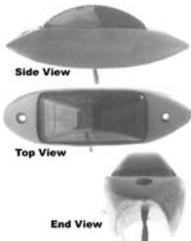
Flasher .....P/N 10-01490 .....**\$73.00**



## SC-103 MINI STROBE

"SC-103" incorporates solid state technology that enables max. output and longevity. Designed specifically for ultralight use where an external 12 VDC source (battery) is available. 2.5" diameter at the base and 4" tall. Uses same round Fresnel lens and Xenon flash tube as Single MAGNUM Smart Strobe. Flash is in a single pattern at 42 per minute, power consumption is 500 ma., weight: 7.5 oz. Comes with a stainless steel mounting tab attached. Excellent as a Stand alone unit or even better as a tail-mounted third light when using the Double Dual MAGNUM 12 VDC system on the wing tips.

P/N 11-04098.....**\$94.00**



## 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 .....**\$35.00**



## 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"h x 2-5/8"h. For Experimental Aircraft Only  
Beacon, clear lens.....P/N 11-03007 .....**\$59.95**  
Beacon, red lens .....P/N 11-03008 .....**\$59.95**

## 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. (Clear Dome) .....P/N 11-08200 .....**\$18.95**

**Dome only (Price/ea.)**

Amber ....P/N 11-08205 .....**\$3.50** Red.....P/N 11-08210 .....**\$3.50**  
Green ....P/N 11-08215 .....**\$3.50** Blue.....P/N 11-08220 .....**\$3.50**  
Clear .....P/N 11-08225 .....**\$3.50**



## MAGNUM DUAL STROBE

Magnum-Single & Dual DC power strobes, by Kuntzleman Electronics. Extremely bright strobe that rapidly fires two quick flashes on one light and then the other in an alternating pattern for a total of 80 flashes/minutes (40 on single light model). Operating voltage is 10 to 18VDC and consumes approximately 2 amps. Can also be powered by Power Supply (P/N PS0300). Driver size:3.5"x1.5", wt:13.5 oz. Streamline strobes come with 25 ft. of wire and modular plug to connect directly to driver. All others come with 6ft. of wire. 1-yr. manufacturers warranty.

Dual Magnum, Fresnel .....P/N 10-01610 .....**\$228.00**  
Dual Magnum, Streamlined .....P/N 10-00824 .....**\$228.00**  
Single Magnum .....P/N 10-01609 .....**\$149.00**  
Smart Strobe,Single, AC or DC powered..P/N 10-01611 .....**\$149.00**

## TRIPLE MAGNUM 3 LIGHT STROBE DRIVER

This strobe driver box will fire 3 lights in a double flash pattern. The two wing tip bulbs alternate between the left and right. The tail, or third light flashes are synchronized to flash every time one of the wing tips are flashing. Resulting in about 140 total flashes per minute. It is available in only the 12 VDC model. Driver weight is 17.2 oz, size: 4.5"x 7"x 1-5/8" and draws only 3.5 amps peak or less than 3 amps average. This unit is sold without lights so you may choose the style heads you want (Streamline, Round, or General Aviation). The Complete system, including wire, mounting hardware, and any 3 of Kuntzleman's strobe heads is available as a kit as shown.

Driver Only .....P/N 11-01355 .....**\$230.00**  
Complete Kit.....P/N 11-01829 .....**\$375.00**

## SPORTECH ULTRALIGHT STROBES

Sportech strobes are manufactured in Spain and provide high quality lighting for ultralight aircraft at affordable prices. These systems come with a DC/DC converter with a switch mode power based on SIP-MOS technology, high performance, low consumption, and are very lightweight. The Xenon flash tubes are Tirystor governed (double beam)



**TEARDROP LENS STROBE LIGHTS** - • Navigation lights incorporated into the main strobe dome. • Navigation lights and Strobes operated independently. • All products manufactured according to EC quality standards (CE certified) • 1yr full guaranty (including materials & labor). • Injected plastic canopy. • High output / long life Xenon lights with low power consumption and very light weighth. • Electronic circuits designed in order to prevent any parasite noises in radio operation.

Full Set - 2 Strobes .....P/N 11-02588 .....**\$453.95**  
Full Set - 3 Strobes .....P/N 11-02589 .....**\$645.00**



**BUBBLE LENS STROBE LIGHT** - • All products manufactured according to EC quality standards (CE certified). • 1 Year full guaranty. • High Output / long life Xenon lights with low power consumption and very light weighth. • Electronic circuits designed in order to prevent any parasite noises in radio operation..

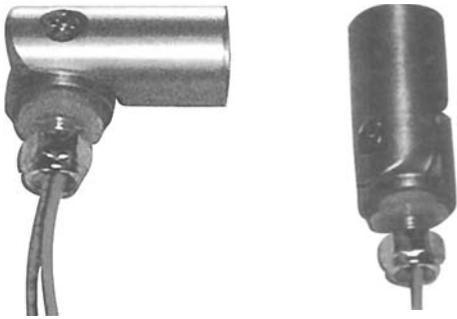
Full Set - 2 Strobes .....P/N 11-02590 .....**\$398.00**  
Full Set - 3 Strobes .....P/N 11-02591 .....**\$538.00**

Accessories	Part No.	Price
Navigation Light (Teardrop)	11-02592	<b>\$7.45</b>
Navigation Bulb (Teardrop)	11-02593	<b>\$5.50</b>
Xenon Flash Tube (Both)	11-02594	<b>\$76.85</b>
Strobe Dome (Teardrop)	11-02595	<b>\$13.65</b>
Strobe Dome (Bubble)	11-02596	<b>\$10.35</b>
Rear Light (Teardrop)	11-02597	<b>\$10.70</b>
Converter - Main box (2 Strobes)	11-02598	<b>\$229.00</b>
Converter - Main box (3 Strobes)	11-02599	<b>\$344.00</b>



# COCKPIT LIGHTS — STROBE POWER SUPPLIES

## LED COCKPIT LIGHTS



This versatile light can be used to illuminate the panel or repositioned to light your chart.

- 110 deg. adjustable angle.
- 360 deg. rotation.
- L.E.D. technology that lasts longer and draws less than 1 amp.

This light comes in 2 versions. One has 4 red L.E.D.'s, and the other has two white and two red L.E.D.'s that can be lit separately with a SPDT switch (not included). It is available in 14 or 28V versions.

The lights are 3/4" diameter, 15/8" tall when straight, 7/8" tall at 90 degrees. The mounting stud is 1/4" dia. and will accept up to a .200 thick mounting surface. There is an optional flush mount adapter. All lights are clear anodize.

4 RED 14V .....	P/N 11-04393 .....	<b>\$49.85</b>
4 RED 28V .....	P/N 11-04394 .....	<b>\$49.85</b>
2RED - 2 WHITE 14V .....	P/N 11-04395 .....	<b>\$52.75</b>
2RED - 2 WHITE 28V .....	P/N 11-04396 .....	<b>\$52.75</b>
FLUSH Mount Adapter .....	P/N 11-04397 .....	<b>\$14.50</b>

## AVI-PAK STROBE POWER SUPPLY FOR EXPERIMENTAL AIRCRAFT



The AVIPAK is an aircraft strobe power supply designed for use on Experimental Aircraft and based on the intensity requirements of the Federal Aviation Administration.

Designed using state of the art technologies including; larger discharge capacitors MOSFET circuitry for cool and quiet operation, modern EMI/RFI filtering, reverse polarity protection, tube deionization circuit to prolong flash tube life,

microprocessor controlled double and quadruple flash patterns and input surge protection.

### Features

- Same footprint & "plug-n-play" compatible with the Whelen HDACF
- High efficiency design runs cool and quiet
- Cockpit selectable Double or Quad flash
- Cockpit selectable "Low Power" mode for ground or IFR operations

### Specifications

- Input voltage: 10 to 30 VDC
- Input current: 5.5A @ 12.8V, 2.6A @ 25.6V
- Output energy: 41 joules max, High Power Mode, Quad Burst
- Dimensions: 6.6" L x 5.5" W x 2.6" H
- Weight: 1.75 lbs
- Manufactured in the USA
- Full 5 year warranty.

P/N 11-04411 .....**\$279.95**

## AVIFLASH H.I.D. AND HALOGEN LAMP FLASHER



The AVIFLASH is a 100% solid state and heavy duty reliable Wig-Wag flasher for Experimental Aircraft.

The AVIFLASH circuitry is encapsulated and contained in a light weight and compact plastic enclosure that can be mounted virtually anywhere.

Designed with the latest technologies in mind, the AVIFLASH is completely compatible and safe to use with all H.I.D. and Halogen lamps, and can drive up to a maximum of 12 Amps per output.

### Features :

- Small and lightweight package can mount just about anywhere
- 100% Solid State design is completely unsusceptible to vibration
- Four cockpit selectable flash patterns
- Warm-up circuit for H.I.D. support and prolonging lamp life

### Specifications :

- Input voltage: 10 to 30 VDC
- Input current: Depends on voltage & wattage of attached lamps
- Dimensions: 4" L x 2" W x 1.6" H
- Flash Rate: 40 flashes per minute
- Weight: 4.1 oz. with connector
- Manufactured in the USA
- Full 1 year warranty

P/N 11-04412 .....**\$59.85**

## 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 tefzel 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.



Color	Voltage	Part No.	Price
Red	12	11-04387	<b>\$48.00</b>
Green	12	11-04388	<b>\$48.00</b>
White	12	11-04389	<b>\$54.75</b>
Red	24	11-04390	<b>\$48.00</b>
Green	24	11-04391	<b>\$48.00</b>
White	24	11-04392	<b>\$54.75</b>

EL

# DIMMING SYSTEMS - COCKPIT LIGHTS



## AMERI-KING LIGHT DIMMERS

The Ameri-King AK-551LD is an FAA TSO'd approved Regulated DC to DC light dimmer. It transforms an input from a +28Vdc or +24Vdc to a variable +(0-28) Vdc or +(0-14) Vdc output. Each variable output vage is controlled independently by a remote Potentiometer / Rheostat of 500Ω (ohms), 2 Watt, to ground. Installation is very simple. All necessary accessories are provided, including pre-fabricated wiring harness assembly and/or mating D-subminiature connector plug; control potentiometer with On/Off switch.

Model	Potentiometer controls	Amps	Part No.	Price
AK-551-LD -S,7.2A	1	7.2	11-01446	\$59.00
AK-551-LD -S,10.0A	1	10	11-01447	\$95.00
AK-551-LD -D,10.0A	2	10	11-01449	\$118.00
AK-551-LD -D,20.0A	2	20	11-01450	\$316.95
AK-551-LD -Q,10.0A	4	10	11-01451	\$204.00
AK-551-LD -Q,20.0A	8	20	11-01452	\$308.00

## SOLID STATE LIGHT DIMMING KIT



Economical solution for the dimming of aircraft interior lighting. This heavy duty solid state dimming kit includes a potentiometer with built-in off switch and 115W power transistor mounted to a heat sink. The supplied colored Mil-Spec wire & 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 and incandescent bulbs are used and electro luminescent lamps (glow strips). Appropriate for both 14V & 28V systems. P/N 11-00846 .....\$87.25



## 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, .7A@28V, Power: 20W P/N 11-02082 \$144.95



## 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/flt for knob set screw. New manufacture. Power Rating: 25 Watts. 8 Ohms Ohmite P/N 0144 .....\$26.50



## FINGER GRIP KNOB

For rheostats. 1-1/2" Diameter, 1/4" Hole. P/N 5150 .....\$7.95



## LC-40 LIGHTING CONTROLLERS

The LC-40 Lighting Controllers are low cost 4-channel light dimming systems for experimental aircraft. Features extra control knob sensitivity at dim end of the lighting range where it is needed most. It is micro-controller controlled and has continuous over voltage, current limit & fault protection. Each channel can handle 1.5 amps. P/N 11-02537.....\$85.00

## MULTIPLE CIRCUIT SOLID STATE LIGHT DIMMERS



Choose from 2, 3, or 4-circuit heavy-duty 115W light dimming systems. Circuit board design with pin connector allows for easy and neat wiring. Supplied with needed Mil Spec Tefzel color-coded wire. 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. Separate control switch (with circuit breaking off position) included for each circuit.

- 2 Circuit .....P/N 11-02046 .....\$119.00
- 3 Circuit .....P/N 11-02047 .....\$169.00
- 4 Circuit .....P/N 11-02049 .....\$199.00

## VAL CLA 500 COCKPIT LIGHTING ASSEMBLY



dimmer control switches and connector assembly. The CLA 500 carries a full 1-yr. factory warranty.

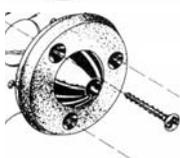
The CLA 500 is a Multiple Circuit, Solid State Cockpit Lighting Assembly that will accommodate (4) independent dimmer lighting circuits such as instruments, sub panels, avionics, eyebrow, overhead, flood, and post lamps etc. The CLA 500 unit itself measures 5" x 4.7" w x 1.5" h; wt: 0.8 lbs. The unit 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. P/N 11-05700(14v)...\$244.95 P/N 11-04592(28v)...\$244.95

## COCKPIT LIGHTS



**Type C4A** - A multi-purpose light providing narrow spotlight 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 .....\$108.95
- 24V .....P/N 11-03922 .....\$108.95



**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 home-builds. Used on Voyager's world flight. P/N 11-07800 .....\$12.95

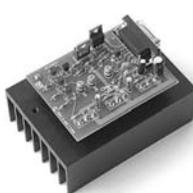


## EYEBALL COCKPIT LIGHTS

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 .....\$63.75
- Gray (no bulb) .....P/N 05-01402 .....\$63.75
- 14V .....P/N 11-04197 .....\$1.41
- 28V .....P/N 11-04172 .....\$2.45

Order 14V or 28V bulb separately



## 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. 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 .....\$128.00

## FLIGHTECH LDC-1 LIGHT DIMMER



Installation is simple, remove old rheostat and insert LDC-1 in place of the rheostat, connect a ground wire and mount and connect the new control potentiometer. After proper installation, cooler and more dependable operation for many years can be expected. **Features:** • Small size, 2"x1.8"x2.5" • Up to 2 amps of Current • Current limiting & thermal protection • Includes light control, mounting hardware, connector housing & crimp terminals. • 3 yr warranty. P/N 11-02243 .....\$130.95



# PULSE LIGHT SYSTEMS — LANDING/TAXI LIGHTS

## PULSAR LANDING LIGHT PULSE LIGHT SYSTEM



Pulsar by Avtek 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; Why? 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. Hundreds of hours per bulb have been reported by our customers with Pulsar pulsing the light(s). 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 mins. Pulsar is approved for all 100W GE lights. Wt: 3.5 oz.; Size: 3.25"lx2"wx1"h.

Standard halogen bulbs .....P/N 11-01258 .....\$217.95  
 Quartz Q-4509 or Q-4591 .....P/N 11-04408 .....\$311.95

## 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 by avoiding the thermal shock normally associated with initial turn-on since the filaments never go completely out. The landing lights are easily aimed with the spring-loaded adjusting screws. Pilots in other aircraft and the controllers in the tower will be able to see your aircraft much easier giving you that extra margin of safety. 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

P/N 11-02051 .....\$239.95

## SPT LANDING LIGHT FLASHER



Increase the visibility of your aircraft and give yourself that extra margin of safety with this Superior Panel Technology solid state landing light flashing system. 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.

50W bulbs .....P/N 11-02070 .....\$139.95  
 100W bulbs .....P/N 11-02071 .....\$169.95

## XEVISION LANDING & TAXI LIGHTS



XeVision (pronounced "ZEE-Vision") super bright xenon metal halide landing & taxi lights for experimental aircraft. Light so bright and white you'd swear it's daylight, 1/2 Million candle power (3200 lumens), 5X brighter than a standard 100 watt incandescent sealed beam, 3X brighter than modern Halogen lamps. Less than 1/2 the amp draw and 1/2 the radiated heat of Standard or Halogen

lamps. We offer retrofit kits for direct replacement or complete lighting systems for new aircraft installation, 4 reflector shapes/sizes available. Many installation locations possible now with varied reflector/housing shapes extremely small form factor, and lower lamp housing temperatures, especially suited for tight spaces in composite aircraft. High Intensity Discharge (H.I.D.) lighting is the most significant breakthrough in aviation lighting since the development of modern sealed beam lamps. XeVision provides "certified" quality at a very competitive price with a 5yr warranty, over 3000 hour typical lamp life.

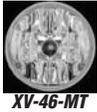


Par 36 conversion, Lamp dia: 4-5/16" XV-36-SL with XV-1 ballast and D1S bulb.....P/N 11-01760.....\$521.00

Par 36 conversion, Lamp dia: 4-5/16" XV-36-ST with XV-1 ballast and D1S bulb.....P/N 11-01761.....\$521.00



Par 46 conversion, Lamp dia: 5-11/16" XV-46-SL with XV-1 ballast and D1S bulb .....P/N 11-01762 .....\$521.00



Par 46 conversion, Lamp dia: 4-5/16" XV-46-MT with XV-1 ballast and D1S bulb .....P/N 11-01763.....\$521.00

Wing tip/winglet & gear landing/taxi lights XeVision kit & component Lamp fixture, rectangular, only 2.25" high XV-23 w/XV-1 ballast & D1S bulb ..P/N 11-01764 .....\$519.00



XV-46-SL



Taxi Light

Lamp fixture, oval, multi surface XV-22 with XV-1 ballast and D1S bulb .....P/N 11-01765.....\$519.00

## ULTRAVISION GLARE SHIELD LIGHTING



Ultravision glare shield lighting systems provide soft, clean, even light which is completely non-glare. The light emitted from Ultravision has a very narrow spectral output matched to the wavelength at which the human

eye is most receptive. Unlike bulb systems, which produce a "hot spot" of focus, intensity of Ultravision is consistent and even. The kits include 16" long lamps which are ultra-thin for a flush factory look and ultra-flexible to conform to virtually any glare shield. They are easily mounted with supplied adhesive or set screws, and solid state construction eliminates failure from shock and vibration. A fail safe internal fuse enables a 9V battery backup bypass in the event of complete electrical failure in flight, providing instrument panel illumination without aircraft power. The 9V battery power can also be used during pre-flight. The Universal systems include a pre-wired harness with toggle switch, pulse dimming control, and the patented 9V battery back-up system, as well as installation hardware and a label for the switch. These universal systems operate on 14 or 28V aircraft power. The Economy systems are designed to connect to the existing aircraft pulse dimming control and does not include the 9V battery back-up feature. 14 or 28V aircraft input must be specified on economy systems. FAA-STC approved for most models.

### Universal Systems

Dual Lamp System.....P/N 11-01786.....\$264.00  
 Single Lamp System .....P/N 11-01787.....\$225.00

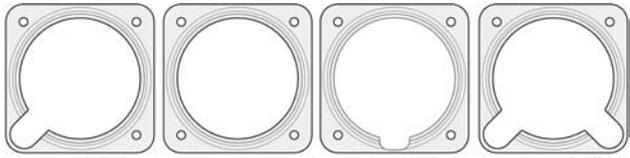
### Economy Systems

Dual Lamp System 12V .....P/N 11-01788.....\$170.00  
 Single Lamp System 12V .....P/N 11-01789.....\$129.00  
 Dual Lamp System 24V .....P/N 11-01790.....\$170.00  
 Single Lamp System 24V.....P/N 11-01791.....\$129.00

EL

# INSTRUMENT LIGHTING

## 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. Standard lighting colors are White(W), Green(G) or Red(R). Inverter is required.

- |   |   |
|---|---|
| <b>3-1/8" Lighting Bezel</b>                          | <b>2-1/4" Lighting Bezel</b>                          |
| <b>Knob Cut-out</b><br>P/N 2-30-G, 2-30-W or 2-30-R   | <b>Knob Cut-out</b><br>P/N 2-20-G, 2-20-W or 2-20-R   |
| <b>No Cut-out</b><br>P/N 2-31-G, 2-31-W or 2-31-R     | <b>No Cut-out</b><br>P/N 2-21-G, 2-21-W or 2-21-R     |
| <b>Center Cut-out</b><br>P/N 2-33-G, 2-33-W or 2-33-R | <b>Double Cut-out</b><br>P/N 2-24-G, 2-24-W or 2-24-R |
| <b>Double Cut-out</b><br>P/N 2-34-G, 2-34-W or 2-34-R |   |

Price per Bezel .....\$43.50

### INVERTERS FOR UMA LIGHTING -

- |                 |                    |         |
|-----------------|--------------------|---------|
| 5V (JETS) ..... | P/N 1G1 .....      | \$34.50 |
| 14V .....       | P/N 1G2 .....      | \$37.50 |
| 28V .....       | P/N 10-00986 ..... | \$37.50 |
- Each inverter will run up to 12 lighting wedges.
- |                       |                |         |
|-----------------------|----------------|---------|
| Rheostat .....        | P/N 6002 ..... | \$21.75 |
| Elec. Wire Kit* ..... | P/N 1G02 ..... | \$11.85 |

\*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.

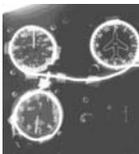
Dimensions	Color	Part No.	Price
0.5"W x 25"L	White/Blue	10-00321	\$47.95
0.5"W x 25"L	Aviation Green	10-00322	\$47.95
1.5"W x 18"L	White/Blue	10-00323	\$63.95
1.5"W x 18"L	Aviation Green	10-00324	\$63.95

## 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 ..... | \$84.28 |
| Replacement #4509 Bulbs ..... | P/N 11-03796 ..... | \$9.95  |



## AVTEK TEKLITEZ

TekLitez feature ELF (Electro Lumens Fiber) a flexible thin clear Fiber, that is energized by the inverter designed by AvTek. The fiber produces a Blue-Neon light resulting in 360 degrees of instrument lighting. Allows you to illuminate round or even square instruments. Easy to install. The small thin ELF is Super-Glued into place behind the panel. The inverter is 2" cube, which goes anywhere behind the panel. One kit will do approx 5 or 6 large instruments. Life expectancy is over 20,000 hours. Dimmers are optional.

- |                   |                    |          |
|-------------------|--------------------|----------|
| FAA-PMA approved. | P/N 11-01944 ..... | \$123.95 |
|-------------------|--------------------|----------|

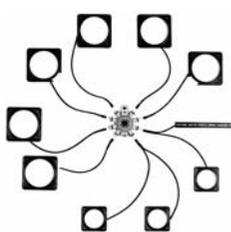
## NULITE INSTRUMENT LIGHTING SYSTEM



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	\$41.40	28V 3-1/8" for VSI	11-01230	\$41.40
14V 2-1/4" Left cutout	11-01257	\$41.40	14V 3-1/8" Rt. cutout	11-02574	\$41.40
14V 2-1/4" Rt. cutout	11-04373	\$41.40	28V 3-1/8"	11-03852	\$41.40
28V 2-1/4"	11-02571	\$41.40	28V 3-1/8" Lt. cutout	11-02762	\$41.40
28V 2-1/4" Left cutout	11-04374	\$41.40	28V 3-1/8" Altimeter	11-02851	\$41.40
28V 2-1/4" Rt. cutout	11-04375	\$41.40	28V 3-1/8" Rt. cutout	11-03853	\$41.40
14V 3-1/8"	11-02572	\$41.40	14V 3-1/8" R/L cutout	11-00818	\$41.40
14V 3-1/8" Lt. cutout	11-02673	\$41.40	28V 3-1/8" R/L cutout	11-01352	\$41.40
14V 3-1/8" Altimeter	11-02573	\$41.40	14V, 4" light bar	11-02788	\$41.40
14V 3-1/8" for VSI	11-01099	\$41.40	28V, 4" light bar	11-02789	\$41.40

## FIBERLITE INSTRUMENT LIGHTING SYSTEM



FiberLites by Superior Panel Technology, offers an innovative FAA/PMA approved instrument and label lighting system that uses fiber optics to evenly illuminate 8-16 instruments with an easily accessible remote, light source. FiberLites are affixed to specially designed bezels that are sandwiched between the instrument and the panel for the appearance of an internally lighted instrument. The advantages of using FiberLites over other lighting devices are: a) easier

wiring, each port on the single-bulb, 8-port source can illuminate (1) 3-1/8" instrument or (2) 2-1/4" instruments, b) bulb replacement takes only seconds as the light source can be up to 30" away from the instruments, c) FiberLites provide 360° brightness around the instrument and introduce no heat or electromagnetic interference, d) instrument is not altered in any way, e) FiberLites can be used to backlight reverse engraved or printed panels. The package price includes one-light source, 2 bulbs (either 14V or 24V) and any combination of instruments that can be plugged into one light source (for example, you could illuminate (6) 3-1/8" instruments and (4) 2-1/4" instruments--see above).

- |                                      |                    |          |
|--------------------------------------|--------------------|----------|
| <b>FiberLite Package Price</b> ..... | P/N 11-04009 ..... | \$245.95 |
|--------------------------------------|--------------------|----------|
- Individual Parts Pricing:**
- |                               |                    |         |
|-------------------------------|--------------------|---------|
| 2-1/4" inst. ....             | P/N 11-04000 ..... | \$28.60 |
| 3-1/8" inst. ....             | P/N 11-04002 ..... | \$26.95 |
| 3-1/8" inst w/cut out .....   | P/N 11-04003 ..... | \$26.95 |
| 8-port light source .....     | P/N 11-04004 ..... | \$35.80 |
| 14V bulb .....                | P/N 11-03998 ..... | \$3.10  |
| 24V bulb .....                | P/N 11-04001 ..... | \$3.10  |
| Solid State Dimming Kit ..... | P/N 11-00846 ..... | \$87.25 |

## FIBERLITE ILLUMINATED LABELING

BATT	INST	RADIO	TRIM	PROP	GEAR	LIGHT
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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 backlight reverse engraved panels.

LABELS	Part No.	Price
Single line label up to 8.2" in length	11-00224	\$49.00
Label 8.3" - 14" in length	11-00225	\$52.95

Above labels include mounting channel, custom printed label, fiber optic ribbon and connectors

LIGHT SOURCES	Price
LED 14V .....	11-03999 .....\$20.30
LED 24V .....	FL24LED .....\$20.30
8-port light source	see above

The LED light sources are wired using appropriate resistor.

**FIBER OPTIC RIBBONS - for Backlighting Reverse Engraved Panels**

1/4" x 6" .....	11-04005 .....	\$20.90	1/4" x 8.7" .....	11-04006 .....	\$24.80
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Ribbons come with 30" leads and connectors for light source chosen



# REPLACEMENT LAMPS

## 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	\$18.40
U303			GE-303	303			11-01948	\$2.85
U327			GE-327	327			11-01949	\$4.95
U330			GE-330	330			11-01950	\$0.55
U387			GE-387				11-01951	\$4.95
U1163	11631						11-01953	\$12.80
U1512	1512			1512			11-01954	\$14.40
U1524	1524			1524			11-01955	\$12.70
U1687	1687						11-01956	\$12.60
U1940	1940	WRM-1940	GE-1940	1940			11-01958	\$10.30
U1982-SP	LP-1982SP		GE-1982SP		761-214		11-01960	\$26.40
UA-7079B-12	1-7079B-12			A-7079B-12			11-01962	\$17.60
UA-7079B-24	A-7079B-24			A-7079B-24			11-01963	\$17.70
UA-7512-12	A-7512-12	W1290-14		A-7512-12			11-01964	\$14.40
UA-7512-24	A-7512-24	W1290-28		A-7512-24	753-478		11-01965	\$14.40

## GALAXY LANDING LIGHT BULBS

Bulb #	Volts	Watts	Par #	Part No.	Price ea
4313	13	250	36	11-03524	\$11.20
4509	13	100	36	11-02219	\$7.95
4509Q	13	100	36	11-02220	\$19.85
4522	13	250	46	11-03525	\$13.90
4537	13	100	46	11-03526	\$12.30
4553	28	250	46	11-03527	\$15.20
4570	28	150	46	11-03528	\$13.70
4580	28	450	46	11-03529	\$19.20
4581	28	250	46	11-03530	\$15.20
4587	28	250	36	11-03531	\$13.70
4591	28	100	36	11-03532	\$9.95
4594	28	100	36	11-03533	\$8.20
4595	13	100	36	11-03534	\$8.40
4596	28	250	36	11-03535	\$12.70
4626	28	150	36	11-03536	\$11.30

## 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 .....\$5.00  
28V .....P/N 11-02053 .....\$5.00

## GRIMES REPLACEMENT FLASH TUBE

Replaces Grimes Part No. 5S-0221-1 ....P/N 11-10000 .....\$79.25

## GRIMES LAMPS FOR EXTERIOR LIGHTS

Lamp No.	Volts	Application	Price
11-02601	12	Wing Tip Lights, Model E	\$10.75
11-02604	24	Wing Tip Lights, Model E	\$16.90
11-03661	12	Rot. Bcn G7740A, G8400, D7080A	\$29.60
11-03739	24	Rot. Bcn G7740A, G8400, D7080A	\$17.40

## WHELEN LAMPS FOR EXTERIOR LIGHTS

Lamp P/N	Application	Price
11-03219	Wing Tip Strobe, Xenon Flash	\$74.50
11-03697	Tail Strobe, Xenon Flash	\$75.95
11-03225	Flash Tube for SA & A450	\$67.50
11-03274	Flash & Socket for A500	\$128.95
11-03216	Halogen Lamp, A500/A555/A600	\$22.20
11-02602	Replacement bulb (14V)	\$16.90
11-02604	Replacement bulb (28V)	\$16.90
11-03897	(12V) Rotating Beacon	\$10.50
11-03896	(24V) Rotating Beacon	\$16.30

## RAPCO REPLACEMENT LAMPS

Rapco P/N	Our P/N	Price	Rapco P/N	Our P/N	Price
RAC17312-1	11-04356	\$16.40	RA330	11-04362	\$0.58
RAC17312-3	11-04357	\$16.40	RA327	11-04363	\$0.62
RA1512	11-04358	\$13.80	RA7079B-12	11-04364	\$14.80
RA1524	11-04359	\$12.90	RA7079B-24	11-04365	\$14.80
RA1939X	11-04360	\$11.50	RA7512-12	11-04366	\$12.65
RA1940	11-04361	\$9.80	RA7512-24	11-04367	\$12.65

## 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 .....\$62.00

## GLARE SHIELD KIT



This Glare Shield Kit provides the materials to produce a professional custom padded glare shield. The material passes the FAR 25.853 burn requirements and a burn certificate is provided with each kit. The kit includes 1.5 linear yards x 54" wide black SPT Leather-Like Vinyl, 1.5 linear yards x 48" x 1.8" SPT open cell foam cushioning, two 1/16" x 8" x 50" of ABS base material, 2024 T3 aluminum stiffener, bull nose material, template foam and cardboard template material. Complete easy to follow instructions are provided to help you produce a professional looking padded glare shield that is custom to your aircraft and has the look and feel of leather.

P/N 11-02295 .....\$172.95

## GLOW STRIPS



Bright, fluorescent type lighting that is only 1/16" in thickness. The electroluminescent Glow Strips produce a nice greenish-blue light that is easy on the eyes. They can be used for a variety of interior lighting needs such as in the baggage compartment, under glare shield or above switch panels.

Glow Strips are 18"L x 1"W and can be cut down to a minimum of 14" long. Supplied w/foam adhesive tape on one side. The appropriate inverter and two conductor shielded hookup wire is included.

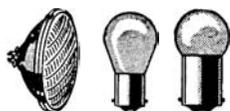
Single Glow Strip - 14V .....P/N 11-00847 .....\$128.00  
Two Glow Strips - 14V .....P/N 11-00848 .....\$172.95  
Two Glow Strips - 28V .....P/N 11-00849 .....\$172.95

# 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>B-31/2 Bulb 7/16" (11mm) Diameter</b>						<b>GE-327 Eyebrow/Post Lt. 28 .04A 11-04015 \$0.89</b>					
GE-PR2	Flashlight-2D Cells	2.38	.50A	11-03069	\$0.75	GE-328	Panel Indicator	6	.20A	11-04181	\$0.77
GE-PR3	Flashlight-3D Cells	3.57	.50A	11-03071	\$0.39	GE-330	Eyebrow/Post Lt.	14	.08A	11-04016	\$0.95
GE-PR6	Flashlight-2D Cells	2.47	.30A	11-03070	\$0.40	GE-334	Panel Indicator	28	.04A	11-04182	\$0.96
GE-PR7	Flashlight-3D Cells	3.70	.30A	11-03072	\$0.40	GE-387	Panel Indicator	28	.04A	11-04185	\$0.69
GE-PR12	Flashlight-5D Cells	5.95	.50A	11-03073	\$0.40	GE-388	Panel Indicator	28	.04A	11-03045	\$0.98
GE-PR18	Flashlight-6D Cells	7.20	.55A	11-03074	\$0.40	<b>T-21/4 Bulb 9/32" (7.5mm) Diameter</b>					
<b>B-6 Bulb 3/4" (19mm) Diameter</b>						GE-786	Emergency-Halogen	6	2.0A	11-03046	\$7.60
GE-1308	Reading Light	28	.56A	11-03076	\$2.65	<b>T-3 Bulb 3/8" (9.5mm) Diameter</b>					
GE-1309	Aircraft Interior	28	.52A	11-04162	\$4.15	GE-1978X	Navigation	10	100W	11-03047	\$18.25
GE-1317	Emergency Landing	6	.51A	11-03075	\$4.10	GE-1982	Navigation	28	75W	11-03048	\$74.80
<b>G-31/2 Bulb 7/16" (11mm) Diameter</b>						<b>T-31/4 Bulb 13/32" (10mm) Diameter</b>					
GE-356	Map Light	28	17A	11-04184	\$2.15	GE-43	Indicator	2.5	.50A	11-03049	\$1.15
GE-1450	Indicator	24	.035A	11-03077	\$5.40	GE-44	Panel Indicator	6.3	.25A	11-04186	\$0.69
<b>G-41/2 Bulb 9/16" (14mm) Diameter</b>						GE-316	Instrument	6	.70A	11-03050	\$2.75
GE-55	Panel Indicator	7	2 CP	11-04194	\$1.53	GE-400	Aircraft	28	.10A	11-03054	\$1.05
GE-57	Panel Indicator	14	2 CP	11-04195	\$0.57	GE-757	Indicator	28	.08A	11-03053	\$0.95
GE-425	Lantern-4F Cells	5	.50A	11-03079	\$1.20	GE-1813	Wing/Tail-All Frosted	14.4	.10A	11-04166	\$1.56
GE-456	Instrument	28	.17A	11-03080	\$1.68	GE-1815	Indicator	14.0	.20A	11-03052	\$6.2
<b>G-5 Bulb 5/8" (16mm) Diameter</b>						GE-1816	Map/Dome Light	13	.33A	11-04167	\$1.17
GE-302	Aircraft	28	.17A	11-03038	\$3.80	GE-1818	Panel Indicator	24	.17A	11-04168	\$1.62
GE-1315	Emergency Lighting	2.5	1.0A	11-03037	\$3.70	GE-1819	Panel Indicator	28	.04A	11-04169	\$1.09
<b>G-6 Bulb 3/4" (19mm) Diameter</b>						GE-1820	Panel Indicator	28	.10A	11-04170	\$1.87
GE-81	Wing/Tail	6.5	1.02A	11-04196	\$2.90	GE-1873	Aircraft	28	.17A	11-03056	\$1.40
GE-303	Cockpit Light	28	.30A	11-04172	\$2.45	GE-464	Aircraft	28	.17A	11-03055	\$1.63
GE-304	Cockpit Light	28	.30A	11-04173	\$2.35	GE-1864	Panel Indicator	28	.17A	11-04171	\$1.26
GE-623	Aircraft - 2 Filaments	28	.37A	11-03041	\$2.60	<b>T-4 Bulb 1/2" (13mm) Diameter</b>					
GE-1251	Aircraft - 2 Filaments	28	.23A	11-03039	\$2.60	GE-1986	Navigation	28	250W	11-03058	\$46.60
GE-1252	Aircraft - 2 Filaments	28	.23A	11-03040	\$4.10	GE-1987	Navigation	28	150W	11-03057	\$26.10
<b>S-8 Bulb 1" (25mm) Diameter</b>						<b>T-5 Bulb 5/8" (16mm) Diameter Electric Discharge Lamps</b>					
GE-305	Wing/Tail	28	.51A	11-04174	\$3.10	GE-1978X	Navigation	10	100W	11-03047	\$18.25
GE-305AF	Wing/Tail-All Frosted	28	.51A	11-03027	\$3.10	GE-1982	Navigation	28	75W	11-03048	\$74.80
GE-306	Wing/Tail	28	.51A	11-04175	\$3.55	GE-5004CW	Cool White	A.C.	4W	11-03060	\$7.35
GE-307	Wing/Tail	28	.67A	11-04176	\$2.85	GE-5004WW	Warm White	A.C.	4W	11-03061	\$7.35
GE-307AF	Wing/Tail-All Frosted	28	.67A	11-04176	\$2.85	GE-5008CW	Cool White	A.C.	8W	11-03063	\$7.05
GE-308	Wing/Tail	28	.67A	11-04177	\$3.00	GE-5008WW	Warm White	A.C.	8W	11-03064	\$7.05
GE-315	Wing/Tail	28	.90A	11-04180	\$4.30	GE-5013CW	Cool White	A.C.	13W	11-03066	\$7.95
GE-705	Aircraft	28	.51A	11-03028	\$4.35	GE-5013WW	Warm White	A.C.	13W	11-03067	\$7.95
GE-1619	Instrument	6	4.1A	11-03025	\$2.55	GE-5104WW	Warm White	A.C.	4W	11-03062	\$5.35
GE-1665	Aircraft	28	.80A	11-03034	\$3.85	GE-5108WW	Warm White	A.C.	8W	11-03065	\$8.00
GE-1665AF	Aircraft - All Frosted	28	.80A	11-03035	\$3.25	GE-5113WW	Warm White	A.C.	13W	11-03068	\$6.90
GE-1680	Wing/Tail	6	4.1A	11-04165	\$2.35	<b>T-7 Bulb 7/8" (20mm) Diameter</b>					
GE-1691	Aircraft - 2 Filaments	28	.61A	11-03029	\$8.30	GE-1940	Rotating Beacon	14	3.57A	11-03794	\$10.50
GE-1692	Marine - 2 Filaments	28	.61A	11-03030	\$8.90	<b>Cockpit &amp; Wing/Tail Lights</b>					
GE-1777	Aircraft Tail Light	12.8	1.52A	11-04014	\$5.85	GE-53	Panel Indicator	14.4	1 CP	11-04193	\$1.27
GE-2232	Spiral Lead	28	6.43A	11-03031	\$1.95	GE-89	Cockpit Light	13	6 CP	11-04197	\$1.41
GE-2233	Spiral Lead	28	.766A	11-03033	\$1.95	GE-93	Wing/Tail	12.8	15 CP	11-04199	\$1.89
<b>S-11 Bulb 1-3/8" (35mm) Diameter</b>						GE-94	Wing/Tail	12.8	15 CP	11-04200	\$2.10
GE-309	Aircraft	28	.90A	11-03036	\$2.15	GE-313	Cockpit Light	28	.17A	11-04179	\$1.14
GE-311	Wing/Tail	28	1.29A	11-04178	\$2.60	GE-336	Post Light	14	.08A	11-04183	\$0.98
<b>T-1 Bulb 1/8" (3mm) Diameter</b>						GE-356	Map Light	28	17A	11-04184	\$2.15
GE-685	Aircraft	5.0	.06A	11-03042	\$1.17	GE-1073	Illuminator Lights	12.8	1.80A	11-04012	\$2.85
GE-718AS15	Aircraft - 1 Filament	5.0	.115A	11-03043	\$1.15	GE-1141	Wing/Tail	12.8	1.44A	11-04161	\$1.35
<b>T-13/4 Bulb 7/32" (5.5mm) Diameter</b>						GE-1495	Panel Indicator	28	.30A	11-04164	\$2.60
GE-85	Indicator	28	.04A	11-03044	\$0.95						



## 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
<b>PAR36 Bulb 41/2" (114mm) Diameter</b>						<b>PAR46 Bulb 53/4" (146mm) Diameter (Continued)</b>					
GE-4509	Landing Spotlamp	13	100W	11-03796	\$9.95	GE-4553	Landing	28	250W	11-03799	\$22.60
GE-4595	Navigation	13	100W	11-03081	\$25.80	GE-4554	Taxiing	28	450W	11-03095	\$71.50
GE-Q4509	Landing	13	100W	11-03902	\$25.80	GE-4570	Taxiing	28	150W	11-03801	\$15.90
GE-4313	Landing	13	250W	11-03795	\$21.30	GE-4571	Flood	28	150W	11-03092	\$20.80
GE-Q4631	Landing	13	250W	11-03083	\$65.50	GE-4580	Landing	28	450W	11-03901	\$33.60
GE-4505	Navigation	28	50W	11-04188	\$19.90	GE-4581	Landing	28	450W	11-03097	\$39.90
GE-4589	Cockpit Flood	28	50W	11-03084	\$18.85	GE-Q4681	Landing	28	450W	11-03101	\$85.50
GE-4593	In-Air Refueling	28	50W	11-03085	\$15.10	GE-4582	Helicopter Flood	28	450W	11-03098	\$49.85
GE-4591	Landing	28	100W	11-03802	\$25.50	GE-Q4566	Taxiing	28	450W	11-03096	\$75.85
GE-4594	Navigation	28	100W	11-03803	\$14.20	GE-Q4597	Flood	28	450W	11-03099	\$130.95
GE-4627	Flood	28	100W	11-03088	\$38.75	<b>PAR56 Bulb 7" (178mm) Diameter</b>					
GE-4713	Logo	28	150W	11-03089	\$93.85	GE-4541	Landing	28	450W	11-03102	\$31.80
GE-4587	Taxiing	28	250W	11-03090	\$25.30	<b>PAR64 Bulb 8" (203mm) Diameter</b>					
GE-4596	Landing	28	250W	11-03806	\$19.90	GE-4557	Landing/Taxiing	28	1000W	11-04190	\$57.75
<b>PAR46 Bulb 53/4" (146mm) Diameter</b>						GE-4559X	Landing	28	600W	11-03104	\$43.40
GE-4551	Taxiing	28	250W	11-03093	\$12.90	GE-Q4559	Landing	28	600W	11-03103	\$57.00

### Q4509 LONG LIFE GE AIRCRAFT BULB

The Q4509 lamp is a direct replacement for the standard 4509 lamp. While the amps & wattage are the same, the rated design life of the Q4509 is 4 times longer (100 hrs. vs. 25 hrs.) and Q4509 has nearly double the candlepower and narrower beam disbursement. P/N 11-03902 .....\$25.80  
 Galaxy 4509Q Landing Light Bulb.....P/N 11-02220 .....\$19.85  
 Galaxy 4509 Landing Light Bulb .....P/N 11-02219 .....\$7.95

**AIRCRAFT SPRUCE WEST**  
CORONA, CA • (877) 4-SPRUCE

**459**  
Prices Subject to Change Without Notice

**AIRCRAFT SPRUCE EAST**  
PEACHTREE CITY, GA • (877) 477-7823

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