PIONEERS IN SAFETY SIGNALS

WHELEN

ENGINEERING COMPANY, INC.

ROUTE 145, WINTHROP ROAD
CHESTER, CT 06412-1036 TEL: (203) 526-9504

TROUBLE-SHOOTING PROCEDURES FOR STROBE LIGHT SYSTEMS AND RFI AND EMI PROBLEMS (RADIO NOISE).

When repairing Whelen Strobe Light Systems, use only Whelen manufactured hardware. Be careful of strobe light parts that are similar in appearance!

STROBE LIGHT PROBLEMS

The Whelen Aviation Strobe Light is a condenser discharge strobe light system. A condenser is charged to approximately 450 volts DC, then discharged across a xenon flash tube at controlled intervals. The condenser is parallel across the xenon flash tube that is designed to hold off the 450 volts DC applied, until the flash tube is triggered by an external pulse. This pulse is generated by a solid state timing circuit in the power supply.

When trouble-shooting a strobe light system, you must first determine if the trouble is in the flash tube or the power supply. This can be accomplished by replacing the flash tube assembly with a good operating flash tube, or with the use of a Whelen Strobe Check unit.

Whelen's power supplies are protected against a short or open circuit on the output. In either case Whelen's power supplies will effectively turn themselves off when subjected to a shorted output or a xenon flash tube that refuses to flash.

WARNING: Strobe light power supplies are meant to be used, not remain in an inactive state. Use them at all times, this improves their proper functioning. Any strobe light power supply that has been out of service for a long period of time is subject to failure because the electrolytic condenser loses the polarity formation. A strobe light power supply not having been used for one year or longer is vulnerable to failure.

If this is the case, **it is recommended you disconnect all flash tubes and start operating the system on a voltage that is reduced 25% for 10 to 15 minutes** before putting the power supply into normal service. This will prevent overheating of the condenser while they reform. If the power supply, after a long period of non use, is operated at full voltage immediately, there is an excellent possibility that the condenser will become overheated.

POWER SUPPLY TEST PROCEDURES.

THE POWER SUPPLY IS A HIGH VOLTAGE DEVICE. LET THE POWER SUPPLY BLEED DOWN FOR FIVE MINUTES AFTER TURNING OFF BEFORE HANDLING.

WARNING: Reversed polarity of the input power, for just an instant, will permanently damage the power supply. This damage is sometimes not immediately apparent, but will cause a failure later.

External trigger switching is not provided on the A413A,HDA-DF Strobe Light power supply. (Ref. A413,T3-DF old style Strobe Light power supply, outlet #1). Do not short out high voltage for extended length of time; it will cause over heating of the output diodes and cause possible failure.

A normal operating power supply emits an audible tone. If there is no sound emitted, investigate.

1. Determine that there is a proper input voltage at the power supply. If this test is positive go to step 2.
2. Clear all possible shorts at the power supply, by disconnecting the output cables from the power supply outlets, and connect an operating strobe head assembly or a Strobe Check unit directly to the power supply outlet.

   Then apply the required voltage to the power supply input. If this application proves positive the power supply is in working condition, and the problem may be with the interconnecting cables.
3. A quick check of a strobe light system is to listen to the flash tube by using a paper cup as a stethoscope. If the power supply and trigger transformer are good, you will hear the trigger spark snap, like spark plug sparks. The trigger pulse is a very low energy pulse and you can feel the pulse with your finger without any harmful effect to you or the strobe light system.

CABLE CONTINUITY CHECK PROCEDURES.

If pins 1 and 3 are reversed, or if there is a short between pins 1 and 2 of the interconnecting cable, the power supply will be rendered non-operable until the short is cleared. A short of this type will not cause any permanent damage to the power supply. However a discharge of the condenser across pin 1 and pin 3 will destroy the trigger circuit in the power supply.

1. Check for continuity between the connectors of each interconnecting cable:

   Pin 1 to pin 1 (red wire = anode +).
   Pin 2 to pin 2 (black wire = ground -).
   Pin 3 to pin 3 (white wire = trigger).

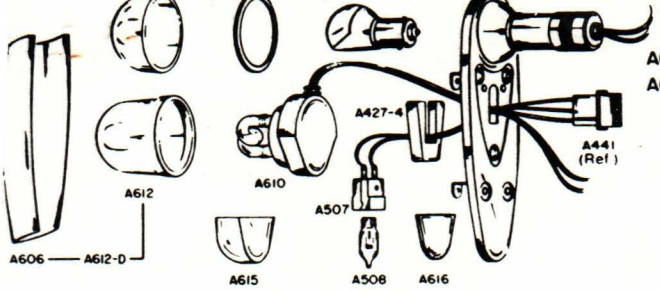
   Pin 2 and 3, black and white wire, at the flash tube is across the primary of the flash tube, which is approximately 1 ohm. Reversing these wires will discharge the flash tube current through the primary, burning up the trigger transformer primary. Pins 1 and 2, red and black wire, is across the flash tube. Most flash tubes are polarized. Reversing the input will contaminate the Xenon atmosphere, causing early flash tube failure.
2. Check for shorts between pins 1 and 2, pins 1 and 3 and pins 2 and 3 of the interconnecting cable.
3. Check for shorts from pins 1, 2, 3, to aircraft ground (pin 2 is the aircraft ground in the power supply).

NOTE: When pins 1 and 2, or pins 2 and 3 are reversed, the system will appear to operate normally, but these conditions will cause early flash tube failure, and void the flash tube warranty.

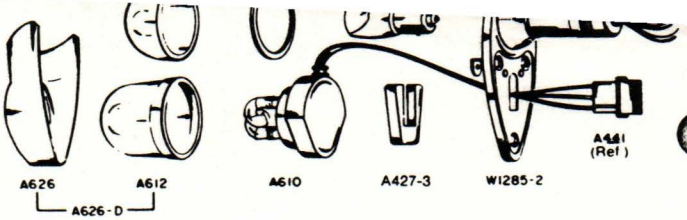
XENON FLASH TUBE TEST PROCEDURES.

1. A xenon flash tube can be very photosensitive. One will flash normally when exposed to an external light source, but may become hard to fire when subjected to darkness.
2. They will become hard firing with age, or when exposed to a very high temperature. A hard firing tube will sometimes operate with the engine running, but will fail when operated on a low battery.
3. They can develop a leak through eggshelling of the glass, or a leak can develop around the seal of the wire to the glass. This is caused by hot and cold cycling of normal operating of the system.
4. They can go into self-ionization (continuously glow a light blue), thus rendering the entire system non-operational until replaced. This most likely occurs when the input voltage is highest, when the engine is running. This can be checked by turning the system off. When turning the system back on, it generally will operate normally for a few flashes before going back into self-ionization.

ANY OF THE ABOVE MENTIONED CONDITIONS ARE REASONS FOR REPLACEMENT OF THE XENON FLASH TUBE.



A650-PR
A650-PG



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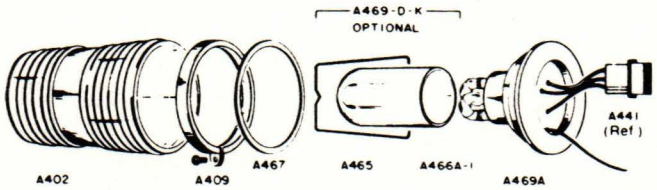

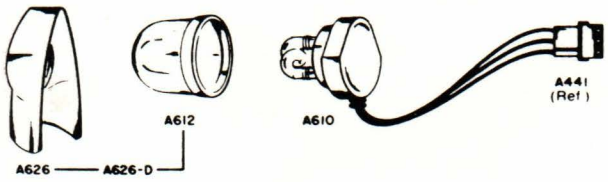

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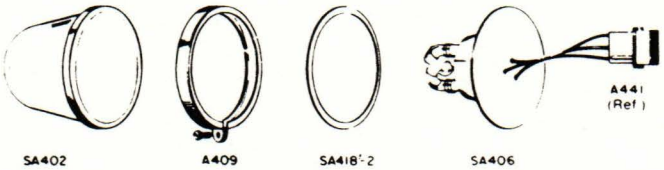

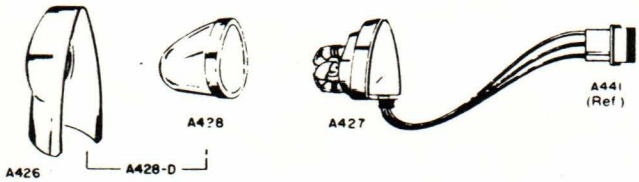

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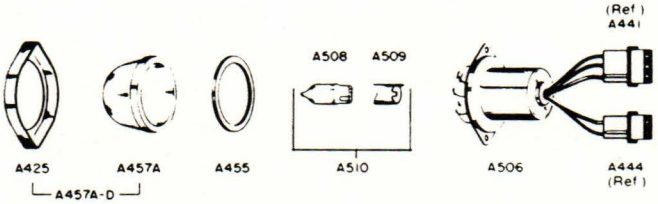

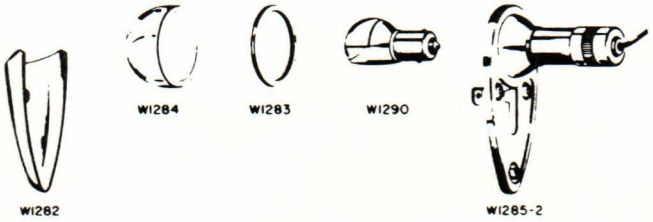

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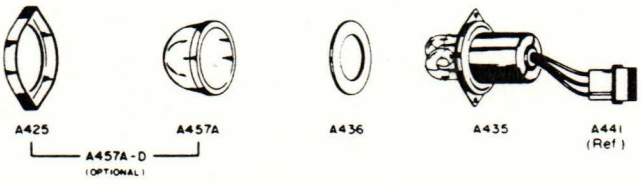

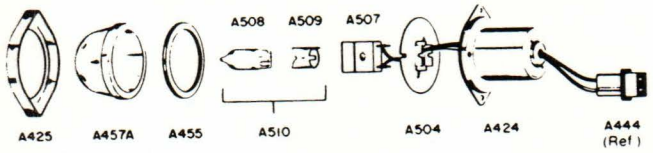

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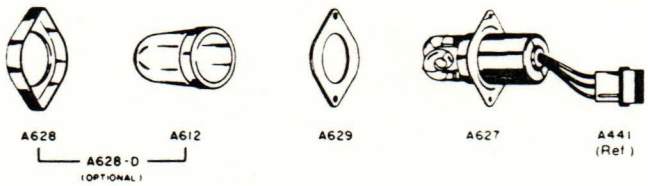

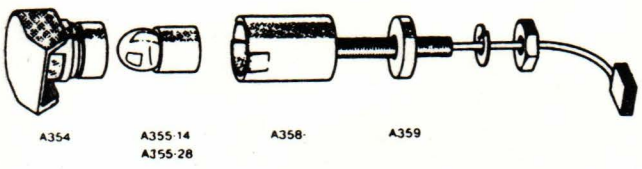

DISTRIBUTED BY:

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ESTER, CONNECTICUT 06412-0684 / TELEPHONE: (203) 526-9504 / TWX: 710-428-8423 / FACSIMILE: (203) 526-4078

Form No. 1-87-XVM (C9457I)

P/N	DESCRIPTION	LIST PRICE
W1282	Forward Position Light Lens Retainer	$7.50
W1283	Forward Position Light Gasket	1.35
W1284-G or R	Forward Position Light Lens (Red or Green)	12.00
W1285 PG or PR-14 or -28	Forward Position Light Assembly (Red or Green)	69.00
W1285-2	Forward Position Light Base	26.00
W1290-14 or -28	Forward Position Lamp. Specify Voltage	20.50
W1555-14 or -28	Redundant Tail Position Light Assy...	75.00
W1750	Electronic Switch	62.00
90033-1	Anti Collision Beacon Assembly Red..	418.00
90033-2	Anti Collision Beacon Assembly White	418.00
90033-( )	Anti Collison Beacon Assembly with various mounting plates	525.00
34-0226010-91	Lamp Quartz 150 Watt	41.00

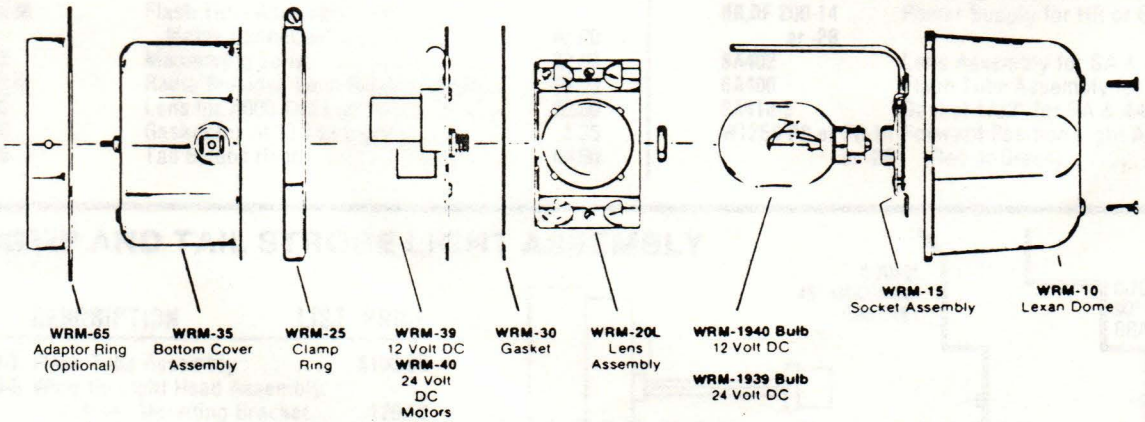
***RECOMMENDED FOR HELICOPTERS.
#H102 or H103 MOUNTING ADAPTOR IS REQUIRED.

P/N	DESCRIPTION	LIST PRICE
MODEL WRML ROTATING BEACON		
WRML-14 or -28	Rotating Beacon	$240.00
WRML-C-14 or -28	Rotating Beacon with Cannon Connector	269.00
PARTS FOR ROTATING BEACON		
WRM-10	Lexan Dome	$16.00
WRM-15	Socket Assembly	12.50
WRM-20L	Lens Assembly	98.00
WRM-25	Clamp Ring	8.50
WRM-30	Gasket	1.90
WRM-35	Bottom Cover Assembly	13.00
WRM-39	Motor, 12-Volts DC	80.00
WRM-40	Motor, 24-Volts DC	80.00
WRM-65	Mounting Adapter (Optional)	9.50
WRM-1940	Bulb, 12 Volts DC (WRM-44KA)	20.00
WRM-1939	Bulb, 24 Volts DC (WRM-45KA)	20.00

P/N	DESCRIPTION	LIST PRICE
RECOGNITION LIGHT AND LANDING LIGHT		
A715-1	Fixed Landing Light	$61.00
A775-14 or -28	Recognition Light 50 Watt	33.50
A775-EXP-14 or -28	Recognition Light 50 Watt Explosion Proof	104.00
A777	Lens for A775-EXP	4.00
INSTALLATION PACKAGES		
SA/HR	Installation Package	$9.00
HS-30	Installation Package (30' cable)	38.00
HS-5	Wingtip Installation Package (5' cable)	19.00
HD-60	Installation Package (60' cable)	61.00
HT	Installation Package	9.00
HD,T3-90	Installation Package (90' cable)	89.00
HT-10	Installation Package (10' cable)	23.00
Strobe Tester		80.00
SURFACE ILLUMINATING LIGHTS		
A700-RT/LT	Light Assembly (Specify Watts & Volts)	$176.00
A700-NM	Light Assembly (Specify Watts & Volts)	176.00
A702-RT/LT	Lens for A700-RT/LT	68.00
A702-C	Lens for A700-NM	66.00
A708-14 or -28	Halogen Lamp (Specify Wattage)	15.00
A750	Flasher Assembly	64.00
INTERIOR LIGHTING		
†A300-14 or -28	Map Light Assembly	$57.00
†A315-HI-B-14 or -28	Cockpit Utility Light	39.50
†A315-LO-14 or -28	Cockpit Utility Light	22.50
†A320	Oxygen Bezel	11.00
†A325-FL-14 or -28	Flood Light Assembly	47.00
†A325-ML-14 or -28	Reading Light Assembly	47.00
†A330-14 or -28	Courtesy Light Assemby	57.00
*†A350	Post Light Assembly	21.00
*†A350CN	Post Light Assembly	23.00
†A360	Dome Light Assembly	52.00
†A360S	Dome Light Assembly	52.00
PARTS FOR POST LIGHTS		
A343	Connector Assembly	$4.00
*A354	Head Assembly	12.00
*A358	Base Assembly	12.00
A359	Spacer	1.00

*Requires dash numbers for lens color and finish. Please contact factory.

†For complete information, contact factory.



PARTS FOR ROTATING BEACON

NOTE: The A429 head assembly has been replaced with the A650 head assembly. The A600 head assembly can be used with any wingtip system.

The A490, TS, A490A, TS.DF, A413A HDA power supplies provide 400 effective candles ref. STC SA21NE, when used with the A600 and A650 head assembly.

The A490A, TS.DF replaces the A412A, HS strobe light

All Whelen aviation strobe products are manufactured under Product Manufacturing Authority from the Federal Aviation Administration, assuring top quality, reliable design and construction, conforming to all applicable FAA regulations.

PIONEERS IN SAFETY SIGNALS

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P/N	DESCRIPTION	LIST PRICE
	490,T,DF-14 or -28 HT,DF Power Supply	$213.00
	490,T,DF-M,14 HT,DF [redacted]	

P/N	DESCRIPTION	LIST PRICE
A625-0	Radio Shielded Tail Strobe Head Assy	$139.00