

ELECTRICAL SHORTS from JOE ORRICO

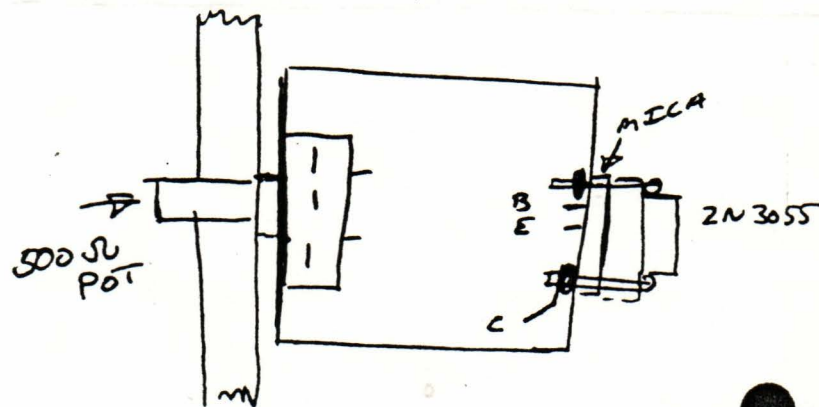
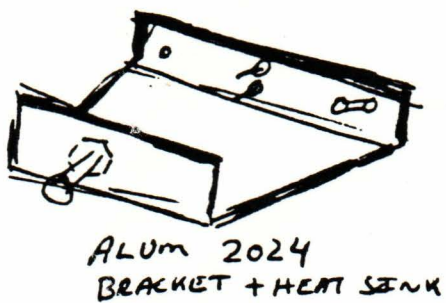
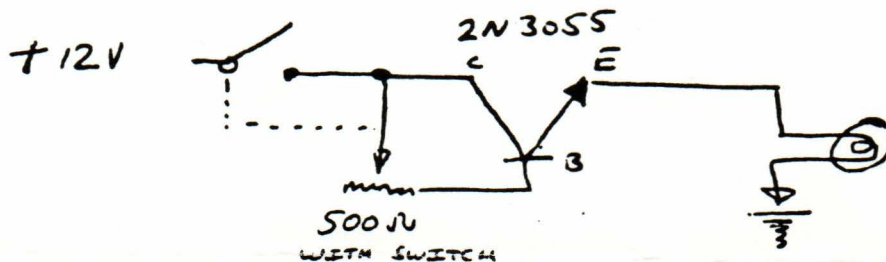
1. If you run a starter use #2 welding cable, It's really flexible and easy to route. Be sure to put the starter solenoid in the nose so you won't have a hot #2 cable to rear of airplane that is not fused, if it went to ground you could burn up your plane!
2. Run shielded cable for magneto switch and use magneto filters. Never use the shield to carry current on any shielded cable, use a separte wire for the ground. Only ground the shield at one end of the cable otherwise you can get ground loops and drive your radio nuts.
3. Mount your boost pump lower so it isn't the high point in the system. At high alitudes with the engine hot the pump will vapor lock (lose the prime) and engine will stop after you run the float bowl of the carb dry, when starting the engine.
4. If you put the aircraft stud blocks on forward side of firewall it makes a neater installation which is easier to service. You can gain access through rear seat or access cover on the fuselage bottom.
5. Don't waste instrument panel space with the HOBB's . Put it elsewhere. You don't need to see it in flight.
6. Radio master switch- with this you'll never crank starter with radios on. It's also safer so you won't inadvertantly crank engine by accident.

#39C
(8.15)

ELECTRICAL HINTS from LARRY ROMANOSKI

1. Install nose gear down switch before final nose box assembly.
2. Pre-lay center section spar wiring before spar box is enclosed and installed.
3. Consider shielding signal lines from nose to tail.
4. Use nylon web tubing for cable bundles.
5. Use nylon mounting pads for control cables and wiring bundles routing.
6. Consider "paneling" major assemblies such as circuit breakers, engine instrument sensing lines, lighting, etc.
7. Consider "out of plane" master wiring harness assembly from nose to wingtips.
A jig could be designed on which a member can assemble his master harness under ideal conditions.
8. Install at least a. (3) 22 gauge teflon wires
(1) 18 gauge teflon wire
This will allow for expansion of the electrical system as necessary.
9. If you have an electric starter, have an electrical access plug in the nose for "jump-starting" options. *NOTE: If a person is used to using an electric starter, it might be dangerous for him to suddenly try "propping".
10. Consider a (pilot by-passible) rear seat engine "cut-off" switch in case of pilot incapacitation and emergency landing. Landing a LONG-EZ from the rear seat is not possible when the engine is above idle speed.
11. If you're interested, you might want to use some of my inventions as instrument backups. The advantages are: low weight, system backup, and all of my systems are electronically monitored and do not have to be looked at.
12. Consider adding lighting to your fuel windows.
13. Add low level fuel warning lights and buzzer
14. In my case, I'm adding "water if fuel" indicator for less than 1 oz.
15. Use ribbon cable if you have more than 5 separate signal lines from rear to nose. Advantage: lighter and easily definable

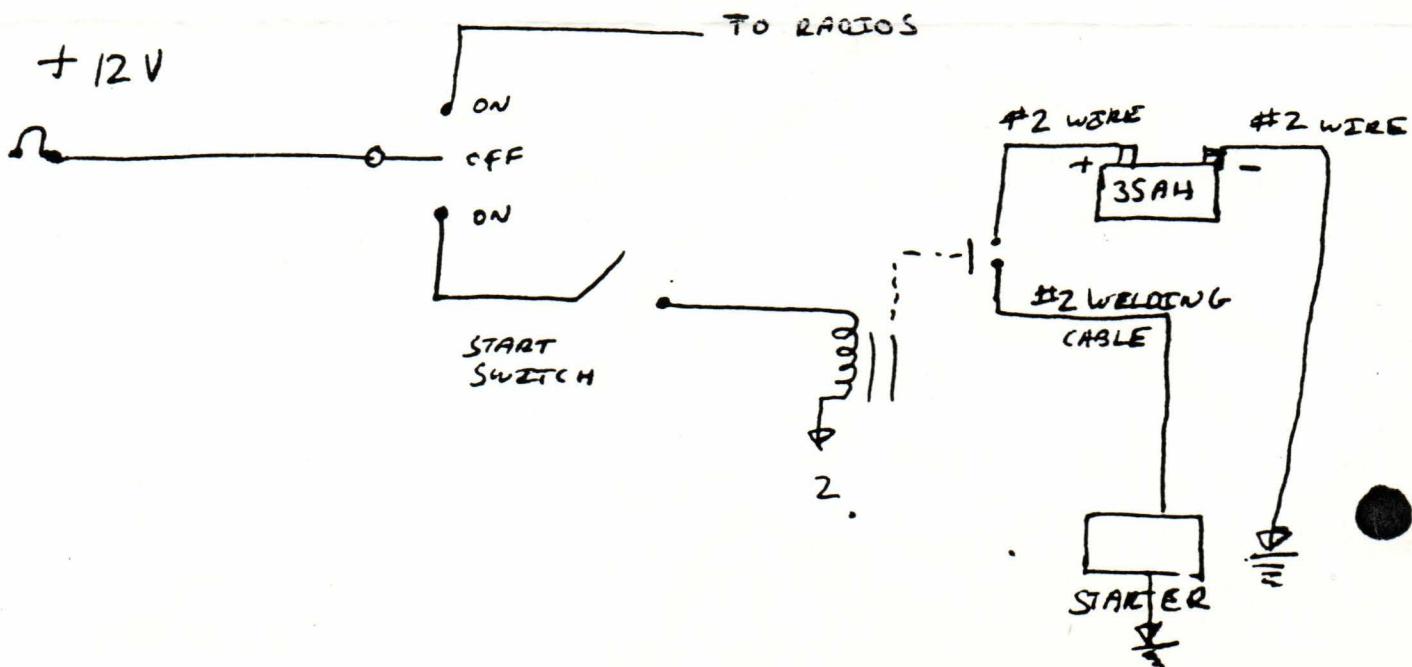
PANEL LIGHT DIMMER from JOE ORRICO



Use a mounting kit for transistor with mica washer and heat sink compound.

Your bracket is the heat sink.

*NOTE: There is 12 volts+ on the transistor case- keep clear of ground!



ELECTRIC TRIM SERVOS

BY **MAC** **MENZIMER AIRCRAFT
COMPONENTS, INC.**

INTRODUCTION

MAC Trim Servos are high-quality, durable, electrically-operated servos designed specifically for homebuilt aircraft and robotic applications. They enable you to control trim surfaces and many other mechanisms on your aircraft without the use of bulky cables and pulleys. Their small size and light weight makes them easy to install inside elevators, ailerons, and rudders.

MAC servos operate on 12-14 volts D.C. Since their current requirement is very low, they can be installed using small 26 or 28 gage wire. When activated, they push or pull with tremendous force. This thrust is generated by means of a jackshaft, so the output shaft will lock in any position when the electrical power is turned off. They will also automatically stop when their travel limit is reached. Voltage polarity determines the direction of travel.

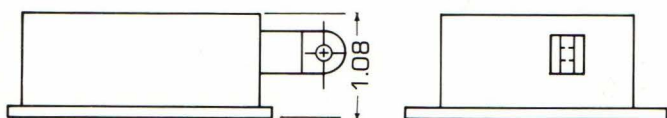
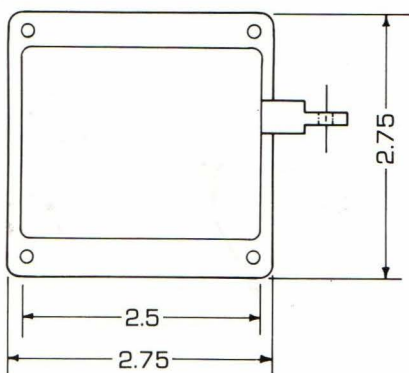
Two models of MAC servos are available, the MAC S4 and S6, which differ only in their output shaft travel. They can be purchased individually, or as a trim system which includes servo, rocker switch, 3-position indicator, clevis/pushrod kit, and instructions.

MAC, Inc. also has available a very high quality, teflon insulate 26 gage wire which is recommended for the system installation.

Engineered
and Quality
Constructed to
Last the Lifetime
of Your Aircraft.



MAC S4
MAC S6



SPECIFICATIONS

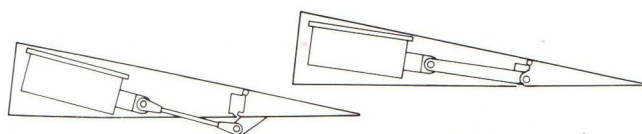
Operating Voltage 12-14 VDC
No Load Current 130 MA
Max Thrust 40 lbs.
Weight 4 oz.
Output Shaft Clevis (1/8" Pin Hole)
Output Shaft Movement (MAC S4)7 inch
Output Shaft Movement (MAC S6)95 inch
Output Travel Time (MAC S4) 8 seconds
Output Travel Time (MAC S6) 11 seconds
Construction Material... 22C Fiber-Filled Nylon



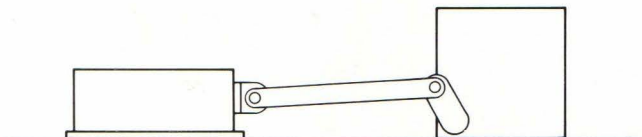
MAC 3-POSITION INDICATOR

The MAC 3-position indicator is an LED device designed to be installed in the cockpit to give an indication of the servo output shaft position. When the servo reaches its limit of travel in either direction, an end light will go on. The center light will go on when the servo runs through its center position. The indicator is connected to the servo by three small 26 or 28 gage wires. It is included with MAC trim systems or it can be purchased separately for your special needs. Any red, yellow and green LED color combinations can be ordered. This reliable solid state device can be very useful for applications such as landing gear or flap position indicator.

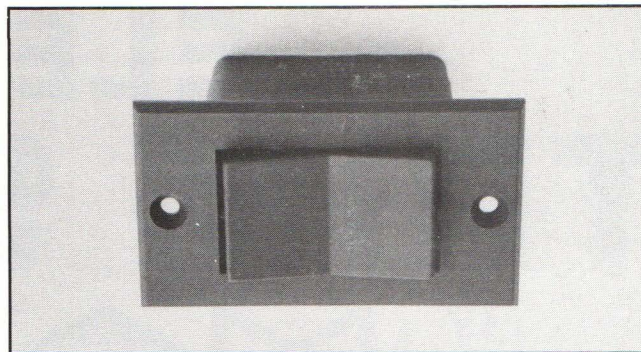
If no special LED colors are specified when ordering a trim system, the indicator will be a red-green-red combination.



Use a MAC S4 servo for installations requiring a short (1/2" to 1 1/4") control horn.



Use MAC servos to control almost any mechanism in your aircraft that would be controlled by cables or levers.



MAC ROCKER SWITCH

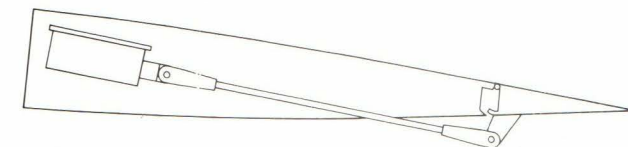
The MAC rocker switch is designed for use with the MAC trim system. It has a soft snap action in two directions and returns to a center off position. This unique switch is especially desirable for controlling aircraft trims. It is included with the MAC trim systems or can be purchased separately.

SPECIFICATIONS:

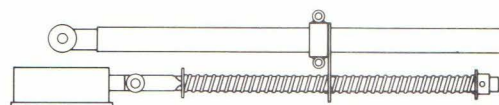
Maximum Current 5 amps at 28 VDC
Mechanical Life 30 Million Cycles
Housing Material 1040 Nylon



Clevis/Pushrod kit contains 2 clevis forks, pushrod and hardware.



Use a MAC S6 servo for installations requiring a long (1 1/4" to 3") control horn.



Use a MAC S6 servo for most trim systems using a spring tension device.

NAME _____

ADDRESS _____

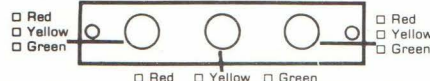
METHOD OF PAYMENT: ☐ CHECK ENCLOSED ☐ MONEY ORDER ENCLOSED ☐ C.O.D. ☐ VISA ☐ MASTERCARD

CREDIT CARD # _____ Expiration Date _____

SIGNATURE **X** _____

- Add \$2.00 shipping & handling to all orders.
- All domestic orders sent UPS unless otherwise specified.
- Add \$1.90 for C.O.D. Orders.
- California residents add 6% sales tax.

<input type="checkbox"/> MAC S4 System (includes servo, switch, indicator, pushrod, & clevises) ...	99.95	<input type="checkbox"/> MAC S4 servo only	69.95
<input type="checkbox"/> MAC S6 System (includes servo, switch, indicator, pushrod & clevises) ...	109.95	<input type="checkbox"/> MAC S6 servo only	79.95
<input type="checkbox"/> 50 ft. of 26 gage quality teflon insulated wire	6.00	<input type="checkbox"/> MAC rocker switch	9.95
<input type="checkbox"/> 100 ft. of 26 gage quality teflon insulated wire	12.00		
<input type="checkbox"/> MAC clevis/pushrod kit (2 clevis forks, 7" pushrod, hardware)	9.95		
<input type="checkbox"/> MAC 3-position indicator (circle LED colors)	14.95		



ORDER FORM
MAC
MENZIMER AIRCRAFT COMPONENTS, INC.
1537 Foothill Drive, Vista, California 92084
(619) 724-7557