

**STRONG ELECTRIC PITCH TRIM, LLC.
FOR COZY III & COZY MKIV
INSTALLATION AND OPERATING MANUAL**



**Cozy III N306AN at MEDFORD Airport
Oregon**

Alex / Norma Strong
315 W. Evans creek rd. #16
Rough River, 97537 Or.
E-Mail: astrong@charter.net
Homepage: strongpitchtrim.com
PH: (760) 447-2602



STRONG

ELECTRIC PITCH TRIM, LLC

Strong Pitch trim
315 W. Evans creek rd. #16
Rogue River, 95737
Oregon
E-MAIL,
astrong@charter.net
HOME PAGE,
HTTP://www.strongpitchtrim.com
Ph. 760-447-2602

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CHECK LIST

- 1 STRONG ELECTRIC PITCH TRIM (Modified)**
- 1 FUSELAGE MOUNT**
- 1 RELAY**
- 0 PANEL SWITCH**
- 0 PWM S/N 037**
- 0 ROLL PIN SET STOP**
- 1 NUTPLATE**
- 1 VINYL WASHER**
- 1 AN4-4 BOLT**
- 1 U- CLAMP**
- 1 ROLL PIN**
- 1 INSTALLATION/OPERATING MANUAL**

WARRANTY

This STRONG ELECTRIC PITCH TRIM Ser.# 416 is guaranteed for two years from the time of installation.

A.R.Strong

STRONG ELECTRIC PITCH TRIM FOR CANARDS INSTALLATION AND OPERATING INSTRUCTIONS

1-The STRONG ELECTRIC PITCH TRIM was designed to mount on either side of the forward cockpit between the instrument panel and FS-22.

This puts the PITCH TRIM ASSY. close to the side of the fuselage and will not interfere with your legroom. You may move the PITCH TRIM ASSY. as far forward as FS-22, but if you extend beyond FS-22 you will need a longer motor mount and this will cause the unit to extend into your legroom and will interfere with your brake and rudder pedals. Also as the unit is moved forward it will cause the CS-102 attach point to move forward and cause a bending moment on CS-102.

2- Wipe clean with solvent (alcohol) the mounting surface of the motor mount. Solder 18GA. wire (minimum) to the motor leads making sure they will reach your switch. Rivet the anchor nut to the motor mount keeping in mind which side of the fuselage you will mount the unit.

Assemble the motor mount to the fuselage bracket Fig-1. Label and leads up. Finger tighten.

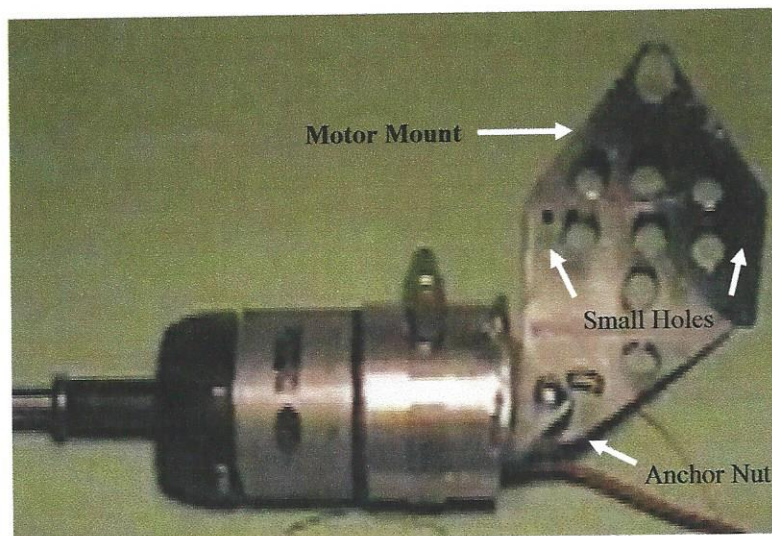


Fig- 1

3 -Adjust the lead screw to 1 5/8" + 1/8" - 0/0 between the motor shaft and the over ride barrel. Fig-3 (This adjustment can best be done after you remove the Canard on Step- 8). **On PWM equipped Units to adjust the 1 5/8 dim. Reverse polarity to extend the lead screw to the right dim. Black to White ,White to Black**

(CAUTION..ROTATE THE BARREL OF THE OVER RIDE TUBE SO THE ENDS OF THE SAFETY WIRE IS TOWARDS THE FUSELAGE TO KEEP FROM SNAGGING YOUR PANTS). *



Fig. 2

4-Assemble the other end of the unit (ref. square shaft) to CS-102 using the "U" clamp provided. Step 2 . **Roll pin to be installed in step 6 Fig. 4, 5**

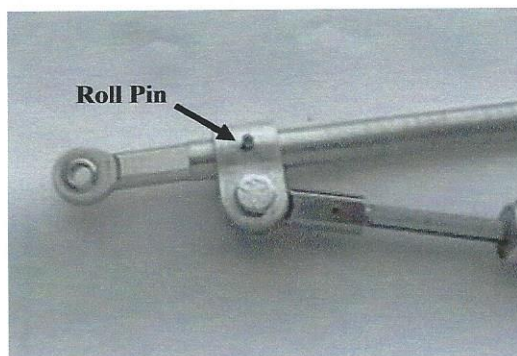
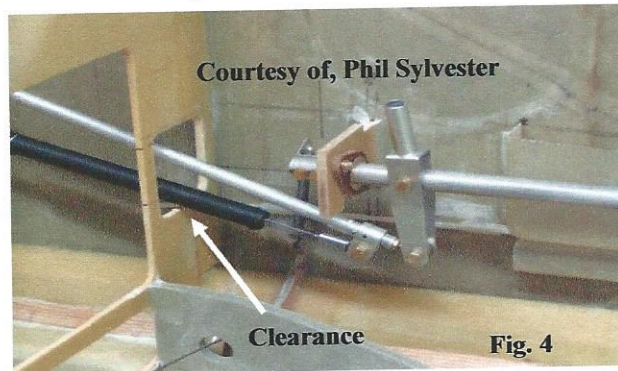
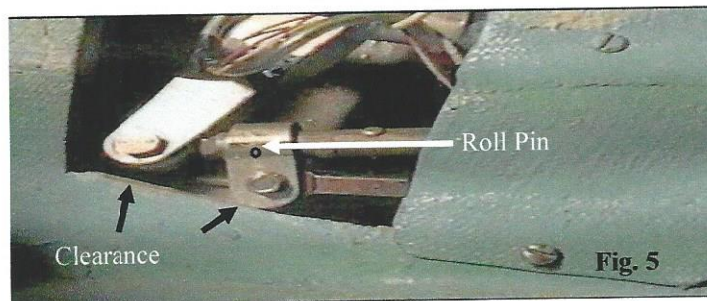


Fig- 3

5-Assemble the SPT to the control stick by bolting the Rod-end to the ' U " clamp. You may have to trim for the push rod and control stick clearance. Fig. 4, 5



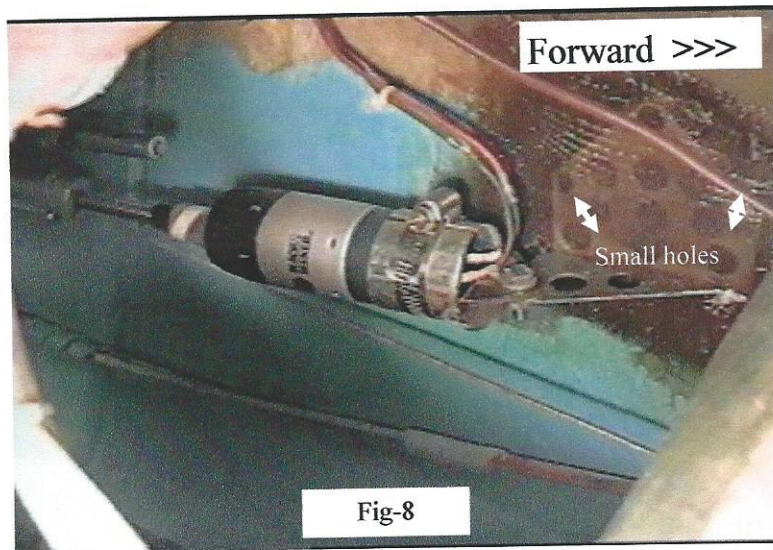
6- Fig. 5 Attach Roll Pin to "U" clamp when all clearances are verified. Ref also Fig. 2



7- Immobilize the elevator in the neutral position. Fig.6 Then cut a piece of wood to fit between the control stick and the instrument panel. Fig. 7 (The control stick that is still attached to the elevator). This will be your reference to locate the fuselage mount.

8-Remove the canard.

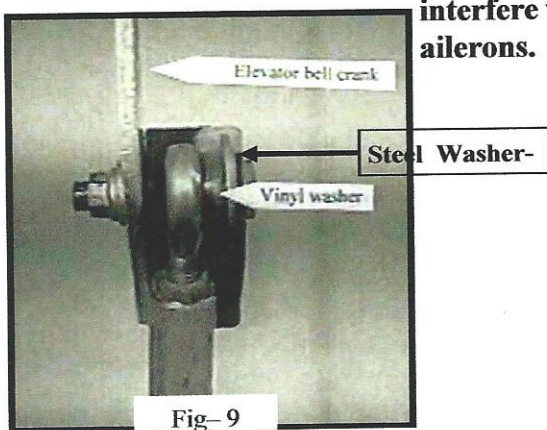
9-With the ref. wood in place, move the assembled mount upwards 11" from the cockpit floor. To go higher may cause interference with the elevator bell crank. While holding the mount against the fuselage mark the position of the two small holes on the motor mount Fig. 8. Move the mount out of the way and drill 1/8" holes at the mark you just made, just drill through the inner wall. Sand a 6"X 6" square centered around the 1/8" holes. Make a 5 ply BID pad 5" square Fig-8.



10-Wet out and locate the BID pad on these nails against the sanded fuselage. Mix and apply floc to the mounting side of the fuselage mount, making sure the large lightening holes are full. Locate the mount on the nails against the pad. Fig. 8

Remove the small nails (ref. 1/8" holes). Layup two layers of BID on top of the mount, make the last layer 1" bigger all around. Peel ply, and secure with cleco and let cure. Tighten the AN4-4 bolt with at least 5 ft/lbs of torque.

11-Remove the CS-136 from the elevator bell crank(on the side of the SPT installation) and place the vinyl washer and steel washer per Fig- 9. This will eliminate the back lash of the rod end when you operate the trim but will not interfere with the angular movement required by the ailerons.



12- The lead screw is captive within the tube and will not screw out.

13- The torque should not be set higher than 2. In the 6 years we have been flying with this SPT we did not have to go beyond the factory setting of 1. The main function of the clutch is to prevent the motor from overloading should you inadvertently bottom out on either end. If you have to change this setting remove the tape, immobilizing the torque adjusting ring, make the change then replace the tape.

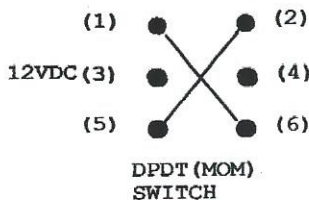
14- The operating time for the SPT is low. Based on a one hour flight you can expect to use the SPT for two minutes, including take off and landing.

15- To over ride the set trim ; in a climb, push the stick forward. In a dive pull the stick back.

16- Fuse or breaker for 2AMPS.

17 - 20GA MINIMUM WIRE SIZE

18- Maintenance: Both the Lead screw nut and the Piston shaft gland (Square shaft) is made of Nylon to eliminate lubrication. If the leadscrew is lubricated it may pick-up dust and intime cause some binding. To remove the accumulation dip a toothbrush in solvent (alcohol) and hold against the leadscrew while it is rotating. The leadscrew is cad plated and will not corrode. Every 25hrs. wipe some Outers rust preventive gun oil to the square shaft to prevent rust.



Should you detect rust on the shaft use 600 grit paper to clean then apply Outers gun oil..

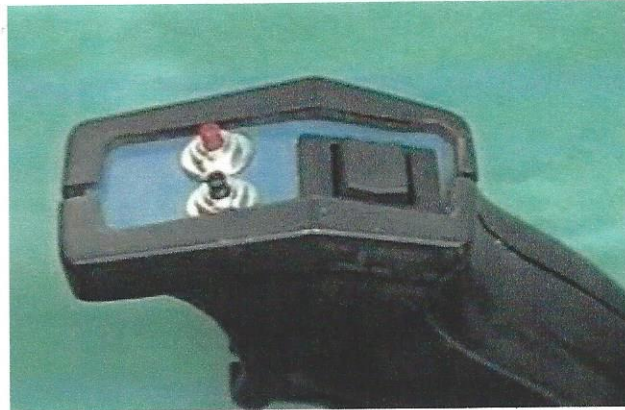
Radio Shack P/N 275-709**DPDT (MOM) Large Paddle SWITCH PIN (5) AND PIN (6) Attaches to the motor leads.

PIN (5) Jumpers to PIN (2)

PIN (6) Jumpers to PIN (1)

Should you prefer to use "Hat" switches you will have to use relays to do the reversing.

On page 7 of 7 you will find a Relay to control the Pitch Trim .this Relay is configured to prevent shorting if both switches on a 2 stick aircraft are activated in opposite modes at the same time, and is also suitable for single stick aircraft.



THIS IS THE RADIO SHACK SUB-MINI ROCKER (ON) OFF (ON) P/N (RSU 11336567) (SPECIAL ORDER) , THAT I USE IN MY COZY III TO OPERATE THE STRONG PITCH TRIM.

THE 2 SWITCHES ABOVE THE ROCKER ARE COMM. SWITCHES. BLACK FOR ATC AND RED FOR INTERCOMM.

IF YOUR CONTROL STICK HAS A "HAT" SWITCH THEN BY ALL MEANS USE IT.

HOWEVER "HAT" SWITCHES ARE NOT READILY AVAILABLE. I HIGHLY RECOMMEND THE USE OF EITHER SWITCH , SINCE YOUR HAND IS SUPPORTED BY THE CONTROL STICK AND YOU USE YOUR THUMB TO SET THE TRIM. AS OPPOSED TO A TOGGLE SWITCH.

OPERATING A TOGGLE WITH YOUR HAND UNSUPPORTED WHEN IN EVEN MILD TURBULENCE IS DIFFICULT TO MAKE THE SMALL PRECISE TRIM SETTING THAT THIS DEVICE IS CAPABLE OF.

SHOULD YOU DECIDE TO MOUNT A DPDT TOGGLE SWITCH (Ref page 5) OTHER THAN ON YOUR CONTROL STICK, MAKE SURE YOU MOUNT IT SO YOUR HAND IS SUPPORTED WHILE OPERATING THE TOGGLE, PARTICULARLY IN TURBULENCE .

Installation of pre-wired Relays for the STRONG ELECTRIC PITCH TRIM

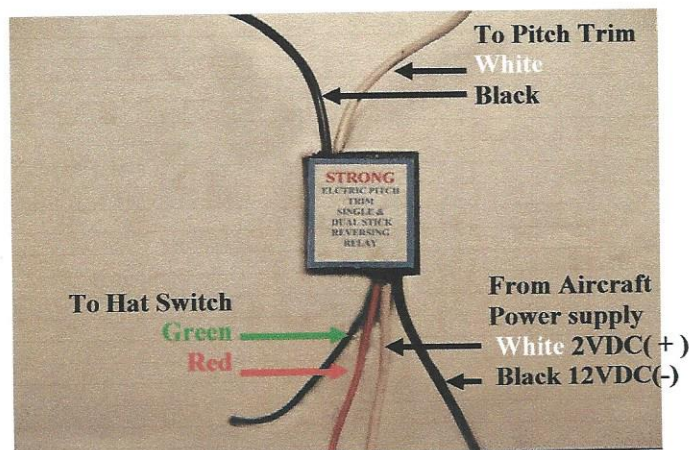
Attach the Black and White wire on the relay marked "to pitch trim" to the motor leads of the same color.

Attach the other white wire as labeled , White to + 12VDC, Black to ground. Bundled with the Red & Green wire.

The Green and Red wire goes to the Hat switch. The center tap of the Hat switch should be wired for -12VDC.(Negative)

The Hat switch should have four wires, two for ROLL and two for PITCH and should be labeled by the factory. Temporarily attach the Green and RED wire to the wires for PITCH. Push the Hat switch forward and observe the action of the elevator, the elevator should go up pushing the nose down. Pulling the Hat switch will cause the elevator to go down pitching the nose up. Should you get the opposite elevator action just reverse the Green and Red wire.(**This describes Canard aircraft elevator action**) Permanently attach the Green and Red wire to the Hat switch. The relay assembly is sealed and may be mounted in any position. Apply Silicon adhesive to any flat surface of the Relay assembly and attach to any handy surface behind your panel.

The relay is wired to prevent a short should both left and right switches be activated in opposite directions.



Weight 1 OZ