

## Installation Instructions for T2 / T3 Trim Systems

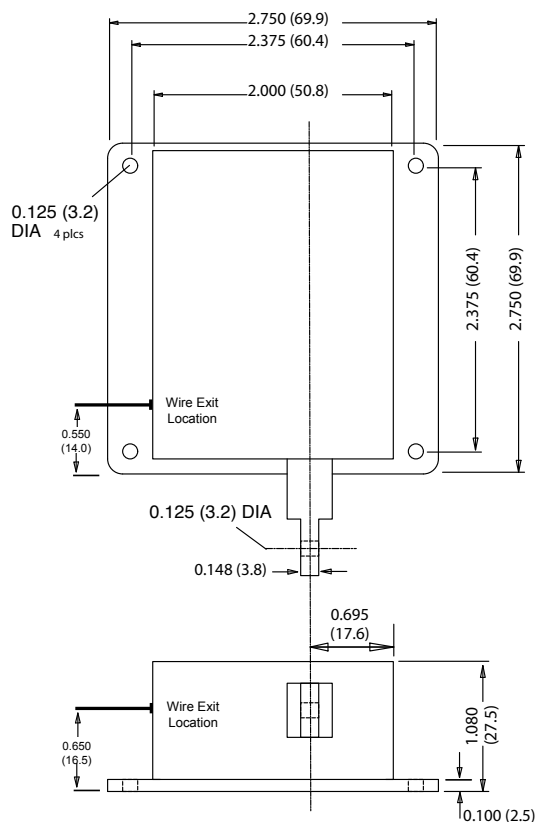
Ray Allen T2/T3 actuators are constructed of a composite material that contains glass fibers for added strength and durability. When activated, the servo will continue to run until power is shut off or the output shaft reaches the end of its travel. Since the thrust is generated by means of a jackshaft (T2 models) or a jackscrew (T3 models), the output shaft will lock in any position when power is not applied. Voltage polarity determines the direction of travel.

Ray Allen actuators operate on 12-14 Volts. A lower voltage can be used, but will result in less power and slower speed. A 9 volt transistor radio battery is useful for testing during the installation process. **Wiring instructions are on page 4.**

### Installing the T2 / T3 Actuators

Ray Allen actuators can be mounted in any position, but they must be protected from water exposure. The mounting holes in the servo flange are 1/8" dia. You can carefully enlarge the diameter of these holes for 6-32 screws (0.165", 4 mm).

**CAUTION!!** The output shaft is drilled for a 1/8" diameter clevis pin. DO NOT enlarge the hole diameter for a larger diameter pin. Be sure to allow clearance for the leadscrew extending out the back of the T3 servo.



### T2/T3 Actuator Specifications

All dimensions are inches (mm)  
All tests are at 13.5 VDC

Weight = T2 model 4.0 oz (113 g), T3 model 4.1 oz (116 g)  
Max. Thrust = 40 Lbs. (18 kg) Operating Thrust = 20 Lbs. (9 kg)  
No Load current = 150 mA Stall current = 900 mA  
Output shaft travel / time T2-7A = 0.7 inch (17 mm) / 11 seconds  
Output shaft travel / time T2-10A = 1.0 inch (26 mm) / 16 seconds  
Output shaft travel / time T3-12A = 1.2 inch (31 mm) / 19 seconds

#### T2-7A Actuator

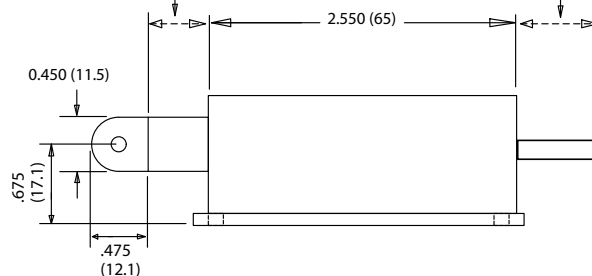
0.795 (20.2) SHAFT EXTENDED  
0.125 (3.2) SHAFT RETRACTED

#### T2-10A Actuator

1.125 (28.6) SHAFT EXTENDED  
0.085 (2.1) SHAFT RETRACTED

#### T3-12A Actuator

1.275 (32.3) SHAFT EXTENDED — THEN THIS DIMENSION IS 0.0 (0.0)  
0.085 (2.1) SHAFT RETRACTED — THEN THIS DIMENSION IS 1.025 (26)



## RC8-7 Clevis/Pushrod Kit

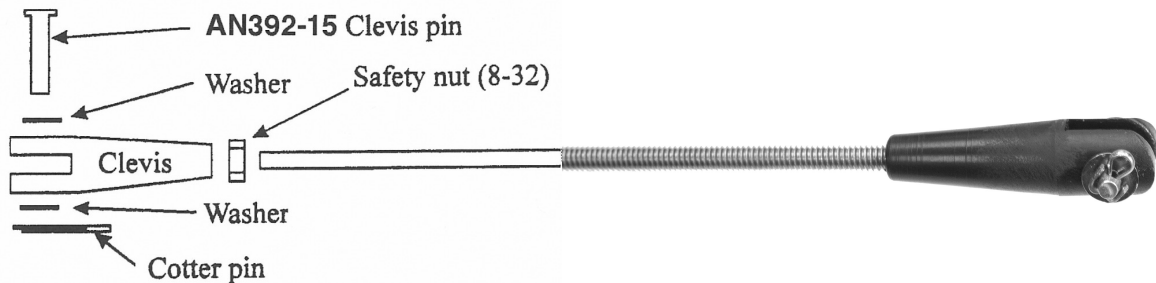
Your trim system contains two RC8 Clevises and a 7", 8-32 threaded, stainless steel pushrod. These clevises are drilled to accept a 1/8" clevis pin. The clevis pin should be a snug fit in the clevis to prevent slop in your trim system.

**CAUTION!!!** DO NOT drill out the clevis to accept a larger diameter clevis pin! DO NOT grind off any of the clevis material to enable it to fit in a smaller space. These actions will result in weakening of the clevis and possibly failure. DO NOT thread the pushrod in too far, the clevis is not tapped all the way through.

### Installing the RC8-7 Clevis/Pushrod Kit

The 7" long stainless steel pushrod can be shortened to suit your application. If you intend to use a longer pushrod, do not use all thread rod. Instead, make a pushrod from a thick wall aluminum tube with threaded rod ends riveted into both ends.

**CAUTION!!!** DO NOT make any sharp bends in the 8-32 threaded stainless steel pushrod! This will greatly reduce the pushrod's strength and possible failure could result.

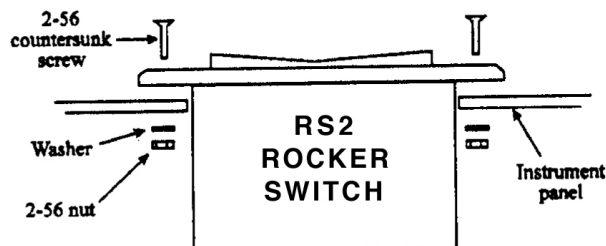


## RS2 Rocker Switch

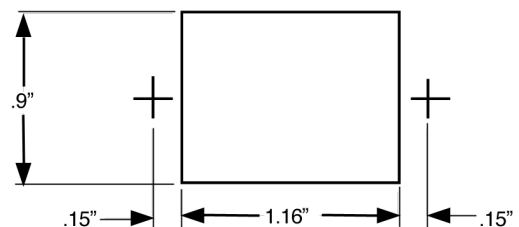
The RS2 rocker switch is designed to electrically short the actuator motor to ground (-) when released. This stops the actuator motor without any coasting, allowing precise positioning of the actuator. **Wiring instructions are on page 4.**

### Installing the RS2 Rocker Switch

Use the dimensions shown below to cut the mounting hole for the rocker switch. The rocker switch can be mounted in any position using the two, 2-56 countersunk screws and nut provided.



### Panel Cut Out



## RP4 LED Position Indicator

The RP4 indicator uses ten LED lights to show the position of a servo output shaft (or position sensor arm). There are also two amber colored LED's, one on each end of the indicator scale, to act as a reference for the green indicator light, especially in dark conditions.

### Installation Instructions

The RP4 is panel mounted using a faceplate and two countersunk, 2-56 x 7/16" screws. Use care when installing these screws, the mounting holes are tight (two spare screws are included).

Note that the distance between the screw holes is identical to the older Ray Allen RP3 LED indicator. Although the faceplate dimensions are identical between the RP3 and RP4 indicators, the panel cutout size is slightly different between the RP3 and RP4. If you are replacing an older unit with a new RP4, you will only need to increase the size of your panel hole (see Panel Cut Out). The RP4 faceplate will cover the older RP3 panel hole.

The RP4 wiring is very similar to RP3 indicators. **Wiring instructions are on page 4**

**Red wire** = 9-30 VDC + (no external regulator required for 28V systems).

**Black wire** = Ground -.

**Orange wire** = Connects to Orange wire of actuator or position sensor.

The RP4 sends a reference 5 VDC out on the orange wire.

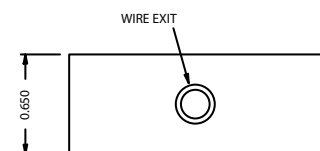
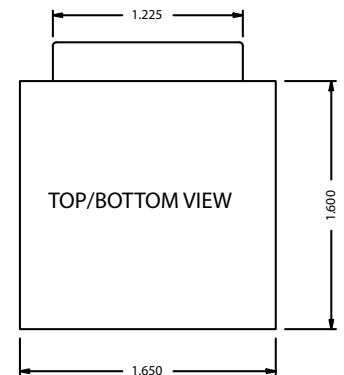
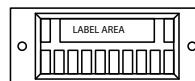
DO NOT connect ANY power to this wire!

**Blue wire** = Connects to Blue wire of actuator or position sensor.

**Green wire** = Connects to Green signal wire of actuator or position sensor.

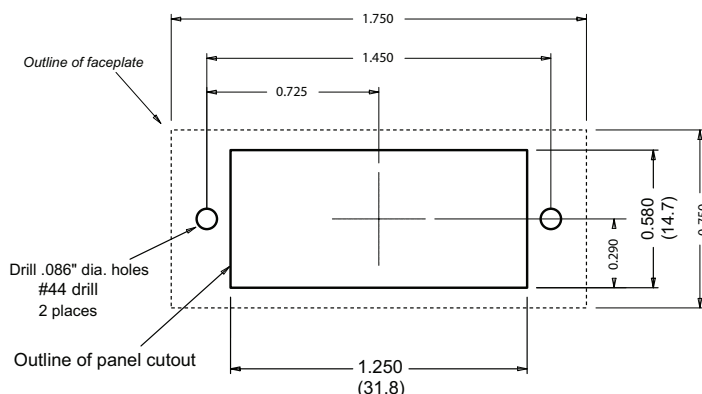
**White wire** = Apply 12-28 VDC + to this wire to dim the LED's for night flying.

The RP4 has a central white LED light bar. Apply your label to this area. The label is self adhesive. Be sure to carefully center the label.



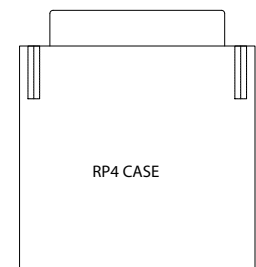
REAR VIEW

### Panel Cut Out



2-56 X 7/16" SCREWS (2 PLACES)

RP4 FACEPLATE  
INSTRUMENT PANEL  
(SEE PANEL CUTOUT DWG)



# The Ray Allen Company Inc.

www.rayallencompany.com

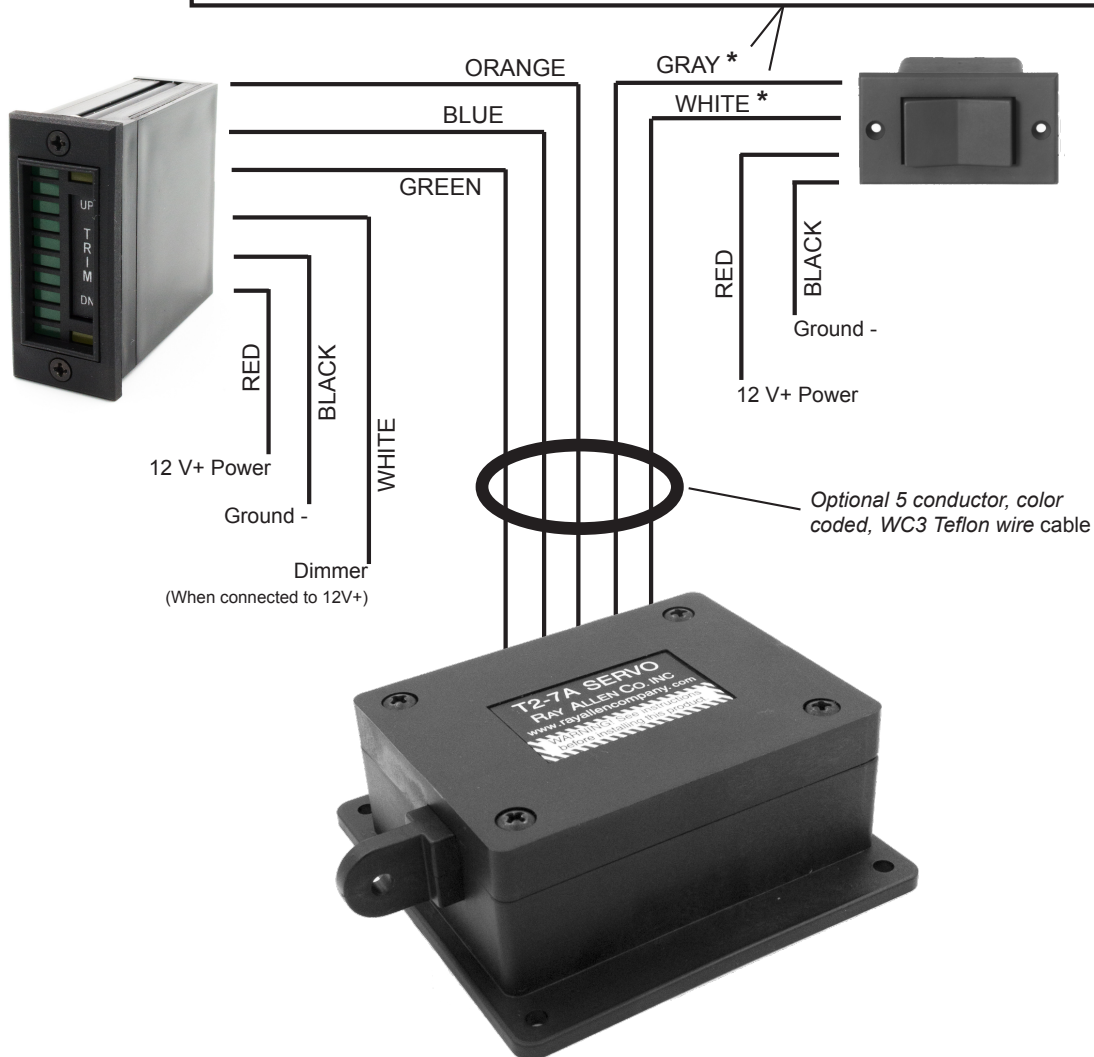
## Wiring instructions for T2 / T3 Trim Systems

All the wires leads are 24 gage and color coded. You can connect both RS2 Rocker Switch and RP4 LED Indicator together on the same 1 amp circuit breaker/fuse. Circuit breakers, fuses or connectors are not included.

Ray Allen Co. has a 5 conductor, color coded, all Teflon wire cable available for the long run out to the actuator. If you are installing stick grips, relays, or speed controls, please refer to the appropriate detailed wiring diagrams at <http://www.rayallencompany.com/RACinfo/downloadpg.html>.

For more information on other products Ray Allen Company Inc. manufactures, please visit [www.rayallencompany.com](http://www.rayallencompany.com)

**\* NOTE:** It is very important to test these wire connections to determine if the actuator runs in the direction that you desire. *This direction can be changed by reversing the white and gray wires.*



### Warranty Information

All Ray Allen Company Inc. products are warranted for one year from date of purchase. If you should have problems within that period, return the product to Ray Allen. We will repair it at no cost to you if it is determined that the failure occurred through normal use and not due to abusive treatment or faulty electrical wiring.