

# The Ray Allen Company Inc.

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## INSTALLATION INSTRUCTIONS FOR T2-7A-TS, T2-10A-TS, T3-12A-TS TRIM SYSTEMS

### \*ABOUT THE RAY ALLEN SERVO\*

**NOTE:** The T2-7A servo has .7" (17mm) travel, the T2-10A servo has 1" (26mm), and the T3-12A servo has 1.2" (31mm).

Ray Allen servos are constructed of a composite material that contains glass fibers added for strength and durability. Some of these glass fibers may appear as white smudges on the outside surface of the servo. This is caused by the injection molding process and while not very pretty, the fiber content makes for a very strong material.

Ray Allen servos operate on 12-14 volts DC. A lower voltage can be used, but will result in less power and slower speed. When activated, the servo will continue to run until the 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 leadscrew (T3 models), the output shaft will lock in any position when the power is shut off. The servos will not operate unless power is manually switched on by the pilot, no electronics are utilized in the servo. Voltage polarity determines the direction of travel.

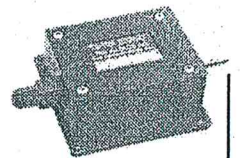
### INSTALLING THE SERVO

The following are a few general guidelines concerning servo installation. However, you should consult the manufacturer of your kit, or the designer of your aircraft, for any specific information about installing our electric trim.

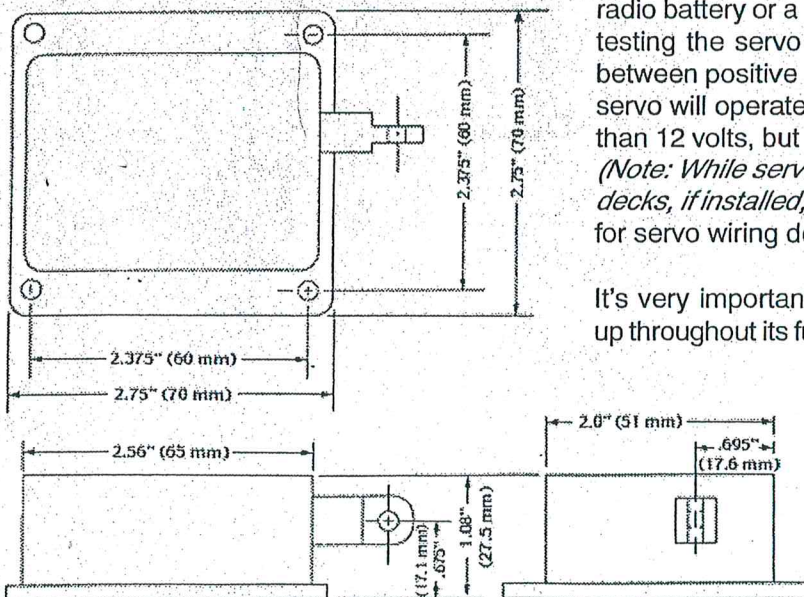
For most aircraft designs, the trim servo will be installed inside the control surface to control a trim tab. It can also be used to adjust springs connected to a control surface. Ray Allen Servos can be mounted in any position, but they must be protected from water exposure. The mounting holes in the servo flange are 1/8" diameter. If you plan on securing the servo with 6-32 screws, you will have to carefully enlarge the flange holes. The servo should not be mounted with any larger diameter screws than 8-32.

Although Ray Allen Servos use 12 volt motors, a 9 volt transistor radio battery or a battery pack from a cordless drill are very useful for testing the servo during the installation process. Switch the wires between positive and negative to reverse the direction of travel. The servo will operate slower and have less power than when using less than 12 volts, but performance will be adequate for testing purposes. *(Note: While servos may be tested at lower voltages, Ray Allen relay decks, if installed, require 12-14 volts to operate reliably).* See page 4 for servo wiring details.

It's very important that the servo does not bind up throughout its full length of travel. This includes making room for the leadscrew on the T3-12A servo when the output shaft is fully retracted.

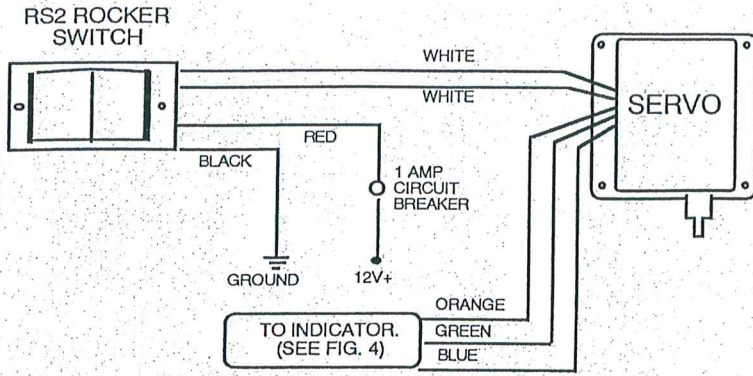


**CAUTION!** The output shaft is drilled for a 1/8" diameter clevis pin. DO NOT enlarge the 1/8" hole to accommodate a larger pin.

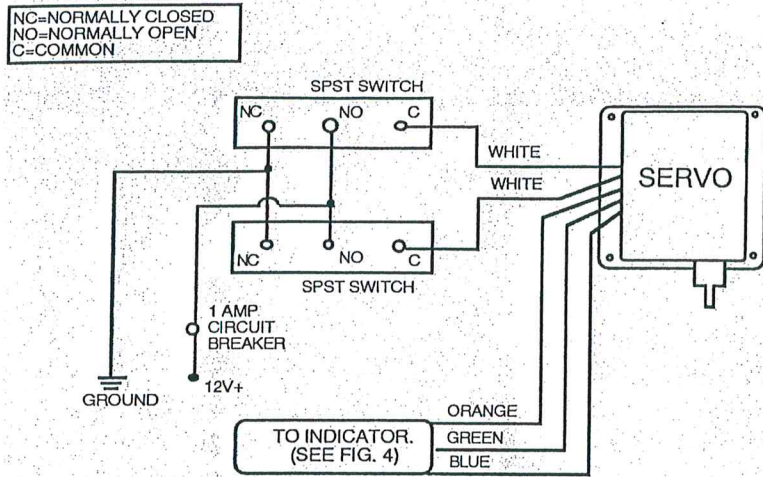


**Warning:** Installation and use of Ray Allen Company products is the responsibility of the aircraft designer and manufacturer. Use of Ray Allen products in any application which will exceed their capability can cause failure leading to injury or death.

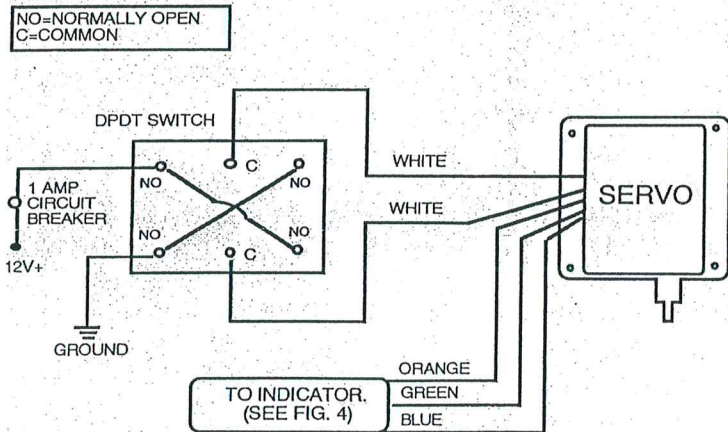
**FIGURE 1 RS2 ROCKER SWITCH**



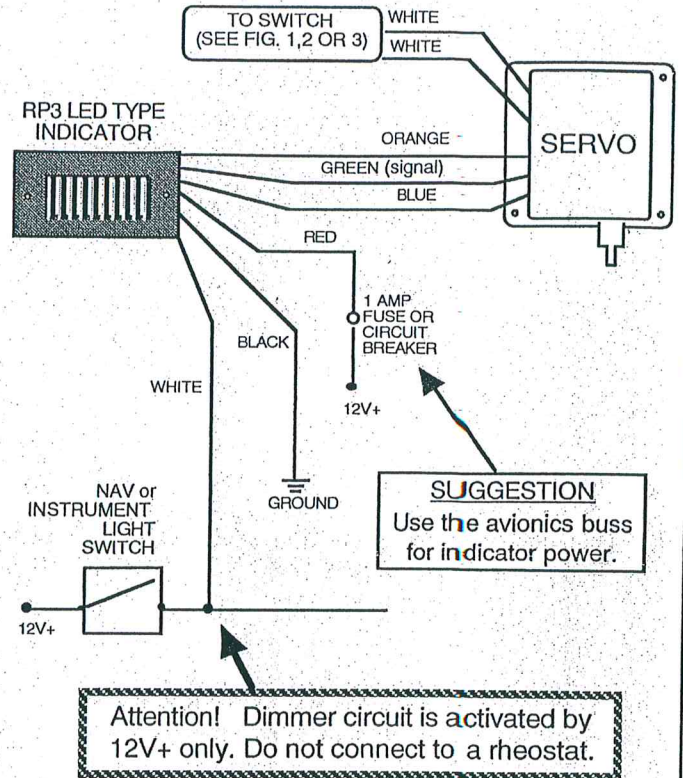
**FIGURE 2 TWO SPST SWITCHES**



**FIGURE 3 DPDT SWITCH**



**FIGURE 4 RP3 LED POSITION INDICATOR**



For more information on other products the Ray Allen Company manufactures, download our brochure at:

[www.rayallencompany.com](http://www.rayallencompany.com)

**CAUTION!**

Ray Allen Company, Inc. does not recommend that servos be installed in an aircraft to operate any apparatus or control surface that, if failure were to occur, could result in mechanical damage or control malfunction. When a servo is installed in an aircraft, all weight and balance, including that of the control surface, will be affected. Servos should not be installed unless you have full knowledge of the effects of this change on weight and balance or flight characteristics.

**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.