

the Bonner **SERVO**

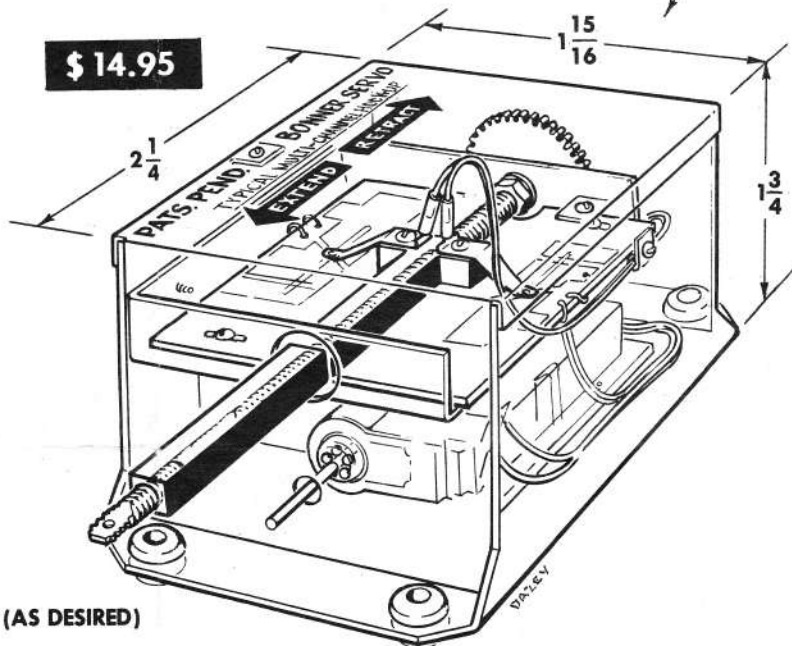
COLOR CODED
HOOK-UP WIRES

\$ 14.95

Provides unprecedented values in
POWER, VERSATILITY, & RELIABILITY

**For Self-Neutralizing,
Trimmable, or Proportional
Radio Control Systems**

- THRUST..... OVER 2 LBS**
- WEIGHT..... 3 OZ**
- VOLTAGE 1½ TO 3 VOLTS**
- BATTERY DRAIN VERY LOW**
- TRAVEL 9/16", 25/32", OR 1" (AS DESIRED)**



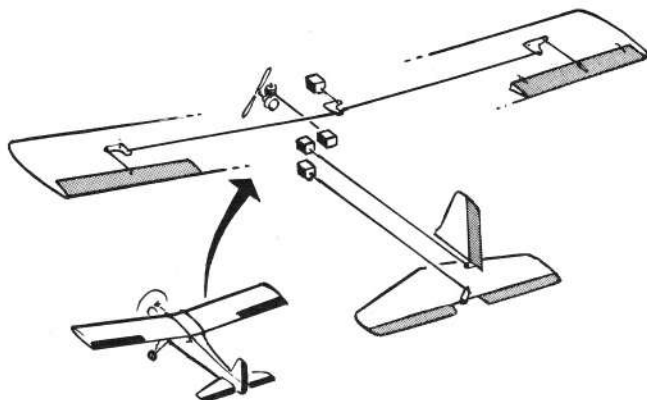
CONSTRUCTION FEATURES

The Bonner Servo has many advanced features which resulted from the application of new design concepts and an exhaustive development program.

Nylon-to-brass drive gears and nylon-to-steel drive threads are used to provide an exceptionally long service life in comparison to the usual arrangements. Special rhodium plating of the circuit board provides better electrical contact and longer life. A double Alnico magnet motor with ball bearings and split (staggered, double contact) brushes is used. A neatly fitted case provides radio noise shielding and protects internals from dust and water spray. Rubber shock mounts are provided. All parts are assembled to close tolerances and high inspection standards by employees of the Bonner Company.

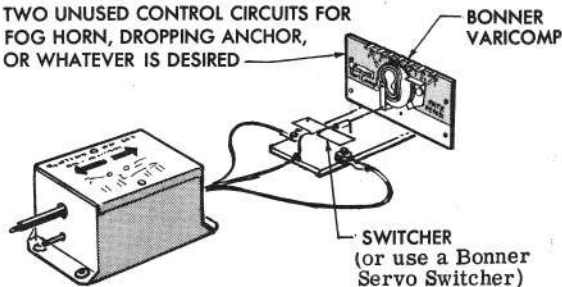
OPERATIONAL FEATURES

There are many new operational features of the Bonner Servo. The Servo neutralizes within $\pm .007''$ linear motion. The push-rod fitting is adjustable. No bending of contacts is required to change the amount of center trim—simply loosen 2 screws and shift the commutator plate. The cover is removable from the top for easy adjustment and inspection after installation. Travel of the push rod is such that angular movement of a control surface is slow near the neutral position and fast near the extreme travel positions of a control. This feature was provided to give smoother and more precise control, and yet allow more violent control action when desired.



USE BONNER SERVOS WHERE NEEDED IN
MULTI-CHANNEL PLANES, BOATS AND CARS

TWO UNUSED CONTROL CIRCUITS FOR
FOG HORN, DROPPING ANCHOR,
OR WHATEVER IS DESIRED



USE BONNER SERVOS ON BOATS AND CARS WITH SINGLE
CHANNEL RADIOS— GET QUICK ESCAPEMENT SWITCHING
WITH THE DRIVE POWER OF A SERVO

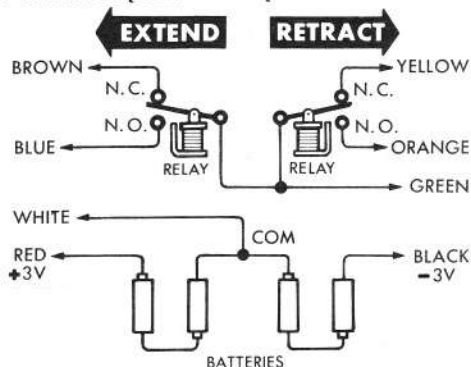
BONNER SPECIALTIES, 2900 Tilden Ave. Los Angeles 64, California

INSTRUCTIONS

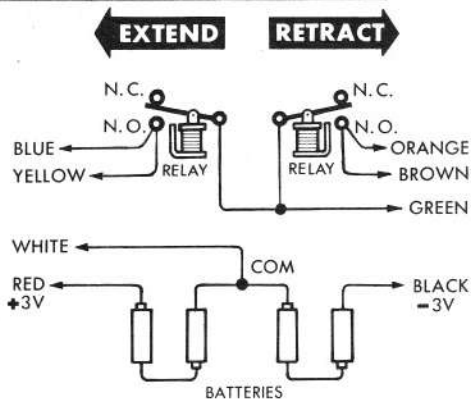
The Bonner Servo may be bolted directly through the shock mounts to either a mounting plate or cross-beam mounts in an R/C airplane, boat, or car.

CIRCUIT FOR RETURN-TO-NEUTRAL (SELF-NEUTRALIZING) CONTROL

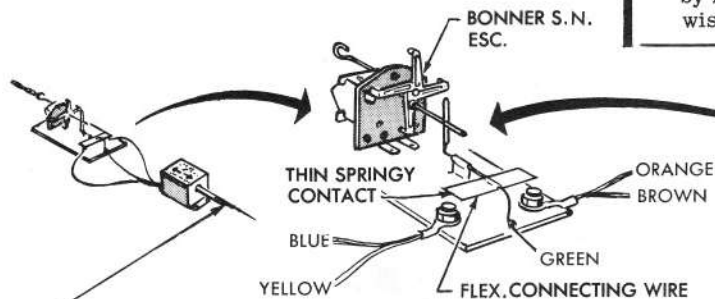
This circuit is printed on top of the servo case.



CIRCUIT FOR TRIMMABLE CONTROL



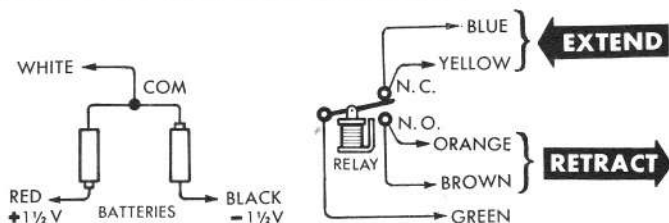
A trimmable rudder on a single channel boat or car can be obtained by using an escapement operated switcher as shown below (in place of the two relays in the circuit diagram). Or a Bonner VariComp can be used to operate this type of switcher, or a Bonner Servo Switcher can be used with the VariComp. This allows two extra circuits on single channel which can then be used to operate other switchers for more servos or for other uses.



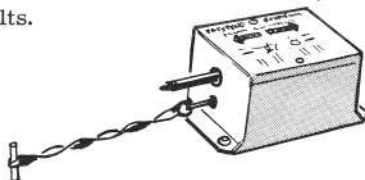
To boat rudder or car steering (or to variable throttle when just one channel is available in a multi-channel system).

Connect wires to the servo for one of the circuits shown below. Which circuit to use depends on which control system that the modeler is using. Refer to the instructions of the radio receiver being used to determine which receiver socket terminals are connected to the N. C. and N. O. relay contacts.

CIRCUIT FOR PROPORTIONAL CONTROL

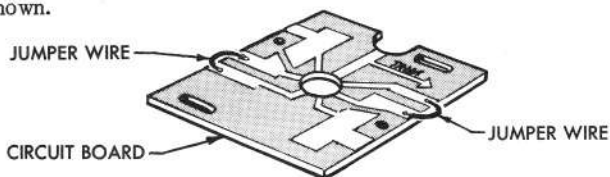


When used as actuator for proportional control, use loop of rubber on motor shaft for center loading Use 1-1/2 Volts.



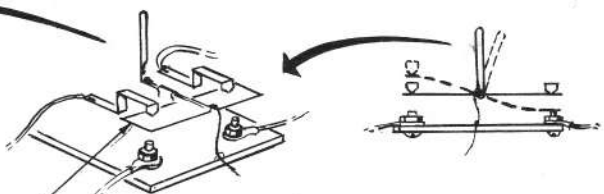
For proportional control this servo has exceptional output power and has the distinct advantage of using no electrical power in either extreme control position.

The **travel** of the servo push rod may be increased in either one or both directions by carefully soldering a jumper wire across extra segments on circuit board as shown.



The **rate of travel** may be decreased by using longer travel distance with a longer control horn.

A **fine adjustment for neutral** may be made by shifting circuit board in opposite direction of trim arrow. **CAUTION** If brushes touch both neutralizing segments at once, a 6 volt short circuit occurs. Guard against this by making adjustments with power disconnected. On connecting power, immediately check that large gear can be turned 1/2 revolution or more by hand before neutralizing circuits make. Otherwise disconnect and readjust.



Or, for self-neutralizing servo applications, use flex contacts to operate like relays in S.N. circuit