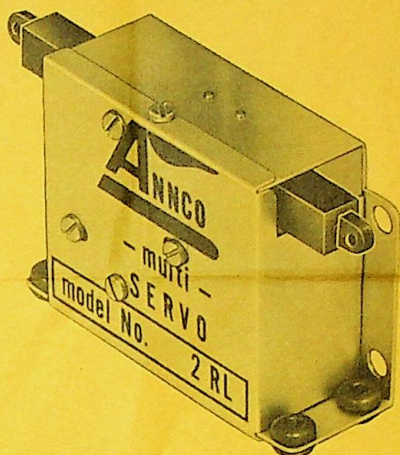


# • INSTRUCTION MANUAL •

## FOR RADIO CONTROL

# Annco

- multi -  
SERVOS



**MODEL 2R** (relay) only \$7.95 ppd.

**MODEL 2RL** (relayless) only \$19.95 ppd.

From factory only

### SPECIFICATIONS

	MODEL NO. 2RL	MODEL NO. 2R
WEIGHT	1.7 oz.	1.3 oz.
SIZE	3/4" Wide x 1-9/16" High x 1-3/4" Long	
TRAVEL	5/8 in. Total - Straight line motion	
TRANSIT TIME	1/2 second from neutral	
THRUST	Over 3 pounds	
OUTPUT ARM	Double end - Two adjustment screws	
GEARS	Precision molded from Nylatron GS	
CASE & COVER	Stamped & formed from 1/2 hard Alum.	
SWITCHER BOARD	2 pc. adjustable - Epoxy board	
WIRES	19 Strand - 26 Ga.	
MOTOR	5 ohm arm. - 9 3/4 Silver Graphite Brushes	
AMPLIFIER	7 Transistors	

manufactured, guaranteed, and sold direct  
from factory only by,

## ANNCO ENGINEERING CO.

1830 E. 42nd St.

Minneapolis, Minnesota, 55407



## OPERATIONAL INSTRUCTIONS

- MOUNTING:** Either upright or flat, using #2-56 bolts or #2 wood screws, with washers under each head. Pull down snug but not too tight. Also drill  $\frac{1}{4}$ " dia. clearance holes in your plywood tray so cover screw does not touch tray.
- ADJUSTMENT FOR NEUTRAL:** The new Annco servo has a two piece adjustable sliding switcher board to give you close or open centering, on all models relay or relayless. Place servo so you can read the printing on the cover. Notice the two screws which are in the two slots. Loosen both screws and move them to the RIGHT for wider centering, and to the LEFT for closer centering. On close centering (this has already been set at the factory) adjust for one bounce of the output arm on its return to neutral. Do not allow output arm to hunt back and forth, continuously. The adjustable switcher board also allows you to shorten or lengthen the stroke on a trimmable servo as much as  $\frac{1}{16}$ " on each side of the normal  $\frac{5}{8}$ " travel of the output arm.
- TENSION OF WIPERS:** Proper wiper tension is maintained if wipers extend  $\frac{1}{32}$ " above sides of case (with cover removed).
- DISASSEMBLY OF SERVO:** Remove screw in each of the opposite narrow flanges of the cover, remove cover. Remove the single brass screw from the back (this screw is very important as it holds the Yoke assembly firmly inside the case). Now put servo in a flat position, (notice how the motor is placed with the brush terminals at an angle to the base). Gently spring apart sides of case and lift up on motor and Yoke assembly while gently sliding gear shafts out of their respective holes in the case.
- ASSEMBLY OF SERVO:** With gears and output arm properly mounted on Yoke, and with motor inserted in Yoke, (make sure motor pinion gear is not jammed up on the first nylon gear but is meshing properly), motor must be positioned with one brush terminal uppermost and toward the outside of the case. This is important. Otherwise adjusting screw from switcher board will jam up against motor end cap. Spring apart sides of case and insert motor and Yoke assembly while guiding the two gear shafts into their respective holes. Replace screw from the back that holds Yoke assembly in place, check for no binding operation, replace cover and cover screws. Take up internal slack of wires by pulling gently on each wire, one at a time.
- INSTALLATION OF AMPLIFIER IN RELAY MODEL SERVOS:** Disassemble servo as per paragraph 4. Now, unsolder each wire from the switcher board, and solder the same color SHORT wire from the amplifier in place on the switcher board terminals. Feed the LONG wires from the amplifier out through the grommet. The SHORT green and white wires from the amplifier are now soldered to the motor terminals, (after removing long wires from motor). Be sure to match the color exactly, or remember the green wire goes to the terminal that has the two dimples on each side. Mount amplifier with the two #2 screws provided, making sure insulator piece is in place under amplifier, then reassemble servo as per paragraph 5.

## CONSTRUCTION FEATURES

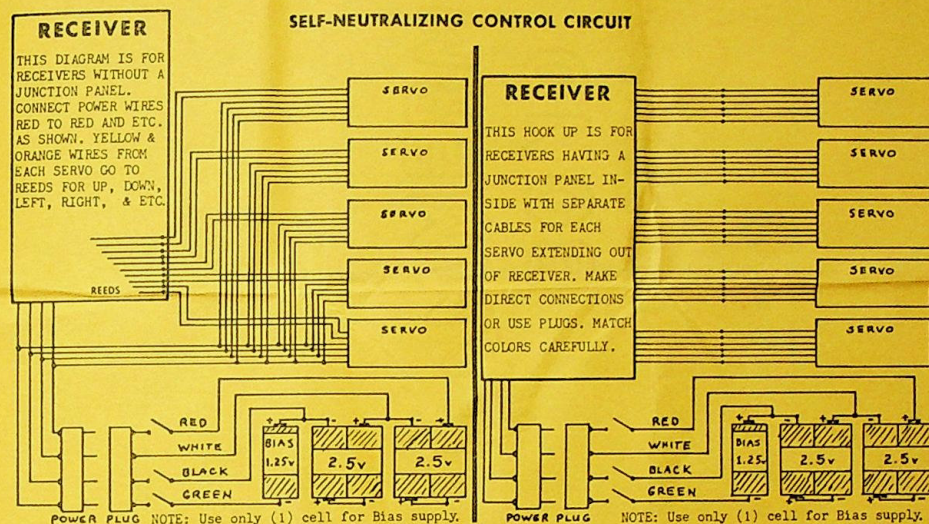
- The rugged, well made and attractive case and cover are neatly fitted together to provide noise shielding to radio and protect internals from dust and dirt.
- The parts are molded from a plastic material called Nylatron. It has a tensile strength 80% greater than nylon, is extremely wear-resistant and, therefore, it is ideally suited for the gears and rack output arm, in our servo.
- The printed circuit switcher board in the cover is a two piece adjustable board of glass epoxy material.
- MOTOR:** The ANNCO subminiature electric motor is fabricated by us to close tolerances, and features, 93% Silver Graphite brushes, Nylatron molded end caps, Ferrite ring magnet, and brush terminals mounted for ease of servicing.
- AMPLIFIER:** The ANNCO D-K7, 7 transistor amplifier is built on a glass epoxy printed circuit board. Amplifiers are secured in the servo by two mounting screws. Safety features include protection from burning out due to two reeds being driven at once. If two reeds are pulled in at the same time, the DK-7 drives the output arm in one direction until signal is released. No current is drawn until signal is given. If loss of bias voltage occurs, amplifier will still drive in one direction.
- The double-ended straight linear action output arm on the Annco servo is extremely desirable for hooking up aileron control surfaces with individual adjustment to each one, and is a natural for auxiliary operation from the other servo positions for brakes, flaps, hatches, etc.

ANNCO DK-7 AMPLIFIER, separately at \$11.95

## WIRING INSTRUCTIONS

### RELAYLESS MODEL NUMBER 2RL

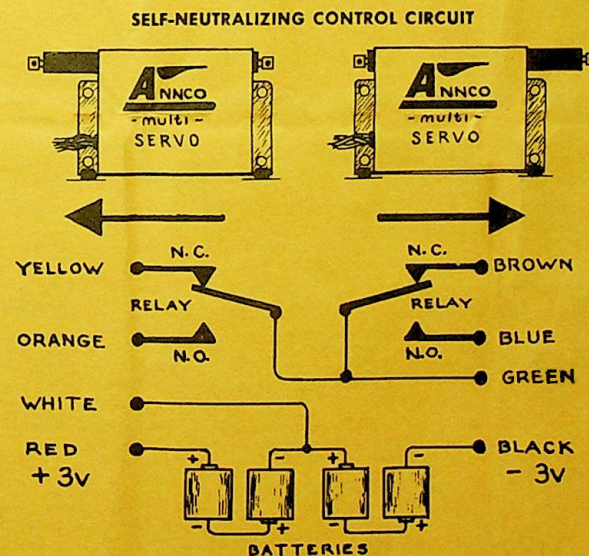
Operation directly from a standard reed bank (not a split insulated reed bank) of any relayless reed receiver. Check instructions with your receiver, then connect servo wires to reeds and batteries as shown below.



FOR TRIMMABLE CONTROL, bend the 2 outermost contact wipers down against wiper holder so they do not make contact with switcher board

### RELAY — MODEL NUMBER 2R

Check your radio receiver instructions to determine which receiver socket terminals are connected to the N.C. (normally closed) and N.O. (normally open) relay contacts, then connect wires from servo to relays and batteries as shown below.



FOR TRIMMABLE CONTROL eliminate Brown & Yellow wires



## ● PARTS PRICE LIST ●

PUSH PULL ARM.....	.75 ea.
YOKE FRAME.....	1.00 ea.
GEARS, set of 3 .....	.50 set
CASE, w/grommets .....	.75 ea.
COVER, less switcher board .....	.75 ea.
DRIVE GEAR, long pinion .....	.40 ea.
SWITCHER BOARD, less wires .....	.60 ea.
SWITCHER BOARD, w/ wires .....	1.00 ea.
MOTOR .....	3.95 ea.
PINION GEAR, for motor .....	.25 ea.
ADJUSTMENT SCREWS, for push arm .....	.15 ea.
MOTOR BRUSHES, (2 brushes & 2 springs).....	.50 set
ANNCO GROMMETS .....	.25 doz.
ANNCO HOOK UP WIRE, 8ft. ea of, 4 colors .....	.45 pkg.
(Red, White, Black, Green)	
ANNCO HOOK UP WIRE, 3ft. ea of 8 colors .....	.45 pkg
#2-56 x 1/8 long pan head screws .....	.25 doz.
#2-56 x 3/32 long rnd. head screws .....	.25 doz.
SELF TAPPING SCREWS, #2 x 3/16 long .....	.25 doz.
AMPLIFIER, w/insulator and screws .....	11.95 ea.

*Add 25c for postage*

*no C.O.D.s please*

## ● FACTORY REPAIR SERVICE ●

Annco multi-servos will be repaired for a cost of only \$1.50 ea. This will include all mechanical parts. (Does not include Case, Cover, or Amplifier parts. You will be notified if these are needed to complete your repair.) Pack servo in a good corrugated carton, print or type your name & address on the label. Include M.O. or check in the amount of \$1.50 for each servo plus 25¢ per servo for return by regular mail, or 50¢ per servo for return by Air Mail. Repairs shipped back less than a week after we get them.

## SERVO MOUNTING TEMPLATE FULL SIZE

