

## INTRODUCTION

The ROBOT is a combination Super-regenerative Receiver/Servo completely interwired with a battery box and a switch. To operate the ROBOT, install fresh pen cell batteries as per the directions on the battery box. To turn the unit on, slide the switch until the red dot is visible. A transmitter is required to operate the ROBOT. We recommend a Controlaire MULE MARK II transmitter, however, almost any tone transmitter that is modulated near one hundred per cent will operate satisfactorily.

## INSTALLATION

Figure 1 shows a typical ROBOT installation in the average model airplane flown by rudder control. Note that the unit is mounted on crossbars — a plywood plate would be satisfactory too. Actually the ROBOT is designed to give about the same throw as an ordinary reed or proportional servo. This will be too much for small airplanes such as those powered by .049 or .09 engines. For such installations we advise a shortening of the push rod motion by means of a reducing lever. See Figure 1 for a simple method in attaining this reduction of motion. The reducing lever is easily constructed from a piece of scrap plastic or half of a U-Control bellcrank.

# CONTROLAIRE ROBOT

**\*Receiver**  
**\*Servo**

A complete unit containing a super-regen Receiver/Servo package factory pre-wired to a switch and battery box.

**\$21.95**

 **WORLD  
ENGINES**  
INCORPORATED

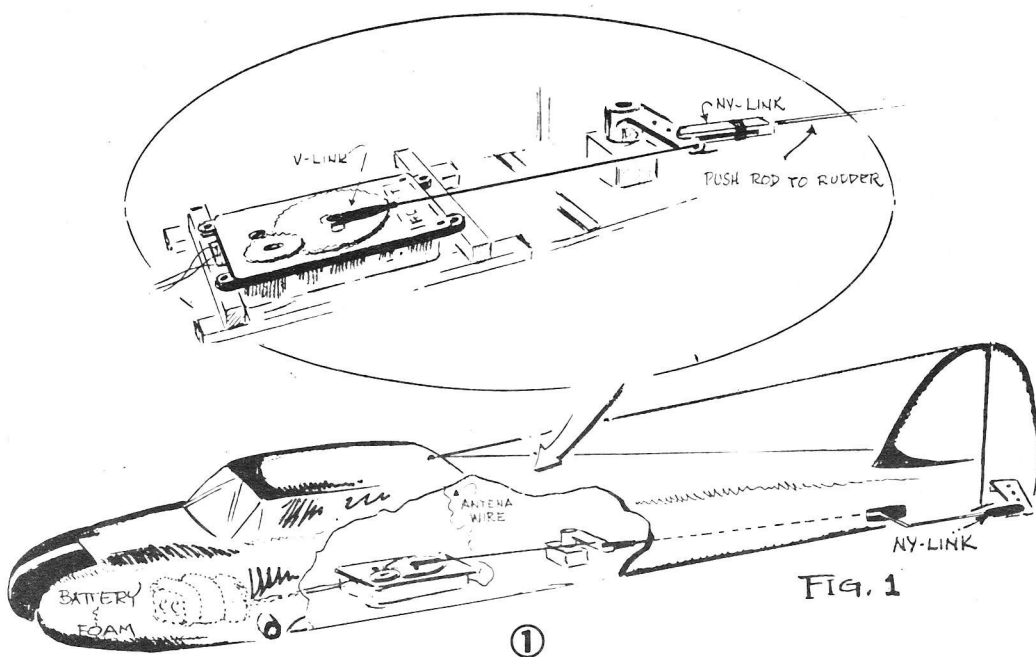
8206 BLUE ASH ROAD

CINCINNATI, OHIO 45236

## BATTERY PLACEMENT

Insulate the battery box from aircraft vibration by wrapping it in foam rubber. Stash the box in the

nose of your aircraft. It'll help with the balance and keep it from causing further damage in a crash.



## OPERATION

See Figure 2. On this diagram with the push rod and rudder hook-up shown, first position is right, second position is left and third position is motor control. Press the transmitter button switch once and hold for Right; press twice and hold for Left; press three times and hold for Motor Control. A little practice is required to get your transmitter button timing down to where you can stop the ROBOT at any of these three positions at your will.

## MOTOR CONTROL

A separate ROBOT Motor Control Servo is available and works in conjunction with the ROBOT unit. No extra batteries are necessary. All that is required is to solder wires between the motor control unit and the ROBOT as shown in Figure 3. The motor control is advanced from one position to the next by sequencing to the third position as shown in Figure 2.

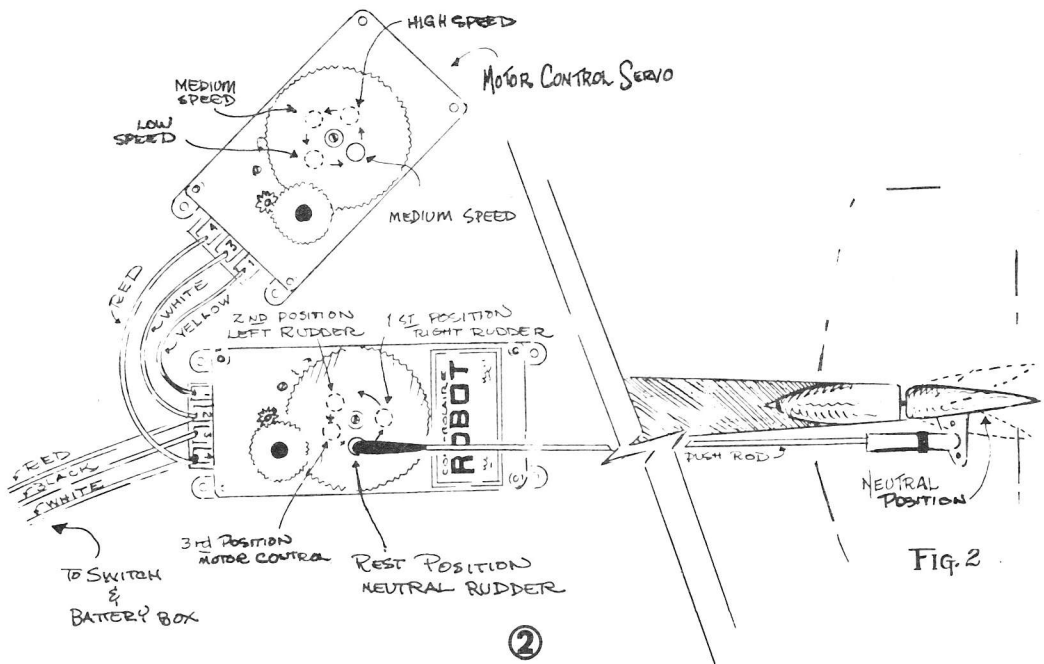
## RANGE CHECK

If you are operating your ROBOT with a Mark II Mule, range check as follows; remove the antenna from the Mule transmitter. Aim the back of the transmitter at the ROBOT antenna. Hold the transmitter about 8" away from the ROBOT antenna, depress the button switch and note operation. Now,

start withdrawing the Tx away from the antenna until you reach a maximum distance at which you can still operate the ROBOT. This distance should exceed 15" for satisfactory range.

## TUNING

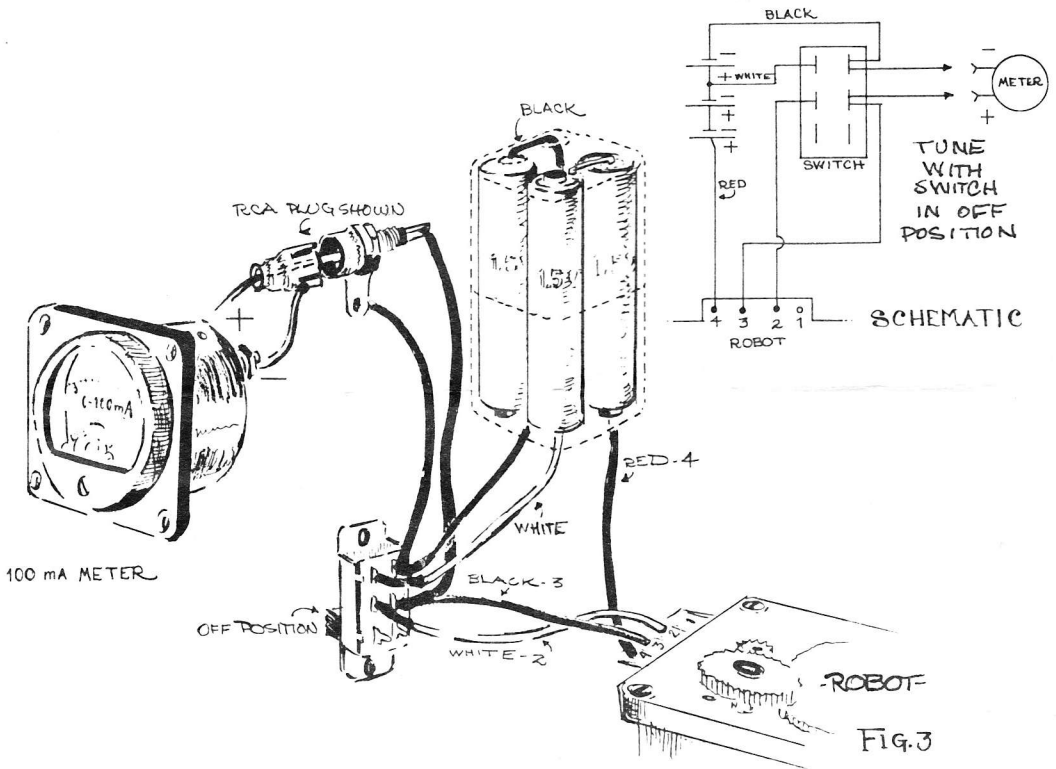
Unnecessary tuning should be avoided particularly if the range checks OK. Since ROBOTS are peak tuned at the center frequency of the Citizen's Band (27.095MHz) a ROBOT being super-regen will operate using any Tx with a Xtal frequency from 26.995 to 27.195. Peak tuning will gain a little extra sensitivity for those with Tx frequencies on the band edges. See Figure 3 for correct meter installation. Tune with a weak Tx signal. This can be done at close range by removing the antenna from the transmitter and holding the Tx just under its maximum operating distance from the receiver. To peak tune adjust the Rx tuning slug with a wood or plastic tool to obtain the highest meter reading. Access to this slug is through a small hole in the transparent, plastic dust cover. Actually the ROBOT can be peaked by simply moving the transmitter back to a maximum distance, however, a good deal of care must be taken in noting the effect of small tuning slug adjustments. These slugs sometimes loosen in their coil forms from excessive tuning. They can be tightened with a drop of hot wax or the diameter of the slug can be increased for a tighter fit by the addition of a coat of clear dope.



## REPAIR SERVICE

The Controlaire ROBOT is guaranteed by World Engines, Inc. to be free of any factory defect for 30 days after sale. Service work that is done as a result of crashes or by wear inflicted by long use is available at the Controlaire Division of World Engines, Inc. The minimum charge for ROBOT Receiver/Servo service is \$7.50. The minimum on the Motor Control is \$4.00. Before sending your receiver in for repair, make sure that your batteries

and battery box terminals are not corroded and that your batteries are fresh — we find this to be a common cause of malfunction. If you send your unit in for repair, we suggest that you tell us what type of transmitter you are using. If your problem is something other than simply of not working, such as intermittent operation, etc., please describe the nature of this problem to us on a note with the ROBOT. Also do not forget to include your name and address.



### ROBOT Operating Notice.

With real hot, fresh batteries the ROBOT may cycle through--this is not maloperation. This will stop as soon as the peak is off the batteries, which happens very soon after operation is commenced. This should not happen using pen cell nickle-cadmium batteries as the nickle-cadmium battery voltage is a little lower.



# **WORLD ENGINES**

**I N C O R P O R A T E D**

**8206 BLUE ASH RD.**

**CINCINNATI, O. 45236**

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