Instructions for Installation and Operation of

Babcock ELECTRIC COMPOUND SERVO

The Babcock Electric Compound Servo was designed to meet the needs for full operational boat handling with any single-channel radio-control system. This powerful motorized unit handles the smallest or largest boat and electric-drive motor. It is self-neutralizing and features an adjustable speed control that insures proper positioning on new or somewhat worn batteries.

Two "C" or "D" cell flashlite batteries are connected in series for 3-volts. Control functions include motor start and stop as well as right and left rudder. Control sequences are as follows:

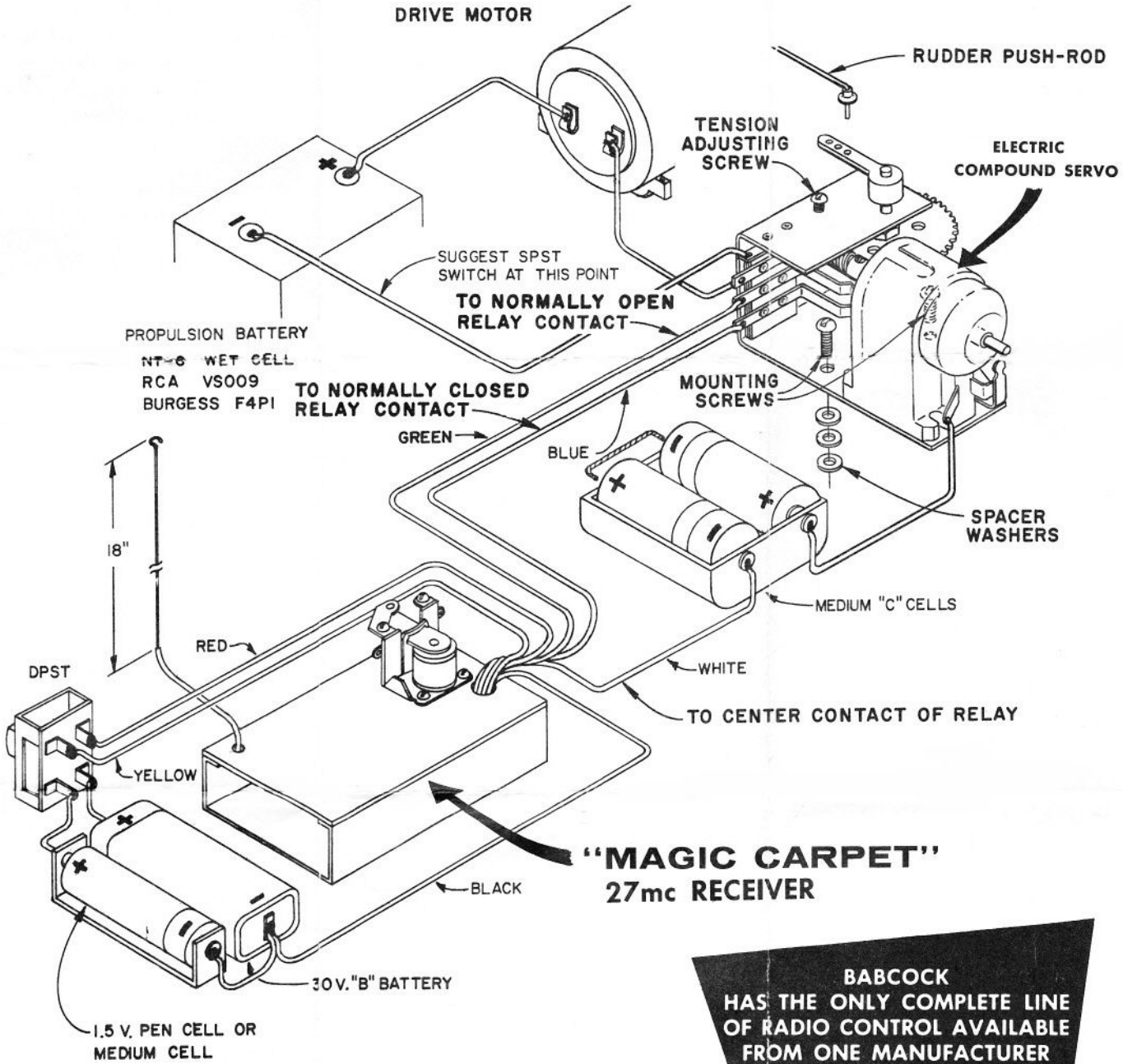
- One pulse and hold moves rudder to right—release button and rudder neutralizes.
- Two pulses and hold moves rudder to left—release for neutral.
- One quick pulse when motor is running turns motor to "off" position.
- One quick control button pulse and release operates motor switch to "on."

NOTE: The momentary skip of power between neutral and any command position is normal and is not noticeable in operation.

The adjustable speed tensioner allows for varying battery voltages and takes but a second to adjust (see drawings).

The mounting hole diagram and proper positioning are illustrated. Note that washers are required under plate to keep this plate from warping when tightened.

Good Boating!



BABCOCK HAS THE ONLY COMPLETE LINE OF RADIO CONTROL AVAILABLE FROM ONE MANUFACTURER

Babcock .....MODELS, INC.

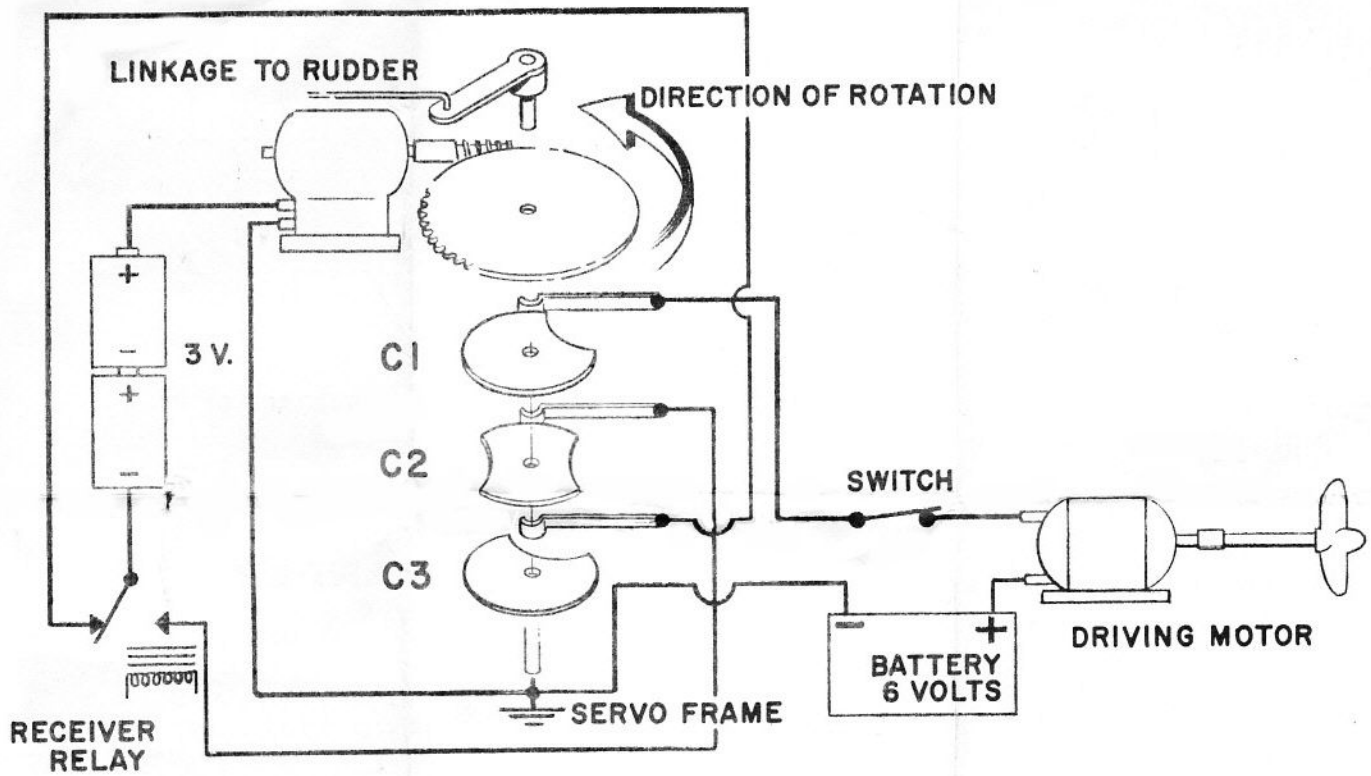
ELECTRIC COMPOUND SERVO

How it Works

In referring to the connection schematic you will note that there is a motor which is worm geared to a common shaft which is grounded to the frame of the servo. From top to bottom the various items common with this shaft are the rudder linkage, driving gear, the motor-control cam (C-1), the right and left cam (C-2) and the return to neutral cam (C-3). The drawing shows the servo in neutral with the driving-motor cam closed and the boat running straight ahead. Control functions are as follows:

A short pulse and release of the transmitter button rotates the servo in the direction shown and the driving motor stops. Cam C-1 is now in the open position which stops the motor. Cam C-3 is still in its open segment and, therefore, the servo cannot return to neutral. Another short pulse and the boat drives ahead again. At this time cam C-3 is closed, and via the back contacts of the receiver relay, the servo rotates back to its own neutral until cam C-3 again opens. For the function of right rudder, the button is pressed and held. Under this condition power is applied to the servo motor via C-2. Cam C-1 rotates across its open position and again picks up driving motor power. Cam C-3 is closed, but does not apply power to the servo motor for the reason that the servo relay is held down. Upon releasing the transmitter button the return to neutral cam C-3 again returns the servo to the one common neutral. Left turn is handled in the same way except the common is one pulse, release, and again hold the transmitter button down until cam C-2 has rotated to its other open segment, when upon release, the servo again returns to its neutral. It should be noted that on each rotation the driving motor cam C-1 is open for a short time, however, for normal right and left commands the duration of the open time is so short as to be unnoticeable in operation. In order to compensate for slightly worn batteries, an adjustable brake is furnished. This is a simple screwdriver adjustment and can be made at any time.

In order to prevent noise being radiated from the servo motor, install the included .02 ceramic condenser directly across the lugs of the motor. An additional .02 condenser will probably be required across the brushes of the driving motor.



BABCOCK ELECTRIC COMPOUND SERVO DIAGRAM
SHOWN IN NEUTRAL WITH DRIVING MOTOR SWITCH CLOSED AND BOAT RUNNING STRAIGHT ON.