



# ARISTO-MATIC ACTUATOR

With the fine radio equipment available today model builders have little trouble building a boat or car that they can steer at will. This is lots of fun, but after a while the builder desires more controls. For example, he would like to steer the model and control the drive motor as well. The Aristo-Matic Actuator makes this easy. It is basically a steering mechanism that operates electrically and requires no rubber bands or spring power, and it also has built-in contacts to control a drive motor. An exclusive feature is that steering and drive motor control functions are independent.

To make this fine unit even more versatile, instructions are given for addition of extra contacts, by means of which you may operate lights, horns, etc.

While intended for use with electrically-propelled models, the built-in contacts may be wired to operate a throttle, enabling the modeler to change the speed or to stop a diesel or glow engine.

**HOW THE ARISTO-MATIC ACTUATOR WORKS:** Before installing the unit in your model it is advisable to connect it up with a push-button and two flashlight cells (as in Fig. 1) so that you may study its action. The positive battery lead (small brass cap on flashlight cells) should always go to the solder lug marked with a red dot.

Long pulses on the button control the steering function while very short pulses operate the contacts to change drive motor speed. The Actuator will hold a steering position as long as you hold the button down, and will always return to neutral when the button is released.

Push the button and hold it down; the main drive gear 1 (see Fig. 2) should make about a half turn and stop, and the control plate 2 will move to one side or the other and stay as long as you depress the button. Upon release of the button the control plate will return to center position. Another push of the button will send 2 to the opposite position. This plate thus goes to one side and then the other alternately, with each push of the button. The main drive gear will continue to turn all the time the button is held down; this special feature helps reduce current drain.

Now give a very quick push and release on the button. The main gear will make about a quarter turn, then snap back to neutral. Watch the contact disc underneath the top of the Aristo-Matic, and you will see that it advances 1/8 turn for each short push you give the button. This is the way you start, stop and reverse the drive motor, and the latter will continue to operate the same way no matter how many steering signals (long pulses) you send, changing only when another short pulse comes through.

**CONTROL POSITIONS:** It will be seen that the steering function of the Aristo-Matic Actuator always follows a regular sequence, such as Straight-Left-Straight-Right-Straight-etc. The built-in drive motor switch also follows a regular sequence, such as Off-Forward-Off-Reverse-Off; this is illustrated in positions I, II, III, IV in Fig. 3. Unwanted steering or drive positions can be passed over by sending rapid pulses to step the mechanism to the position that you desire. This might be done if you wanted to get another left turn after you had just made a left. The unwanted right would be passed through quickly enough that the model would scarcely alter its straight course between the two left turns.

**ADDITIONAL CONTROLS:** Besides the steering and driving functions mentioned above, there are many additional control possibilities that you may obtain from the Aristo-Matic Actuator. Extra contacts may be added to the phenolic plate which holds the A, B, X, and Y contacts seen in Fig. 3. Holes are provided for riveting on three additional contacts, labelled D, E and F under position IV, Fig. 3. These contacts should be made of light springy brass or bronze (shim brass is useful) and should press very lightly on the contact disc. The added contacts must close only when the disc is in a stop position (for the drive motor). Contact D will close with E in one stop position and with F in the other stop position. These contacts can be used to blow horns, operate lights, fire guns, etc.

Of course, these contacts will close any time the contact disc is stepped to either of the drive motor stop positions. More selective switching can be had by use of still other contacts (S1-S4 in Fig. 4) which must be positioned so that they are closed by sending long pulses to swing the rudder plate 2 to one side or the other.

In Figure 4, S1 and S3 will close with the Rudder in Left, while S2 and S4 will close with Rudder in Right. Thus both the rudder plate and the drive motor switch must be in the proper positions before any of the desired auxiliary controls will operate. Fig. 4 shows relays connected via S1 and S2, while electric motors are energized by S3 and S4. Any one of these four auxiliary controls may be operated at will, since the steering and drive motor functions of the Aristo-Matic Actuator are independent of each other. The lettered contacts on the disc in Fig. 4 correspond to the same lettered contacts on Position IV, Fig. 3.

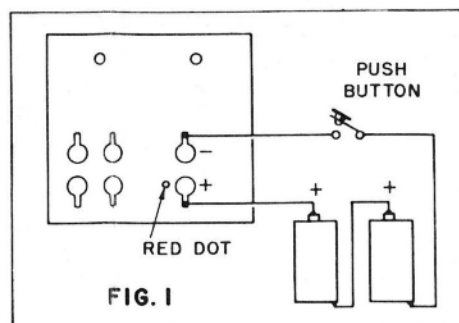


FIG. 1

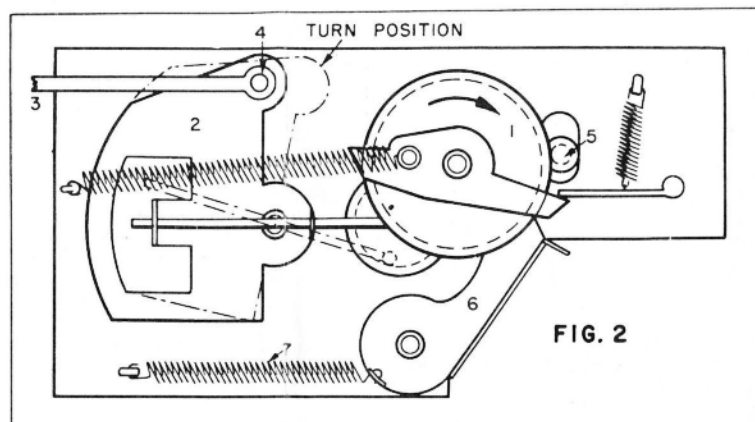


FIG. 2

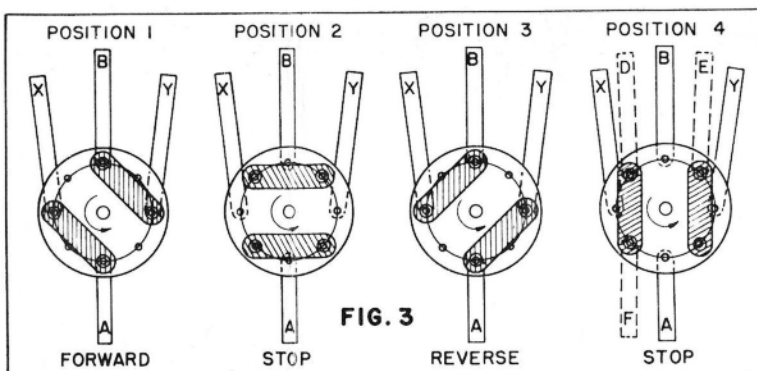


FIG. 3

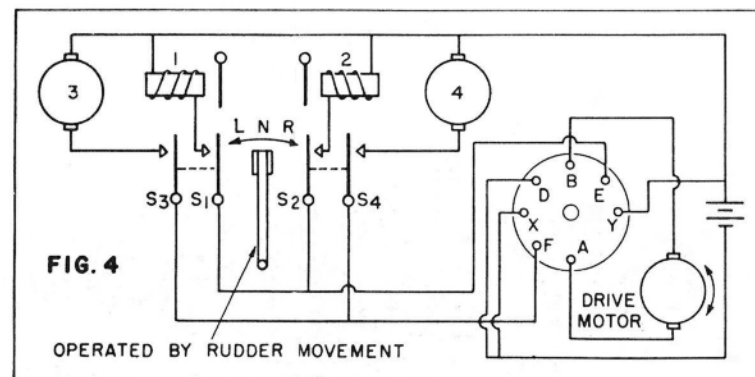


FIG. 4

With all these contacts added, the following controls may be had:

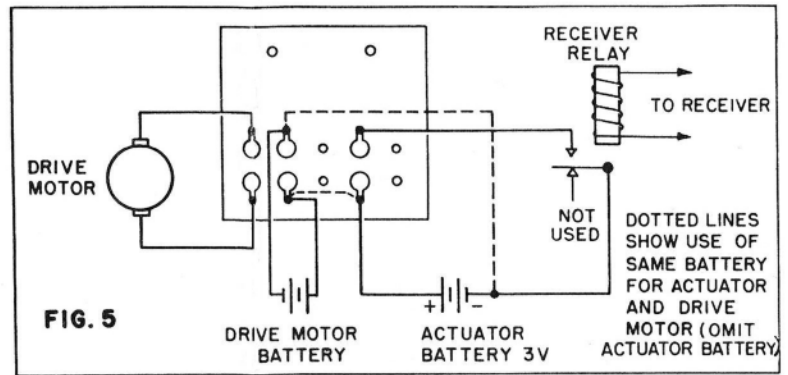
CONTROL	CONTACT DISC POSITION. See Fig. 3. (Change by Short Pulse)	DRIVE MOTOR ACTION	RUDDER POSITION (Change by Long Pulse)	AUXILIARY CONTROLS
1	Position I	Forward	Straight	-----
2	"	"	Right	-----
3	"	"	Left	-----
4	Position II	Stop	Straight	-----
5	"	"	Right	2
6	"	"	Left	1
7	Position III	Reverse	Straight	-----
8	"	"	Right	-----
9	"	"	Left	-----
10	Position IV	Stop	Straight	-----
11	"	"	Right	4
12	"	"	Left	3

Note that controls 1, 4, 7 and 10 (which correspond to Positions I, II, III and IV in Fig. 3) are obtained by short pulses that do not change the rudder positions, but which do move the contact disc 1/8 turn each. Control operations 2, 3, 5, 6, 8, 9, 11 and 12 are had by giving long pulses which leave the contact disc unmoved, but shift the rudder (and the added contacts S1-S4 you have installed, which are operated by rudder plate 2, to right or left.

If you add contacts S1-S4, they should be positioned so that they do not close when the rudder moves half right or left, as it does when you are **stepping** the contact disc around with short pulses, but only in full left or right.

**INSTALLATION:** The Aristo-Matic Actuator should be mounted level in your model, using the holes provided in the frame. Do not twist the frame, and allow clearance beneath the Actuator. A steering link 3 to the rudder or wheels may be attached to the threaded post 4. The link should be snug on this post but should not bind. For more movement, an extension arm may be soldered to drive plate 2.

Either 3 or 4½ V. may be used on the Actuator motor. Fig. 5 shows connections for relay, either one or two batteries, and a drive motor. The same batteries may be used for the actuator and drive motor, as long as the voltage does not exceed 4½. If it does, the Actuator power may be tapped off the drive motor battery, or the two batteries may be entirely separate.



When current is turned on, gear 5 in Fig. 2 should move sideways in the slot shown, and lever 6 should move inward toward gear 1; if they do not, gear 1 will not be held in the proper positions. Should this occur, slightly stretch spring 7. This difficulty may only appear if the Aristo-Matic Actuator is operated on 3 V. On this voltage also, gear 1 may not continue to turn (slowly) while a turn position is held, but it will do so on 4½ V.

**GUARANTEE:**

Your Aristo-Matic Actuator is a fully guaranteed, precision device and if used in accordance with the instruction sheet supplied, no trouble in operation will be encountered. If, however, your Aristo-Matic Actuator requires factory service, please follow this procedure:

- A: Return your Aristo-Matic Actuator DIRECT to ARISTO-CRAFT MINIATURES, 184 Pennsylvania Ave., Newark 5, N.J. NOT to your hobby dealer.
- B: Wrap your package carefully AND clearly PRINT YOUR RETURN NAME and ADDRESS in upper left hand corner.
- C: Enclose short note advising what is wrong and include \$1.50 to cover service, parts and return postage.
- D: DO NOT SEND BATTERIES OR BATTERY BOXES.
- E: SEND PACKAGE BY INSURED MAIL.

We will make every effort to return your fully serviced unit back to you in 10 days or less.

THANK YOU.

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184 PENNSYLVANIA AVE., NEWARK 5, N. J.

