

Accutronics Solo Proportional Servo

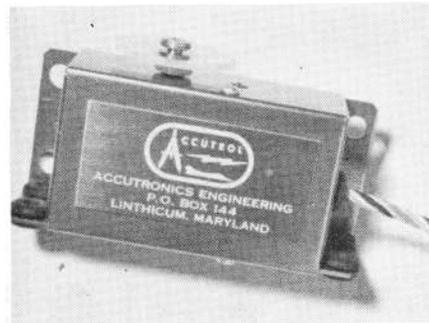
The 'PR' series proportional servos, as manufactured by Accutronics Engineering, Linthicum, Maryland, are designed to operate with any type proportional system that supplies a variable DC error voltage or control signal; as for example, the Orbit, Sampy, Astroguide, and Dee Bee Mark II. In addition, they may be used with single channel systems when suitable filtering is applied.

The Accutrol servos operate on the same principle that has been accepted since the early Space Control units; that is, being a closed loop amplifier employing a feedback potentiometer to cancel the motor current. However, another stage has been added to the amplifier, allowing the drive motor to be controlled by two heavy duty

transistors (rated at 3 amps). This step has virtually eliminated the problems of transistor burn-out due to stalling or limiting servo travel. It is no longer necessary to provide linkages that will allow 360 degrees rotation of the servo output. This means, for example, that a steerable nose-wheel may be attached to the opposite side of the rudder output without fear of damage to the servo.

Accutronic servos employ a thermistor to compensate for changes in temperature. The servo will show no visible change in output or position from 0 to 140 deg. F.

The feedback pot element is of the carbon type, and has been tested for over five hundred flights without signs of undue wear. The carbon pot has



been utilized in preference to the wire-wound units, inasmuch as wire breakage in the latter means total servo failure.

Mechanically, the construction of the Accutrol Servo equals or exceeds that of any servomechanism we have seen. Internally, a modular type construction has been used, providing a very strong and quite compact unit. A Micro Mo motor is employed to drive the servo, each motor undergoing a complete re-work in order to increase its vibration resistance prior to being used as a servo motor. The Micro Mo gear train has also been reduced and built as part of the servo itself in order to further isolate the

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motor from mechanical shock.

Externally, the output wheel has been pinned to its shaft, and the output pot follower attached by a set-screw. Since there is no force on the follower, there is no possibility of either turning in respect to the other, even in the event of a severe crash. As a result, neutral position cannot move accidentally, as in servos with the output wheel screwed onto the end of the shaft. The output shaft runs through the servo and is terminated in brass bearings at both ends, a very desirable feature that insures maximum strength and smoothness. The gears employed are made by Accutronics, and are constructed of precision machined aluminum for smoother performance with less backlash.

The overall height of the Accutrol Servo has been held to $1\frac{5}{8}$ " (measured from the mounting board to input crank), allowing for ease of installation in today's narrow, sleek RC designs. Overall size is $1\frac{1}{4}$ " x $1\text{-}3/32$ " x $2\frac{1}{4}$ ". Weight is 3 ounces. Thrust is six pounds, with a total travel of $\frac{5}{8}$ ".

The servo amplifier employs six transistors and one thermistor. Voltage requirements are 2.4V for servo and motor power, 2.4V feedback reference, and 0.7V control signal. A slight variation from the feedback reference and control signal voltages will change the position of neutral and the amount of travel. If you should require voltages other than those specified, Accutronics will adjust the servo to the voltage required for the system specified at no charge. (For example, the Space Control proportional system requires a 2.4V reference and a 0.8V control signal). Special voltages may also be ordered direct from the factory.

The Accutrol Solo is mounted in the aircraft in either a flat or upright position and with a standard DuBro servo mounting kit. Control linkage should be connected to the output crank by means of the DuBro PS-1 link which was specifically designed

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to fit the crank employed.

The only maintenance required is to keep the servo clean and free from an accumulation of dust and grime. The amplifier module is ruggedly designed and constructed, both mechanically and electrically. Besides being virtually crash-proof, it is virtually burnout proof when voltage limits are maintained. The amplifier will not burn out if the linkage or control surface becomes jammed or stalled, regardless of the duration of this condition.

Various Accutrol Solo models are available as standard units; for example, Model PR101-1A for the Sampey proportional system; PR101-1B, for the Sampey 404B; PR101-2, for the Space Control system; PR101-2K for the Klinetronics Astroguide; and PR101-3 for the Dee Bee and other pulse systems.

In addition to the Solo, Accutronics trade name for their individual servo, the Accutrol Trio is also available for most systems. This unit can be iden-

tified by the Model series number PR301. All of the features incorporated in the Solo will be found in the Trio. The latter servo is constructed of the exact same components, but using three amplifier modules, three motors, etc. In the Trio, the three servo sections are pre-wired together with a connector for a separate Solo servo for use on ailerons. The Trio is intended for use only with quad proportional systems.

Each servo from Accutronics is covered by a one year warranty from date of purchase. The Accutrol Solo is \$40, while the Trio is priced at \$120.

Our opinion of the Accutrol Solo? This is one of the finest proportional servos we have seen, and surpasses many of the commercial units furnished with available quad proportional. It is also highly recommended by RCM for use with single channel closed-loop systems. For use with home brew systems we recommend that you write Accutronics Engineering, P.O. Box 144, Linthicum, Maryland, outlining the type of system, your requirements, and voltage specifications.