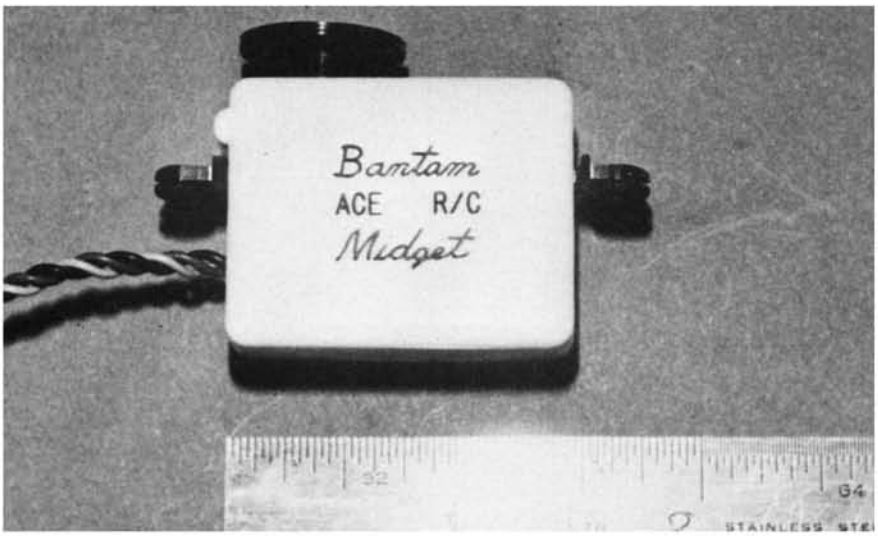
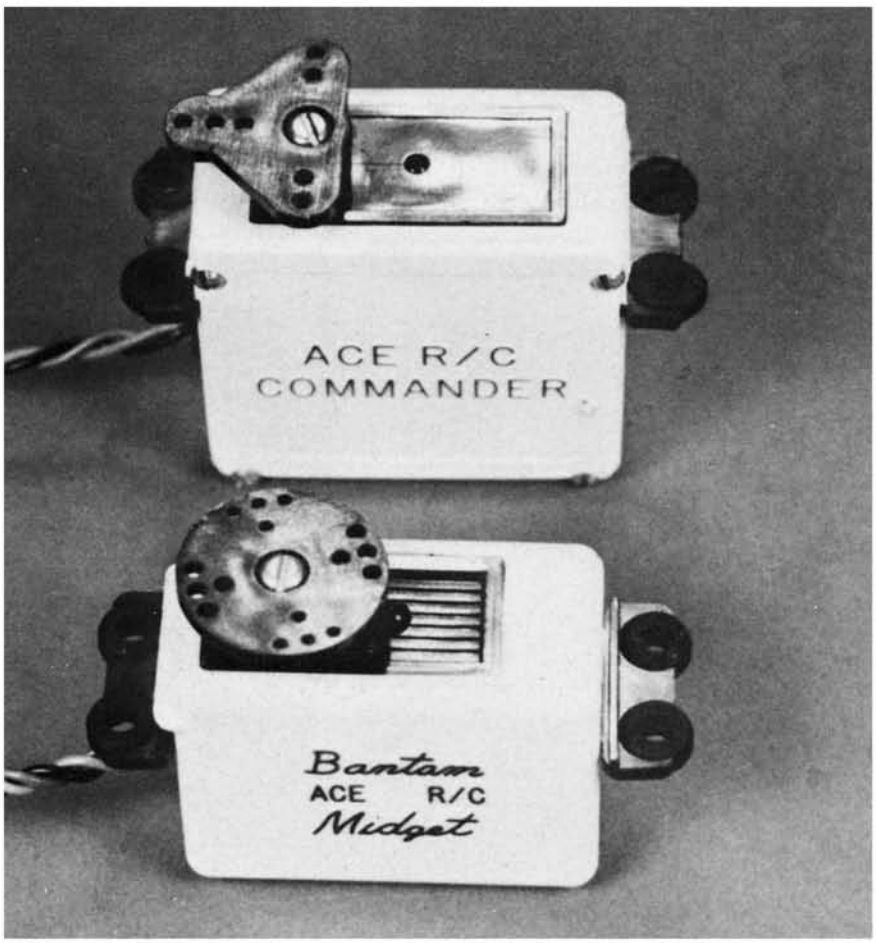
An FM Product Review:

Ace's Bantam Midget



PHOTOGRAPHY: BOB ABERLE

Although not very readily noticed in photo, both servos will mount in the same holes and therefore the same servo trays. Convenient! **Beneath:** A size comparison here of the regular Bantam servo (background) and Ace's new Bantam-Midget. Case dimensions are basically the same except the height.



The D &R Bantam servo mechanics certainly needs no introduction. It has been a popular unit because of its relatively small size and reasonably good power output for many years. The tendency in recent years has been to reduce the size of the servo so that it would more easily fit into the smaller ½A and .09 powered R/C models. But what about a compromise size? Something not as small as the Dunham D-5 micro or the Kraft KPS-18, yet smaller than the present Bantam.

Well during this past year, Dick Rehling of D &R , has come out with a new set of servo mechanics which he calls the Bantam-Midget. These mechanics are now being offered to the R/C industry. One of the first people, as usual, to market a complete servo around this new mechanism is Ace R/C Inc. of 116 W. 19th Street, Higginsville, Missouri 64037. I was fortunate to be one of the hobby professionals selected to participate in their extensive evaluation program. My particular two servos have been in use since May (1978).

The Ace Bantam-Midget servo will be sold in kit form (catalog no. 14G20R) for $23.95 and as a fully assembled unit (catalog no. 14G20RC) for $28.95. Neither the assembled or the kit version comes with a connector. The main reason for this is that the servo can be adapted to so many different systems, it would be impossible to provide all the different connector types and pin wiring. In either case the price includes a ¾" diameter rotary output wheel, an extended arm (1¼" in length) and an adjustable output arm (which I'm not in favor of since it has shifted position on me during flying).

This new servo measures 1 7/16" long x 1⅛" high (the Bantam being considerably higher) x 23/32" thick. Weight is 0.85 ounces which is only slightly more than the Dunham D-5 micro servo. The mounting dimensions are identical with the full size Bantam servo. The Bantam-Midget will fit in the same servo trays as its bigger brother. The real difference is the lower profile. Although the gear train portion is identical to the regular Bantam, a new 14 mm diameter motor (still 11 ohms) has been employed. Ace was able to repackage its popular servo amplifier which uses the Signetics NE-544 I.C. chip. Although my prototype units (in the photographs) don't show outboard transistors, Ace was able to package them into the final production units now being offered. It is essentially their same amplifier now, with some minor changes in component values to cope with the new motor and its damping requirements. The final production units have a measured output thrust of 20 oz. in. My particular units, lacking the outboard transisotrs, only came up to the 15 oz. in output level. Ace R/C felt it was worth the added trouble and expense. Transit time is a very fast 0.5 seconds for full travel. My particular units traveled ± 40 degrees (80

Servo

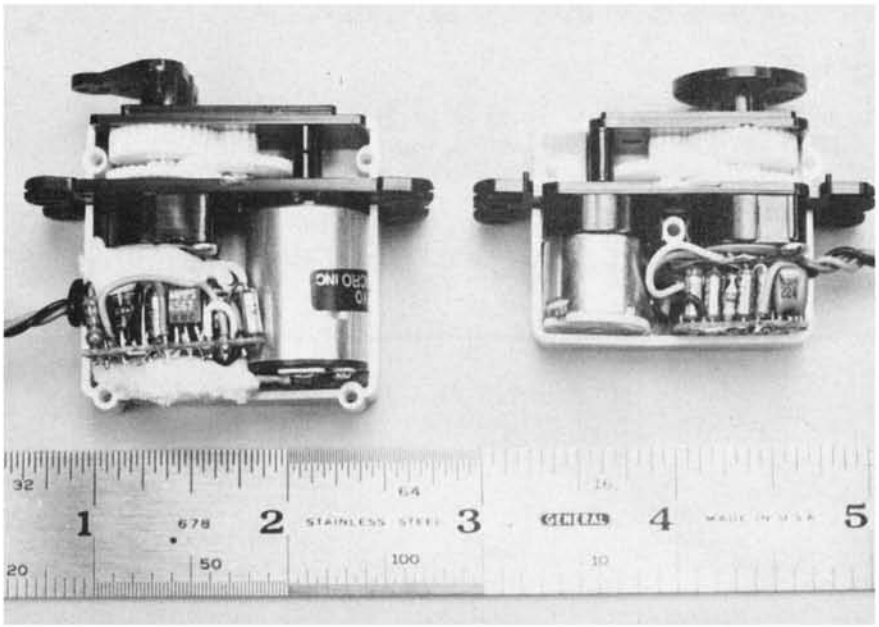
A lower profile version of the D&R Bantam mechanics, offered by Ace with their NE-544 amplifier and outboard transistors (for extra power). 20 ounces of thrust, new 14mm dia. 11 ohm motor. Offered in kit form as well as assembled/**Bob Aberle**

degrees full travel). The travel is exactly equal in both directions of rotation (an excellent property if you are using control mixers). Electronically the servo idles at 7 ma. Under continuous operation it will draw a peak of 175 ma. which is just about comparable to the larger Bantam servo. Resolution based on my observation is excellent. There is *no overshoot* at all when returning from full excursion back to neutral.

You will probably notice in my photos that only three screws are used to hold the case halves together. Many of us participating in the preliminary evaluation program complained of this fact. As a result, Dick Rehling, was able to revise his molds and add two equally spaced screw mounts on the bottom of the case. All future Bantam-Midgets will therefore be held together with the usual four screws.

One of the biggest concerns with this servo was the motor itself. I was asked by Tom and Paul Runge of Ace R/C to really give my two prototypes the acid test. It only took a matter of minutes to install the two Bantam-Midgets in the aileron and elevator functions of my Ace Three-Ten design (FLYING MODELS, December 1977). This model is now powered by an MRC-Webra .10 using a tuned pipe. Needless to say this model moves like a pylon racer with only 240 sq. in. of wing area. I'm now over the 50 flight mark in several months of flying (keep an accurate log and you will be surprised how long it takes to fly an *honest* 50 flights). My particular model has always been prone to excessive vibration which I never seem to have the time to correct. Be that as it may the Ace Bantam-Midgets are performing well to this date without any sign of difficulty. Ace has other modelers using the Bantam-Midgets in .60 powered pattern planes with equally good results. I can honestly see a great application for these servos in pylon racing, especially quarter midgets and formula 1, where the fuselage size leaves little room for even average volume radio equipment. There is no question in my mind that both the power and resolution of these servos would be more than adequate. Remember, too, you can use this servo with most modern digital systems employing positive pulse. You can even use it with negative pulse systems provided that you buy an Ace pulse inverter (catalog no. 14G18) for an additional $2.00.

Building from a kit shouldn't impose any real problems. If you could build (or have built) a regular Bantam, this new Bantam-Midget would take just about the same amount of skill and assembly time. For the low kit price it would be worth trying one to see what it's all about. Ace will now be supplying the Bantam-Midgets as an option on all their full systems and flite packs. This new style servo offers a compromise size which I believe will become quite popular in the years to come.



Regular Bantam servo on left and the new Ace Bantam-Midget. Gear train, pot are identical. Amplifiers repackaged. Big thing is new style 14 mm dia. motor. **Below:** Typical installation in Bob's Ace Three-Ten design. The throttle servo is a regular Bantam servo. Small equipment permits versatility in planforms.