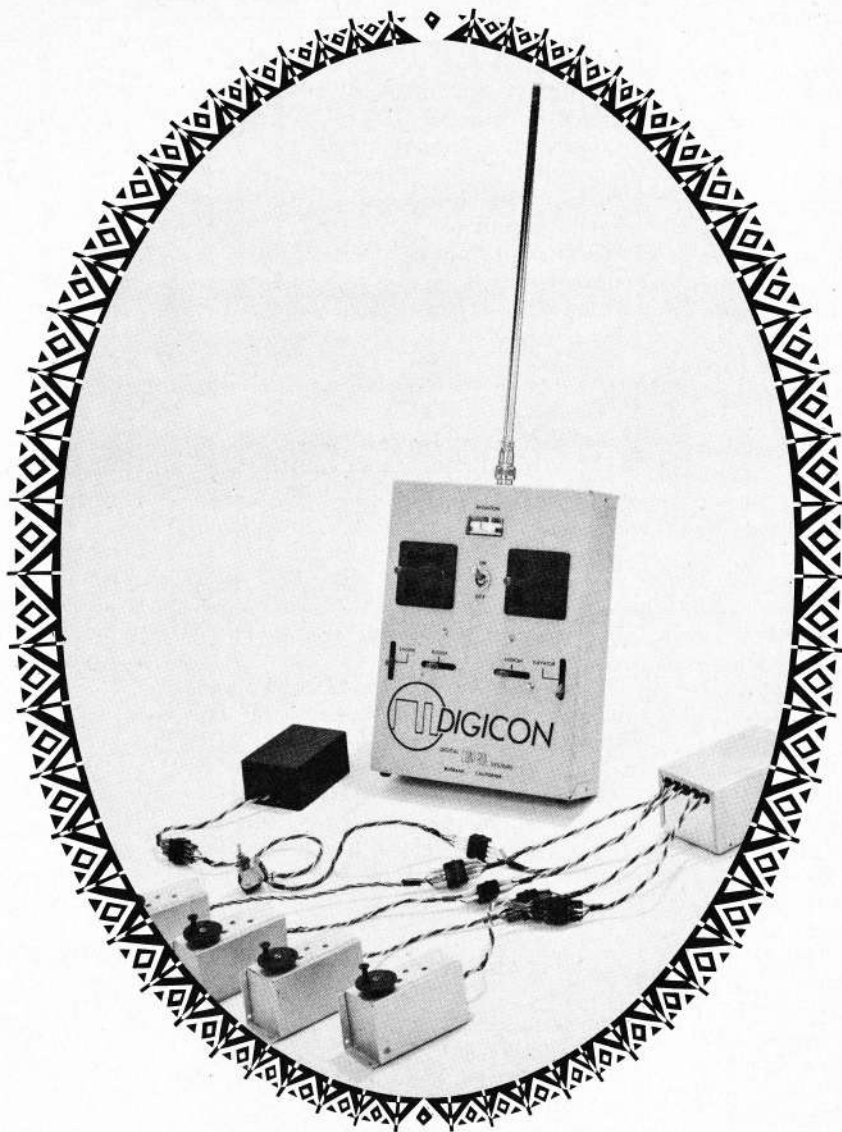


Hank Giunta tests quad proportional offering from Digital Control Systems.



The Digicon Proportional

● The hottest topic of conversation these days seems to concern the full-house proportional rigs now on the market, almost on the market, and a nebulous group of "we'll have ours out as soon as we figure out how to make them work." And if you should tire of discussing the pros and cons of the currently available systems, the analog versus digital concept, or the single versus multi-stick controversy are always good for another hour or so of heated discourse. Add to this the rampant rumors about having to live next door to the manufacturer in order to keep your pearl of great price in working order, and it is little wonder the RC'er is somewhat reluctant

to hand over five C notes or more for the expensive privilege of controlling the wiggle of his control surfaces. In theory, proportional control is what we have all wanted and waited for—but in practical application, how does it perform? This is the sixty-four dollar question, and for this reason RCM's technical staff will, over the next few months, take a good, hard look at these proportional systems and try to divorce the facts from the proverbial well-paved road of good intentions. The one phase we cannot report on is reliability — for this elusive requirement of a good system can only be analyzed after months of continuous flying with any given system. We can

give you a report on the mechanical and electronic end of it, and an analysis of the laboratory tests we will conduct. As for the trial by fire — the actual performance of the system in the field in every day sport or competition flying — only time will tell. With these ideas in mind, RCM's first review is of the Digicon proportional system as manufactured by Digital Control Systems Company, North Hollywood, California. The unit we obtained for test purposes was taken from the manufacturer's assembly line, its mechanical and general operational features examined by the editors, then submitted to our Technical Editor for laboratory analysis. A second Digicon

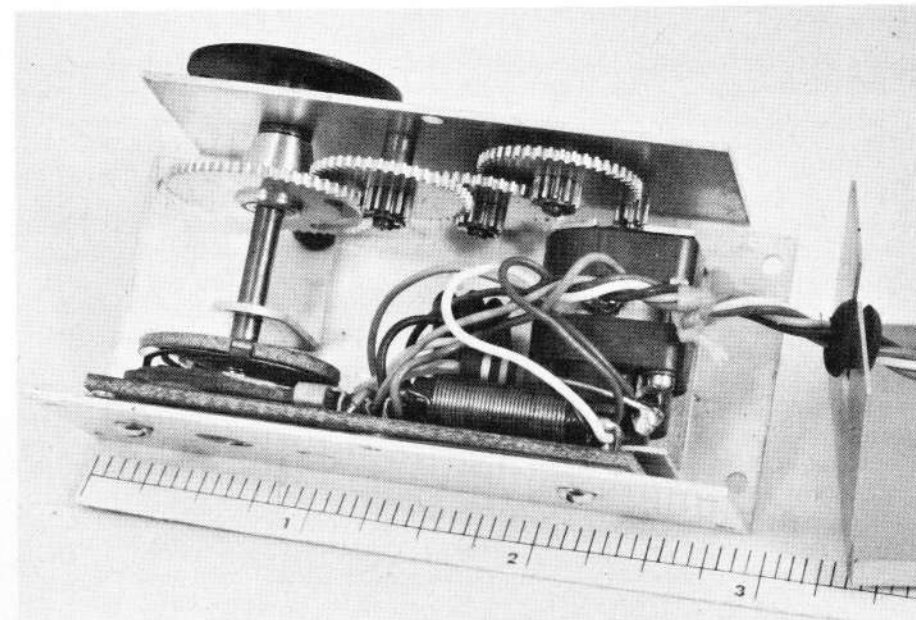
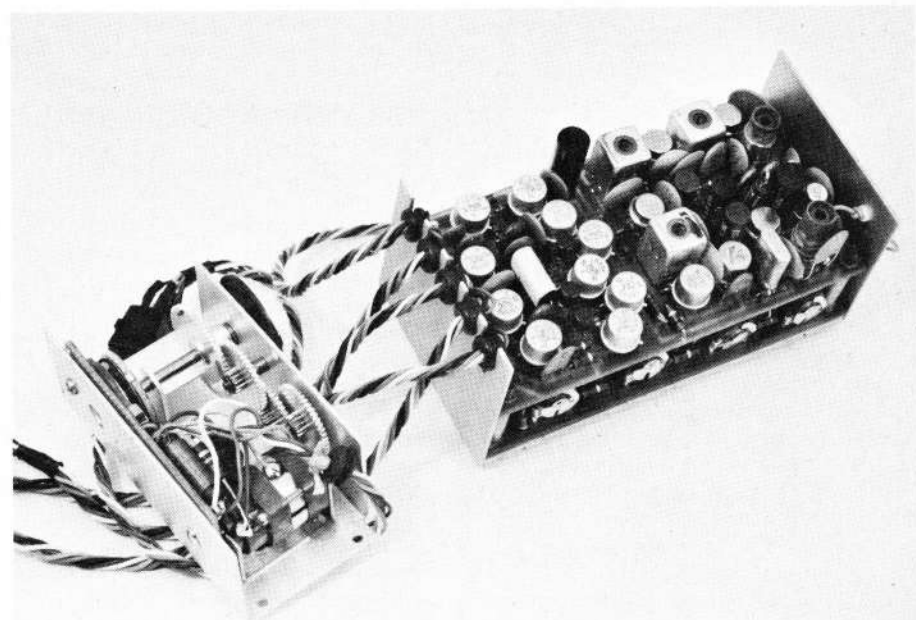
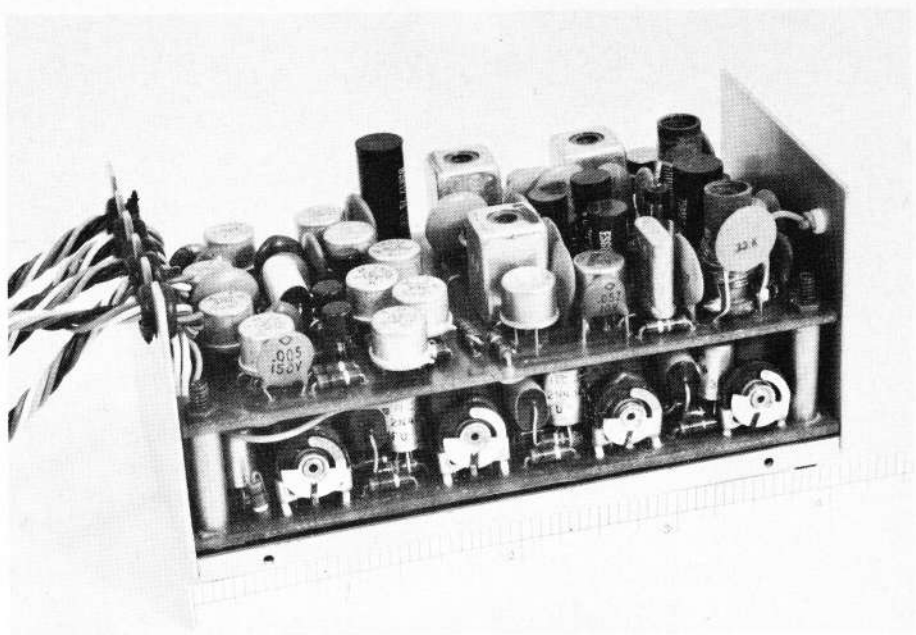
system was obtained from a customer/owner and tested in comparison with the original unit. These are the results of the tests on both units.

The Digicon proportional control unit operates on a digital control concept, providing four independent, simultaneous, fully proportional functions. The receiver is a transistorized superhet furnished on any one of the available frequencies from 26.995 to 27.255 mc. An RF amplifier stage provides increased sensitivity and maximum rejection of spurious signals. As illustrated in the photographs, modular construction techniques are used in the receiver, with the receiver itself, decoder, and four servo amplifiers contained in the receiver case. Unlike most of the proportional systems currently available, no electronic components are carried in the servos. This has one definite advantage in reducing "spare," or replacement servo cost. We noted that all plugs from the receiver were color coded to insure correct installation, the white being the power supply; orange, engine; yellow, elevator; green, aileron; black, rudder. The color of the antenna wire signifies the operating frequency, our particular unit being on 26.995 mc. Manufacturer's specifications for the receiver are as follows:

- Sensitivity Less than 10 microvolts for full control.
- AGC In full control from 10-100,000 microvolts. Less than 6 DB variation in information amplitude with 50% modulation.
- Bandwidth 5 KC @ 6 DB
- Intermediate Frequency 455 KC
- Power Supply 6 vdc nicad 250 mah for receiver. 7.2 vdc sintered plate nicad for servo amplifiers and servo motors.
- Modulation percentage required....50%
- Available Freq. 26.995 to 27.255 mc
- Operating temp. range.....0-140°F
- Size 4" x 2 1/8" x 1 7/8"
- Weight 8 ounces

Receiver tests by RCM are based on qualitative information only. The receiver evidenced excellent AGC characteristics. Nominal receiver sensitivity was approximately 2 to 3 microvolts, as measured using a Hewlett-Packard 608D generator. The pulse output at the second detector was monitored on a Tektronix 545 Oscilloscope.

The Digicon transmitter is an all-transistorized unit delivering 1/4 watt output. Utilization of a low modulation percentage is used for the purpose of reducing interference to adjacent channel RC frequencies. Two control sticks



(Continued on page 54)

