R/C DON LOWE
General Correspondent
SPORT and PATTERN

Proposed Channel Changes: The FCC has proposed changes for the 72-75 mHz ranges so that two of the present spots would be shared with other model users and two new channels assigned to non-aircraft application. AMA is actively preparing arguments to change this rules proposal. These changes were suggested because of the recent rapid growth of RC car activity. Many modelers want to use their airplane systems in a car on 72. Others feel it is discriminatory to deny 72 to non-aircraft users. It is—and the reason is safety.

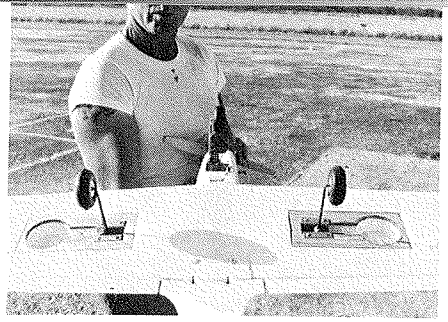
Whatever the outcome, consider that, because of the close-range operation of RC cars and most RC boats, 100 miliwatt transmitters are more than adequate on any frequency. And with the 27 mHz band, any frequency within the band may be used by a transmitter of less than 100 miliwatts. That means fifty channels or more. We think this band is where all non-aircraft use belongs. Fifty channels for less than 100 miliwatt transmitters is enough.

Careless Frequency Control: In the Crescent City R/C Club's newsletter, "The Flyaway II," Ron Romeo reports "two planes shot out of the air as the result of carelessness with the frequency clothespin. The plane in the air had the pin in both cases, and in both cases the guilty party was an experienced flyer." Unfortunately, such carelessness is much too common!

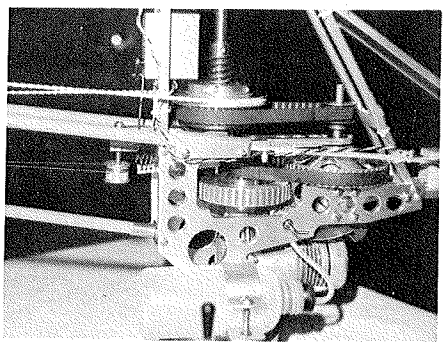
Most clubs have ground rules to prevent simultaneous operation of transmitters on the same frequency. Some use a colored flag on the transmitter to signify frequency, but, are fliers color-blind or too lazy to observe what colors are flying? Most clubs use a clothespin system, requiring the acquisition of an appropriate-colored pin and affixing it to the transmitter prior to turning it on. Other clubs impound transmitters, even during regular weekend flying.

The problem of frequency control will always be with us, human nature being what it is. But if somebody violates the rules and washes out some hapless flier's hard-won pride and joy, is it enough to say, "Gee, I'm sorry!" Personal and financial responsibility is assumed for the careless wiping out of other kinds of property such as automobiles. Why shouldn't such responsibility extend to models? Obviously, clear-cut operational ground rules and clear evidence of fault must be established before judgment can be made. What do you think?

Kapiolani RC Club of Honolulu, Hawaii, flies at Diamond Head Crater. Models are mostly high-wingers for off-grass operation.



Selectronics retract gear in a Lanier Citron is unique in many ways. For example, nose gear retracts forward, mains retract outward. Mains **are mounted on plywood base without spar support. Flies great.**



Ernie Huber, who is a machinist, has taken up the helicopter challenge. Nice work.

Here are several suggested operational ground rules. (1) Never operate a transmitter without a frequency flag. Write frequency numbers on flag to prevent color confusion. (2) Use the frequency and color-coded clothespins. (3) Impound transmitters with antennas removed. (4) Require fliers to operate from a designated area so that it is easy to see who is flying and to check his frequency. This also prevents fliers from being clobbered by aircraft taking off and landing. (5) As an added precaution, always turn the receiver on first and note its operation,

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R/C FRED MARKS
Specialist Correspondent
TECHNICAL ITEMS
AERODYNAMICS

A Digital Addition: An auxiliary function for digital equipment can be added to existing radios inexpensively and simply. Its application can be to throttle, flaps, landing gear or other auxiliary functions. Furthermore, it requires omission of the digital information for only about half a second, just enough to start it on its way to the next position. During this half-second, the regular digital servos stop for an unnoticeable moment.

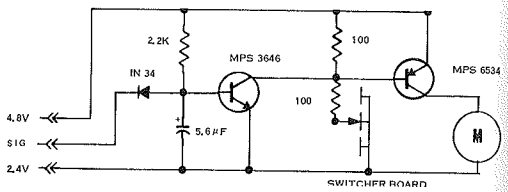
An S-4 Controlaire servomechanism with a small switcher board, designed by Ken's RC, is used in place of the normal feedback potentiometer. A two-transistor POD is used to control the servo.

The schematic shown is for a negative-going input signal. From this figure it can be seen that the input pulse (taken from a servo signal lead or at any convenient and compatible point on the digital decoder) is coupled via a steering diode to the 5.6 mf capacitor. As long as pulses are present, the first stage transistor is biased off by the 100 ohm resistor to its emitter. Upon omission of the pulses, the first transistor is biased on via the 2.2K resistor and, in turn, drives the output transistor into full condition.

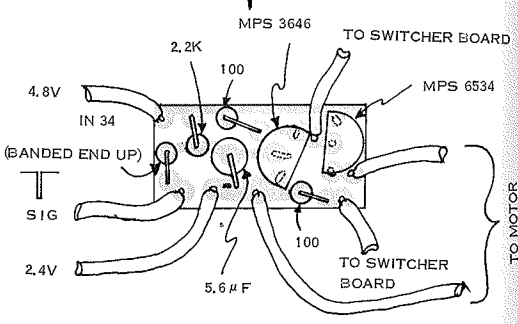
As soon as the servo starts to move, the potentiometer wiper (normally used for feedback in the digital-type application) makes contact across the switcher plate. The plate is mounted where the pot element is normally located. This retains bias on the output transistor to full conduction, even after the pulse train resumes, until the switch plate contact breaks. The plate shown is for three positions to be used for throttle. If it is to be used for a two-position function, e.g., landing gear, the area of the switcher arc identified by a black dot should be blacked out prior to making a photo-etched p. c. board.

The POD can be used with a positive-going input pulse by simply making the mirror-image p. c. board and using MPS 3638A and MPS 6531 transistors in place of the MPS 3646 and MPS 6534, respectively. All other component values are the same.

The unit built and tested was used with the Controlaire Digit Migit single-function digital system and works happily with other negative-going pulse digital sets. Both positive and negative pulse are available on the Digit Migit. Its installation will be described next month.



Schematic for digital POD by correspondent Marks is for negative-going sig. input.

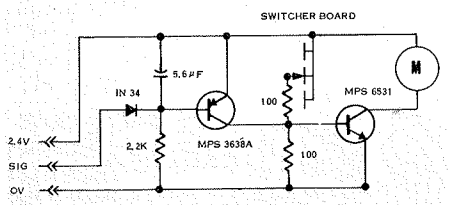


PC board layout is simple, and with so few parts, assembly is easy.

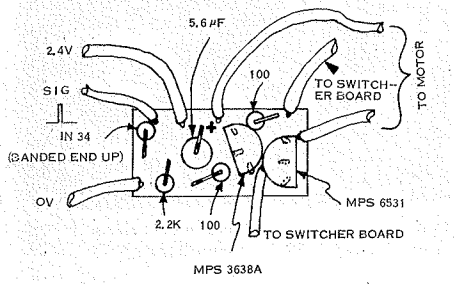
The preceding brief description is not intended to be a construction article. It is recommended for the tinkerer who knows, for example, where to pick up the power leads and signal leads for his radio. Furthermore, the location at which the transmitted pulse train can be interrupted within the transmitter using a normally-closed push-button must be known. In most cases, however, a duplicate servo plug on any channel provides the signal and power lead sources. The "enable" button on current digital radios for operation of buddy box or instructor/trainer system performs the pulse-stopping function at the transmitter.

R/C FRED MARKS
Specialist Correspondent
TECHNICAL ITEMS AERODYNAMICS

Adding a Function to a Digital Set by Use of a POD, Conclusion: Last month, the POD to be used with a negative-going input pulse to give an auxiliary function was described. Figs. 1, 2, and 3, present the schematic, pc layout and component overlay for the POD required for operation from a positive-going input pulse.



Positive pulse circuit for extra function on digital sets. Printed circuit plan shows copper side.



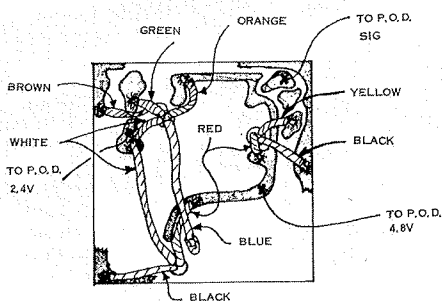
Component placement and wiring are simple with so few parts. Fits tiny servos.

Hookup of either POD to an existing system is as follows. Determine the presence of the center tap, 0V, 2. 4V and signal at any convenient servo plug. Either construct a parallelling plug (i. e. a tie harness) or wire in at the back of the servo plug. Polarity of the input pulse must be known. The majority of sets have a positive-going pulse. The EK, Pro-Line, F&M, and Controlaire MAN 2-3-4 series have a negative-going pulse.

Pulse omission can be obtained at the transmitter simply by locating the pc land or wire carrying the pulse train from the encoder to the modulator. Insert a normally closed miniature push-button switch which, when depressed, will interrupt the pulse train for the approximate quarter of a second required to activate the auxiliary servo.

The unit built and tested was used with the Controlaire Digit Migit single channel digital system to provide motor control. The Digit Migit and the newer Controlaire systems using the S-4B servo have a positive-going control pulse. To permit a cleaner installation and provide separate wiring, the arrangement shown in Fig. 4 was developed for the Digit Migit decoder.

The underside of the Digit Migit decoder board, as drawn, shows sufficient identification of pc lands and wiring to permit the POD to be attached. The point identified as "to POD Sig" pre-



Negative pulse POD (shown last month) used with Digit Migit at decoder shown here.

sents a negative-going pulse, so the POD for a negative-going pulse is used. This arrangement works exceptionally

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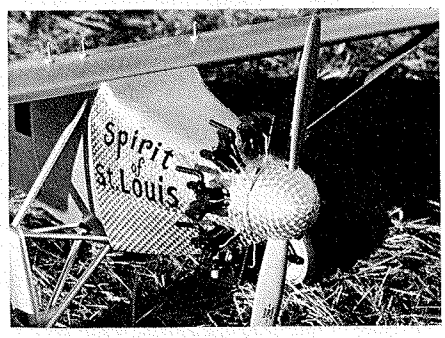
R/C CLAUDE McCULLOUGH
Specialist Correspondent
SCALE

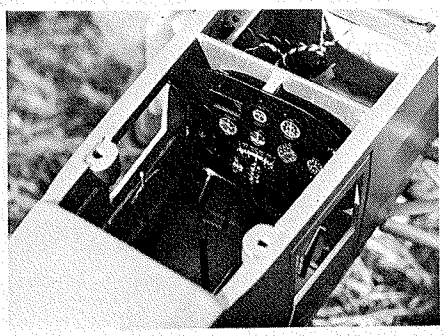
That's The Spirit: Those who think extra engines, 10,000 rivets, folding wings or retract gear, are necessary to get anywhere in competition at a national level, should take heart from the success of Ed Ellis. At his first Nationals, using a kit-based airplane meticulously built and detailed, he defeated an impressive list of models and fliers.

Prepared to satisfy increased emphasis on scale speed and realism, the "Spirit of St. Louis" had its Supertigre 60 loaded down with a 14-6 prop and a homemade .018 silver-soldered steel muffler. Ed feels the muffler's square shape does a better job of silencing. The resultant low sound level contributed greatly to the overall effect, an illusion which would have been shattered by the usual high-revving shriek.



Royal Products kit used by Ed Ellis to create this masterpiece. Details in text.

Where's the pilot? Lindbergh's sparse cockpit and panel are carefully duplicated.



The engine-turned metal-covered front of the model is a real eye-catcher. It was hand-shaped with a mallet over a wooden block form. The material, a decorative aluminum sheet with the "whirlies" applied, is made for instrument panel and similar use by Croname Inc., 6201 Howard St., Niles, Ill. 60648. . . .

Wing mounting screws are countersunk into holes in the wing surface and concealed with small hatch covers. A handy idea for sticking them down temporarily was the use of Dum-Dum (or Mortite) Window Sealer, a putty-like stuff that does not dry out or harden. It should work for similar items that need to stay

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R/C HOWARD McENTEE
Specialist Correspondent
GLIDERS and FAI

New World's record for closed course distance was set Aug. 30, by Robert Boucher, flying a stock Malibu. Distance covered in 11 hr., 9 min., was 189 mi. The Kapiolani RC Club, Hawaii, provided witnesses.

Saving Those Legs: Retrieving the hook end of a winch tow system is doubtless good exercise, but it does get tiresome during a long flying session! At the glider meet during 1970 Nats week, we saw the first trials of a closed-loop winch cord system. It had just been completed and tried out by the Detroit glider group Sunday afternoon before the meet.

The standard winch had a drum core covered with rubber; the cord was wound three times around this, went to a distant pulley mounted on a stake (as normally used with winches), but then was returned to the winch in a closed loop. The actual tow cord with cloth at the tow-ring end was spliced onto the closed loop of cord.

One successful launch was made, but apparently the wrong type of cord was used (the twisted nylon variety) because the tow cord wrapped along a good length of loop cord. The idea is that, after a plane has been towed aloft, the tow cord, cloth and ring will be pulled through the distant pulley, back to the winch and around its drum, and out toward the pulley until the ring is just beyond the winch,

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Control linkage for escapement, by Jack Perecman, suitable for long-bodied gliders.