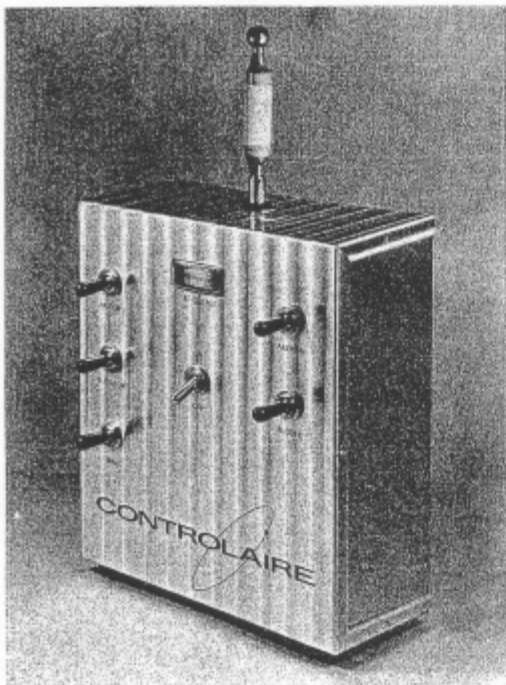


CONTROLAIRE 10 Ch Tx



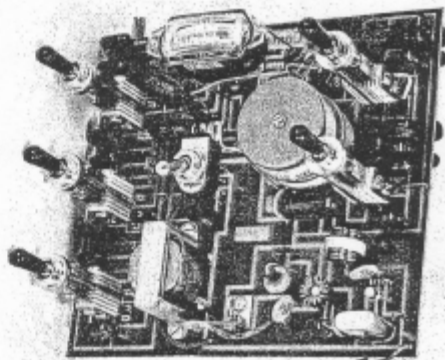
Transmitters, Model MTT-10 and UTT-10, are one and the same unit except for the alignment or tailoring of their tone channels. The MTT-10 is sold only as part of a matched transmitter and receiver combination and its tone receiver. The UTT-10 is intended for home alignment and is supplied untailored for companion use with the Controlaire kit assembled receivers. Both transmitters are fully assembled and have their RF frequency tuned, to meet requirements of the citizens radio service. Being untailored, the UTT-10 is supplied with no condensers installed on the tone section of the P. C. board.

The transmitter has a man-size wallop in reference to power output. Average radiated power is approximately 150 milliwatts with a minimum specification of 100 milliwatts before a transmitter is approved. This means it will equal and in most cases surpass the output of the average tube type transmitter used in the past. Efficiency is due to several factors. One, the use of specially graded Silicon, RF transistors, the employment of a series tuned center loaded antenna and, last, the use of collector modulation. Collector modulation is quite important as average power will increase during modulation and not reduce as experienced with grid modulation of older tube type units. The total power input for all stages is approximately 52 ma at 9 volts or about 470 milliwatts. Of this power approximately 275 milliwatts goes to the RF power amplifier which in turn supplies the antenna. A Class "C" citizens service station license is required to operate this transmitter.

The Controlaire MTT-10 and UTT-10 is dual simultaneous. This means that the aileron and rudder controls are serviced by one of the torroids and that the motor control, elevator and elevator trim controls are serviced by the second torroid. This means that any control serviced by one torroid can operate simultaneously with any of the controls serviced by the other torroid. Actually in factory tuning we concentrate on getting aileron and rudder to operate simultaneously with elevator as these are the simultaneous controls that are generally used together. Another combination often used is motor control and rudder for taxiing on the ground, particularly on fields that are rough or the grass is high and where a lot of power is occasionally needed to move forward.

This transmitter is priced a little lower than many transmitters

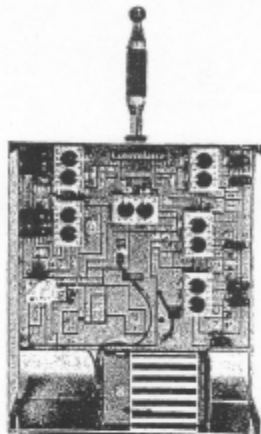
which are offered and some people speculate that the lower price is a reflection of lower quality. One big savings that we pass along to our customers is that at Controlaire we do many operations for ourselves that other manufacturers farm out. We make our own printed circuit boards, make our own P.C. board art work, and do our own P.C. board etching, camera work and shearing. Also notice that we fabricate our own cases from pre-anodized aluminum which eliminates awkward storage of fabricated cases and trips back and forth to the anodizer. The loading coil type antenna is also made in the Controlaire factory. Controlaire supplies these center loaded antennas to several other R/C suppliers. We might add that this particular center loaded antenna was selected because of its faculty of being able to collapse to such a small over-all height. Our older tube-type transmitter had an over-all height with the antenna collapsed of 33". Our new 9 volt all transistorized model will collapse to an over-all height of 11 1/2". The smaller dimension permits much easier storage and transport obviously than does the higher dimension. While comparing these transmitters we might add that the new 9 volt transmitter with batteries weighs 3 1/3 lbs. whereas the tube-type transmitter weighed 6 1/2 lbs. The new all transistorized model has a unique reinforcement on the transmitter back to give the transmitter an extremely solid feel when the transmitter is grasped when in use. You will notice when comparing multi-channel transmitters that a number of such transmitters use a rather inexpensive vein type meter. Power to drive this meter is taken from the antenna circuit and amplified so as to be able to operate the rather insensitive meter device. In the Controlaire transmitter an extremely high quality moving coil type meter is employed which measures directly the power input to the RF power amplifier and no amplification circuit is required, and even though our meter may cost us more than meters used by other manufacturers we are still able to save the rather substantial amplification circuit that they require. Sometimes just plain good common sense engineering in a product can reflect many savings. We feel that our unitized chassis design affords us much savings both in the assembly and testing of the transmitter. Again, this is a savings that can be passed on to the customer. You will notice that if the antenna is unscrewed from the chassis and if the switch retaining nuts are removed from the front side of the case — that the entire chassis can be simply lifted out of the case.



Chassis of 10 Channel Tx.

On the other side of the coin there are some things that we do in manufacturing this transmitter which do not reflect any savings at all but rather tend to increase the price of our transmitter. First consideration is that the highest quality components available are used throughout. Secondly, extreme attention is given to some small details in the transmitter. First of these is the lever switch modification that we make before installing the lever switches into the transmitter. With special tools we reform the blades on these lever switches so as to give a greater contact interval and also to provide a slight wiping contact action which will many times prevent loss of signal due to dirt in the switch. This is not to assure that the lever switch contact should not be periodically cleaned. We are including in this catalog information photographs of the front, back, and chassis of the transmitter so that you can see some of these features which we have mentioned in the written part of this copy.

BATTERY REQUIREMENTS: This transmitter operates from one 9 volt battery — Eveready No. 276, Burgess No. D-6, Novel No. S-306. We might add here that if you use the Novel battery you should check the tightness of the snap terminals and if they are not snug we recommend that you tighten the female clip both on the battery and in your transmitter with a pair of pliers.



Rear view of 10 Ch. Tx w/battery

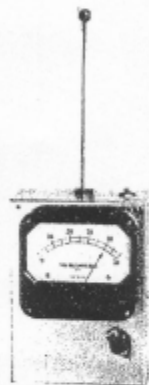
Nickel Cad. Batt. Supply: The Controilaire transmitter is shipped so that any of the above mentioned dry batteries will slip right into the transmitter for immediate operation. Actually these dry batteries offer a substantial life and make for a very care-free operation of the transmitter. When you use nickel-cadmium batteries in your transmitter you should be rather intensive in charging them prior to prolonged flying. We recommend that seven 1.2 volt 500 mah capacity nickel-cadmium batteries be used for nickel-cadmium battery operation. Nickel-cadmium batteries of higher mah rating can certainly be used. Even the 500 mah batteries will provide all of the flying (several hours) that most people can get in one day.

OPERATION: In the operation the transmitter will draw from 35-50 mills depending upon the characteristics of the transistors used in any given transmitter. We would also like to mention that this transmitter should be operated with the antenna fully extended. This is very important. It is particularly important that the antenna be fully extended in the immediate neighborhood of the loading coil, as otherwise the loading coil will be shorted out of the antenna circuit.

TRANSMITTER POWER: The Controilaire 10 channel transmitter has a high percentage of modulation and for that matter so do almost all the other makes of 10 channel transmitters that we have tested. The Controilaire transmitter offers a good wave shape. We will include a picture of the wave shape on the oscilloscope from this transmitter with this catalog information. Transmitter output can be compared on a field strength meter. To compare the output of the Controilaire transmitter with other transmitters it is important to operate both transmitters at the same distance away from the field strength meter. Generally field strength meters offer only a relative reading. The important thing is to take the reading from the same distance from the field strength meter holding the transmitter in the same position with the antenna pointing straight up which generally will produce the highest field strength meter reading. We do not say that the Controilaire transmitter is the most powerful transmitter available, however, in our testing we've never found another make transmitter better than ours. However, you will read this sometime after this statement is made and it may be that others will produce more powerful transmitters in the meantime or it may be that we just have not gotten hold of the most powerful transmitter of some other brand. This Controilaire transmitter has a signal which is as high as 4 times as powerful as some other makes of transmitters. The power level of this transmitter is substantially more than adequate but this does not mean that it will operate with the antenna down or with worn out batteries.

FREQUENCY: Transmitters are available on the following frequencies: 26.995, 27.045, 27.095, 27.145, and 27.195. These transmitters are not available on 27.255 or from 52 to 54 megacycles.

LICENSE: Since this transmitter is well above the 100 milliwatt minimum it is necessary that you secure a form 505 from the Federal Communications Commission and that you receive your license to operate this transmitter. All that is involved is that you secure a form, fill it out, and send it in to FCC. They will send your license. Notarization is no longer required. You should also check with the FCC to see if there is going to be any charge for your license. At the time this article is being written, it is the writer's understanding that the FCC is considering the levy of some charge for these licenses.



Typical field strength meter used to check output and for tuning

CONTROILAIRE FACTORY: The Controilaire factory is located adjacent to the World Engines warehouse at 8206 Blue Ash Road, Cincinnati, Ohio. These Controilaire units are made here in the United States and are exported through the common market countries of Europe of the Super Tigre organization in Italy and by various other importers in Ireland, England, New Zealand, Australia and in many countries of South America.

MTT-10 (Matched)	\$99.98
UTT-10 (Untuned Pots)	\$85.00
Operating Instructions (included with above).....	\$ 1.00



Apply one of the R/C CRAFT Frequency Markers to your Tx or Rx and you won't have to rely on memory. These markers are adhesive backed (pressure sensitive). Price per package of six markers is \$.50