ADD A MICROPHONE TO YOUR FOXMITTER

by Richard Q. Fox

This article is the sixth installment in a series on a 100 m.w. transmitter for use with model rockets. This installment describes a microphone module for the transmitter, which allows reception, on the ground, of sounds generated inside the payload capsule of a model rocket in flight. The signals picked up by the microphone may be used to obtain an exact measurement of the engine thrust duration, the time delay, and the moment of ejection. In addition, it might be possible to use the microphone to study the air passing by the rocket. Some attempts have been made to correlate the sounds recorded from the microphone with the velocity of the air passing the payload section, but the results of this experiment are still uncertain.

Construction

The construction of the microphone module follows the pattern established in the construction of the other modules for the transmitter. The transmitter must be modified as described in the August issue in order to work with this module.The microphone used should be a small crystal earphone of the type imported from Japan. Parts placement is not critical to operation; however the length of the wire connecting the microphone to the module plug should be kept as short as possible. In some cases, the builder may find he has to change the length of the antenna in order to obtain full strength transmitter output when using the microphone module.

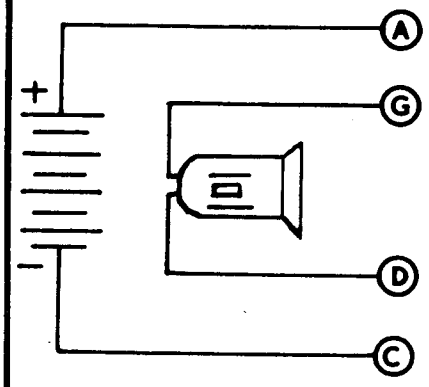
Use

The microphone module and transmitter should be placed in the payload capsule of the rocket with the battery closest to the nose cone, and the microphone closest to the rear of the rocket. This arrangement will prevent the microphone from being crushed if the parachute should malfunction. The signals transmitted from a microphone-carrying-rocket sound like air rushing past a tube. These sounds are not too much different from the normal static generated by a cheap walkie-talkie which is not picking up any signal at all. The result of this similarity is that it is sometimes difficult to identify the sounds generated during flight. After listening a few times to a tape recording of the sounds transmitted during the flight, it usually becomes possible to identify all of the main events.

The microphone is sufficiently sensitive to pick up most of the sounds generated during a flight, however do not expect too much of it. It certainly will not detect the heartbeat of an animal in flight.

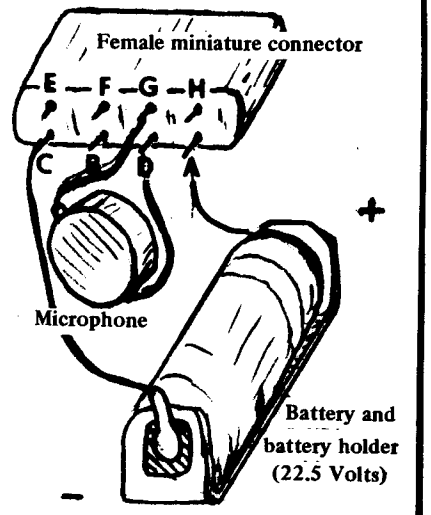
Next month's article will cover some of the comments received from users of the transmitter.

FIGURE 1
SCHEMATIC



Microphone module

FIGURE 2
WIRING DIAGRAM



Parts List

M1	Microphone (crystal earphone)	Lafayette no. 99H2551
B1	22.5 volt Battery	Burgess Y15
	Battery Holder	Lafayette no. 34H5005
	Plug (Ultraminiature R/C Connector)	Lafayette no. 99H9091

ACCELEROMETER PARTS

The correct PARTS LIST for the accelerometer module described in the August issue of Model Rocketry was accidently omitted. The correct parts are as follows:

L_o	Miller 9003 RF coil (adjustable) 0.570 to 2.80 mh
C_a	100 pf capacitor
C_b	3.0 μf capacitor
B_1	22½ volt battery, Burgess Y15

All parts available from Burstein-Applebee, 3199 Mercier Street, Kansas City, MO 64111.