

# RADIO AT THE 1956 NATIONAL SOARING CHAMPIONSHIPS

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More radio than ever before was used at this year's national contest. National prosperity must extend even to the soaring fraternity! Some malpractice, some misinformation or lack of information, and generous amounts of congestion on the air were present. Therefore some comments on various parts of the radio problem would seem very much to the point.

## Uses of Radio

Pilots with properly working radio get a lot of good from their sets. Landing clearance at busy fields, weather information en route, and contact with the ground crews are helpful uses of radio. Gliders with radio are nearly always a source of amazement to CAA tower and radio range personnel as evidenced by their radio replies, especially to a ship at great height. Radio can pave the way for a warm reception at a strange field (and bring all hands running to watch the landing) as many of our active cross-country pilots relate.

Pilots with poorly working radio get a lot of grief from their sets. As one English book admonishes, it is simpler to use lead for ballast. In an effort to ease the strain involved in setting up and using radio in a sailplane, this article will bring forth a number of observations from this year's national competition and from the author's experience in the flight test radio group of a large airframe manufacturer.

## Crowding on the Band

Jamming and interference were all too common at Grand Prairie with at least sixteen ships all trying to use 123.3 megacycles, one of three frequencies available to soaring societies. New licencees are urged to apply for 123.1 or 123.5 mc. It would be a great service to soaring to have a number of licencees sitting firmly on these other two spots to hold them down. Our Federal Communications Commission is liable to look around and find these allotments in grand disuse; then they may be closed to us altogether.

For those already on 123.3 mc.

you can ease the problem by short and concise transmissions. During a contest, code letters for your progress toward a goal will hold transmission time to a bare minimum as well as confuse the enemy and cheat the listeners at headquarters out of knowing who is ahead.

## Legal Points and Licensing

It seemed that most, but not all, radio installations at the nationals were properly licensed. One strong clue is whether the party uses a proper ground station call like KMJ5 or a sneaky one like Foxtrot 4 or Glider Ground 1. The standard reference on licensing is FCC Part 9, "Rules and Regulations Governing Aeronautical Services." It goes for twenty-five cents from the Government Printing Office, Washington 25. D. C. Both a construction permit, on FCC form 401, and a license application, FCC form 403, must be filed for ground station. Both will usually be granted simultaneously. Application on Form 401 is required for licensing on a 123.-mc. frequency as a soaring society ship or flight school. FCC forms are available most readily by writing the nearest FCC Field Engineering Office.

Very often the first application will be returned, generously covered with red pencil to show what has incurred displeasure. Initial disapproval is common, but approval will be forthcoming when the questions are answered as the FCC directs. Having a copy of Part 9, "Rules and Regulations etc." on hand should help with completing the forms.

The legal requirement that all adjustments to the transmitter be performed by the holder of a first- or second-class radio operator's license is almost universally violated by soaring people. Failure to secure competent help is certainly the most general cause of failure or poor results, both in ships at the national contest and in other instances involving mobile radio.

Finding *competent* help is very hard. Holders of second- or first-class radio licenses are sure to be found at the local broadcast station. Whe-

ther an experienced VHF radio man with proper equipment will be found is problematical. More will be said on the subject of proper help and test equipment shortly.

Another legal requirement nearly universally disregarded by the gliding fraternity is the rule that all assigned frequencies of the transmitter be *measured* when the transmitter (or additional crystal) is installed, when any part in the frequency-determining section is changed, or whenever the licensee believes the frequency may have shifted. Exact frequency within .01 per cent is the law. Whether lack of information or laziness prompts such violations, it is extremely poor practice not to measure the frequency accurately upon installing a ship or car transmitter and not to have the necessary adjustments done by a licensed person.

At a large airport the radio service agency will likely have a suitable frequency-measuring instrument. The service agency for local police and taxicab radios may have one, and so may the local broadcast station.

## Equipment and Installation

At the 1956 national contest there were more Skycrafter Multiphones in use than equipment of any other make. It is fair to say that the Multiphone owners enjoyed more success than owners of other makes. In the opinion of the author the Skycrafter set is technically excellent, conservatively designed, and well suited for the glider. More power would help in the car. At least one very good home-built transmitter and receiver was in use, and at least one each of the Lear, Narco, and Aerotron sets appeared in a sailplane. The make of equipment used is not nearly as important, though, as its condition and adjustment in a given installation.

The author feels strongly that equipment powered from wet cells of adequate capacity is best for a sailplane. There are fine 6- and 12-volt tube types for VHF radio, permitting a sensitive receiver and powerful, efficient transmitter to be built. In addition the storage battery for the radio can power the electric turn indicator, artificial horizon, cockpit and position lights, and other equipment.

After a proper installation of storage battery, in a metal case with a drain tube to the outside, the ship is all set for many hours of operating electrical equipment without the endless expense of dry batteries. A simple quick-disconnect plug will al-