

DATE 10/10/80

ADVISORY CIRCULAR



DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Washington, D.C.

Subject: COMMUNICATION INTERFERENCE CAUSED BY UNINTENTIONAL KEYED MICROPHONES

1. **PURPOSE.** This advisory circular alerts the aviation community to the potential hazards created by unintentional keying of microphones resulting in radio transmissions from airborne, mobile, and ground based radio transmitters and gives guidance on alleviating ensuing hazards.

2. **CANCELLATION.** Advisory Circular AC 20-89 dated March 22, 1974, is cancelled.

3. **BACKGROUND.** In 1970 the Federal Aviation Administration (FAA) noted a need to eliminate unintentional radio emissions and proposed that the Federal Communications Commission (FCC) eliminate the present exemption of aircraft stations from Section 87.75(d), which requires a radiation indicator. The FCC issued a notice and received much adverse comment. FAA then requested FCC to withdraw the proposal pending further investigation of the magnitude of the problem. In 1974 Advisory Circular No. 20-89 was published for the purpose of publicizing the problem of communication interference caused by unintentional radio transmissions and availability of warning devices. Since 1978 air traffic control facilities have reported several systems errors which resulted from unintentional continuously keyed microphones causing air traffic controllers' inability to communicate with airborne aircraft.

4. DISCUSSION.

a. Unintentional emissions from radio transmitters in the aviation services are caused by microphone buttons sticking in the "on" position after being keyed or activated for transmissions, operators sitting on microphones and depressing the "push-to-talk" buttons, microphones wedged in seats, equipment malfunction and water present in microphone circuits of mobile and ground based transmitters. These conditions can, and have, occurred without the knowledge of the operator.

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b. Air traffic control facilities monitor a large number of transmissions on several frequencies. Interruption of service or interference on these frequencies presents a safety hazard and levies an economic burden on other operators due to the inevitable delays the frequency blockages create.

c. One means of reducing the problems would be to install a visual monitor on aviation service transmitters. Such devices are on the market today and are reasonably economical to purchase and install. They consist of a remote warning light when r-f energy is radiated. As a service tool they also indicate when transmitted power is weakened or when modulation circuits malfunction.

d. Benefits gained by the installation of a visual monitor are:

(1) Reduce operating costs due to equipment malfunction by reducing repair and downtime.

(2) Prevent premature failure of equipment since most aviation service transmitters are not designed for continuous service operation.

(3) Verify transmitter operation or malfunction during preflight and inflight situations.

5. GUIDANCE.

a. This advisory circular should be posted in a conspicuous location in all FM flight service station pilot briefing areas, airport operations offices, airlines operations offices and offices responsible for the administration and operation of airport mobile vehicles and traffic control areas, including linemaintenance buildings. A sticker type placard should be posted in a conspicuous place on every radio equipped airport vehicle to read, in essence, "IS YOUR MICROPHONE BUTTON STUCK?"

b. Operators planning installation of new communications equipment should consider the economic advantages of incorporating a visual monitoring system of transmitter radiation as an additional feature to this new equipment.

c. Operators of aircraft and airport mobile and ground based transmitters should provide a means for the proper storage of the microphone when the microphone is not in use.

d. Pilots and operators of airport mobile vehicles who suspect difficulties with their microphones should unplug them immediately rather than leave them connected until a serviceable replacement can be installed.

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e. Operators who might have other ideas as to how best to ensure against frequency blockages caused by unintentional keyed mikes should convey their views to the local FAA facility for dissemination to other interested persons.



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Director of Airworthiness