

UNITED STATES OF AMERICA  
NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: May 17, 1972

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD  
at its office in Washington, D. C.  
on the 19th day of April, 1972.

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FORWARDED TO: )  
Honorable John W. Ingram )  
Administrator )  
Federal Railroad Administration )  
Washington, D. C. 20590 )  
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SAFETY RECOMMENDATIONS R-72-9 & 10

Radio, more than any innovation since the telegraph, has the potential for increasing the efficiency of train operations on American railroads. It is an almost ideal form of communication for train operation, since it provides instant voice communication among land stations and moving trains, between the locomotive and caboose of a train, between trains, and land stations. In addition, its use permits supervisors and maintenance personnel in motor vehicles to communicate with employees located on trains or at remote land stations.

Without radio, most movements of a locomotive in switching operations depend upon hand signals. The scope of radio communications at terminals could be increased by providing car inspectors and trainmen with portable radios. Trainmen would then be able to talk directly to the engineer and to direct movements of the locomotive and cars, while other trainmen on the same crew could monitor conversations to know what is going on at all times. Moreover, radio would be of benefit to personnel who perform terminal brake tests on trains. In addition, track maintenance forces could employ radio to monitor train movements, and thus there would be safer and more efficient use of the track.

When radio was first introduced in train operations, management and labor unions differed over the amount, if any, of additional pay for those who used it. As a result, some railroads generally refrained from issuing orders or instructions requiring the use of radio for specific tasks. Lacking such orders, and in the absence of instructions and rules governing radio use, general rules, such as those found in the Standard Code of Operating Rules published by the Association of American Railroads, were applied. As a result, railroad radio systems and their use have developed without specific, comprehensive, operational rules.

The Rules and Regulations of the Federal Communications Commission (FCC), Part 93, Land Transportation Radio Services, are the only control on the types of radio components, systems, and procedures used by railroads. Rule B of the Standard Code's Railroad Radio, General and Operational Rules states, in part "The Railroad Company and its employees are governed by the Commission's Operational Rules." The FCC's Operational Rules are not covered completely in the Standard Code, or in most individual railroad rulebooks. Moreover, many personnel who use radio are not furnished with copies of the FCC rules.

Concessions by labor and management, as well as acceptance of radio as an operating facility medium, have been gradual. Emergency Board No. 178 was established in 1970 to settle the dispute among the Nation's railroads and four labor unions. Emergency Board No. 178 concluded: "Radio communication is a modern technological development with great potential for making railroad operations much safer than they currently are . . . . Its use should be regarded as an integral part of the job, and therefore, it would be unwarranted for us to recommend that employees receive separate and additional compensation for using this equipment."

It is difficult to evaluate the role of radio in train accidents, because accident reports do not provide data related thereto. However, accident reports dating back to the late 1950's, and observations made of current usage, suggest that the improper use of radio has contributed to train accidents.

A collision of two Illinois Central trains at Indian Oaks, Illinois, on January 17, 1969, resulted from the absence of proper procedures in radio usage. There are other examples of collisions which resulted from acceptance by engineers of instructions by radio intended for others. (See ICC Report No. 3924 and Federal Railroad Administration (FRA) Accident Report No. 4160, for example.) Accidents have occurred also where there was a lack of backup systems when radio equipment has failed. (See Interstate Commerce Commission (ICC) Report No. 4079.) Other accidents have occurred in the absence of proper safeguards, when engineers have accepted radio instructions which violated operating rules. FRA Report No. 4119 disclosed that an engineer disregarded the restricted speed requirement, because he erroneously assumed that the operator's radio advice superseded the rule.

Analysis of the accident reports indicates that radio operational procedures in train operation are much less formal and precise than similar practices in other modes of transportation which rely heavily on radio as a control method. It is also clear from these accident reports that some railroads fail to follow FCC operational rules. Where radio is currently available, training and enforcement of formal and uniform procedures are necessary to obtain greater efficiency.

Rules governing the use of radio should be developed in correlation with the regular railroad operating rules. Most operating rules on American Railroads have been respected by railroad operating personnel over the years, and, because of this, their enforcement has not been difficult. Railroads traditionally have required stringent procedures where instructions are given

to operating personnel to operate in a manner contrary to that specified by the operating rules. If radio is to be used as a successful communications facility in railroad operations, complete procedures enforced with constant vigor are essential.

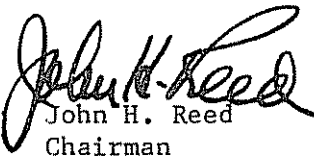
Radio is currently an important facility in train operation, and its use will increase in control functions, and high-speed train communications systems. It has proved to be invaluable in emergency situations, but its use need not be limited to emergency messages, train orders, etc. Positive direction is needed to develop its full role.

The Safety Board therefore recommends that the Federal Railroad Administration:

1. Issue as soon as possible regulations to provide for the use of radio in railroad operations. These regulations should include the traditional safeguards found in existing railroad operating rules where they apply to train movements. It is further recommended that, in drafting such regulations, consideration be given to the principles and procedures for radio used by military and civilian aviation authorities.
2. Review, and revise as necessary, its accident reporting requirements and investigation procedures to insure that all facets of the involvement of radio or the absence of radio are determined and reported.

These recommendations will be released to the public on the issue date shown above. No public dissemination of the contents of this document should be made prior to that date.

Reed, Chairman; Laurel, McAdams, Thayer and Burgess, Members, concurred in the above recommendations.

By  John H. Reed  
Chairman