



OFFICE OF
THE CHAIRMAN

DEPARTMENT OF TRANSPORTATION
NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20591

January 30, 1970

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Honorable John H. Shaffer
Administrator
Federal Aviation Administration
Washington, D. C. 20590

Dear Mr. Shaffer:

Recent investigations into the facts and circumstances concerning two midair collisions which occurred in radar terminal areas between large, high-performance air carrier aircraft and small general aviation aircraft have revealed, among other things, the following:

The small aircraft was not detected by the air traffic controllers on radar in one case, and was detected and subsequently lost from the radar in the other.

The small aircraft, with low radar cross sections, were operating in radar tangential effect during a portion of the controllers' available detection time. The radar cross sections of the small aircraft were considered marginal.

Safe and effective air traffic control expanded radar service cannot be provided unless aircraft possess adequate radar cross section to ensure that usable primary radar returns are received on the controller's display equipment.

Suitable passive radar reflectors are available for small aircraft which will increase the aircraft's radar cross sections, thereby enhancing their reflective capability to the desired level. Reflectors can be designed to eliminate the tangential effect.

The cost of the simple reflectors, with 2 square meters of reflective augmentation, is within the financial means of most operators who desire to use the available expanded radar service in terminal areas. The cost of reflectors with the capability of eliminating the tangential effect is somewhat greater.

Honorable John H. Shaffer

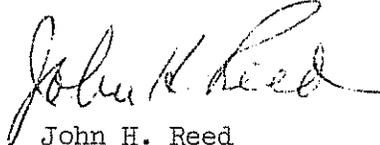
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We believe that it would be appropriate to modify Parts 21 and 23 of the Federal Aviation Regulations to require all aircraft under 12,500 pounds, manufactured after some appropriate date, to possess a radar cross section suitable for primary target detection by FAA radar at ranges up to 125-150 miles. This cross section augmentation should be accomplished during manufacture, using passive reflectors.

We also believe that the regulations should require a minimum level of radar cross section for present-day aircraft before permitting them to operate in certain expanded radar service environments such as the high-density areas indicated in your recent rule making proposals.

Sincerely yours,

A handwritten signature in cursive script, reading "John H. Reed". The signature is written in dark ink and is positioned above the typed name and title.

John H. Reed
Chairman