

SP-20  
Log 1134

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: April 15, 1985

-----  
Forwarded to:

Honorable Donald D. Engen  
Administrator  
Federal Aviation Administration  
Washington, D. C. 20591

SAFETY RECOMMENDATION(S)

A-85-28 through -30

-----  
On August 2, 1984, a Britten-Norman BN-2A6 airplane operated by Vieques Air Link (VAL) crashed into the sea near the Vieques Airport, Puerto Rico. The airplane, with a pilot and eight passengers onboard, had just taken off from the Vieques Airport when, at an altitude of about 200 feet, it turned back to the airport, lost altitude, and crashed into the water. The airplane came to rest in about 20 feet of water, and all persons onboard were killed.

The National Transportation Safety Board's investigation has identified serious safety deficiencies in flotation devices used on VAL airplanes. These deficiencies include loose CO<sub>2</sub> inflation cylinders, failure of some of the devices to maintain gas pressure, and erroneous Technical Standard Order (TSO) information printed on the devices. The Safety Board is concerned that these deficiencies may extend to flotation devices in service with other airlines as well. Although the Safety Board found no connection between the deficiencies of the flotation devices discussed in this recommendation letter and the nonsurvival of the airplane occupants, it believes that the Federal Aviation Administration (FAA) should initiate prompt action to correct the deficiencies.

The Model GA-12 flotation device, Part No. PO 201-101, was manufactured by Eastern Aero Marine, Miami, Florida. Thirty such devices were purchased by VAL from Puerto Rico Aircraft Suppliers in July 1984 to replace devices lost through pilferage. The devices were delivered inside sealed plastic protective pouches, making it impossible to examine the devices without destroying the integrity of the protective pouches.

Ten flotation devices, which were reported to have been on the accident airplane, were examined by Safety Board investigators, and problems were found with five of them. Four devices had loose CO<sub>2</sub> inflation cylinders, and the gas could be heard leaking from two of these; one of the four (which did not leak gas) had been inspected by a VAL mechanic 4 months before the accident. A fifth device, whose CO<sub>2</sub> cylinder was tight, leaked after it was inflated.

The Safety Board also examined seven flotation devices from another VAL airplane, which were not in sealed pouches and thus were readily accessible. Loose CO<sub>2</sub> cylinders were found on three of the seven devices. At the request of the Safety Board, the FAA inspected all flotation devices owned by VAL and discovered that about 40 percent had loose CO<sub>2</sub> cylinders.

The Safety Board finds the use of flotation devices in this condition to be unacceptable. The loose inflation cylinders and the inability of the devices to maintain pressure indicate serious deficiencies in the design, fabrication, and quality control of the GA-12 flotation device manufactured by Eastern Aero Marine. The Safety Board has been unable to ascertain the number of flotation devices which may have similar deficiencies; however, many of these flotation devices are in service with other airlines and may have similar deficiencies. The Safety Board believes that present owners of these devices should be apprised of the possibility and directed to inspect the devices on hand. While the Safety Board recognizes that it may be difficult to locate all owners of the GA-12 flotation devices and notify them of the deficiencies found during this investigation, it believes that a combined effort by the manufacturer and the FAA could accomplish such notification successfully.

Each flotation device was packaged with a card which identified the device's serial number, part number, date of manufacture, reinspection date, and the statement: "Manufactured by Eastern Aero Marine in accordance with FAA TSO-C72b." Each device also was placarded with the serial number, TSO-C13c, ATA 801. TSO-C13c (now superseded by TSO-C13d) addressed "Life Preservers" and required much more stringent design, performance, and test requirements than does TSO-C72b, which addresses "Individual Flotation Devices." For instance, TSO-C13c required a minimum of two inflatable compartments, each having an inflation cylinder; a minimum of 23 pounds of buoyancy for the life preserver; no more than 1/2-psig pressure loss in 12 hours per compartment after the compartments are inflated to 2 psig; the ability to support a 20-pound weight in water; and a design which will permit completely reversible wear. TSO-C72b, on the other hand, requires only one inflatable compartment and one inflation cylinder, and requires that the flotation device support a minimum of 14 pounds for 8 hours. There is no leakage rate specified in TSO-C72b, and the TSO does not address reversible wear.

Since the subject flotation devices were the one-chamber, one-inflation-cylinder type, clearly the Eastern Aero Marine devices were designed to the requirements of TSO-C72b and not to those of TSO-C13c. The Safety Board believes that the placards which indicated that the devices complied with TSO-C13c seriously misrepresent the devices' performance capabilities. The Safety Board believes also that FAA surveillance of the manufacturing and quality control practices of Eastern Aero Marine is deficient, since it did not ensure, at the least, that the proper TSO information was affixed to the GA-12 flotation device and that the device would not leak.

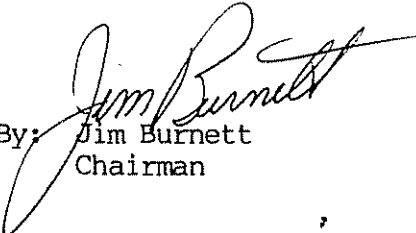
Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Issue instructions to operations and maintenance inspectors to direct their respective air carriers to examine Eastern Aero Marine Model GA-12 flotation devices for security of inflation cylinders and proper Technical Standard Order labeling, to pressure test inflation chambers for leakage, and to require corrective actions where discrepancies are found during these examinations. (Class II, Priority Action) (A-85-28)

Issue a telegraphic alert to suppliers and owners of the Eastern Aero Marine Model GA-12 flotation devices that these devices may be mislabeled, that the CO<sub>2</sub> cylinders may be loose, and that they may not comply with TSO-C72b buoyancy and pressure test criteria; and advise suppliers and owners to have these devices overhauled in accordance with Eastern Aero Marine's Inspection, Maintenance and Repair Manual. (Class II, Priority Action) (A-85-29)

Conduct a Quality Assurance and Surveillance Review Action of Eastern Aero Marine to examine its design, manufacture, fabrication, testing, and quality control practices to ensure that its products conform to the governing Technical Standard Order criteria. (Class II, Priority Action) (A-85-30)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in these recommendations.

By:   
Jim Burnett  
Chairman