NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

Log 1200

ISSUED: July 21, 1980

Forwarded to:

Honorable Langhorne M. Bond
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-80-61 through -63

The National Transportation Safety Board has recently investigated two similar accidents which involved explosion and fire in an aircraft wing during engine start. Both occurred in similar Beech airplanes, a Model B58 and a Model B95. Although both occurred on the ground and no injuries resulted, the Board has determined that the unsafe condition which caused the fires could lead to fire in flight.

Our investigations of the April 8, 1980, Beechcraft 95 fire at Tulsa, Oklahoma, and the May 16, 1980, Beechcraft B58 fire at Casper, Wyoming, revealed that in both cases the fuel vent lines were disconnected at B-nut fittings inside the wings.

When the fuel tank is full and the fuel expands, the pressure relief valve allows the expanded fuel and vapors to be expelled overboard through the vent line. When the vent line is disconnected, the fuel will be vented into the interior of the wing and flow inboard toward the engine nacelle because of the wing dihedral. When the fuel reaches the nacelle, it can be ignited by hot engine parts or engine exhaust. Our investigations confirmed that both fires began in this manner. In addition, one other Beechcraft Model 95 was inspected and found to have the vent line disconnected at a B-nut fitting.

On all three aircraft, the fuel tank inspection and leak test required by Airworthiness Directive 78-05-06 had been accomplished a few days before the discovery of the disconnected vent lines. The airworthiness directive requires that the inspection be accomplished in accordance with the manufacturer's instructions. For these aircraft the appropriate document is Beechcraft Service Instruction No. 0895, Revision 1. This Service Instruction states: "plug all pressure relief vents (if equipped) and recessed vents. . . ." The method of plugging these vents is left to the discretion of the person conducting the inspection. It appears that, rather than plugging the vent outlets, the vent lines are being disconnected and fitted with plugs. In the cases cited here it appears the plugs were removed but the vent lines were not properly reconnected. The service instruction procedure does not have specific steps for restoring the system to its original configuration.

Since the inspection applies to many aircraft, the Safety Board is concerned that the unsafe condition described above could exist in other aircraft and that the condition may recur after future inspections. Therefore, the Safety Board recommends that the Federal Aviation Administration:

Require a one-time inspection of those aircraft that have been inspected in accordance with the requirements of Airworthiness Directive 78-05-06, to ensure the integrity of the fuel vent system. (Class I, Urgent Action) (A-80-61)

Amend immediately Airworthiness Directive 78-05-06 to include a procedure which will assure vent system integrity following the inspection required by the airworthiness directive. (Class II, Priority Action) (A-80-62)

Require that the Beech Aircraft Corporation amend Service Instruction No. 0895 to advise all operators of these airplanes of the possible unsafe condition, and to specify a procedure which will assure that the vent system integrity is restored following fuel tank inspection. (Class II, Priority Action) (A-80-63)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in these recommendations.

By: James B. King
Chairman