

# FAA Probe Turns to DC-10's Slat System

By Robert R. Ropelewski

Los Angeles—Federal Aviation Administration review of design and maintenance aspects of the McDonnell Douglas DC-10 wide-body jetliner took a new tack last week as the agency completed its studies of DC-10 wing-engine pylons and began a close examination of the leading edge slat system of the aircraft.

While airline representatives charged that the FAA was on a "fishing expedition" for reasons to justify the grounding of the DC-10s last June 6, FAA officials at a National Transportation Safety Board hearing here July 3 cautiously suggested that the DC-10 type certificate could possibly be restored soon. FAA technical personnel last week were defining an initial inspection and subsequent inspection and maintenance program that would permit this.

The agency's DC-10 maintenance and design review teams had completed the bulk of their work by late last week, at least so far as the examination of manufacturer-supplied engineering data and maintenance records was concerned. The teams still had not finalized their conclusions and recommendations, however.

"There are no major unknowns left to examine in the pylon area," a top FAA official said, "but we still have to put all the pieces together from all the individual studies."

With respect to the pylons, the same official indicated that no significant design flaws had been detected. "We haven't seen any major problems that need to be resolved. Nothing unusual has been popping out of the studies."

Although he said the design reviews so far had not indicated the need for any engineering changes to the DC-10 pylon, he did not rule out the possibility that such changes could be prescribed before the investigation was finished.

Maintenance and inspection procedures, on the other hand, appeared to be in for some heavy overhauls before the DC-10s go back into service. FAA specialists were still defining the new procedures last week, following discussions on this subject the preceding week with McDonnell Douglas and airline maintenance engineers.

On July 5, FAA Administrator Langhorne Bond observed on a Continental Airlines DC-10 the inspection procedures that would be required to unground the aircraft, and then the scheduled maintenance inspections required to keep the aircraft flying.

FAA officials generally acknowledged last week that maintenance-caused damage rather than design deficiencies in the DC-10 wing-engine pylon contributed to the crash of American Airlines Flight 191 in Chicago on May 25.

FAA deputy chief counsel Jonathan Howe said agreement had been reached by all parties "at the technical level on the resolution of the problems encountered."

"Basically, they turn around maintenance and inspection of the areas in question," he said.

The one outstanding technical issue remaining, Howe said, is the asymmetrical slat situation. He said McDonnell Douglas

had provided a "considerable amount of information, data and technical reports" on this subject, and he estimated that this issue possibly could be resolved by the early part of this week.

However, there was no certainty among FAA officials that that in itself would clear the path for the restoration of the DC-10 certificate.

At the opening here of the National Transportation Safety Board hearing on an appeal by McDonnell Douglas of the grounding of the DC-10, Judge William E. Fowler, Jr., asked FAA representatives if they could rule out any other issues coming up to block the restoration of the certificate.

"I could never rule out another issue coming up," Howe replied. "The FAA has continuing responsibility, if an unsafe condition comes to light, to take action based on the information it has at that time."

"If we resolve this (the pylon matter) and we still have the slat issue remaining outstanding, we're back in the same situation. The Administrator has no alternative but to resolve that before the aircraft type certificate can be restored."

## Morale Boosters

Long Beach, Calif. — Douglas Aircraft Co. personnel have taken several steps to boost morale of the work force here in the face of continuing scrutiny of the DC-10 transport following the American Airlines crash in Chicago.

The company handed out several thousand buttons, iron-on transfers and bumper stickers proclaiming "I'm proud of the DC-10," to its employees at the Douglas Commercial Aircraft facility here. The company also was selling DC-10 T-shirts at the in-plant store.

In another show of support, members of the United Auto and Aerospace Workers Union at Douglas purchased approximately 20,000 shares of McDonnell Douglas stock during a drive organized by the UAW.

Officials said the employees' response to the buttons and other products and to the stock offering has been "overwhelming."

The FAA examination of the DC-10 slat system began after the agency had already laid out its "plan for DC-10 Airworthiness Assurance" (AW&ST July 2, p. 32), which covered the design and maintenance reviews of the aircraft's pylons, but not the slats. FAA officials requested a substantial amount of additional technical material over two major packages of data dealing with the pylons.

The request for new data also came just a few days after FAA officials told the NTSB's Judge Fowler at the opening of the NTSB hearing here that the FAA had obtained most of the information it needed for the DC-10 design review and expected to have the review completed by early last week. This was one of the main reasons why Fowler agreed to a postponement of the opening of the hearing from June 25 to July 2. He was visibly annoyed over not having been informed of the FAA's new action.

Fowler was intent on getting the hearing started all the same last week, but he was blocked several hours into the hearing by an order from the National Transportation Safety Board staying the proceeding for another week until the board could hear two interlocutory appeals filed in conjunction with the case.

The first of these had to do with the status of the Airline Passengers Association (APA) as an intervenor at the hearing. The FAA, McDonnell Douglas and the intervening airlines at the hearing are all opposed to the APA's participation.

The second appeal was concerned with an apparent obligation by McDonnell Douglas, as a result of its original request to postpone the hearing from June 25 to July 2, to waive its rights to hearing and a resolution of its case by the NTSB within 60 days from the date the company filed its appeal. NTSB regulations specify the 60 day limit on resolution of appeals whenever a Transportation Dept. agency exercises its emergency powers as the FAA did in the grounding of the DC-10.

Judge Fowler ruled on June 25 that by requesting a postponement in the start of the hearing from that date to July 2, McDonnell Douglas automatically waived its rights to the 60-day limit on a ruling. While McDonnell Douglas attorneys were willing to accept this, attorneys for the DC-10 operators present at the hearing were not. These included Northwest Airlines, World Airways and Trans International Airlines. They challenged Fowler's interpretation, and filed an appeal to be resolved by the NTSB.

It was on the basis of these two appeals that the board ordered a stay in the main hearing until July 10.

The airline representatives at last

week's hearing were considerably more aggressive than McDonnell Douglas attorneys in criticizing FAA behavior in this issue. Airline frustration and anger over the delays in restoring the DC-10 type certificate were exacerbated by the major increase in demands for aircraft seats brought on by the start of the summer vacation season. The three airlines represented at last week's hearing estimated they were losing close to \$1.5 million a day.

While the airlines and McDonnell Douglas were critical of the FAA's apparent lack of clear objectives in recertifying the DC-10 for commercial service, Howe defended the agency's actions.

"No one is more aware than the Administrator of the terrible economic impact" caused by the grounding, he asserted, adding: "But there is no one more fully aware of his statutory responsibility to assure the highest degree of safety in air transportation than the Administrator. And it is his statutory mandate to assure himself beyond any possible doubt that the aircraft is in a safe condition for operation."

FAA technical and flight operations personnel continued working last week on a determination of the slat system behavior in the DC-10 as it affected American Airlines Flight 191 on May 25.

FAA, McDonnell Douglas, NTSB and American Airlines pilots had flown over 100 takeoffs in the airframe manufacturers development simulator under circumstances duplicating those encountered by American Flight 191 after it lost its left engine. Some of the pilots flew the simulated aircraft to a successful landing after loss of the engine, others flew it just to the edge of a stall before taking corrective action and recovering, and others crashed.

Two theories are being examined in the American Airlines case, where the left wing slats are believed to have retracted after the loss of the left wing engine. One hypothesis is the possible loss of hydraulic pressure in hydraulic lines in the wing, which allowed the left wing slats to be pushed in by airloads. The other possibility being studied is that cables used in conjunction with the slat operating system may have been pulled out when the engine and pylon separated from the wing, pulling the slats to the retracted position as they went.

There is a slat disagreement sensing unit in the DC-10 that detects differences in slat positions from one wing to the other and also differences in slat position from the command position. Under normal circumstances, the unit activates a warning in the cockpit, advising the pilot to keep a higher airspeed. In the May 25 American Airlines flight, however, the electrical system that would have carried the warning to the cockpit also was inoperative because of the loss of the engine and pylon.