Two of the leading thinkers about the safety of old, hard-worked airframes are Boeing and Britain's Civil Aviation Authority (CAA). J. M. RAMSDEN, author of "The geriatric jet problem" (Flight, October 22, 1977), has been to see them both as the media report the DC-8-62's pylon cracking problems, first disclosed in Flightior June 17.

The Boeing view

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RACKS must always be expected in an aircraft struc-ture. The art is to design a structure which is crack-tolerant and inspectable. The structure must not only
be fail-safe, or "damage-tolerant" as it is now called; it must also give the user the opportunity to detect damage before it reaches unacceptable limits.
Like all manufacturers, Boeing monitors the in-service behaviour of its structures. Damage-tolerant design starts with "the intelligent selection of materials, stress levels and analysis of service experience," according to Boeing chief engineer, structures technology, Robert E. Watson. Watson does not agree that the Lusaka accident* was an airworthiness landmark. "I don't think that the action we're taking on older airframes would be one bit different if Lusaka had happened or not," he says. He points out that Boeing and the British have been discussing the fatigue of older structures for years, since long before Lusaka. Asked whether Boeing's action might have been any different if the Lusaka 707 had crashed.with passen-gers on London or New York, instead of on a faraway cargo flight, Watson says: "There would have been more emotion, but it would not have changed our technical action or that of the airworthiness people."
The specific action taken after Lusaka was prompt and thorough. The tailplane is probably now one of the safest parts of the 707. But could a similar failure occur else-where in the 707, or in another old structure?
With 3,100 jets in daily service, Boeing is as good a
* In which a Dan-Air Boeing 707-320 cargo aircraft suffered a fatal fatigue failure of the starboard tailplane in May 1977.

source of answers to this question as any manufacturer. Since the main Flight article on the subject, and the sub-sequent correspondence, news of Boeing's intensive-care programme has emerged.
Boeing is now preparing what it calls a Supplementary Structural Inspection Document, designed to provide the customer with guidelines for the "structural auditing" of" his fleet. Watson agrees with the British ABB technical committee advising the CAA on the geriatric jet problem that structural audits rather than safe-life limits ("lifeing") are the correct way to go. He believes that the ARB tech-nical committee has advised the CAA thus. "This is the way Boeing has always looked at it, and we have told the ARB committee of the document we are preparing." Boeing's new Structural Integrity Audit document will
be published "some time later this year." It will go to all Boeing 707 and 720 owners. The document will contain specific recommendations for attention to the structure, with directions of where to look and what to look for. Such inspections will require qualified people and for some components a high standard of equipment—in particular non-destructive testing (NDT) devices—which may be lacking in some of the "more minimum" operators. The document will cover both fatigue and corrosion, and will set out inspection thresholds in terms of cycles, hours or landings—"whatever is critical for that component," says Boeing manager of "707/727/737 customer support engineer-ing Vincent A. Yeager.

Boeing strongly disagrees, on philosophic as well as economic grounds, with lifeing and the safe-life concept. According to Watson, the manufacturer knows most about the structural design and strength of his aircraft. It is therefore his responsibility to monitor the fleet in service and, to provide all operators with damage-tolerance infor-mation, to help them with inspection and maintenance. "We don't talk about safe lives or re-certification," he says.
What commercial interest has Boeing got in the care of old airliners? What incentive does it have to prolong life when its main objective must be to sell new aircraft? Says Yeager: "Safety is the most important thing to us. No