

VERTICAL FLIGHT

Panel leader:

Susan Godar
St. Mary's College of Maryland

Panelists:

Jay D. Batson
Allied Signal Engines

Al Gleske
Flight Safety International

Patricia Beardsley
Federal Aviation Administration

David S. Lawrence
Aviation Consultant

Chuck Dennis
Federal Aviation Administration

The report that follows was generated in two steps. Initially the report was put together by panel members attending the Future of Aviation workshop. Because of schedule conflicts and last-minute withdrawals, several of the invited participants were unable to attend. To better reflect the consensus of the industry, the report generated by the panel was subsequently circulated to all the original invitees for their comment (Comments were received after the workshop from Andy Aastad, Aastad Company; Barry Desfor, HeliValue; Pierre Heron, Pratt & Whitney Canada; and Frank Robinson, Robinson Helicopters). This report contains the views of the panel, modified and affirmed by other industry executives who could not take part in the workshop.

Overview

The panel assembled and the subsequent experts queried predicted that the U.S. turbine-powered helicopter fleet would have no growth over the next five years, with new units equaling attrition. Flight hours were expected to increase to an average of 675 hours per year per helicopter by 2000 due to cost and management demands. No forecast was made of helicopter pilot growth or of the size and hours flown in the piston-engine fleet. All statements in this report apply to the U.S. market, except where specifically noted.

Forecast

In contrast to the approach taken at previous Future of Aviation workshops, the panel focused on the supply of helicopters rather than on the demand for helicopter services in developing forecasts for the period 1996-2000. The panel identified three major drivers of supply: fleet

utilization, attrition from the fleet, and new units entering the fleet. Forecasts were made on the basis of the impacts these drivers would have on flight hours and fleet size.

Fleet Utilization

Utilization of helicopters in the fleet continues to increase. The cost of owning a helicopter that is not optimally utilized, coupled with increasing professionalism in the management of commercial helicopter operations, impels operators to put their units to fullest use.

The effect of aging units on the utilization rate was not considered an important factor. Studies by industry experts have found that usage does not vary significantly with age. Confirmation of this was received from the FAA's operator survey for 1995, which showed an increase in overall utilization beyond that associated with new units added to the fleet. Because helicopters in commercial use are often on a preventive maintenance schedule and life-limited parts are continually replaced, a given unit will remain active and show little or no drop in utilization as it ages.

Overall, the panel and the experts queried later felt that the trend toward increased utilization would continue. They forecast utilization of the turbine fleet increasing to approximately 675 hours per year per helicopter over the coming five-year period.

Fleet Attrition

The panel forecasted an annual attrition rate of one to two percent in the turbine-powered helicopter fleet as a result of export of older units and retirements. This

amounts to approximately 30 to 50 units leaving the active U.S. fleet each year. Three factors account for this low attrition rate.

1. Because of the rise in manufacturers' prices, it is currently less expensive to rebuild a damaged helicopter than to purchase a new unit.

2. Longer overhaul intervals and retirement schedules, coupled with the trend toward "on condition" replacement cycles and improved maintenance procedures, have made it more economical to keep aircraft active longer.

3. Better safety, maintenance, and operating practices have led to fewer accidents resulting in damaged aircraft being declared a total loss.

A wild card in this forecast is how the problem of bogus parts will be handled. Both the helicopter industry and FAA are concerned about the infiltration of substandard and improperly remanufactured components in maintenance inventories, not only because these bogus parts are unserviceable but also because they are a safety hazard. Two approaches are being considered to deal with the problem. One is to pull from service all surplus parts currently held by operators and maintenance facilities. The other (and less drastic) approach is to have parts inventories inspected by the original equipment manufacturers (OEM) and returned to service if they are found to meet specifications.

If the first approach is adopted, it would induce some operators to upgrade to new equipment since the cost of repairing older units would rise to a point where it becomes uneconomical. If the second approach is taken, older units now in operation would remain active. The opinion of the panel, based on the expectation that the more economical solution of having OEMs inspect all parts inventories will be adopted, was that there will be a minimal effect on the fleet attrition rate.

New Units

The panel concluded that new turbine-powered units added to the fleet in the next five years will remain at the same level as in the prior five years. This means that approximately 60-90 units would be added to the fleet each year. This is based on the expectation that total worldwide shipments will total approximately 300 units each year, with 20 to 30 percent of them entering the U.S. fleet. Another source of "new" units over the next several years will also be the surplus military units transferred to the civil fleet.

The impact of the JAA/FAA harmonization work has been predicted to reduce the delivery of single-engine turbine helicopters. Rulemaking in Europe is

projected to limit the use of single-engine helicopters over some densely populated cities. The panel again concluded that similar restrictions are unlikely in the United States. This prognostication appears to be confirmed by the manufacturers of helicopters themselves. In the past several years, a large number of new single-engine models have been announced, indicating that OEMs are anticipating a continued role for single-engine helicopters in the fleet.

Panel Comments on FAA Forecasts

The FAA preliminary forecast for the turbine-powered rotorcraft fleet projects growth of 3.3 percent in 1996, 3.2 percent in 1997, and 3.1 percent in 2000. The panel felt that growth would be much slower: 1 percent in 1996, 0.75 percent in 1997, and 0.5 percent in 2000.

The panel did not expect that the hours flown by turbine-powered helicopters would increase in 1996 and 1997. There could be slight upward movement in subsequent years, possibly reaching an annual growth rate of 2 percent by 2000.

The panel made no forecast of the size of the piston-powered helicopter fleet and hours flown because there were no representatives of this segment of the industry in attendance. The general expectation was that over the coming five years the number of piston-powered helicopters in service would increase at about the same rate as in the past five years. Between 1990 and 1994 an average of 343 units were produced by the three major manufacturers (Robinson, Schweizer, and Enstrom). Of these, approximately two thirds were exported. This resulted in a net increase of 115 new units per year in the U.S. fleet. Because no data on attrition are available, the panel could make no forecast of the future size of the piston fleet.

Data Needed from FAA

The panel suggested that FAA review the form used for the annual owners survey. It appears that the survey is complex and that the layout could be modified. Recognizing that various constituencies of FAA have different data requirements, the panel offered to work with the FAA Forecast Branch to modify the form. One member of the panel offered to have the current form vetted by his company's survey group to see if it could be simplified. The Chairman of the TRB Helicopter Subcommittee suggested organizing a task force of various people who use the output of this survey to ensure that relevant categories of information are included and that no longer relevant items be dropped.

In particular, the helicopter industry would like to receive more information on the types of missions that helicopters are flying. This would increase the accuracy of the forecasts developed annually by the TRB Helicopter Subcommittee.

Summary

The overall feeling of the panel was that the turbine-powered rotorcraft fleet would have only minor growth over the next five years, but that hours flown by the fleet would increase. This may not, however, translate into an increased utilization of FAA flight services since many of the traditional helicopter operators are not users of these services. The panel also suggested modification of the FAA helicopter forecasts and identified additional data needed to improve the accuracy and utility of future forecasts.

General Aviation Group Session

The three workshop panels concerned with general aviation — Business Aviation, Vertical Flight, and Personal and Light General Aviation — met in a combined session on the first day of the workshop to discuss issues of common interest.

Impact of Telecommunications

One of the speakers at the opening plenary session of the workshop speculated on the impacts that burgeoning telecommunication technology might have on civil aviation. The consensus of the members of the three general aviation panels was that the effects on the general aviation sector would be minor, if any. While telecommunication may have some impact on commercial aviation, the people served by general aviation will not change their travel patterns and preferences in the foreseeable future. It was noted that the same topic has been discussed at previous Future of Aviation workshops but that little more than broad estimates have been given and no proof of impact has been substantiated.

Reliever Airports

The group received an informal report on the Reliever Airport Workshop recently sponsored by the Transportation Research Board. While there was some concern that the changes in the designation of reliever airports may adversely affect funding, no conclusion was reached on the effect this would have on general aviation.

Results of Previous TRB Future of Aviation Workshops

Members of the group who had attended previous workshops expressed concern that no feedback has been received from the FAA on precisely how and where the forecasts and recommendations have been used. While FAA appears to use some of the workshop results data in making its annual GA forecast and distributes the TRB report of the workshop at the General Aviation Forecast Conference held in the Spring, it does not directly respond to the recommendations. One solution might be to have more representation from the FAA Forecast Branch at these TRB Future of Aviation Workshops. Another might be for FAA to review the output of the prior workshop before the next and present a status report on recommendations that have been adopted or rejected and on actions that have been taken.

FAA Data

FAA recently changed the data format of the U.S. Aircraft Registry. While the change was regarded as positive by the attendees, several would like to have had more advance notice. Firms that use this database in their forecasting efforts, had to rewrite computer programs to accommodate this change. Regular subscribers to the Registry database should be notified before format changes are instituted.

The group also discussed on-line access to FAA data. Each of the three industry groups were asked to prioritize the data requirements so that a schedule can be developed for putting the data on line in a manner that serves industry needs.