

TECHNICAL AND OPERATIONAL ASPECTS OF HELICOPTER CIVIL SERVICE

Rolf Schneider

WIKING Helikopter Service GmbH

Hamburg, Germany

Abstract

The subject of this lecture is dealt with following a conventional organisation plan of an aviation company. This means that the topics to be discussed will be subsumed under the headings „Management“, „Flight Operation“ and „Technical Operation“. The main areas of interest are related to enhancement of safety, standardisation and compatibility of aircraft and equipment, harmonisation of rules and regulations in Europe, improvement of technical problem areas like internal and external noise criteria's, new applications for helicopter operators, increase of helicopter acceptance as well as reputation, and last but surely not least for a commercial operator economic aspects.

This not with the approach of a pilot or an engineer, but with the experience of a business man, who works in the industry for more than 20 years and who is convinced that helicopter operations have difficulties and problems to overcome, but that they still have a bright future.

Introduction

The company I am representing is as old or young as the European Rotorcraft Forum. Both were founded in 1975. WIKING's shareholders are on one hand VTG Vereinigte Tanklager und Transportmittel GmbH, the logistic department of Preussag AG, a large German corporation and on the other hand the Norwegian helicopter operator Helikopter Service A.S.

The company operates 6 twin engine helicopters, equipped for instrument flights, 3 single engine helicopters and a seapilot boat. Main activities are seapilot service, ambulance flights and corporate missions with IFR machines and pipeline surveillance, sightseeing and target flights with the VFR helicopters. Maintenance for the own and third party helicopters are performed in the own, JAR approved maintenance facility. The company employs nearly 80 people. WIKING is, although relatively small in international

comparison, one of the leading helicopter operators in Germany.

It is not my aim to sell you helicopter flight hours, but I hope it will be helpful for you to learn from which background and basis I am coming from. It is not the international operator with departments for cost analysis, R & D or business development, nor the one pilot operator, where he does the flying and she runs the telephone and bookkeeping. It is something in between, but with the understanding of and for both extremes.

Management

Following the central thread mentioned earlier, I like to discuss with you, under this heading, points of concern related to finance and marketing.

Finance

When calculating the rate per flight hour for a medium twin engine helicopter, equipped for instrument flights, we have to consider the following main cost drivers:

Personnel Expenses	40% of Total Costs
Depreciation and Interest	20% of Total Costs
Maintenance and Fuel	20% of Total Costs
Insurance	10% of Total Costs

Although this is not a very detailed analysis, it is helpful to explain in which areas the operators themselves have to control their expenses and where they are depending on suppliers.

Personnel expenses are surely under the responsibility of an operator. Our figure reflects very clearly the problem of a German Company compared with the European competition. As long as Germany remains a country with maximum wages, especially on ancillary wage costs and high social standards,

it will be difficult for service companies to survive in the international market.

Depreciation and Interest are influenced to a high degree by acquisition costs. For a medium class twin engined helicopter, equipped for instrumental flights, one has to invest approximately 6-7 Mio \$. There are only a few market areas, where the rates allow the acquisition of a new helicopter. A signal, which both the manufacturers and the operators should watch very carefully. The average age of helicopter fleets are getting older and older and due to this development, the helicopter industry will loose connection to the fixed wing industry. I am very much in favour of the mergers and cooperations, which take place among the manufacturers at present. Competition among manufacturers should continue. For me, representing an operator, it is sufficient to find a choice between 2 or 3 helicopters in each class, instead of 4 or 5 as it is possible today, if this decreases the prices. In this respect, I like to draw your attention to the positive influence, which the availability of 2 different engine types for many new helicopters had on the operators cost structure.

A great part of DOCs are related to maintenance costs. I can only emphasize the efforts taken by manufacturers to create even more effective and intelligent maintenance programs, which will improve safety and reduce costs. Both, manufacturers and operators have to discuss jointly with the regulatory authorities all areas for cost saving. Examples are type certifications of helicopters and equipment, acceptance of maintenance programs approved by well reputed aviation authorities, as well as requirements for the installation of additional equipment.

Expenses for insurance are again mainly under the responsibility of the operators. With the growing tendency of building helicopter operating groups acting globally, the then existing fleet sizes allow negotiations with the insurers for lower premiums. Irrespective of this fact aviation authorities, manufacturers and operators have to undertake all possible steps to close the gap between safety records of helicopter and fixed wing operations.

Marketing

The development of the civil helicopter industry, at least in Europe, has been mainly influenced by offshore activities. EMS and Corporate flying do benefit from the high technical and operational standard, achieved

in this area. From a marketing point of view, it can be stated that this business is rather stable measures.

Not forgetting the many possibilities for helicopters in aerial work, for me the only realistic new application is the involvement of helicopters in public transportation. At least in my country most of the existing and even more new airports are far away from the city centres. The automobile traffic is very close to a collapse. Where available, the railway traffic is an efficient and reliable mean of transportation.

With the new helicopter types like EH 101, Sikorsky S-92 or NH 90, as well as Tilt Rotors entering the market, there are good possibilities to provide the right vehicles. What is missing, is the necessary infrastructure and the acceptance of the public. The operators alone are not influential and powerful enough to convince the public and authorities about the necessity of city centre heliports for intercity or city to airport links. All parties involved need to come together and create a joint program. This activity has to be combined with a campaign to improve the reputation of helicopters. We have to inform the public what helicopters are capable to fulfil. Many people have not realised, that our modern means of transportation do not look like the „choppers“ they have in mind, when they think about a helicopter.

Flight Operation

As mentioned earlier, the existing standard of Flight Operations is mainly marked by the offshore activities. Under this heading I want to talk about my views regarding „Safety Standards“ and „Rules and Regulations“.

Safety Standards

Partly influenced or better to say requested by our main customers, mainly the oil industry, we have established over the last twenty years many routines and educational programs, which together with the installation of more sophisticated and reliable equipment, enabled us to improve the safety records. For us safety audits performed by our customers are not only a confirmation that we have met the requirements, but even more an exchange of experience and advises.

Based on rules and regulations laid down in the Flight Operation Manual, we have added additional safety related programs like simulator training, crew coordination concepts, crew resource management, refresher courses for pilots and engineers. Today operators of IFR helicopters talk among others about „Quality Assurance“ and „Safety Management Systems“.

Although I am convinced that these programs have and will continue to improve the safety records and thus the reputation of the helicopter operations, I have to mention two areas of concern. The first is related to a financial aspect. All these programs and systems need to be paid for. It is a well known fact, that additional safety creates additional costs. Our customers are, like we the operators, very eager to receive higher safety standards, but very reluctant to participate in the expenses involved.

My second concern is related to the procedure of audits in general. It happens more often, that audits are performed by experts, who are highly educated in the theory of performing audits, but who have less experience with regard to operating and maintaining of helicopters. External audits should not only help to overcome problem areas with theoretical, but also with practical advises.

Rules and Regulations

At present the implementation of European Aviation requirements into respective National Aviation Laws, is one of the most important topics in our industry. I look very much forward to the day, when WIKING can operate under a European licence a British registered helicopter, flown by Portuguese pilots and maintained by a Norwegian maintenance facility. Although I am known as being optimistic, I have some doubts that this scenario will be in existence in the very near future. Nevertheless, representing an operator which belongs to an international group, I am very much in favour of this concept.

Until all helicopter related JAR's have been published and more important, implemented into national, aviation law, I hope that the operators will not be confronted with too many distortions of the various national rules and requirements, still valid in Europe. It is a fact, that all tenders in the EC with a value higher than 200.000,- ECU's, have to be made available for interested companies registered in Europe. Beside the fact, that the tender

documents are written in the respective domestic language, it might happen that requirements are to be fulfilled, which are valid in one European country, but not in another one. Some European countries have already adopted certain JAR's, which other aviation authorities still discuss in house or with interested parties.

Technical Operation

Many of the aspects mentioned under the previous heading, are also relevant for technical operation. Talking to a more technical orientated auditorium and knowing that you will discuss several very interesting technical issues on a high scientific level, I like to mention only two areas, which for me are important for future helicopter applications.

Internal and External Noise

As mentioned earlier, one of the few areas, where I foresee new applications for helicopters, is in the field of Public Transportation. In order to convince potential users, the helicopter industry has to offer a similar comfort regarding internal noise and - not mentioned in the heading - vibration as other means of transportation, i.e. comparable with fixed wing aircraft.

Even more important seems to be for the acceptance by the public, that external noise levels will be achieved, which are comparable with - for example - a railway station. If the helicopter industry together wants to install city centre heliports in a more and more environment conscious surrounding, these targets have to be met. First steps have been made with the NOTAR and improved Fenestron systems.

Anti-Icing

From experience we gained in the helicopter corporate market, it was always very difficult to explain a client that our helicopter was kept on the ground, due to known icing conditions, when his business jet was able to take off. Knowing that there are respective devices available for certain helicopter types, I would wish to buy much lighter and cheaper systems.

Conclusion

It is my firm believe, that helicopters will play an important role, when deciding about future means of transportation, especially when we consider tiltrotors as a new part of our operations.

The separation of multi-engine-IFR operations being involved in public transportation and single-engine VFR operations, performing aerial work, will become even stricter then it is at present.

A platform like the European Rotorcraft Forum will create ideas and inputs, which will help our industry to manage the problems to come.