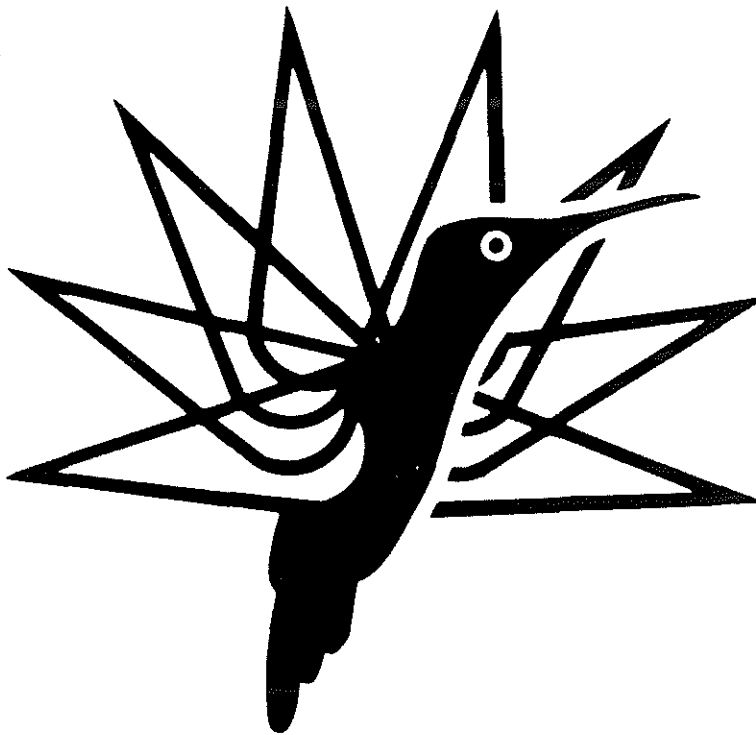


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WHY IS THE NETHERLANDS INTERESTED IN HELICOPTERS

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Excellency, Mayor, distinguished guests, ladies and gentlemen. "Good morning and welcome".

When I received the question "Why is the Netherlands interested in helicopters?" my first reaction was simply to say "because we need them".

- For the offshore oil- and gas industry
- For the shipping industry
- For Police tasks
- For defence services, in the Air Force, Army and Navy
- For medical support
- For Search and Rescue
- and many other besides

Helicopter history in the Netherlands dates back to around 1924, when Von Baumhauer built and flew the world's very first helicopter with a swash plate and a single main and tail rotor.

In 1950 an experimental helicopter with ramjet engines at the two blade tips was developed. The helicopter obtained its civil airworthiness certificate in 1958 and about a dozen were built under the name KOLIBRIE (Humming Bird) by the Netherlands Helicopter Industry with Jan. M. Drees as chief designer.

Nowadays many Dutch agencies such as operators, industry, research, education and authorities support the rotary wing development.

To give you an impression, I will give you some more details.

OFFSHORE

Let's take a look at offshore activities, where fifty percent of the Netherlands' gas is produced.

It would be unthinkable to explore for and exploit natural gas and oil in the North Sea without the transport capabilities of the helicopter.

Transport is possible under weather conditions with winds up to 60 kts and visibility reduced to half a mile.

There are about 65 destinations on the Netherlands' continental shelf in the North-Sea and often 50 landings per day are made by a single aircraft to distribute passengers and material among the various platforms.

Services by "KLM Helikopters" are available for technical and medical emergencies 24 hours per day. Special landingpads make it possible to carry casualties straight from the rig to the hospital. Patients are even flown in at night for medical help. An appendicitis requires immediate action.

At KLM Helikopters an integrated computerized system keeps record of the passengers, supplies navigation information, composes flightplans, registers flight hours for administrative purposes, and keeps record of all technical information for aircraft maintenance and can even produce the detailed invoice. Pilots are thoroughly trained and regularly checked for their proficiency on flight simulators, a much better instrument to simulate dangerous flight conditions safely than airborne training.

SHIPPING INDUSTRY

The sea and harbour pilots of Rotterdam would not be able to do their job properly without the assistance of helicopters, when they guide the numerous ships entering and leaving the busiest port of the world. Sea pilots are ferried to the ships as far as 70 nautical miles outside the harbour, often in rough seas, when the pilotcutters cannot safely venture out to the ships. Airspeed Rotterdam, a joint venture of KLM Helikopters and Schreiner Airways, conveniently located at Rotterdam Airport, is very active in this field.

COMMERCIAL OPERATORS

While KLM Helikopters has its main activities over the North Sea, Schreiner Airways concentrates its helicopter activities mainly on overseas contracts in Africa, the Far- and Middle East and South America. Their National Aviation Training School near Maastricht is well known and many airline pilots receive their first training at this centre.

A new commercial operator is ACE Helicopters, a young enterprise, often in the news as carrier for urgent medical missions between hospitals.

POLICE ACTIVITIES

The Netherlands' Police Force would not be able to perform their task properly without the assistance of the helicopter. These tasks include:

- road traffic control
- water traffic control
- pollution control, very important these days !
- search and rescue services
- tracing of criminal offences
- reconnaissance missions with aerial photography

Advanced equipment is used such as the GEC helitele-system.

THE ROYAL NETHERLANDS NAVY

And let us not forget the helicopters of the Royal Netherlands Navy providing protection and communications for the Naval Forces with a special role in rescue missions. We have a dangerous coast with many sandbanks along which thousands of ships pass by annually. The weather can vary in all its extremities from fog or low clouds to stormy weather with high seas which once overran the low countries, flooding a large part of the southern Netherlands in 1953.

To improve their proficiency a simulator has been installed at Den Helder. This typical Helicopter Base serves not only the Naval Forces but is also the gateway for the offshore industry with regular helicopter departures.

THE ROYAL NETHERLANDS AIRFORCE

The Royal Netherlands Air Force operates and maintains more than 100 helicopters of the Royal Netherlands' Army for various defence tasks in NATO. A number of helicopters is capable of round-the-clock operation due to the usage of NVG's (night vision goggles).

A very spectacular task is the rescue of pilots who have abandoned their aircraft over the North Sea in emergencies. Several of them have been picked up by the "Angels from Heaven", from Leeuwarden and other bases. The role of this "flight" is very popular among the inhabitants of the FRISIAN ISLANDS in the North of our country. Many inhabitants owe their lives to this service, which provides transport to hospitals on the mainland, especially in winter conditions when these islands are isolated and the helicopter is of great assistance, compensating for the disturbing shooting range on one of the islands.

THE USEFULNESS OF THE HELICOPTER

The helicopter is extremely suitable for raising the mobility of high-ranking people in our society and giving them protection too if necessary.

The Minister of Transport, I believe, will confirm this statement.

Roads are becoming more and more congested during special events such as:

- the visit of the Pope

- the completion of the storm surge-barrier in Zeeland with the ceremony attended by the Dutch Queen, several Royal families and Presidents of State. They were all flown in by helicopters. The local population, once saved by the helicopter, saw them in a different role.

TRAINING AND EDUCATION

Students who want to follow a career on helicopters can follow technical studies at various locations in the Netherlands:

- Delft University of Technology has an Aerospace Faculty, where future aeronautical engineers, up to Ph D level, can also concentrate on topics in the field of rotorcraft.
- The Aeronautical Engineering Department of Haarlem Institute of Technology teaches up to Bachelor degree level. Students can take their degree with a thesis on a helicopter subject.
- The Anthony Fokkerschool in the Hague provides training as licensed maintenance engineers including basic knowledge of the helicopter.

RESEARCH

The National Aerospace Laboratory is the central institute in The Netherlands for Aerospace research. It is an independent foundation founded in 1919.

Its principal task is to render scientific support and technical assistance to Dutch and foreign aerospace industries and organisations, civil and military operators and governmental agencies concerned with aviation and space flight.

Research topics for helicopters are the following:

Flight mechanics.

For theoretical investigations, computer models have been developed for studying stationary and manoeuvre flight performance, handling qualities and pilot action during manoeuvres and operational procedures. For example continued take off with engine failure.

Materials.

Severe air pollution, high humidity and the proximity of the sea give rise to corrosion problems in jet engines of helicopters operating in the Netherlands. In this field the NLR performs failure analysis, chemical analysis of collected rinsing water and evaluation of protective coatings.

Aerodynamics.

In an early application the NLR transonic airfoil design procedure has been used to develop a rotor blade section that has been applied on the later Huey Cobra helicopter models. More recently, NLR has been supporting the national aircraft industry during its participation in European NH-90 and LAH helicopter design studies.

Avionics.

Avionics systems play an ever-increasing role on modern helicopters due to the more and more demanding civil and military operational requirements. Besides definition and evaluation activities, the NLR electronics department develops airborne computer equipment among other products. The laboratory has executed different EMI (Electro Magnetic Interference) measurements on military helicopters.

Military operations.

The survivability of military helicopters is one of the topics studied by NLR. It assists the Air Force and Royal Navy with the set-up, support and evaluation of exercises with helicopters.

In the German-Dutch Windtunnel, DNW, situated in the North-East Polder, acoustic rotortests were initiated on a scaled main-rotor model of 2 meter diameter.

It is the largest low speed wind tunnel of its kind in Europe.

The NLRGC, the National Aerospace Laboratory for Medical Research, is conducting a research program on human factors for helicopter crews during normal day-to-day operations. Increasing attention is paid to ergonomic aspects like seating and posture of the pilot during his mission flying.

THE AVIATION INDUSTRY

The Dutch have always been interested in aviation right from the start. KLM was founded in 1919 and has developed in to a major international carrier with its home base at Schiphol, distribution centre for eighty-five carriers. The helicopter plays an important role in providing direct connections to offshore installations for passengers arriving, for instance, from places such as Houston U.S.A. and other oil centres.

And what other company is so close to international aviation and has participated so closely right from the beginning? Indeed, it is Fokker which builds the aircraft the transport industry needs. Look at its latest aircraft, the Fokker 50 and Fokker 100, which have met so much success in the airline market. The factory is also well known for its reliable defense products. The Netherlands is participating in the NH-90 program, the NATO helicopter for the nineties, with a share of 5% based on a possible role in the Royal Netherlands Navy.

Dutch industry is participating under the leadership of Fokker in the design, engineering and manufacturing:

- The complete tailstructure and some cowlings and fairings by Fokker.
- Main sections of the landing gear, the tail gear box and the tail drive shafts by DAF Special Products, which is developing a rotor transmission system incorporating a new crown gear and pinion, which will reduce weight and mechanical complexity.
A prototype system was successfully run and extensively tested as part of the NH-90 and LAH programs.
- Involvement in parts of the mission system by HSA.
- Windtunnel testing by NLR (National Aerospace Laboratory)

In the European LAH program (the Light Attack Helicopter) the Netherlands has a 19% share in the feasibility study and cost definition (FCD).

The international cooperation in LAH has resulted in the creation of a Joint European Helicopter Company (JEH), with Fokker, CASA, Augusta and Westland as shareholders.

Fokkers' particular interest in structures using carbon fibre reinforced plastics and in systems-integration and logistic support is a logical extension of its existing skill and expertise in civil and military aircraft construction.

Fokker's technology for engineering simulation has already resulted in the supply of equipment to the US sisterprogram (the LHX helicopter).

THE NETHERLANDS AVIATION AUTHORITIES (RIJKSLUCHTVAARTDIENST, RLD) AND OTHER
CAA's:

Various civil aviation authorities in Europe, including the RLD, have recently joined forces in improving the common rulemaking for airworthiness and operational requirements for helicopters. Operators and manufacturers, united in the European Helicopter Association (EHA), have started regular Joint Board/Helicopter Meetings recently together with the Joint Aviation Authorities (JAA).

Topics on its agenda include:

- Licensing in Europe 1992;
- Airframe Icing;
- Safety related Flight Time Limitation and rest requirements for pilots;
- Revised engine power ratings;
- One engine inoperative requirements;
- Crew requirements;
- Health Usage Monitoring, a system to monitor vital components of the aircraft;
- Airworthiness; developing, JAR 27 or 29 with FAR 27 and FAR 29 (the USA Federal Aviation Regulations) as a starting point.

THE FUTURE ROLE OF ROTARY AIRCRAFT IN THE CIVIL MARKET:

The helicopter or tilt rotor aircraft could become the future transport mode for city-to-city traffic or between other large conurbations, since landing space can be built at relatively little expense compared with facilities for fixed wing aircraft. Tilt rotor aircraft take off as a helicopter, turn their rotors to a horizontal plane and continue as fixed wing aircraft.

American helicopter manufacturers are tending to increase their marketing efforts on the civil market since the need for large numbers of military helicopters is slowing down. They are looking for new openings. They want to change the 9 to 1 ratio of military to civil aircraft. One of the largest manufacturers is looking to the future with great confidence. "In a peaceful world more attention should be paid to the civil market", as the President of that company stated.

- Give the public the helicopters they need
- Improve public perception of the helicopter

This is an excellent initiative, which will give operators the feeling that manufacturers understand their need for further improvements of civil versions of current military models.

Civil operators need reduced seat-mile cost and require a better payload/range capability. Maintenance costs must be drastically reduced. Less hours spent in the hangar and more hours in the air. A more reliable product requiring fewer overhaul hours will require fewer spare parts. A correct spare inventory is a constant worry to every operator. I have heard that military operators have the same concern in this respect.

Fly neighbourly is an appropriate slogan. All operators are noise-conscious, they have to be to stay in the business! However it would be even better if manufacturers, when reducing external noise do not forget to reduce internal noise to a more acceptable level.

Much has been achieved technologically to make the helicopter a more reliable product. New advances effect fundamental changes. In future helicopters the pilot will no longer need to fly with both hands and both feet.

The technology is available right now to control a helicopter with just one lever.

Large helicopters require high traffic levels, carrying large numbers of passengers annually to make them profitable. Large helicopters could be ideal for just-in-time freight transport from factory to consumer, but, I must repeat, only provided the DOC, (direct operating cost) declines considerably. In this respect a lesson could be learnt from fixed wing aircraft whose cost/benefit ratio favours air transport by freighter aircraft.

1992: NEW OPPORTUNITIES

The European Community is looking forward to the challenge of 1992, the magic year when the borders will evaporate. A good opportunity for the helicopter to proceed directly to its destination. The helicopter will demonstrate its time-saving benefits to business people. Hopefully an increased availability of recognized helipads will stimulate helicopter traffic within the EEC.

No doubt the effects of the single European market will lead to increased competition. All member states admit this and will actively promote their national industries in the future open market.

This implies that customers will have better access to products and services from other countries. This also implies that customers will have more choice and become more critical about those products and services.

In short, 1992 will induce more and better quality, in every way.

QUALITY IS ESSENTIAL

The helicopter in the single European market will not be exempted from this rise in consumers' quality consciousness.

And when quality becomes a daily topic, communication becomes even more important. Not only with your customers, but also in your own organization, from top-to-bottom, or with the end-users, without ofcourse bypassing other links in the chain.

QUALITY IS MORE THAN A PIECE OF PAPER

Achieving this type of quality demands more than a statement in a manual, which proves you have met specifications

Product support in every aspect, from easily comprehensible maintenance instructions to effective operational procedures must be available to optimize operation of helicopters.

A 1992 quality level requires increased customer and market awareness, taking legislative and environmental requirements into account.

Quality in design, engineering, manufacturing, financing, selling, operating, maintenance, product support, education and training requires a receptive attitude by each and every individual in our business.

A willingness to listen to others and to accept criticism as the best advise you have ever been given.

It requires the personal commitment of each individual in the rotary wing industry to do something about it.

I started my presentation with the question "Why is the Netherlands interested in helicopters?". The answer is simply, because we need them.

But that is not enough, we must strive to achieve the quality levels needed to take the Rotary Wing industry further.

Ladies and gentleman, since success is a voyage, not a destination, I will conclude with expressing my sincere belief that this Forum can contribute substantially to successful and continual improvement of this most remarkable vehicle: THE HELICOPTER.