OSPREY AND TILT ROTOR IS TOTALLY UNIQUE

More and more we see the success rising of a weird bird, also outsice the USA. The V-22 Osprey is a striking appearance. If you see him come flying in, the large propellers immediately attract your attention. They are much larger than those of a conventional aircraft. These are required in order to give him the lift when he tilts the engines in the vertical position to land like a helicopter.

WISH FULFILLED

Actually, the desire existed for many years in order to get an airplane with tilt rotor operational. That wish was never initially converted until the conglomeration of Boeing and Bell continued through the development of the V-22. This way it is the first tiltrotor aircraft that made it to be manufactured in serial production and thus is unique. Great advantages of such a plane are for instance that certain operations can be carried out from ships in a much more efficient way. Tasks, which have now been reserved for heavy helicopters. Not only many soldiers can be taken all at once (24 fully packed), but also they can be moved much more quickly. After all, the Osprey flies with the speed of a transport aircraft. For amphibious operations this means ‘gold’ because very quickly troops can be flown into and dropped in the required area. It is not surprising that the type is manufactured for the US Marine Corps (USMC) and US Navy for their maritime operations.

USAF also recognized the usefulness, the V-22 is popular with special forces due to its excellent suitability. Fast flying into enemy territory and dropping there men and material.

FOREIGN ORDERS FINALLY

Sales abroad did faltered at first. Now, however, January 5th this year The Los Angeles Times reported that “Israel is the first country outside the US getting delivered six copies within two years, adjusted by Israel desired modifications. Japan has five V-22 in option for the 'Japanese ground defense force’, "intended primarily for humanitarian missions in disaster areas such as medevac, rescue, logistics and transport”. The Arab Emirates, India and South Korea were already interested and still are.

DIFFERENT FLYING CHARACTER

The V-22 Osprey is produced by a combination of the firm's Bell Helicopter and Boeing Company. The machine is built in modules and assembled in Philadelphia in Amarillo. Real production started only around 2005 although the development already began in 1986. Because there were no examples yet to compare, quite a few teething problems occurred, but the concept was improved and errors of the concept were taken out. This unique flying-character really needs pilots to learn to fly again, sometimes it is much harder than a helicopter. A horizontal emergency landing for example will go as easy as a Hercules, but if the engines are in helicopter mode, this will be much more difficult and ask for complete other flying-skills.

‘ZR.MS. KAREL DOORMAN’

As stated the Osprey wins more and more in popularity. Interesting to note that a unique event took place in the Netherlands last year: An Osprey landing on the warship ‘Zr.Ms. Karel Doorman’. Not that the Netherlands now is considering purchasing the V-22. It was an action within the context of an interoperability test, where the tension on the ‘Karel Doorman’ took a little higher level than usual in positive way, during this first landing on the Dutch carrier. This action of course strengthens the existing cooperation between the Dutch and the US, but also the opportunities. The Captain Peter van den Berg, Commander of the ship indicates that one of the tasks concerns the supporting the troops ashore. The now tested potential opportunities actually showed that it allows a better and faster result in collaboration with the US Marine Corps. The Osprey really shows larger airlifts and time saving in comparision to smaller helicopters. More people and/or equipment moved in much shorter time frame.

The combination of the USMC and the Dutch Royal Navy offers entirely new possibilities, since Dutch ships also sail out to anti drugs- and anti-piracy missions in for instance the Caribean. The Osprey has been flying in Europe, including at the 7th USAF Special Operations Command (SOS) on RAF Mildenhall. Their mission is to support long-range infiltration, exfiltration and resupply of special unconventional operations. Within that framework the 'Zr.Ms. Karel Doorman'offers new options in this area.

WEAPONS DESIRED

De Osprey kent ook operationele belemmeringen. Zo kunnen mariniers niet 'fastropen' omdat de extreme productie van wind door de propellers hen zou wegblazen. Zij kunnen niet anders dan door de achterklep de Osprey veilig verlaten. The Osprey also has operational constraints. Marines can not 'fastrope' out of the plane because of the extreme production of wind from the propellers. this would blow them away. They can not do otherwise than exit safe through the rear of the Osprey. This phenomenon also means that after landing on a ship caution has to be taken for people who leave through the 'backdoor', unfortunately the hatch is the only way out. Another limitation is the absence of a side door provided with a machine gun. There is an arrangement though with a 7.62mm machine gun on the tailgate. Because this limitation is still very undesirable, there has been a further development in which at the side of the fuselage (a test-plane) by the nose at both sides a weapon station was mounted. In September 2014 this way successfully unguided 2.75 inch 'Hydra' missiles were fired and a guided version of it known as 'Advanced Precision Kill Weapon System' (APKW) was shot succesfully. That opened the way for a standard armed version.

NOT YET DEVELOPED COMPLETELY

The advantages of an airplane with a helicopter-characteristics natural character are paramount. The cockpit is completely digital, suitable for night flights and is operated by two pilots who sit together. There is a flight management system (CMS) with complete autopilot functions similar to a helicopter and fly control functions for its fly-by-wire. The autopilot itself can bring the V-22 from conventional flight to helicopter flight. Both engines for the Osprey are two Rolls-Royce AE1107C Liberty turboprop engines built under license by Allison Engine Company. These are attached to the wingtips, and can be rotated in the air in 12 seconds 90 ° from vertical to the horizontal position. The rotors can be driven synchronously or independently, and the V-22 can fly and land on one engine. However, this is not an option in the helicopter mode. Work is ongoing for a better armor (CV-22 version) for the men inside to protect them even better. 360 MV-22s were ordered for the USMC, 50 CV-22a versions for USAF and 48 MV-22 for the US Navy. They replace amongst others the CH-46 Sea Knight helicopter. USAF CV-22 version has been given - within the special requirements of Air Force Special Operations Command (AFSOC) - the opportunity for more armor to protect troops. The V-22 was used already in warzones like Iraq, Afghanistan, Libya and South Sudan. For the future versions for refueling in the air and an electronic version are on the drawing board. ■

SPECIFICATIONS:

Role:	Multifunctional transport / assault unit
Crew:	2
Variantions:	V-22A, CV-22B, HV-22, EV-22, MV-22B, SV-22
Length:	17,5 mtr
Heigth:	6,7 mtr (rotors up)
Wings:	25,6 mtr (rotors up)
Start weight:	8463 kg (depending on type)
Max. weight:	23500 kg
Engines:	2x Rolls Royce AE1107C Turboprop
Propellers:	2x 11,6 mtr
Thrust:	4586 kW kN
Cruising speed:	460 km/hr
Top speed:	550 km/hr
Range:	24 persons without refuelling 772 Km
Board weapon:	1x M-240G 7,62 mm

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