# **How a Rega** helicopter flies

They can move laterally in any direction, rotate 360 degrees, and even hover on the spot: helicopters give our crews the greatest possible flexibility on their missions, whether intensive care medical transports in the lowlands or demanding missions with the rescue hoist in the mountains. But how does a helicopter actually fly?

### The engine

The energy and thrust generated by the engine as a result of the combustion of fuel is converted into rotational energy by a turboshaft in the engine and delivered to the gearbox assembly of the main rotor - making the rotor blades rotate. Rega's H145 rescue helicopter has two engines, each with 894 hp. This increases safety: if one engine fails, the helicopter can still fly.

# **Foot pedals**

or its right vertical axis.



#### Collective

The pilot uses the collective pitch control to make the helicopter climb or descend vertically.

## In the Rega cockpit

Ultramodern glass cockpit Rega's Airbus H145 helicopter features a state-of-the-art glass cockpit: all the key data for the pilot and the paramedic is clearly displayed on three large screens.

Important support for the pilot the radio.





The main rotor rotates anticlockwise. If this movement - or torque - is not counteracted by the tail rotor, the fuselage of the helicopter would spin in the opposite direction around its own axis. The tail rotor of the H145 is a so-called fenestron, whereby it is integrated within the tail boom. This has several advantages: it reduces the noise, and both persons in the close vicinity and the tail rotor itself are better shielded from collision damage.

The main rotor

The air flowing over the spinning blades of the main rotor creates low pressure (above) and high pressure (below) them. When the pilot increases the angle of attack of the rotor blades, the low pressure and high pressure increase and the

**High pressure** 

Low pressure

helicopter lifts off. By altering the pitch of each blade, the pilot can tilt the rotor on all sides. This causes the helicopter to fly forward, backward or sideways.

HB-700



Fundamentally, the pilot has three control options: two pitch controls (cyclic and collective) and the anti-torque foot pedals. When the helicopter is in the air, the pilot tilts the main rotor forward at an angle using the cyclic. This causes the air to flow not only downward but also backward, making the helicopter move forward. At the same time, the pilot operates the collective with their left hand and the pedals with their feet. In addition, they need to constantly keep an eye on the cockpit instruments and the surrounding area during the flight.

Cyclic

If the pilot depresses one of the two pedals, the helicopter rotates around either its left

The cyclic pitch control tilts the main rotor so that the helicopter flies forward, backward or sideways.

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The paramedic sits next to the pilot during the flight and assists with navigating, identifying obstacles and talking to operation partners over