



UDC 167.6

JET PACK

Stud. K. Klymenko, gr. BA 1-15
Scientific assistant professor L.M. Meleshkevych
Kyiv National University of Technology and Design

Jet pack, rocket belt, rocket pack, and similar names, are various types of device, usually worn on the back, that use jets of escaping gases (or in some cases liquid water) to allow a single user to fly. A jet pack is a jet turbine powered backpack that is capable of vertical takeoff and landing. Scientists work on the creation of a light and small jet pack that can easily be carried around by the pilot. It should be powerful enough to lift the pilot quickly above the ground but small enough to fit into the trunk of a car.

In 1919 a Russian inventor O.F. Andreyev developed the first jet pack in the world. The concept of these devices emerged from science fiction in the 1920s and popularized in the 1960s as the technology became a reality. During World War II, Germany made experiments of strapping two jet tubes of low thrust to the body of a pilot. The device was called "Skystormer" and lifted the flier up and forward. The flier could also make jumps up to 60 meters. The device consumed very little fuel but not much could be carried either. The intended use for this device was for German engineer units to cross minefields, barbed wire obstacles, and bridgeless waters. Germany did not plan to use "Skystormer" for regular troops. The device was tested with a German Army unit in late 1944 but was still in the experimental phase once the war ended.

In 1958 the American engineers Garry Burdett and Alexander Bohr created the jump belt, which they named "Project Grasshopper". Thrust was created by high-pressure compressed nitrogen. With the aid of the jump belt's thrust it was possible to travel with a speed of 45 to 50 km/h. Then the engineers tested a hydrogen peroxide powered version. There was no financing, and the matter did not go to further tests.

In 1959 Aerojet Corporation constructed an Aeropack for US Army. In this type of machine jet contains hydrogen peroxide rocket. The peculiar feature of this device is that it contains a turbojet engine. Turbojet is usually used in aircraft engines.

A water-propelled jet pack debuted in January, 2009, as a recreational toy. Instead of gas jets, it uses two water jets for thrust. A small unmanned boat with a pump delivers pressurized water to the jet pack. Most landings are soft landings in the water.

The Martin Jetpack was named as one of Time magazine's Top 50 inventions for 2010. It is the world's first practical jet pack that can be used for search and rescue, and has military, recreational and commercial applications. It can be both manned and unmanned. The Martin Jetpack is able to be flown by a pilot or via remote control. It can take off and land vertically and because of its small dimensions, it can operate in confined spaces such as close to or between buildings, near trees or in confined areas that other aircraft such as helicopters cannot access.

Currently the only practical use of the jet pack is for astronauts. The challenges of Earth's atmosphere, Earth's gravity, and the human body (which is not well suited for this type of flight) remain an obstacle to its potential use in the military and as a means of personal transport. A new version of jet pack, a nitrogen powered Manned Maneuvering Unit (MMU) allows astronauts to float in space freely. It makes astronauts an easy spacewalk.

Scientists do not lose interest in jet packs. They assume that personal jets can find the most diverse uses: for reconnaissance, crossing rivers, amphibious landing, access to steep mountain slopes, overcoming minefields, tactical manoeuvring, etc.