

The Russian dream

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With six engines and a maximum take-off weight of 630 tonnes, even the A380 will look up to the Antonov An-225.

You only have to look at the Antonov An-225 Mriya (Dream) to see that it is truly one of a kind. It is the world's largest operational aircraft, powered by six engines and capable of carrying a staggering payload of up to 250 tonnes.

Although its original cargo, the Soviet Buran space shuttle, survives only as a tourist attraction in Moscow's Gorky Park, the An-225 continues to operate for heavy-lift cargo specialist Antonov Airlines.

The aircraft first flew in 1988 at the Antonov plant in the Ukraine, with a line number of 0101. With a wingspan of 88.4m, it is the largest aircraft ever to fly repeatedly (the only larger, the 98m-span Hughes H-4 Spruce Goose flying boat, flew only once, barely above the surface of the water, in 1947). It was registered as CCCP-480182 on December 21 and given the Nato reporting name Cossack.

Much of the airframe is common with the smaller four-engined An-124 Ruslan, christened Condor by Nato, and also at its launch the largest cargo aircraft in the world.

However, the An-225 is longer and lacks a rear cargo door. Rather than four engines, the An-225 is powered by six ZMKB Progress D-18-T turbofan engines, the same type used by the An-124, each producing 229.5kN of thrust.

It also has twin vertical tail fins, compared with the Ruslan's single vertical fin. This configuration was originally intended for additional lateral stability. It was later exploited in abortive schemes to use the Mriya as the first stage in a space launch system, carrying either the British Hotol or the Russian MAKS spaceship to altitude in a piggyback configuration before releasing it to continue under its own steam. But since the Buran programme came to an end, none of these schemes have gone beyond the drawing board.

Buran (Snowstorm) was originally conceived as the Soviet answer to the US Space Shuttle, but, unlike the US shuttle, it could fly unmanned as well as manned missions. It flew into orbit only once without a crew, on November 15, 1988, but never made a manned flight.

The An-225 was not part of the Buran launch system, but was simply used to transport Buran from landing site to launch site. A modified 747 is used for the same purpose for the US shuttle.

Buran, like the US shuttle, was launched vertically, but unlike the US shuttle had no main engines of its own ? it was lifted by an Energia expendable rocket. Buran was planned to help launch the successor to the Mir space station, as well as other military payloads, but delays in the programme, cost and the eventual collapse of the USSR brought the project to an end after its first orbital flight.

The An-225 spent seven years in mothballs after the end of the Buran programme and the collapse of the Soviet Union. Re-registered in 1993 in the newly independent Ukraine as UR-82060, it was resurrected in 2001, with a complete avionics refit from Honeywell and overhauled engines to meet international noise and emission standards and increase service life expectancy.

In May of that year it began flying again, marketed by Air Foyle-HeavyLift, and made its second appearance at the Le Bourget Air Show ? its first was in 1989, when it flew in carrying the Buran.

It subsequently made record-breaking flights, most recently on June 18, when it lifted off from Prague with a total take-off weight of 630 tonnes. The payload was 247.1 tonnes of pipe-loading cranes and loading equipment ? close to the aircraft's rated maximum of 250 tonnes of cargo ? heading for Tashkent.

It has also carried oil refining equipment, disaster relief and generator turbines as internal cargo, and outsize cargo such as bridge trusses as external cargo, using the hardpoints intended to support Buran.

While the aircraft is advertised as capable of carrying up to five main battle tanks ? and certainly has the space and power to do so ? its military cargoes have been limited to logistic transport.

With a maximum payload range of 4,500km and a maximum ferry range of 15,400km, it has shorter legs than the 747, but its massive hold gives it superior performance in hauling outsize cargo.

Antonov Airlines has a second An-225 on order, but it is still far off completion ? and, for the time being, the Mriya remains a unique aircraft.

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