

Frecce Tricolori, the new M-346: debut in 2028 and aerial refueling

Published on 27/11/2026

VENEGONO (Varese) – A new operational phase is beginning for the **Pattuglia Acrobatica Nazionale (PAN)**. At the **Leonardo plant in Venegono**, in the province of Varese, the **M-346** destined for the **Frecce Tricolori** was unveiled: the aircraft takes over from the historic **MB-339** and will introduce a **dedicated livery designed by Pininfarina**, combined with greater performance and energy margins. The **Aeronautica Militare** has ordered **15 aircraft** under a contract worth **one billion euros**.

More energy, performance and technical architecture

Compared with its predecessor, the new jet features **more pronounced aerodynamic lines**, **lower fuel consumption** and configurations dedicated to **aerobatic flight**. «It will deliver **far more energy, much more power and much greater speed**», said **Lorenzo Mariani**, Leonardo's chief executive officer and general manager, stressing that the aircraft will give

pilots new aerobatic capabilities.

Technically, the **M-346** platform features a structure designed according to *damage tolerant* criteria and extensive use of **composite materials**, with **two Honeywell F124-GA-200 turbofan engines** equipped with **FADEC** and an **APU** for autonomous start-up.The fuel system provides for **2,500 liters internally** (with the option of **three external tanks of 630 liters each**) and **single-point pressure refueling**.

Stated performance for the training version includes a **maximum low-level speed of 590 KTAS (1,090 km/h)**, a **service ceiling of 45,000 feet (13,715 m)**, a **sea-level rate of climb of 22,000 ft/min (6,705 m/min)**, a **sustained load factor of up to 8 g**, and a **sustained turn rate of 12.5 deg/s at 15,000 feet**, with a **ferry range of up to 1,375 NM (2,550 km)** with three external tanks and a 10% reserve.



Avionics, redundancy, and flight safety

The M-346's flight-control and mission architecture incorporates a **four-channel digital fly-by-wire flight-control system** with *carefree handling* to prevent loss of control or structural overstress, supported by **dual independent hydraulic and electrical systems** and **two Martin Baker Mk.IT16D zero-zero ejection seats**.

The cockpit features a latest-generation human-machine interface with **six LCD multifunction displays (MFDs)**, **two Head-Up Displays (HUDs)**, an **Up-Front Control Panel (UFCP)**, **HOTAS** controls, a **Helmet Mounted Display (HMD)**, **NVG** compatibility, **EGIR** navigation (GPS/INS and radar altimeter), and a backup **Get Home Display (GHD)**. On the maintenance

side, the aircraft uses a two-level *on-condition* and *condition monitoring* approach with **HUMS/S-HUMS** and **Ground Support System (GSS)** systems to reduce downtime.

For the **Italian industry**, the program carries significant weight: around **2,000 employees** work in Venegono, and the M-346 has already reached **170 aircraft sold** to **22 operators**.

“When it wants to be, Italy is competitive both in development and production costs, because **technologically, in this sector, we are second to none**,” Mariani said, also underscoring the value of **European cooperation** in defense.



The schedule and air-to-air refueling

Entry into service will take place gradually between **late summer 2027 and spring 2028**, the period during which public displays with the new jets will begin.A key factor in operational projection is the **air-to-air refueling** capability, highlighted by Air Force General **Antonio Conserva**, Chief of Staff of the Aeronautica Militare: «With air-to-air refueling, **no destination will be beyond reach**; we will bring the **Italian tricolor around the world**».

Sixty years of industrial collaboration

The presentation marks **six decades** of collaboration between the Aeronautica Militare and the national aerospace industry, now reaching the **third generation of aircraft** for the PAN. «You cannot do everything everywhere: here in Venegono there is the **technological excellence** that will bring **Italian excellence** to the world», said Leonardo Chairman **Francesco Macrì**, summarizing the bond between **craft tradition, innovation and national identity**.

News link: https://aeronautics.leonardo.com/it/products/m-346