

**Honeywell**

## **LEONARDO M-346 LIVES UP TO EVERY EXPECTATION WITH ISRAELI AIR FORCE**

Twin Honeywell F124 engines provide vital redundancy for trainee fighter pilots

**“It’s very easy to make the transition from the M-346 to a real jet fighter because it’s very similar to the fighters. You learn how to fight and then do the transition to the real fighter. You don’t need to learn how to fight again with the real fighter, so you save a lot of hours.”**

*Brig. Gen. (Res.) Avi Maor, Israeli Air Force*





### Overview

With the imminent delivery of F-35 fighter aircraft, the Israeli Air Force wanted to ensure that its pilots gained flight instruction using the most efficient and advanced jet trainer.

The air force carefully reviewed all options before finding the Honeywell-powered Leonardo M-346 to be the ideal solution. Thirty aircraft were delivered to schedule and budget and, having been in service with the Israeli Air Force for four years now, the M-346 is living up to all expectations.

### Quick Facts

#### Honeywell Solution

- Leonardo M-346 equipped with Honeywell F124 engines

#### Customer Results

- Provides easy transition to advanced fighter aircraft
- Aircraft has met all expectations
- Project stayed on time and budget
- No engine failures in four years of service

#### Why the Leonardo M-346

- Need for an advanced jet trainer to prepare pilots for the F-35 fighter
- Came top when 150 different criteria considered
- Twin Honeywell F124 engines provide important redundancy

#### Customer

- Name: Israeli Air Force
- Location: Israel
- Industry: Defense
- Website: [www.iaf.org.il](http://www.iaf.org.il)

## Background:

The Israeli Air Force operates one of the largest fleets of advanced fighter aircraft in the world, with more than 300 fixed-wing planes comprising F-15s, F-16s and, its newest addition, the F-35.

In 2012, after ordering its F-35s, the air force recognized that it needed to replace its aging A-4 Skyhawk training aircraft with a new advanced high-performance trainer that would meet its modern needs.

"We looked for an actual trainer," said Maj. Gen. (Ret.) Ido Nehushtan, the commander in chief of the Israeli Air Force at the time of the procurement. "Flight safety is absolutely a priority and the aircraft needed to show best value for money for the whole package of training.

"We went to the market and looked at the different candidates. We decided on 150 different criteria of comparison and flew each and every one of the options."

Brig. Gen. (Res.) Shmuel Tzucker, the former head of Israeli Ministry of Defense procurement and production administration, says that selecting the right training aircraft was a crucial decision for such an advanced air force.

"We decided to take the Leonardo M-346 because we found, at the end of the day, it was the best aircraft. Thirty aircraft we ordered for delivery over two years.

"I worked on a lot of negotiations, a lot of contracts and a lot of milestones. This was one project that really stayed on time and budget. It was amazing how much effort the two companies, Leonardo and Honeywell, put into this project."



## Solution:

The Leonardo M-346 is an advanced lead-in fighter trainer aircraft optimized for pilots who will go on to fly the latest-generation, high performance military aircraft.

Thanks to its advanced technical design and adoption of modern "design-to-cost" and "design-to-maintain" concepts, the M-346 has reduced acquisition and operation costs. Furthermore, reducing the maintenance hours requirement of the aircraft has increased its cost-effectiveness.

The M-346 features a full-authority quadruplex flyby-wire control system that, thanks to the optimization of its aerodynamic configuration, allows the aircraft to remain fully controllable at angles of attack of over 30 degrees.

This, combined with the aircraft's twin Honeywell F124 engine configuration, the duplication and redundancy of its electric and hydraulic systems and state-of-the-art equipment, makes the M-346 one of the most modern pre-operational tactical training aircraft in the world.

The M-346 is equipped with a digital avionics system, fully modelled on those of latest-generation military aircraft such as the Eurofighter, Gripen, Rafale, F-16, F-18, F-22 and the F-35.

It is therefore well-suited for every phase of advanced and pre-operational training, reducing flight training hours in more expensive frontline aircraft.

The M-346's wide flight envelope, its very high thrust/weight ratio and extreme maneuverability make it an aircraft capable of reproducing, for the trainee pilot, flight conditions similar to those they will find on the combat aircraft they will go on to operate.

## Benefits:

The first Leonardo M-346 was delivered to the Israeli Air Force in 2014. One of the first instructors to fly the aircraft was Brig. Gen. (Res.) Avi Maor, a 40-year veteran who had previously flown fighters including the F-4, F-15 and F-16.

Maor, who had previously been instructing in the A-4 Skyhawk, says that he immediately noticed the difference. "If you look at the performance and the way you fly, it's a totally new airplane. You can teach your student everything. You don't have restrictions because of the aircraft."

After training in the Leonardo M-346, young pilots go straight into the most advanced fighter aircraft. And, says Maor, it is very easy to make the transition.

"The big advantage with the M-346 is that you can fly all missions, operational missions," he said. "In modern fighters, you face problems of G-LOC because you fly 9G and you have to teach young pilots how to deal with this.

"In this aircraft you can have high G, but you can play with it. You can start with low G and then switch to high G, so you can train the pilot as you want.



"It's very easy to make the transition from the M-346 to a real jet fighter because it's very similar to the fighters. You learn how to fight and then do the transition to the real fighter. You don't need to learn how to fight again with the real fighter, so you save a lot of hours."

Maj. Gen. (Ret.) Nehushtan highlights a number of other features that maximize the safety and effectiveness of the trainer.

In particular, he says, compared to some modern trainers, the center stick control helps the instructor to lead the student in each and every move in the cockpit. And the twin Honeywell F124 engines, which have not had a single failure in four years of service, improve flight safety.

"We liked the two engines and the redundancy that it provides with the young pilots, with the price of a single engine," said Nehushtan. "The M-346 has really lived up to expectations in all aspects."

## Honeywell Aerospace

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