

## MANPADS

### Background

The MANPADS (MAN Portable Air Defence Systems) threat is not a new one for civil aviation. In recent years that threat has evolved considerably and has now become significant, and is still growing.

One might recall the MANPADS attack in 2003 over Baghdad Airport, Iraq, against a DHL Airbus 300. The crew did an outstanding job in landing their crippled aircraft after the left wing was hit by a shoulder launched SA-7 surface-to-air missile, one of the so-called “first generation MANPADS”. These types of attacks on commercial aircraft have occurred mostly in war zones and regions of active conflict and terrorism. One notable exception was the attack against an Arkia Israeli Airlines Boeing 757 whilst departing Mombasa, Kenya, in 2002. Two SA-7 missiles were launched at the aircraft from a position located 1.2NM from the airport and both failed to hit their target. Since 1975, 40 civilian aircraft have been hit by MANPADS, causing 28 crashes and more than 800 deaths around the world (US Department of State, 2011).

The so-called ‘Arab Spring’, at the beginning of 2010, resulted in a revolutionary wave of demonstrations, protests, riots and civil unrest, causing regime changes and conflicts in countries like Egypt, Tunisia, Libya, Syria and Yemen. One of the side effects of these events was that an increased number of more advanced MANPADS became available and eventually found their way into the hands of rebels and terrorist groups. This resulted in growing worldwide concerns surrounding their ability to carry out a successful attack against civil aviation.

Newer generation MANPADS carry larger warheads and are easy to operate effectively, requiring little technical knowledge or training. Consequently, the threat of MANPADS attacks on civil aviation is more prevalent than ever, even outside the actual conflict zones.

### Prevention

IFALPA believes that prevention is the most effective countermeasure States should (or continue to) develop non-proliferation policies and share information on the presence and availability of MANPADS in certain areas, in order to disrupt terrorist plans. Any indication of a raised level of risk should be included in an international risk assessment sharing scheme. Additionally, airports, local authorities and law enforcement organisations should keep airports and surrounding areas under constant surveillance to counter the threat of MANPADS.

### Avoidance

When a credible threat has been identified, operators, in consultation with the authorities, should immediately discontinue their flights over the affected area or to the affected airport, unless suitable risk mitigation measures have been taken. The Pilot in Command, as the final authority for the safe conduct of the flight should therefore be fully briefed on these measures and made aware of the risks and safety considerations associated with this type of threat.

## **Aircraft protection**

Manufacturers incorporating appropriate design can improve aircraft survivability of a MANPADS attack. Such a design should protect essential functions of critical systems that could also prove useful in other circumstances, such as the loss of flight control systems due to a mechanical failure (e.g., United Flight 232, Sioux City, 1989) or other types of standoff weapon attacks.

Airborne Counter-MANPADS systems have not yet proven to be a suitable, effective and affordable solution for commercial transport aircraft.

## **Conclusion**

- The MANPADS threat is real and growing, even outside conflict zones.
- Prevention is the most effective countermeasure.
- When a credible MANPADS threat exists, the area should be avoided or suitable mitigating measures have to be established.
- When prevention measures have proved ineffective, appropriate aircraft design can improve survivability of a MANPADS attack.