



**SAAB**

# **BOL** ENSURING MISSION SUCCESS FOR F/A-18



# **BOL** ADVANCED COUNTERMEASURES DISPENSER FOR F/A-18



The advantages of simple and reliable physical off-board decoys have made chaff and flares a fundamental component of an effective aircraft integrated self-defence suite, helping aircrews to fulfill mission goals and return safely to base.

The effectiveness of off-board infrared (IR) countermeasures has been much improved thanks to the development of new IR Special Material Decoys (SMD) and improved methods of tactical deployment.

Break-lock from hostile tracking radars can be further facilitated by synchronizing chaff dispensing with aircraft manoeuvres and the use of jammers.

## **HIGH CAPACITY AND RAPID DISPERSION**

The ingenious design of BOL has revolutionized dispensing of chaff and IR payloads.

An elongated shape houses a long stack of payload packs. An electromechanical drive mechanism feeds the packs towards the aft of the dispenser where one pack at a time is separated from the stack and released into the airstream. The release mechanism forces initial dispersion of the (chaff or IR) payload, which is then enhanced by the BOL internal vortex generators (aircoops) and vortex fields behind the aircraft.

Used with the specially designed IR payload, the air-stream will build up a large radiating IR decoy cloud. The high capacity of the dispensers (160 packs each) gives pilots the sustained defensive capability needed to accomplish missions successfully.

The shape of the dispenser allows it to be sited in the most desirable locations on an aircraft. It is best located on the wings where wing vortices can be utilised to improve dispersion. With dispensers on each wing, the spatial separation of payload clouds significantly increases radar cross-section (if used with chaff) or the extension of the IR radiating source (if used with IR payload). BOL systems are thus usually mounted in a symmetrical twin or quadruple configuration on the wings.

BOL's high payload-to-volume ratio, non-pyrotechnical release mechanism and effective dispersion gives the dispenser superior performance for both chaff and IR payloads. The latter allows covert dispensing of a special material that has proved very effective against advanced IR missiles.



IR dispersion from BOL. (Cleared for public release October 31, 2003. Public Affairs Office, US Naval Systems Command.)



A complete countermeasures system will normally combine BOL dispensers with conventional pyrotechnical dispensers for spot flares. For aircraft already equipped with pyrotechnic dispensers, retrofit with BOL will significantly enhance the protection of the aircraft by increasing the total payload capacity. The introduction of BOL will free-up all the original pyrotechnical dispensers for spot flares, thus as a minimum doubling the capacity of this payload.

#### INSTALLATION

The BOL is fitted inside a conformal housing which acts as an areodynamic housing as well as mechanical attachment for the BOL to the SUU-63 pylon. The pylon is fitted with a new side panel designed by Aerostructures in Melbourne, Australia, to accept the BOL. The design of the new side panel ensures maintained structural integrity of the original pylon. The installation has been achieved without interfering with weapons load or flight performance.

#### DISPENSER CONTROL

The BOL interface includes a choice of digital data-links as well as a 28 V discrete input to initiate built in dispense sequences. Available data-links are MIL-STD-1553B and RS-485. The BOL is fully integrated with the ALE-47 CMDS via the RS-485 data-link.



*BOL on RAAF F-18. (Source: Royal Australian Air Force.)*



*BOL on RAAF F-18. (Source: Royal Australian Air Force.)*



*Loading of decoy packs.*



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## BOL IN ACTIVE SERVICE



Gripen



F/A-18 Hornet



Harrier GR7



Tornado ADV



F-15 Eagle



EF-2000 Typhoon

### REFERENCES

BOL is in use in the UK, the USA and Sweden on F-15 Eagle, Tornado ADV, Harrier GR7, Gripen and in Europe on EF-2000 Typhoon.

An international alliance has been formed by Saab (Sweden), BAE Systems (USA), Chemring Countermeasures (UK) and Alloy Surfaces (USA) to pursue worldwide opportunities for this innovative and unique dispenser system.

### TECHNICAL DATA

Weight empty	Conformal dispenser: 15.9 kg Dispenser only: 11.9 kg
Payload weight	6.9 – 9 kg depending on type
Payload capacity	160 packs
Reloading time	Less than 1 min
Control signals	RS-485 serial data link or MIL-1553B data bus. +28 V discrete signal
Power supply	115 V, 400 Hz single phase

### ACCESSORIES

The BOL Acceptance Test Station tests all functions of BOL dispensers.

The BOL loader speeds up the loading process as well as making it easy and safe to load in cold and/or BC environment.

MLV, Maintenance Loader Verifier, is a handheld device for Saab's dispenser products. Loads software and dispensing parameters, reads BIT-log, performs maintenance tasks.

BOLSIM is a simulator to be used in laboratory environments for system integration and advanced training.

### SAAB'S PARTNERS

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