



#### Platforms incorporating Smart Zapper System

- Agusta/Bell AB139
- Bell B412CF
- KHI OH-1
- Mitsubishi MN2000
- NH Industries NH90
- Sikorsky S-92
- Westland Sea King

Eaton has been the pioneering leader and innovator in lube system early failure detection devices for more than 50 years. Building on the success of a basic magnetic plug and self-closing valve combination that allowed physical examination for debris without oil loss, the company kept pace, and at times, anticipated the needs of airframe, engine, and secondary power systems manufacturers. This is especially apparent in the development of electric chip detectors, pulsed electric chip detectors, and electronic quantitative debris monitoring systems that resulted from this endeavor.

Eaton's Tedeco® product line Smart Zapper is a microprocessor-based chip detector system that combines the proven effectiveness of the Zapper with features to enhance the flexibility and reliability of this early failure detection system.

Total programming control allows the user to determine the pulse energy profile for each chip detector location, the number of chip clearing pulses and the elapsed time between pulses.

The typical system consists of a power module and a quantity of chip detectors. When debris bridges the gap on a chip detector, the resulting short circuit is routed to the power module as a debris signal. The power module attempts as many

as three successive burn-offs. If the attempts are unsuccessful, a continuous debris signal lights a caution capsule in the cockpit.

The power module includes built-in-test (BIT) circuits for internal and external faults. This functions after dc power turn-on. An indicator light will also indicate a disconnect chip detector or open-wiring, a fault in power module detecting/control circuits, or low burn-off voltage.

As a failsafe feature, the power module takes itself off-line and converts to a passive detection system if power is disconnected or Zapper circuits malfunction.

#### Benefits:

- System built-in test, internal wiring fault monitor and termination check for each chip detector
- Programmable burn-off energy level and alarm threshold values for each chip detector
- Temperature sensor option for each chip detector provides over-temperature alarm
- Electronic memory of all burn-off events, available maintenance tracking and record keeping
- Special outputs for digital avionics bus, flight computer, HUMS, or cockpit multi-function display

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## AS 9100



Eaton  
Aerospace Group  
Fluid & Electrical Distribution Division  
24 East Glenolden Avenue  
Glenolden, PA 19036-2198  
USA  
tel: (610) 522 4000  
fax: (610) 522 4900  
[www.eaton.com/aerospace](http://www.eaton.com/aerospace)

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