



**PRESS RELEASE**

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## **Laingsdale Engineering Manufactures new fuzes**

**By Helmoed Römer Heitman**

The South African fuze specialist, Laingsdale Engineering recently launched production of three new fuzes, the Junghans DM441.1 self-destruct fuze for 40 mm grenades, which it manufactures under licence, its own M0405A1 mortar fuze, which incorporates a true 'two-parameter' safe and arm device, and the related M0507A1 fuze, which is qualified to insensitive munitions standards. The announcement was made by Garry SLEIGH, General Manager: Laingsdale, a division of Tellumat (Pty) Limited which focuses on electronics for the communications and defence sectors.

Laingsdale has been producing 40 mm grenade fuzes for the South African and foreign armed forces for 21 years. It has delivered more than 4 million 40 mm fuzes, for both low velocity hand-held grenade launchers and high-velocity automatic grenade launchers.

In South African Army service the low velocity fuzes have been used operationally in single-shot grenade launchers of several types and in the South African developed six-round multiple grenade launcher (MGL). The high velocity fuze is used with Denel 40 mm automatic grenade launcher. This weapon equips the machinegun platoon of the infantry battalion's support company, which uses it in both the direct fire and indirect fire role.

"The decision to manufacture 40 mm self-destruct grenade fuzes was taken to meet the requirements of armed forces intending to comply with the requirements set out in the Ottawa Convention" says SLEIGH. This has become particularly important as conflict moves into the urban environment and as armed forces become increasingly involved in 'operations other than war' that nevertheless do involve combat. Both situations place civilians at considerable risk to unexploded munitions.

Rather than go through an extended local development process, Laingsdale took the opportunity to partner with Atlantis Manufacturing Management Services (AMMS) in South Africa and Germany's fuze specialist Junghans to manufacture the Junghans 40 mm DM441.1 self-destruct fuze in South Africa. That fuze will be marketed by Denel in conjunction with its 40 mm automatic grenade launcher and as part of its wider ammunition range.

SLEIGH says: "The Laingsdale-manufactured DM441.1 fuze successfully completed its firing trials in July 2006, and is currently undergoing 'insensitive munitions' qualification".

"The fuze can be used with all 40x53 HE-PFF and 40x53 HEDP grenades, and has no effect on the external dimensions of the grenade. It has a 22 500 g safety setback and a 6 000 rpm arming rotation, giving it a guaranteed muzzle safety distance of 18 m, and a guaranteed "all armed" distance of 40 m" he says.

The self-destruct mechanism is a pyrotechnic train that ensures self-destruction of the fuze 14 seconds after firing. The pyrotechnic train is qualified over a temperature range from -40oC to + 63oC.



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Laingsdale's new M0405A1 and M0507A1 mortar fuzes incorporate a true 'two-parameter' safe and arm device to fully meet the STANAG safety requirement that the fuze should sense two different physical parameters before arming.

Where many mortar fuzes rely on a safety wire removed before firing and then on only setback generated by the 'g' force of firing, the M0405A1 and the M0507A1 combine a setback safety with another safety device that measures the in-flight airflow once the bomb has been fired. Only then will the fuze arm. The M0507A1 additionally has its complete pyrotechnic train qualified to insensitive munitions standards. The complete fuzes are qualified to STANAG 2916, 4157 and 4187, ITOP4-2-504(3) and 4-2-806, MIL-STD-331 and 2105B, and AOP16.

The M0405A1 and M0507A1 have been designed for use with 60 mm, 81 mm and 120 mm mortars in both infantry and artillery (120 mm) applications, and can be used with the standard bombs as well as with Denel's long-range bombs.

The ballistic limits of the fuzes are 900 to 16 000 'g' and 60 to 460 m/sec, with the safe and arm unit guaranteeing no bomb armed at less than 500 g and all armed at 900 g. The fuze impact safety distances are 40 m for 60 mm and 81 mm bombs, and 70 m for 120 mm bombs; the 'all armed' distances are 150 m, 175 m and 260 m respectively.

In its 'super quick' mode the fuzes have an activation delay time of less than 1 ms, with the delay mode giving activation in 30 to 55 ms.

Laingsdale itself has been producing high-precision mechanical products since 1976, with fuzes a particular speciality, and has a full in-house capability to design, develop and manufacture fuzes to international defence quality and safety standards. Its current range includes fuzes for low velocity and high velocity 40 mm grenades; 60 mm, 81 mm and 120 mm mortar fuzes, including fuzes for Denel's long-range bombs; the fuze for the 76 mm HE shell of the Rooikat armoured car; 76 mm naval fuzes; the fuze for the HE round of the 105 mm tank gun; and fuzes for the G5 and G6 long-range guns and other 155 mm guns. Other products include 76 mm sabots (for the APFSDS projectile used by the Rooikat armoured car), various safe and arm devices, and small precision components for the electronics and other industries.