

# RNZAC ASSOCIATION NEWSLETTER #199 June 2021

**Meetings**      Happy Hour: Thursday 1 July 2021 at 1700 hrs at the Papanui RSA

**Whose is it?**



**Last Post:**

Richard Stowers passed away peacefully at home in Hamilton on Tuesday 20th April 2021, aged 69 years. He is the author of several military books including Forest Rangers : a history of the Forest Rangers during the New Zealand Wars, Waikato troopers : history of the Waikato Mounted Rifles, Bloody Gallipoli : the New Zealanders' story and Rough Riders at war : history of New Zealand's involvement in the Anglo-Boer War 1899-1902. Richard very generously assisted others in their research and will be sadly missed.

**Snowy Wonderland of Linton & QAMR:**



## **Answer: Italy M60A3**

The American designed M60 main battle tank has been around for decades and remains in service with numerous nations. Keeping a tank in service with upgrades has significant advantages for a nation. It is cheaper than buying new and makes crew training easier as they are already familiar with many parts of the vehicle. Many schemes and packages have been offered in recent years to modernize the M60 and ensure it can perform its role as a main battle tank. The Upgrade Solutions package offered by Italian defence company Leonardo combines upgrades to the armour, automotive systems, internal system, and firepower.

The Leonardo M60A3 Tank Upgrade offers a 120mm 45 calibre low recoil smoothbore gun. This armament, combined with the LOTHAR gun sight and TURMS digital fire control system, gives a hunter/killer capability, and increases the effective range. The gun can fire standard NATO 120mm smoothbore ammunition. All the fire control upgrade features are also compatible with the 120mm L40 NATO standard gun. The most distinguishable feature of the gun is the retention of the 20% efficiency 'pepper-pot' muzzle brake which reduces the recoil forces the trunnions must manage.

An ERICA Thermal Imager is fitted within the new electronics and sighting suite, which significantly extends the sighting range for the crew. This compact system is fitted within the MINI-COLIBRI system on the HITROLE-L. The LOTHAR day/night sight incorporates a Laser Range Finder (LRF) with a 10km range and either an LWIR or optional (higher cost) MWIR camera and a double Field of View (FOV) TV camera. The LOTHAR is suitable for guns ranging from 23mm up to 125mm calibre. This system can be linked either mechanically or stabilized with the mechanical option being the lower cost choice. Stabilization allows the gunner to operate regardless of vehicle movement. The turret is also fitted with a meteorological sensor for wind and temperature data etc. for the fire control system and a new digital fire control system.

For close defence, the turret is also fitted with the HITROLE-L 12.7mm remotely operated weapons system which can be mounted on a wide range of vehicles as it requires no holes cutting through the turret or hull. The HITROLE-L is a two-axis stabilized system with the MINI-COLIBRI modular optical system comprising infra-red night vision, a daytime TV camera, and an eye-safe Laser Range Finder. In the arrangement shown at BIDX the HITROLE-L is mounting the 12.7mm heavy machine gun but this system can also mount a 7.62mm machine gun or the 40mm automatic grenade launcher (AGL) depending on user requirements. Ammunition is held in a universal ammunition box on the left of the system, and it can be fired by the gunner assisted by the ballistic fire control computer. In the event of a total loss of power, it can also be operated manually. The use of the HITROLE system doubles as the 360 panoramic surveillance system for the commander. A final optical enhancement for the M60A3 is that the driver's station is now equipped with the DNVS-4 (Driver Night Vision System). The sight features high-resolution thermal imaging and a day/night sight in one.

Customers for this M60A3 package are offered improved mobility via either a full refurbishment of the existing power packs or an upgrade. The new powertrain offered is stated to deliver up to 20% more power without high costs and avoiding the need for any modifications to the existing hull. This AVDS-1790-5T+CD-850-B1 908 hp engine replaces the 750hp engine and is connected to an upgraded CD-850-6A transmission. It has 75% commonality of spare parts with the existing power packs vastly reducing costs and maintenance. Additionally, there is a 650amp generator fitted, along with improved oil



cooling and aftercoolers for improving engine efficiency. Leonardo claims this system also reduces the heat signature from the engine.

With the spread of anti-tank weaponry such as rocket-propelled grenades and anti-tank guided missiles the M60 armour is today outdated. Leonardo is offering the M60A3 package with a whole new passive protection suite fitted around the M60's existing cast armour turret and hull. Protection is claimed to meet STANAG Level 6. Protection for the turret is optimised for protection against kinetic energy (KE) weapons and artillery across the frontal arc. The hull is upgraded to the same standard with the protection covering the hull sides extending to the third roadwheel. For the rear of the turret, slat armour is provided with an emphasis on protecting against the RPG-7 – a 60% probability of success against this threat is expected.

The old commander's cupola is completely removed and replaced instead with an armoured circular ballistic plate with a hatch and an 'Iposcope' for the commander, the combination saving a significant amount of weight over the older cupola.

The turret has been refitted with a new set of hydraulic and servo control improving performance. The vehicle has also been retrofitted with the Automatic Fire and Explosion Sensing and Suppression System (AFSS) covering the engine bay and crew space allowing for higher crew survivability. As mentioned, an integral generator and air conditioning are also fitted. Provision is made for fitting a mine roller kit.

### Humour

A new strain of COVID has been found - this time from Scotland. At least you'll hear it coming.



One to end the newsletter on ...Adoption Suitability

A couple who work in the circus go to an adoption agency.

Social workers there raise doubts about their suitability.

The couple produces photos of their 50-foot motorhome, which is equipped with a beautiful nursery.

The social workers then are doubtful about the education that the child would get. "We've arranged for a full-time tutor who will teach the child all the usual subjects along with French, Mandarin and computer skills."

Then there are doubts about raising a child in a circus environment.

"Our nanny is an expert in paediatric welfare and diet."

The social workers are finally satisfied.

They ask, "What age child are you hoping to adopt?"

"It doesn't really matter, as long as he fits in the cannon"

**Reminders;** RNZAC Association Web site: [www.rnzac.co.nz](http://www.rnzac.co.nz) Contributions to this newsletter are gratefully accepted. Email: [smithmd@xtra.co.nz](mailto:smithmd@xtra.co.nz) Phone 02108049178.

**Mike Smith, Editor**