



LEONARDO ELECTRONICS

# M60A3 UPGRADE SOLUTION

The M60A3 upgrade and overhaul programme provides fleet operators with a cost-effective opportunity to enhance the capabilities of the platform in line with other 3rd Generation Main Battle Tanks.

Lethality, mobility and crew survivability are significantly improved through the integration of state-of-the-art Fire Control Systems, a new main gun, improved power systems and the implementation of modern protection systems designed to counter the common threats.

## LETHALITY

- 120/45mm Main Gun
- Digital Fire Control System
- Commander Weapon Station

### Lethality upgrade highlights

- Increased armour penetration
- Increased range of effectiveness
- Multi-Weapon against different target
- Improved hit probability
- Shooting-on-the-move capability
- Day and night operational capability
- Improved target acquisition range
- Full hunter-killer capability
- Reduced target engagement time
- Capability to fire last gen and NATO standard ammunitions

### The main features of the weapon system

Technology and Performance Overmatch, the Leonardo 120/45mm gun, joining the long 120mm experience (classic L44 120mm Gun) together with new technologies, provides effective overmatch on 125mm ammunitions.

Latest generation of steel for the gun, breech block and breech ring optimised in terms of mechanical characteristics, the same used for the new 127mm Naval Gun in use in Italian and Export Navies, to assure the best in terms of design pressure: same profile, same thickness, better mechanical features.

Weight Reduction, the weight of the oscillating mass consents a reduction of 500kg in comparison with the 120/44mm legacy (cradle designed using special light alloy).

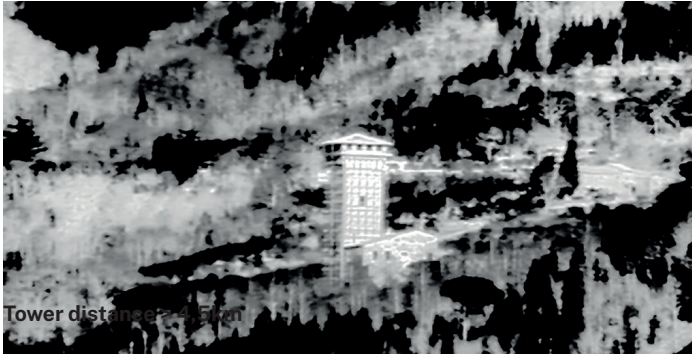
Low Recoil Force, thanks to a patented integrated muzzle brake system with an efficiency of 20%, conceived to reduce the recoil force on the trunnions axis (the only 120mm gun already installed on wheeled vehicles).

With significantly reduced investment (when compared to the purchase of a new MBT), the Leonardo solution maintains existing Maintenance and Logistics assets, in addition to requiring minimal additional training for support. Leonardo fully owns and controls the core technologies such as the Fire Control Systems (FCS) and the Infrared Technology, the 120mm smooth-bore Main Gun and the hydraulics and servo controls to improve the Turret performance.

## TURMS DIGITAL FIRE CONTROL SYSTEM HIGHLIGHTS

- Increased first hit probability, provided by the new FCS Sight, Sensors and Ballistic calculation algorithms
- Shooting on the move, against standing or moving target
- Increased range of threats detection, recognition and identification, thanks to the latest Day and Night 3rd Generation Thermal Imager sensors together with Image Enhancement and video processing
- Hunter/Killer Capability
- Reduced reaction time on engagement, thanks to Video Tracking for aiming and shooting assistance and more persistency in the firing window
- Increased systems Robustness provided by the Gunner and Commander interchangeability for the main Gun





### Cupola Removal and New Commander Weapon Station

- Our solution integrates a new multi-purpose stabilised Remote Controlled Weapon Station (RCWS) with 12.7mm gun which substitutes the legacy Commander Cupola. This allows full 360° panoramic Line of Sight (LOS) and faster rotation speed. The Cupola is replaced with a flat ballistic circular plate with hatch.

Legacy Original Commander Cupola



New Cupola removed and New Commander Remote Weapon Station



### Key benefits

- Full panoramic LOS for Commander with 360° free view
- New RCWS with back-up manual operation and hatch
- Faster rotation with respect to legacy Cupola
- Weight saving thanks to Cupola removing
- Iposcope for external view

### MOBILITY

- Powerful Power Train
- New Running Gear
- Day & Night Driver Scope

Our technical solution upgrades the existing power pack instead of replacing it with a new one with overhaul or complete renovation.

In this way, we obtain a substantial increase in power with a better weight-to-power ratio and significant economic savings to avoid:

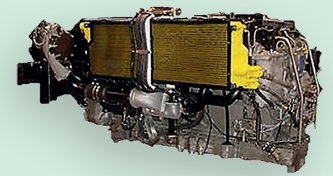
- New power train unitary cost
- Heavy hull modifications to host the new Power Train (engine, transmission and final drive)

Increased Power

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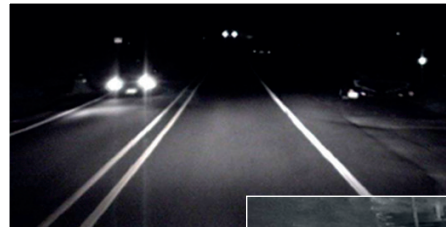
Reduced Weight

W



### Day & Night Driver Scope

- Day & Night Driver's H24 operational capability
- Effective through smoke and dusty battlefield



### Key benefits

- Improved oil cooling system
- Aftercoolers for improved engine efficiency
- Reduced fuel consumption
- Increased power to weight ratio
- Compact package
- 650 Amp Oil cooled Generator
- Reduced heat generation
- Up to 75% re-use of existing parts – Same Logistics

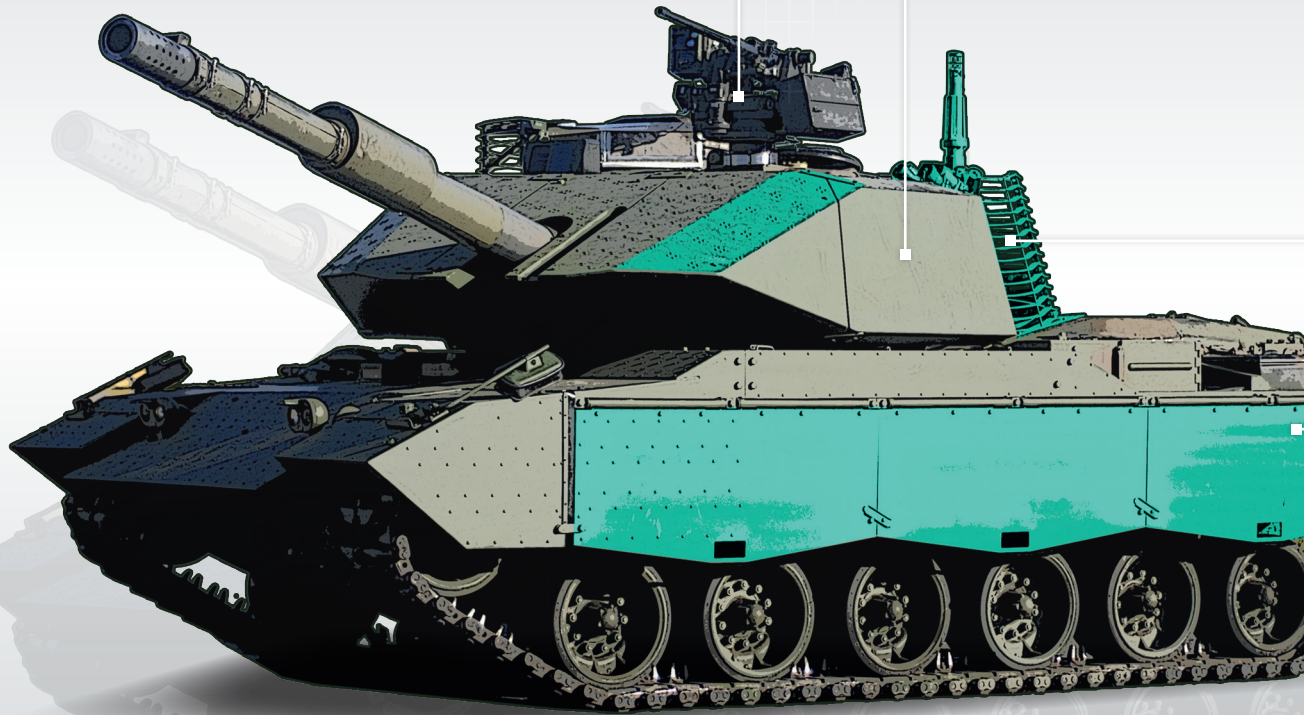
120/45mm  
Main Gun

## LETHALITY



'Get 3rd Generation Capability at affordable cost with respect to the cost of a new tank'

- 120/45mm Main Gun
- Digital Fire Control System
- Commander Weapon Station



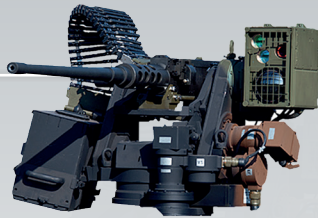
## RELIABILITY

General Tank Overhaul  
Auxiliary Power Unit Integration  
Air Conditioning

Gunner Sight



Remote Commander Weapon Station



Fire Control System



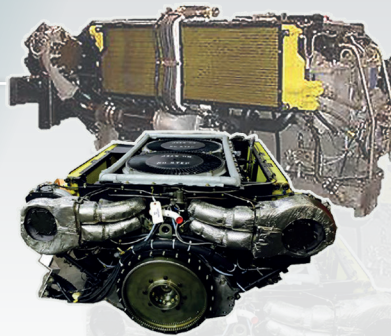
Multi-function Display



## MOBILITY

Powerful Power Train  
New Running Gear  
Day & Night Driver Scope

Power Pack Up-Power

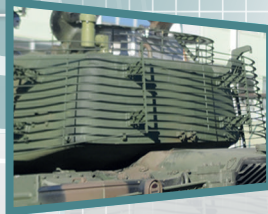


Driver Night Vision System



## SURVIVABILITY

- Armour protection Level 6 according to STANAG 4569
- Fire and Explosion Suppression System
- Mine Roller kit



- Ballistic protection suite
- Slat armour against Rocket Propelled Grenades



General tank overhaul

## SURVIVABILITY

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- Mine Roller kit

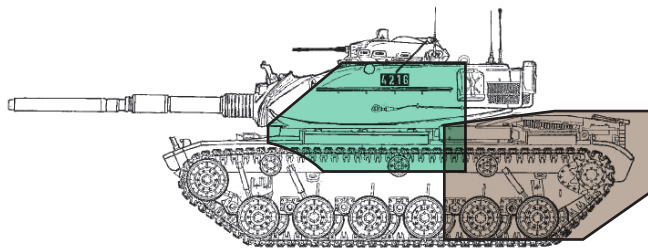
### Ballistic Protection Upgrade

- Turret protection upgrade against Kinetic threats:
  - Protection of the crew in the frontal arc of the turret against armor piercing projectiles and artillery up to Level 6
- Hull protection upgrade against Kinetic threats:
  - Protection of the crew against armor piercing projectiles at Level 6 in the frontal arc of the hull and up to the third road wheel
  - Protection of the crew against artillery fragments up to Level 6.

Protection all around against RPG 7 achieved by means of SLAT armors with at least 60% of probability of success.



### Automatic Fire and Explosion Sensing and Suppression System (AFSS)



CREW COMPARTMENT

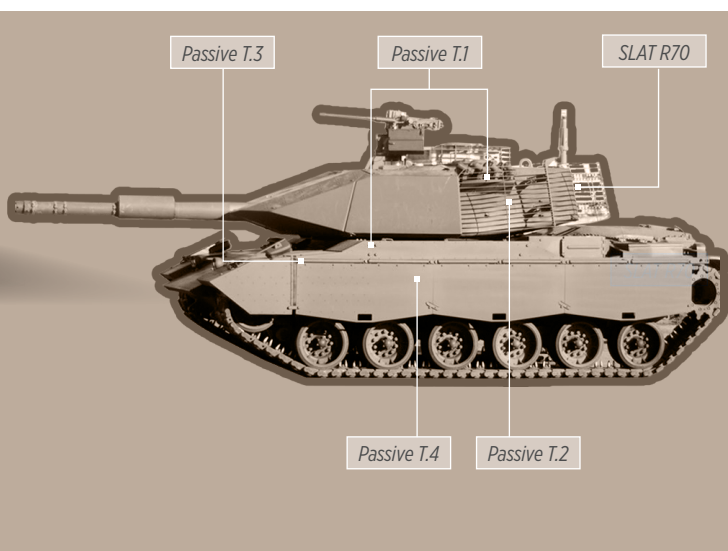
ENGINE COMPARTMENT

The Objective for installing an AFSS system is:

- To improve soldier survivability and effectiveness
- To improve vehicle survivability and availability in combat and peace keeping situations

Crew are better protected against fire and explosions that can be generated by enemy round penetration (combat), RPG, cocktail molotovs (peacekeeping operations) or equipment failure (turrett hydraulic system).

Engine is better protected against fire and explosions that can be generated either by equipment failures (ruptures) or by enemy round penetration.



## RELIABILITY

- General Tank Overhaul
- Auxiliary Power Unit Integration
- Air Conditioning

## Main Subsystems subject to overhaul

- Power Train
- Fuel supply system
- Brake systems
- Torsion bars
- Fire protection
- Electrical system
- Track and wheels
- External and internal painting
- Smoke grenade launcher
- Seats, turret bearing, ammunition racks, chassis.

## Life Extension



**UPGRADED M60A3s OFFER THE SAME CAPABILITIES  
AS MOST MODERN 3RD GENERATION TANKS AT AN  
AFFORDABLE COST**



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