19; Robots

TALON Tracked Military Robot

Type

Tracked military robot

Manufacturer

Foster-Miller

Service Entry

2000

Length

86.4cm

Payload Capacity

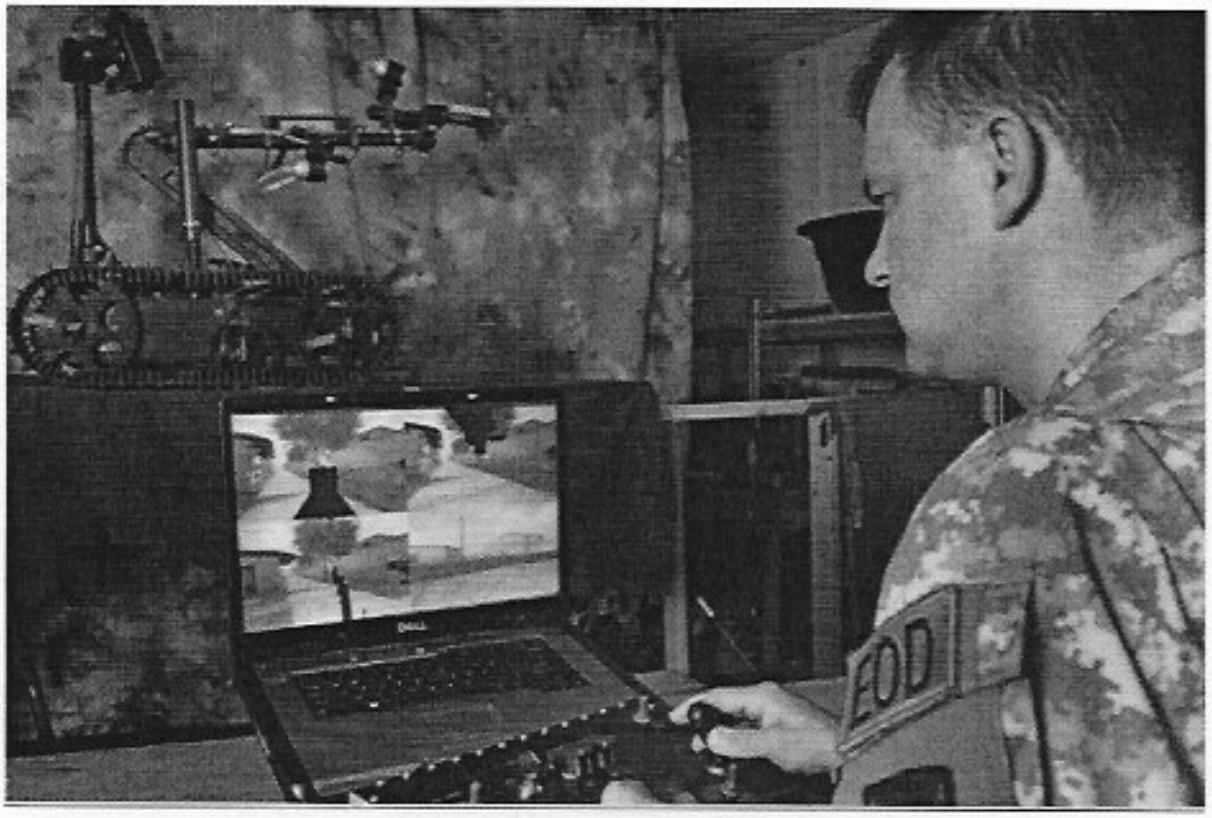
45kg

Speed

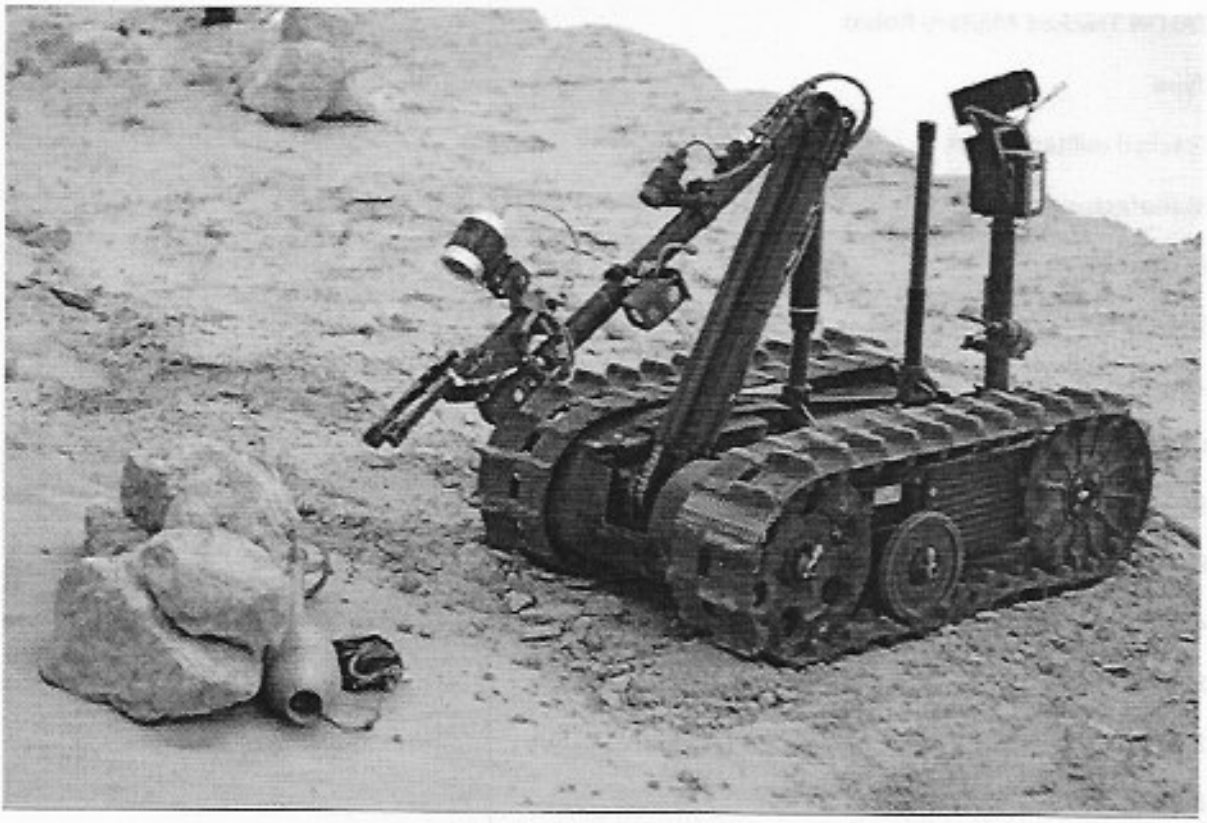
8.37km/h

Expand

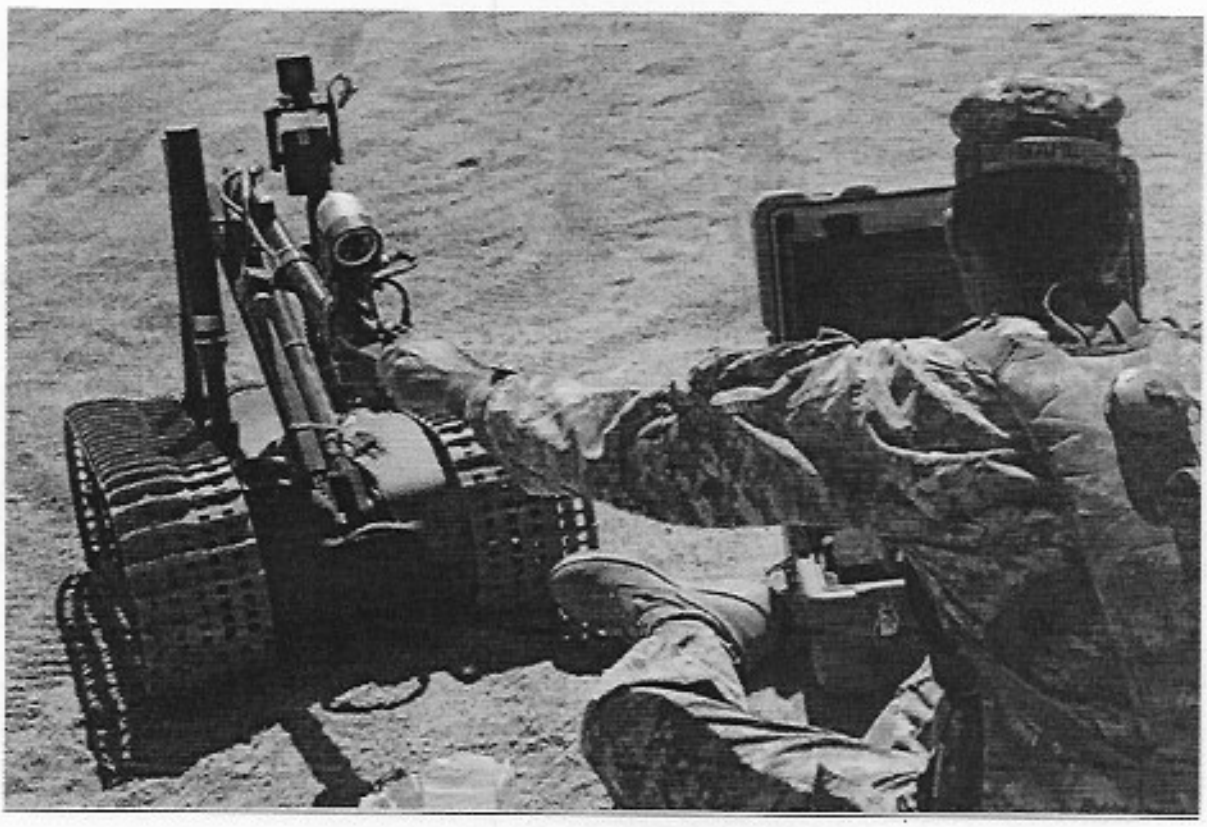
Previous



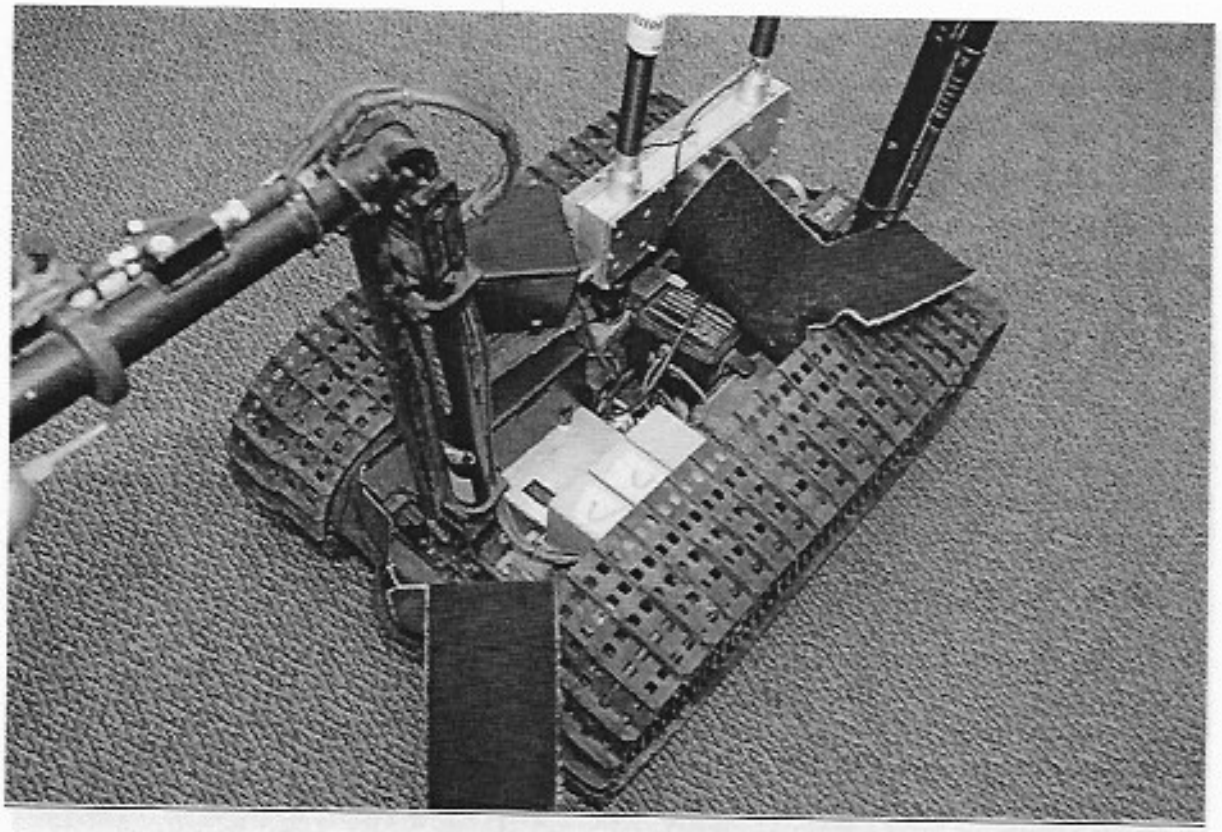
The robot is controlled by a water-resistant operator control unit (OCU). Image courtesy of Todd Mozes.



The TALON lightweight unmanned tracked robot is designed and manufactured by Foster-Miller.



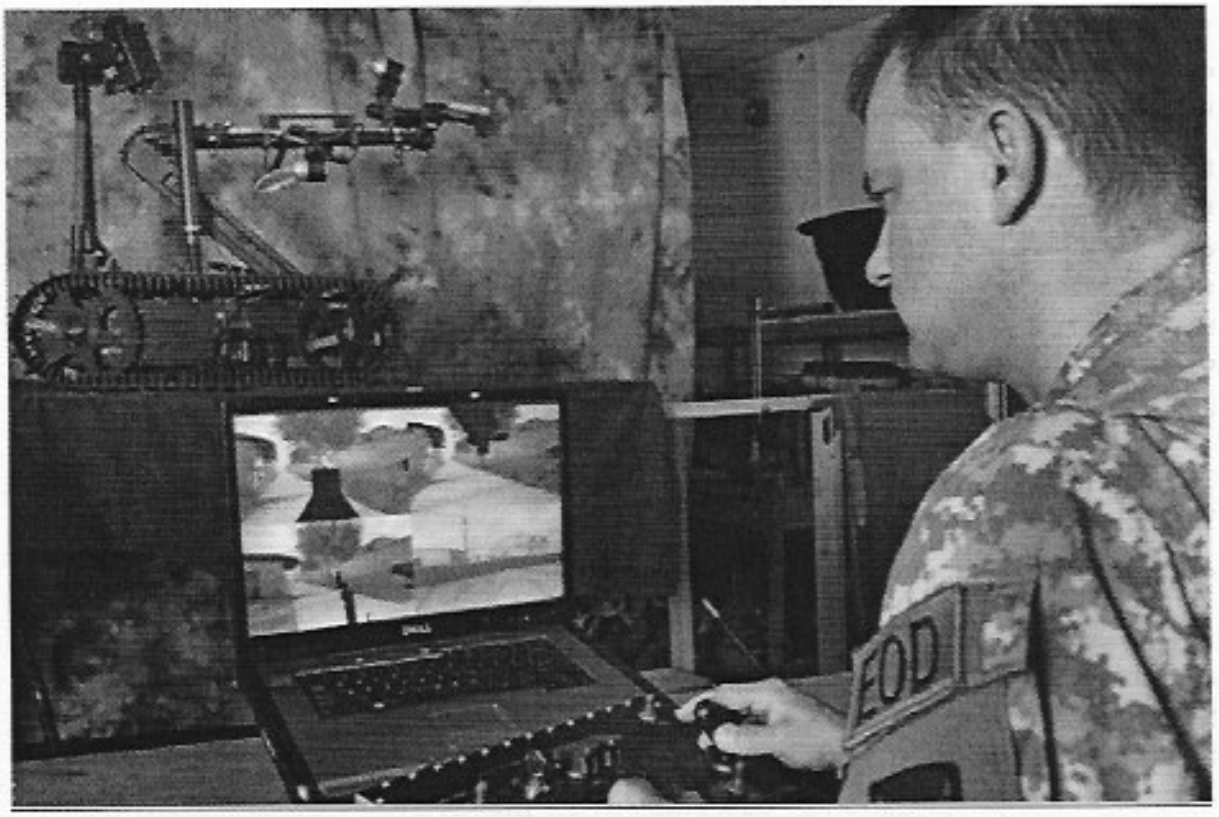
The TALON military robot has a payload capacity of 45kg.



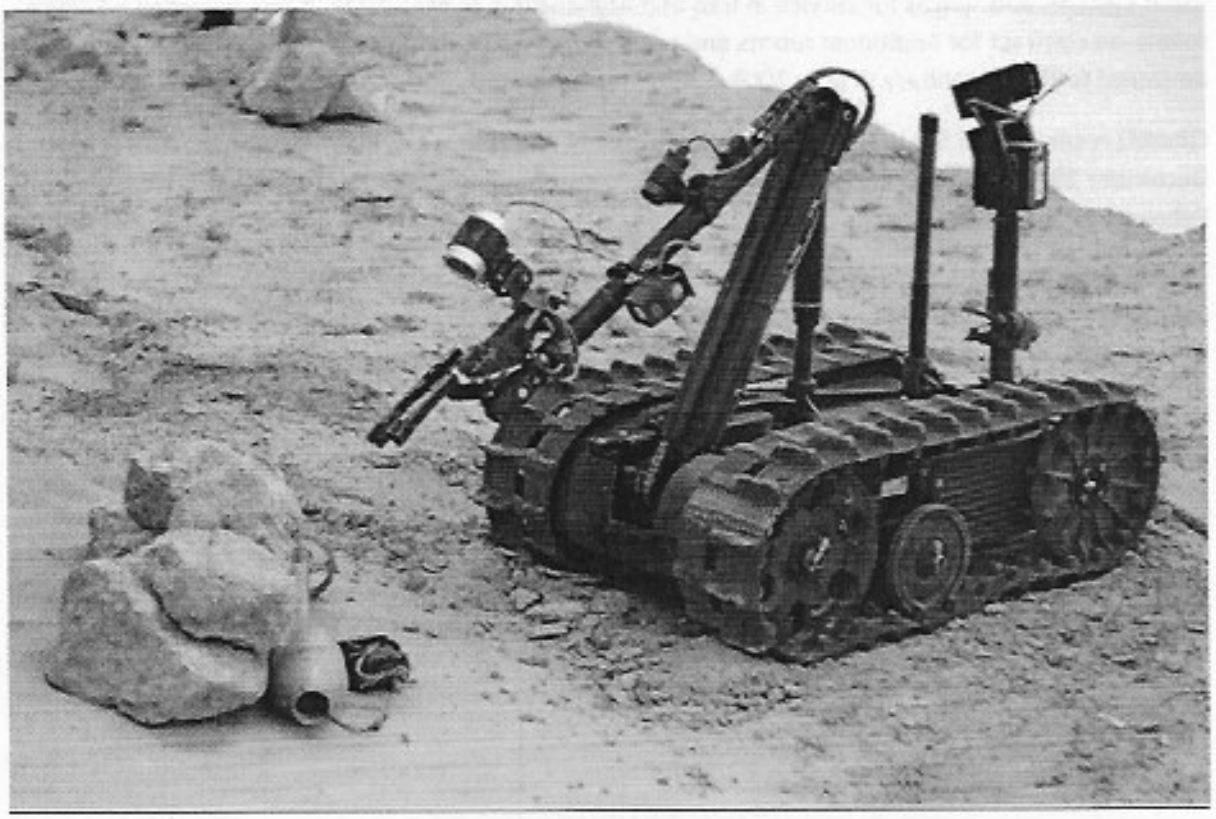
The TALON robot system features modular design.



The TALON robot was displayed at the Armed Forces Day Joint Service Open House in May 2008. Image courtesy of Sgt. Jennifer Sheldon.



The robot is controlled by a water-resistant operator control unit (OCU). Image courtesy of Todd Mozes.



The TALON lightweight unmanned tracked robot is designed and manufactured by Foster-Miller.

TALON is a lightweight, unmanned, tracked military robot designed and built by Foster-Miller, a company owned by QinetiQ North America. The robot is developed to protect warfighters and first responders against explosive threats.

It can be deployed in military, first responder and law enforcement applications, and can be reconfigured to conduct a range of missions, including chemical, biological, radiological, nuclear and explosive (CBRNE) / HAZMAT, explosive ordnance disposal (EOD), rescue, heavy lift, communications, security, reconnaissance and detection of mines, unexploded ordinance and improvised explosive devices (IEDs). It also supports special weapons and tactics (SWAT) and military police (MP) operations.

TALON robot orders and deliveries

The TALON robot was initially deployed by the EOD teams for military operations in Bosnia in 2000. The robots have been in service with the US military since 2001.

"The robot is developed to protect warfighters and first responders against explosive threats."

The Naval Explosive Ordnance Disposal Technology Division (NAVEODTECHDIV) awarded a $26m contract for 151 TALON robots and spares in April 2007. Foster-Miller was also awarded a further $18.5m contract for 114 more robots in June 2007. Both the contracts were part of the six-year, $257m indefinite delivery / indefinite quantity (IDIQ) contract awarded to Foster-Miller in September 2005.

The Robotic Systems Joint Program Office (RSJPO) of the Naval Air Warfare Training Systems Division (NAVAIR) increased its IDIQ contract value from $63.9m to $150m for the purchase of additional robot systems and spares for service in Iraq and Afghanistan, in May 2007. It also awarded a $400m follow-on contract for additional robots and replacement parts in May 2008. The 2,000th TALON was delivered to the US military in May 2008.

QinetiQ received $58.5m in funding from the US Army and Navy to deliver additional TALONs in December 2008. The new TALON IV Engineer mine-detecting, counter-IED robot was unveiled in February 2009.

The US Navy awarded a $56.4m indefinite delivery, indefinite quantity contract for TALON GEN IV robots, repair parts, spares and other related equipment and services in June 2009. The Australian Department of Defence awarded an A$23m contract for TALON robots in August 2009.

In November 2012, QinetiQ received orders worth $8.4m from the Czech and Polish military forces to supply TALON robots for EOD missions.

In September 2013, the company received a $20m firm-fixed-price, foreign military sales contract to provide TALON IV military robots for Iraqi military's reconnaissance and improvised explosive devices (IED) detection missions. The robots were also selected by the Pakistan's military forces for EOD missions support in December 2013.

The TALON robots are also in service with the UK Ministry of Defence since April 2010 to support the army's Talisman programme in Afghanistan.

TALON design, features and capacities

The TALON robot system features modular design incorporating a broad array of sensor packages. It is quick, durable and easy to use. The robot has a high payload-to-weight ratio and can be deployed in all environmental and terrain conditions. It offers enhanced safety to infantry units.

The robot measures 86.4cm long, 57.2cm wide and 27.9cm high when arm-stowed, while the ground clearance is 7cm. It can carry a payload of 45kg and has a drag capacity of up to 77.11kg with gripper, a tow capacity of 340kg and a maximum arm lift capacity of 9.07kg.

The TALON features a disruptor-ready manipulator arm, 360° rotating wrist, gripper, microphone and a loudspeaker. It is equipped with intuitive joystick controls for 180° pitch lower arm and 270° pitch upper arm.

The robot can be configured with a number of sensors to detect gas, chemical, radiation and temperature in HAZMAT duties. It can also be fitted with a heavy-duty rotating shoulder, longer reach for heavy lift operations and a range of weapons for special weapons observation reconnaissance detection system (SWORDS) duties.

The robot can be additionally installed with GPS compass, two isolated firing circuits, RE12-12 disrupter mount, portable X-ray mount, recoilless PAN disrupter mount, shotgun mount, wire cutting tool, heavy-duty tracks and sprockets, and reusable shipping / storage containers.

Operator Control Unit (OCU)

The TALON tracked military robot is controlled by a water-resistant operator control unit (OCU) through a two-way radio or fibre-optic link. The OCU features a quad screen display and uses nickel metal hydride rechargeable batteries. It can be optionally powered by rechargeable lithium ion and non-rechargeable Alkaline batteries.

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iRobot 510 PackBot Multi-Mission Robot, US

The 510 PackBot is a multi-mission tactical mobile robot developed and manufactured by iRobot.

The 15kg OCU is 48.3cm long, 40.6cm wide and 22.9cm high, and uses digital / analogue line-of-sight (LOS) propagation to transmit / receive radio signals in a range between 500m to 800m. The data can also be transmitted or received using fibre optic communications within a range of 300m.

The robot can also be controlled by a laptop control unit (LCU) as well as a lightweight, wearable tactical robotic controller (TRC), which has a length of 28.57cm, width of 23.49cm, height of 6.35cm and weight of 5.44kg.

Sensors and communication

The TALON robot is mounted with up to seven cameras to provide soldiers with a comprehensive view of the ground for identification and detonation of suspicious objects from a safe distance.

The robot features fixed-focus infrared illuminated gripper-mounted camera, elbow and rear cameras, dimmable LED lights and a 26x optical-12x digital auto focus colour zoom camera (300:1). It can be optionally fitted with 200m camera (40:1), thermal colour or black and white cameras, MV-14 night vision, pan / tilt / mast and WARRVS / Fish Eye cameras.

The robot is provided with one-way audio transmission with an option for two-way audio transmission. It uses USB and Ethernet communication ports and two RS 232 serial ports for payload interface. It can also be mounted with high-gain antenna with an extended LOS range of 1,200m.

TALON robot performance

The TALON tracked military robot is powered by two lead acid rechargeable batteries, which each have a capacity of 300Wh and provide a three-hour run time. The robot can be optionally powered by a Q-Tray with six standard BB-2590/U batteries.

The robot has a maximum manoeuvrable speed of 8.37km/h. It can climb stairs up to 43°, negotiate side slopes of 45° and snow or demolition rubble of 38cm, and navigate through rock piles.