

# Robotic Appliqué Kit (RAK)<sup>TM</sup>

QinetiQ North America's Robotic Appliqué Kit (RAK) can be installed in about 15 minutes on 17 different models of Selectable Joystick Controlled (SJC) Bobcat® loaders (skid-steer, all-wheel steer, or compact track). The controller kit works on 16,000+ SJC Bobcat loaders produced since 2001 and sold worldwide.

RAK temporarily transforms the Bobcat into a remotely operated "robot" capable of using more than 40 Bobcat-approved attachments. The loader can be sent down-range to handle large, deep-buried IEDs, vehicle-borne IEDs or land mines and unexploded ordnance. Upon completion of a mission, the operator can return the loader to manual operation by turning a key on the rear of the vehicle. The operator can also move a RAK from one SJC-equipped Bobcat loader to another, allowing the mission to dictate the optimal sized machine.

RAK supports up to eight cameras for non-line-of sight operation, a microphone enabling the remote operator to hear ambient sound from the cab, battlefield approved radio options, GPS, three control options (laptop, wearable and common desktop), green and yellow warning lights to signal robotic engagement, an anti-rollover warning system, remote feedback from the loader (engine rpm, hydraulic pressure, error messages, etc), and emergency manual shut off switches on the vehicle and on the control panel that support remote restart.

The kit's hardened electronics are rated at 149°F (65°C) and are designed to MIL-STD- 810F environmental standards. Cameras include four mounted on the roof, one in the cab and one on the attachment. Night vision is provided by IR illumination and thermal imaging cameras as well as additional white spot lights.



*Three Types of Control Units  
Support RAK – Ruggedized Laptop (shown)*



Any Bobcat Loader equipped with Bobcat's Selectable Joystick Controls (SJC) is capable of using QinetiQ's RAK System to become a high performance robotic platform.



### Tactical Robotic Controller

The TRC is a lightweight, wearable controller that allows the Marine or Soldier to control a family of unmanned ground vehicles (UGVs) like Spartacus. The warfighter simply attaches the communications pack for the system that they want to control, selects the application on the touch screen, and begins to command the platform.



Using the MOLLE loop system, TRC easily attaches to the warfighter's body armor, standard rucksack, or can be carried separately. TRC's hand controller fits into a drop holster on the warfighter's leg to simplify both carriage and accessibility. The batteries for TRC are recharged in the field using the onboard battery charger located on Spartacus.

