

TUGV

Tele-operated UGV

Frontline
ROBOTICS

Autonomous Perimeter Security



Large Explosives Disruption

Law-enforcement and military agencies worldwide are confronted with threats from large explosives and Vehicle Borne IEDs (VBIEDs). Frontline Robotics has developed a remote controlled/tele-operated vehicle called the TUGV (Tele-operated Unmanned Ground Vehicle) to address these threats. Robots currently used for VBIED disruption are severely limited in their capabilities since these are typically EOD platforms that were not originally designed for disruption of large improvised explosive devices. EOD platforms are small, lightweight and employ batteries for power. The mission requirements for VBIED disruption require disruptors that weigh 150 kg to 700 kg be towed long distances to the VBIED or other explosive threat. A battery operated EOD robot does not have the power, load or towing capacity to meet these requirements. Frontline Robotics has recognized the limitations of these robots and in collaboration with VBIED technical personnel and suppliers¹ designed the TUGV to excel in areas where the others failed. Frontline's TUGV has the largest towing capacity and longest run-time of any counter VBIED vehicle platform available today providing first-responders a multi-purpose vehicle capable of performing under the most challenging conditions imaginable.

Standard Features

Frontline Robotics' TUGV boasts a long list of standard features including:

- 1750 lb towing capacity
 - enough to tow the largest VBIED "battle wagons"

¹: For counter VBIED solutions, Frontline Robotics is working with Ideal Products Inc. and MREL Group of Companies Limited.

- 1000 lb payload capacity in the rear cargo bed
 - provides the ability to carry mission-critical equipment to remote sites
- 100 lb payload capacity on the front deck
 - provides the ability to carry optional CBRNE sensors and equipment
- Powerful 40HP EFI gasoline engine and integral 2.8kW generator
 - unprecedented power to tow a "battle wagon" uphill, downhill, and over rough terrain
 - extended mission run time regardless of weather conditions
 - 12V and 24V power for on-board accessories and future payloads
 - on-board charging of system batteries
- Long range operation via wireless communication system
- Pan-Tilt-Zoom (PTZ) and wide-angle driving cameras
 - provide the operator mission critical video data
 - full recording capability for mission debriefing and review
 - can be used to monitor dangerous situations from a safe distance
- Four 35W HID Xenon spotlights
 - provide night-time illumination all around the TUGV
 - can be used as scene lights for extended night-time operations
- Operator Control Station (OCU)
 - rugged laptop-based system built to MIL-STD-810G specifications
 - provides access and control to all vehicle functions and on-board accessories
 - displays real-time video from PTZ and driving cameras
 - displays real-time data from optional CBRNE sensors
 - includes hitch release and firing control for VBIED "battle wagon"
 - includes 4 preset speed settings
- Dual operating modes
 - TUGV is human drivable using original vehicle controls
 - tele-remote operation using OCU
 - provides flexibility and makes the TUGV a true multi-purpose vehicle

Optional Features

The flexible design of the TUGV allows Frontline to offer the following optional features:

- CBRNE sensors
 - integrated with Frontline's on-board computer to relay real-time data to the OCU

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- GPS sensor
 - allows for position tracking and location marking
- Robot arm
 - mounted at rear of the vehicle
 - allows items to be remotely loaded/unloaded from the cargo bed
 - compatible with VBIED "battle wagon" towing
 - provides small IED disruption capability and suspicious package manipulation
- Upgrade to AUGV (Autonomous Unmanned Ground Vehicle) operation
 - with the addition of Frontline's ROC software, accompanying sensors and hardware, the TUGV can be converted to an AUGV
 - capable of performing perimeter security and other missions autonomously

Additional Capabilities

Frontline Robotics can customize the TUGV to suit other needs. Please contact us if you have additional requirements.

TUGV Vehicle Specifications:

Dimensions (base Polaris MVRS vehicle)

Length:	110 in.
Width:	60 in.
Height:	75 in.
Wheelbase:	76 in.
Ground Clearance:	10 in.
Curb Weight:	2,100 lbs.
Turning Radius:	110 in.

Specifications

Engine:	Twin Cylinder, EFI 4-Stroke 680 cc / 40 HP gas powered
Drive System:	Automatic PVT
Final Drive:	On-Demand True All-Wheel Shaft Drive with lockable rear differential
Max Speed:	40 MPH
Fuel System Type:	Direct Fuel Injection
Fuel Tank:	9 gal. 87 octane (min)
Suspension:	Front - McPherson Strut Rear - Independent

Brake System - manually driven: OEM pedal operated
Brake System - remote driven: Actuator Controlled
Parking Brake: Actuator Controlled
Tires Front/Rear: 25x8/25x11-12 "Run Flat" tires

Power System

Generator: Onan 2.8kW AC generator

- gasoline - connected to vehicle fuel tank
- automatically controlled by Frontline computer

Batteries: 4 x Optima D34M spiral cell, deep-cycle
System Voltage: 12 and 24
Power Distribution: Individually fused, relay controlled via RS-485

Vehicle Control

- "By-wire" system for primary and secondary controls
- CANbus communication protocol
- Frontline RDC (Robot Data Centre) computer system
 - rugged MIL-STD-810F computer
 - MIL-C-38999 connectors
- 900MHz wireless communication system

Environmental

Operating Temperature: -20C° to 45C°

Ordering Information

Please contact Frontline with Part Number: A0000141.

Note: Specifications are subject to change without notice.

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