PRODUCTS AND ACCESSORIES

AIRBOSS MOBILITY SYSTEMS

Blast protected vehicle platforms with custom payload integrations to execute tasks in high-risk environments.

ADG
AIRBOSS DEFENSE GROUP

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MOBILITY SYSTEMS

PLATFORM

PERIPHERALS

PART NUMBERS

Contact ADG for part numbers

VEHICLES

Blast-survivable, protected payload delivery vehicles with frangible design features that enable custom payload integration to execute a range of clearance tasks in high-risk environments.

HUSKY 2G VEHICLE

The Husky 2G will withstand IED blasts, small arms fire, and the most rugged terrain imaginable. It is built for operator survivability and effective route clearance operations.

HUSKY 2G VEHICLE	
Curb Weight	19,841 lb (9,000 kg)
Dimensions	Length: 24 ft (7.32 m) Height: 10.3 ft (3.14 m)
Speed	Up to 45 mph (governed speed)
Shelter Weight	72 lb (32.66 kg)
Power	201 hp
Fuel Capacity	39.5 gal
Torque	553 lb-ft

KEY FEATURES

The development of the two-operator Husky 2G clearance vehicle was prompted by the operational requirement for longer, more complex mounted clearance missions and employment of more sophisticated vehicle payloads. Recognized as one of the U.S. Army's Top Ten Inventions of 2011, the 2G platform addresses evolving explosive threats while applying the operationally proven survivability tenents that have made the Husky family of vehicles the most survivable platforms on the battlefield.

Blast-protected V-shaped hull
The V-shaped hull protects Husky operators and critical components from subsurface blasts by increasing hull rigidity and ground standoff while channeling explosive forces, fragmentation, and debris away from the cab.

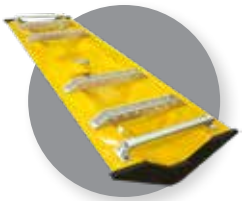
Removable bolt-on armor and armored glass
Bolt-on and transparent armor at the front and sides, and options for additional protective peripheral upgrades for specific anti-armor threats make the Husky 2G highly survivable from kinetic threats.

Air, sea, and rail transportable
The Husky 2G can be deployed rapidly by air or containerized through its modular design, increasing a force's operational readiness while decreasing the logistical burden and active response times.

Two-operator capacity
Sophisticated high-sensitivity sensors, optics, and other mission-enhancing peripherals have become standard enablers for route clearance platforms. The 2G's increased cab capacity allows an optional second operator to share task burden and enhance the focus and precision with which those payloads can be employed to optimize effectiveness.

Rapid field repair
Frangible, replaceable front and rear wheel modules allow for rapid field repair of the Husky following IED strikes that would be catastrophic to other vehicles. This repair can be executed on-site, without the need for vehicle evaluation at an established maintenance facility, thus decreasing logistical burden and mission downtime, and reducing IED emplacers' reseeding opportunities.

ADAPTIVE PERIPHERALS



Ground-Penetrating Radar
Scans for subsurface anomalies to support explosive threat detection.

Interrogation Arm
An articulating, extendable arm designed to enable standoff investigation and classification of suspected explosive threats.

360 Camera System
Maintains operator situational awareness through a suite of static and pan/tilt/zoom (PTZ) cameras.

Rollover Detection and Warning System
Alerts operators of hazardous route conditions.

Remote Weapon Station
Self-defense system with enhanced optics for environments where operators cannot be exposed.

RPG Protection
Lightweight, non-obstructive RPG defeat netting.

The most survivable vehicle on the battlefield

PERIPHERALS

Custom payload integrations to execute a range of clearance tasks in high-risk environments.

3D GROUND PENETRATING RADAR (GPR)

The 3D-RADAR system provides reliable automatic detection of subsurface objects far underneath improvised and unimprovised surfaces. 3D-RADAR leverages rugged commercial-off-the-shelf (COTS) technology components, including radar, as crucial building blocks of a modular, integrated system. This approach has allowed the system to continually evolve and improve at the rate of technological advances in the commercial marketplace. A sophisticated custom software solution provides automatic target detection (ATD) cues and allows the operator to visualize and interrogate 3-dimensional data in real-time.

SENSOR OPTIONS

The 3D-RADAR system provides an alternative detection solution for roadway and airfield inspection, tunnel detection, and route clearance patrols.

System attributes include:

- Optimal combination of penetration and resolution.
- Superior interference suppression through narrow band receive filters.
- UWB Step Frequency GPR with Air-Coupled Antenna.
- Ultra wideband frequency range (200–3000 MHz).
- 0–15 kph rate of advance.
- Sensor operates at 0.1–1.0 m above ground height and 1–2.5 m forward offset.
- Operates in a wide temperature range (0°C–50°C Operating / –40°C–85°C Storage).
- Operates in conditions of sand, dust, and rain.
- Advanced post-processing software tools with georeferenced output.

The 3D-RADAR system is a complete subsurface anomaly detection system that utilizes a combination of COTS GPR components and custom software as the building blocks to achieve robust metallic and non-metallic object detection performance. The system is ready off the shelf to be fitted to a wide range of commercial and military vehicles, and can be customized for operation on almost any vehicle platform.
The system utilizes a flexible and open software architecture that allows threat detection algorithms to be tailored to particular environments and threat sets. Operators may select from manual, assisted manual, and automatic detection modes. The detection architecture allows for the addition of secondary sensors.

HUSKY MOUNTED DETECTION SYSTEM (HMDS)

The combat-proven combination of the Husky vehicle with the VISOR 2500 Ground Penetrating Radar (GPR) forms the HMDS. It provides unprecedented performance in the automatic detection, recognition, and precision marking of buried explosive hazards. Based on proven breakthrough GPR technology, HMDS combines advanced real-time ATR algorithms, optional integrated metallic and non-metallic threat detection, automatic precision marking, and user-friendly software, all in a ruggedized, supportable, and affordable package.

KEY FEATURES

- Breakthrough probability of detection (Pd) and false alarm rate (FAR) performance
- Automated sensor height control
- Intuitive controls/touchscreen display
- Same GPR technology as future combat systems
- 3-D subsurface visualization
- Readily adaptable to other vehicles

KEY BENEFITS

- High confidence countermine operations
- Maximized protection of operators
- Optimized performance on uneven terrain
- Rapid proficiency/ease of use
- Visualization of buried threats

PERIPHERALS

PHYSICAL

Sensors

- Front-mounted CHEMRING VISOR 2500 Ground Penetrating Radar, with a four-panel 3.2-meter array
- Optional see-deep metal detector array
  – EMI coils 3-meter wide scan

GPR and MD data processing

- Automatic target recognition algorithms

Processing and control

- Duracor PC104 based computer
- Cab-mounted tablet display with GUI

Navigation

- NGC LN-270 INS with GPS, SAASM anti-jamming module, and starfire DGPS module

Marking system

- Front-mounted 4-jet marking bar
- Center body-mounted 12-jet marking bar

GPR panel positioning system

- Hydraulically controlled deploy and retract modes with damage-resistant features

PERFORMANCE

Buried explosive hazard (BEH) detection system with a high probability of detection (Pd) and low false alarm rate (FAR)

- Metallic buried threat detection
- Non-metallic buried threat detection
- Real-time detection
- User selectable detection modes

Graphical user interface

- Real-time GPR sensor imagery with 3-D visualization feature
- Detection controls
- Sensor positioning controls
  – Deploy, stow, skyshot calibration, and manual height
- System status monitors

Target marking

- GPS coordinates
- Physical marking
  – Center body-mounted 12–jet spray array (14 cm resolution)
  – Front-mounted 4–jet (1 m resolution)

Advance rates of up to 12 kph records mission data

- GPR imagery, MD data, target declarations, GPS

Coordinates, confidence factors

- File management
- Stores 100 km of scanned data on a local drive.

After action review

- Post analysis
- User comments (threat verified, neutralized, FA, other)

VEHICLE MOUNTED INTERROGATION ARM

Vehicle mounted crane system designed to interrogate, confirm, and classify suspected explosive threats with a safe standoff.

KEY FEATURES

The vehicle mounted interrogation arm is designed to enhance the physical investigation and classification of suspected explosive threats. It allows operators to inform others of threat remediation activities without dismounting protected vehicles and risking exposure. The arm enhances crew survivability and clearance mission efficiency by enabling rapid, safe deployment and manipulation of an articulating, non-invasive investigation tool from inside the safety of the vehicle crew compartment.

Articulating claw

The proprietary grasping rake attachment enables operators to safely inspect and classify potential mines, UXOs, IEDs, and other suspected hazards.

Enhanced optics

Thermal imaging integrated onto the crane extension enables users to search for explosive threats otherwise obscured from the route, behind barriers, inside culverts, and in other locations not viewable from the vehicle.

Dual cameras

With the addition of a junction box and boom camera cable, operators can use two cameras in concert: one camera equipped with a spotlight mounted at the end of the boom and one wide-angle camera at the knuckle for a broad view of the interrogation area.

Optional air/water digger

The air or water jet attachment further enhances non-disruptive interrogating in hard compacted soil. The water jet can penetrate the soil with compaction values of over 20 tons per square foot, creating a trench 5 inches deep and 10 inches long. The air tool can remove debris to expose pressure-sensitive explosives.

Instrument display

CANbus sensors create feedback for every crane function and visual indicators to inform operators of relative position, articulation angle, extended distance, lifting pressure, and weight at the boom tip. An auto-stow button smoothly returns the crane to its stow cradle regardless of orientation.

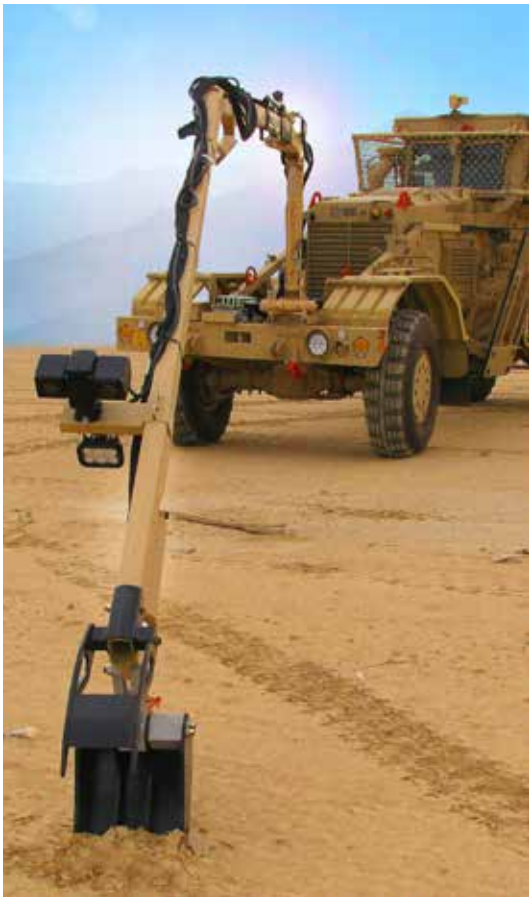
Hydraulic Pump Unit (HPU) upgrades

The HPU upgrade allows arm operation at higher flow, adding more runtime and enabling multiple crane functions to be activated simultaneously, reducing interrogation time.

Integration

The easy-to-deploy interface system and vehicle-specific mounting kits provide integration options for a wide range of clearance vehicles.

INTERROGATION ARM	
Weight	638 lb (289.39 kg)
Voltage	12 V dc or 24 V dc
Pump Capacity	2 GPM (7.6 lpm)
Working Pressure	2600 psi (18 MP)
Tank Capacity	4 gal (15.2 l)
Base Crane Lifting Capacity	903 lb @ 8'10 (410 kg @ 2.7 m) 1135 lb @ 13'3 (515 kg @ 4 m)
Pan/Tilt Near IR and Thermal Capable Camera	Yes



ROLLOVER DETECTION AND WARNING SYSTEM

The Rollover Detection and Warning System (RDWS) is a vehicle sensor that alerts the operator of impending dangerous vehicle rollover conditions based on terrain, operation, and vehicle limitations.

Its lightweight, rapidly deployable capability is designed to deliver immediate protection for command and control, communication, triage, or comfort in extreme conditions.

ROLLOVER DETECTION	
Audible Alert Options	External buzzer up to 110 db Output for intercom systems
Visual Alert Options	Standard TFT color display Low cost LED display
Threat Calculation	Accuracy for static and dynamic events Adjustable parameters for fine tuning
Proprietary IMU Sensor	Meets MIL-PRF 46676B (AR) test criteria
Security	UN0048; 1.1D
Display and Settings	J1939 CANbus for data output/input Onboard relay for controls • Emergency egress actuation • Options for additional inputs/outputs
Display Dimensions	5.5" L x 4.5" H x 2.0" D (140 x 114 x 51 mm)
IMU Dimensions	3.8" L x 3.8" H x 1.8" D (97 x 97 x 46 mm)
Certified MIL-STD-810G	• Sand and dust • Vibration • Moisture • Shock • Altitude • Height • High and low temperature

KEY FEATURES

Weatherproof components and rugged construction ensure suitability for commercial and military vehicles.

Proprietary IMU sensor package
A high accuracy inertial measurement unit (IMU) provides an exclusive "Roll Risk Estimate" so operators can adjust the vehicle's position to avoid dangerous situations.

Multiple operator alert options
By combining an easy-to-read 3.5" color display and proportional audio alerts, the RDWS gives vehicle occupants all the data they need.

Quick and easy installation
The system's simplicity, with only the display and IMU, keeps installation quick and easy, minimizing retrofit costs.

KEY BENEFITS

- Multiple audible alert options
- Multiple visual alert options
- Unique threat calculation method
- Proprietary IMU sensor package
- Customizable operating modes
- User-specific displays and settings
- Compatible with other TREC-Drive products
- Custom display mounting options
- Versatile mounting system
- IMU sensor
- Information screen continuously updates current conditions

360 SA CAMERA SYSTEM

The AirBoss 360 SA (Situational Awareness) video camera is a system of integrated cameras that improves mission effectiveness and operating safety by providing vehicle operators with increased visibility and operational awareness around the vehicle.

KEY FEATURES

Four wide-angled cameras
Four fixed, wide-angle cameras offer overlapping visual coverage to the vehicle's front, sides, and rear. They can be adjusted to eliminate blind spots unique to different vehicle platforms.

Single pan/tilt/zoom camera
A single pan/tilt/zoom (PTZ) camera provides supplemental visual coverage to enhance standoff search efforts or threat confirmation and classification.

Monitor and PTZ controller
A monitor and PTZ controller inside the cabin provide a simple, adjustable user interface with the system of cameras, allowing the operator to switch between views and articulate the PTZ as needed.

KEY BENEFITS

- Overlapping coverage for complete awareness of vehicle surroundings.
- Adjustable positioning for different vehicles and mission sets.
- Coverage of blind spots for safe operation in restricted areas.
- Side and forward cameras for supplemental driving views.
- PTZ camera with 36x optical zoom and multispectral enhancement options.

360 SA CAMERA SYSTEM SPECIFICATIONS	
System Weight	42 lb
Operating Voltage	12-30 VDC
Normal Operating Power	60 W
Max Current	10 Amp
Operating Temperature	–40°C to +70°C
External Component Enclosure	IP67

PTZ SPECIFICATIONS	
Zoom Capability	36x (optical)
Focus	Auto & manual
Pan Speed	180°/second
Tilt Speed	120°/second
Pressurized Housing	Nitrogen
Heating Element	Internal, automatic

DISPLAY SPECIFICATIONS	
Resolution	800 x 480 pixels
Viewing Angle	70° (horiz), 60° (vert)
Brightness	600 cd/m2
Contrast Ratio	650:1
LED Life Time	30000 hours

FIXED CAMERA SPECIFICATIONS	
Horizontal Viewing Angle	102°
Vertical Viewing Angle	86°
Image Correction	Optically rectified
Pressurized Housing	Nitrogen
Heating Element	Internal, automatic

SELF DEFENSE REMOTELY OPERATED WEAPON STATION (SDROWS)

The SDROWS is a remotely operated targeting platform used to safely employ a range of light weapon systems or directional payloads in environments where exposing operators is hazardous. The SDROWS allows operators to manipulate the turret and gauge various payloads using a simple Human Machine Interface (HMI). The portable HMI unit enables any vehicle occupant to operate the system.

SDROWS	
Height	<600 mm
Weight	75 kg (depending on payload)
Width	<500 mm
Traverse	Optional 360°
Elevate Angle	–20° to 80°

KEY BENEFITS

- Target observation without exposing operators.
- Greater accuracy than pintle-mounted systems.
- Steady "on-the-move" observation and targeting.
- Intuitive control interface.
- Accurate target confirmation/ identification.
- Mobile control unit enables all vehicle occupants to operate the system without changing positions.
- Simple and fast installation and removal.
- Easy payload removal and interchangeability.

APPLICATIONS

Due to the system's lightweight and platform-agnostic design, the SDROWS is easily integrated on any vehicle tasked to operate where human exposure might be hazardous, but vehicle security is essential.

- Route clearance
- Demining operations
- Civil disruption control
- Hazardous site security
- Border patrol

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