

PRODUCT DEFINITION FILE

**DRAGOON ASV
TECHNICAL
SPECIFICATIONS**

REF KN2304



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1. INTRODUCTION

- The DRAGOON Armored Security Vehicle (ASV) is designed to carry up to 10 troops plus the driver.
- It can be used for military, police, transport, security, or reconnaissance work.

The ASV's capabilities and features are:

- It travels easily over rough terrain.^[SEP]
- It is fully amphibious
- It can move at high speeds on improved roads and highways.^[SEP]
- It is protected against assault rifle armor piercing bullets and heavy machine guns
- It is air transportable
- It is propelled and steered on land and in water by wheels in 4x4 or 4x2 mode
- It has ballistic glass vision blocs for peripheral situation awareness.^[SEP]
- It is equipped with a 10kW air conditioning system.^[SEP]
- It is equipped with a powerful hydraulic winch for recovery purposes

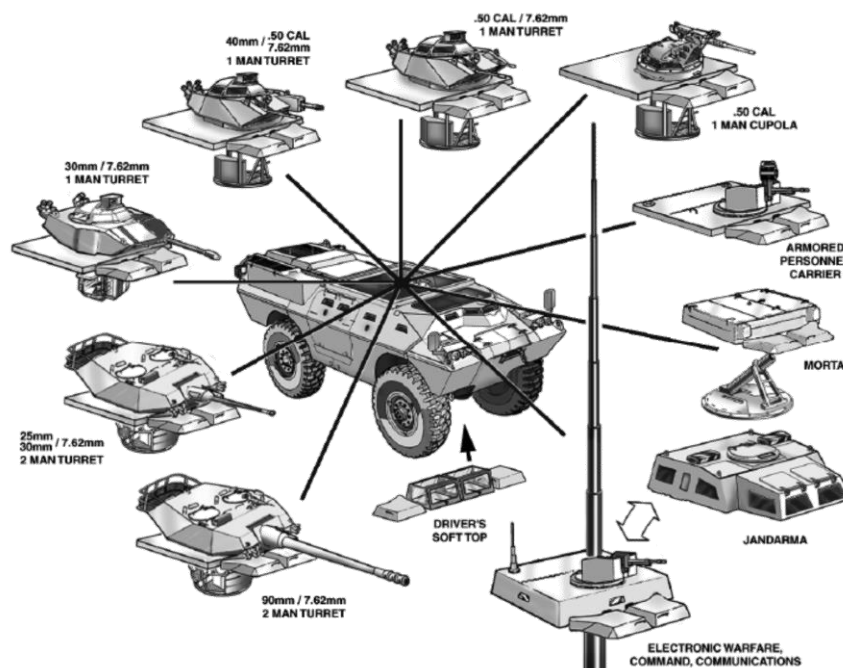


2. CHARACTERISTICS

- All terrain, amphibious armoured security vehicle
- Environmental Conditions (Stanag 2895): A1 (extreme hot, dry), B1 (wet & warm), C1 (intermediate cold)
- Operating Temperatures: -30° ~ >52°C ambient
- Curb weight (w/o APK): 10 MT
- Combat mass: 13.5 MT
- MAM: 15 MT
- Crew capacity: 11 including driver
- Chassis: Welded Hull, High Hardness Armor Steel
- Top speed: 105 kph
- Obstacle crossing: 60% slope, 30% gradient
- Range: 850 km
- Ballistic Protection : Stanag 4569 level 3+ (includes .50 cal AP protection)
- Blast protection: landmine under any wheel
- ACU 9kW

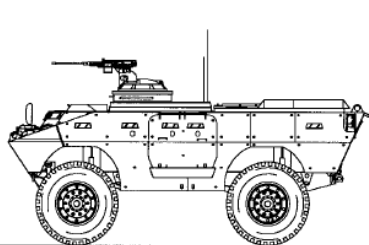
3. MODULAR DESIGN

The ASV is part of a complete family of combat and support vehicles to suit current operational requirements.

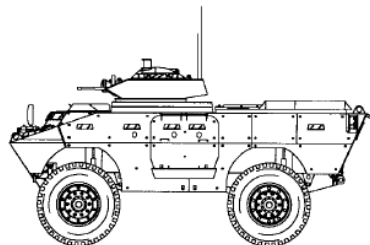


DRAGOON ASV

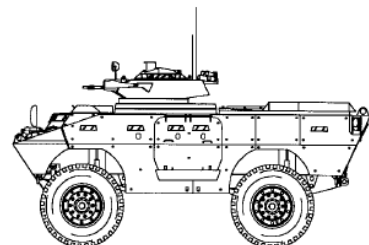
4. AVAILABLE STANDARD VERSIONS



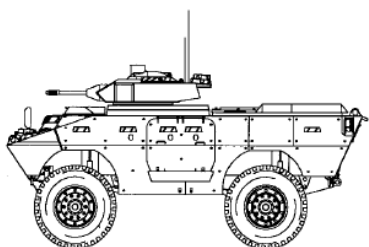
.50 Cal.
1 Man Turret



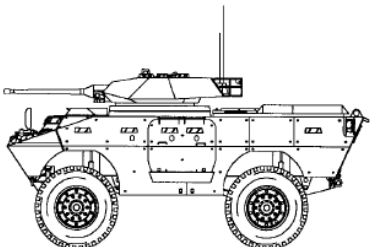
.50 Cal. / 7.62mm
1 Man Turret



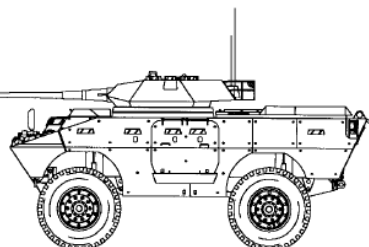
40mm / .50 Cal.-7.62mm
1 Man Turret



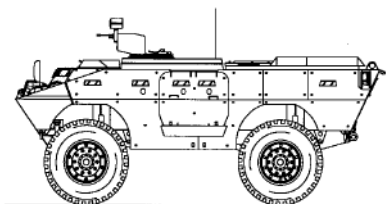
30mm / 7.62mm
1 Man Turret



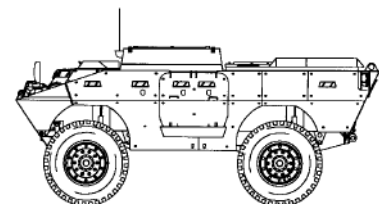
25-30mm / 7.62mm
2 Man Turret



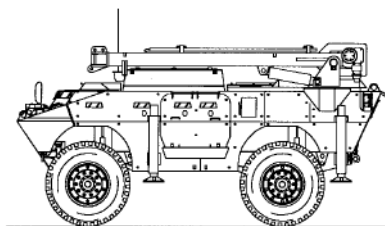
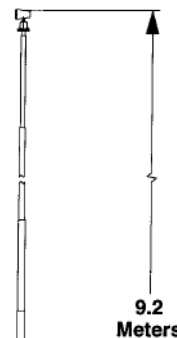
90mm / 7.62mm
2 Man Turret



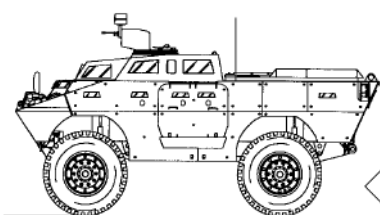
Armored Personnel Carrier
Pintle: 7.62mm / .50 Cal / 40mm
Crew / Personnel: 2 to 13



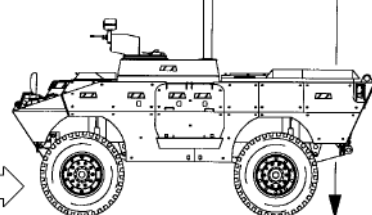
Mortar / TOW Vehicle
Crew / Personnel: 2 to 13



Maintenance / Logistics Vehicle
Crew / Personnel: 2 to 5



Jandarma
Pintle: 7.62mm / .50 Cal / 40mm
Crew / Personnel: 2 to 13

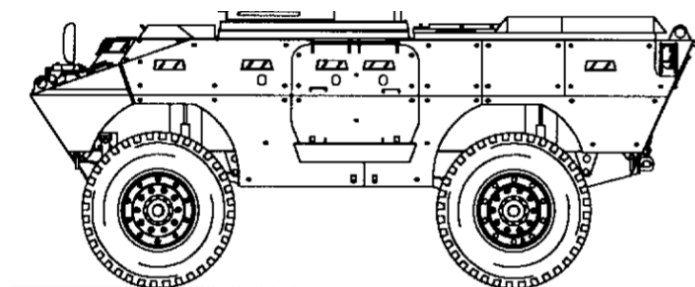
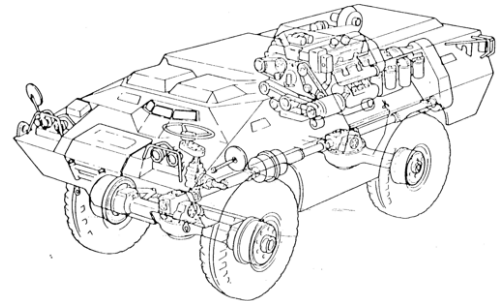


Electronic Warfare
Command / Communication Vehicle
Crew / Personnel: 2 to 13

DRAGOON ASV

5. DIMENSIONS:











- Wheelbase: 3100 mm
- Length : 5900 mm
- Width (overall) : 2660 mm
- Height to top of machine gun pintle: 2540 mm
- Height to hull top: 2350 mm



6. PERFORMANCES (LAND)

- Fastest forward speed: 105 kph
- Cruising range at 25 mph average : 850 km
- Steepest grade : 60 percent
- Steepest side slope : 30 percent
- Ditch: 1 m
- Swimming capability*: 5,5 kph

(*) armour protection kits (APK) may limit amphibious capability

<p>RANGE</p>  <p>850km (528 miles)</p>	<p>SPEED</p>  <p>105kph (65 mph) STANDARD 122kph (75 mph) OPTIONAL</p>	<p>DASH 0-32kph</p>  <p>5 SECONDS</p>	<p>AMPHIBIOUS</p>  <p>5.5kph STANDARD 9.0kph OPTIONAL WITH QUICKLY ATTACHED SWIMSCREEN AND HYDRAULIC PROPELLORS</p>	<p>WIDTH</p>  <p>2.54m (100 in)</p>
<p>GRADE</p>  <p>60% UP OR DOWN</p>	<p>SIDE SLOPE</p>  <p>30%</p>	<p>OBSTACLE</p>  <p>.75m</p>	<p>GROUND CLEARANCE</p>  <p>.85m</p>	<p>DITCH CROSSING</p>  <p>1m</p>

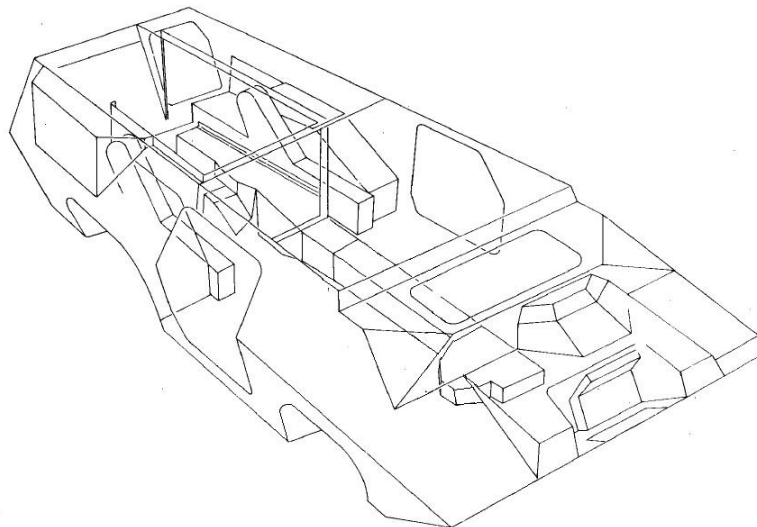
7. BODY, CHASSIS

The ASV hull is a welded monocoque made of high hardness steel armored steel offering ballistic protection against:

- Weapon: Assault rifles: 7,62 and 5.56 mm
- Ammunition: Ball^[SEP]
- Distance: 30 m^[SEP]
- Angle: azimuth 360°, elevation 0 – 30°

Ballistic protection can be increased by the installation of an Armor Protection Kit (APK) up to Stanag 4569 level 3 (see chapter 31).

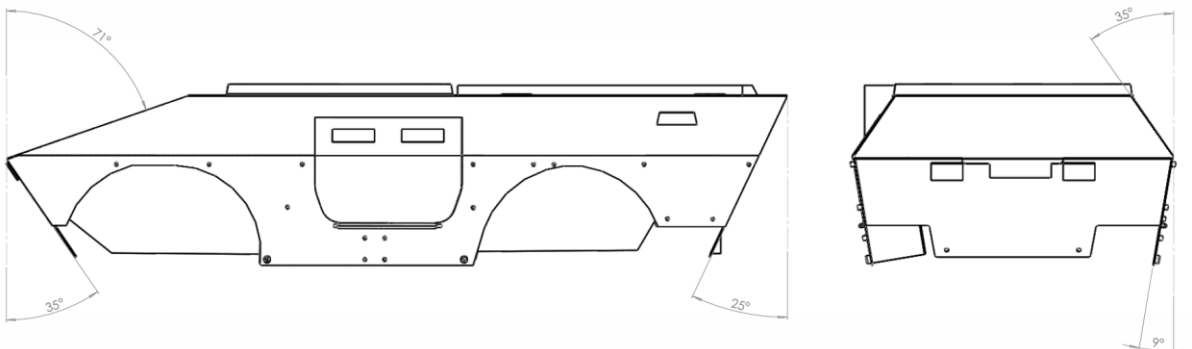
The hull has an angular surface on the front, right and left sides, which projects outwards from the top and the bottom, meeting at the mid-section around the perimeter.



The rear surface of the hull projects outward from the bottom at an angle 25° vertical.

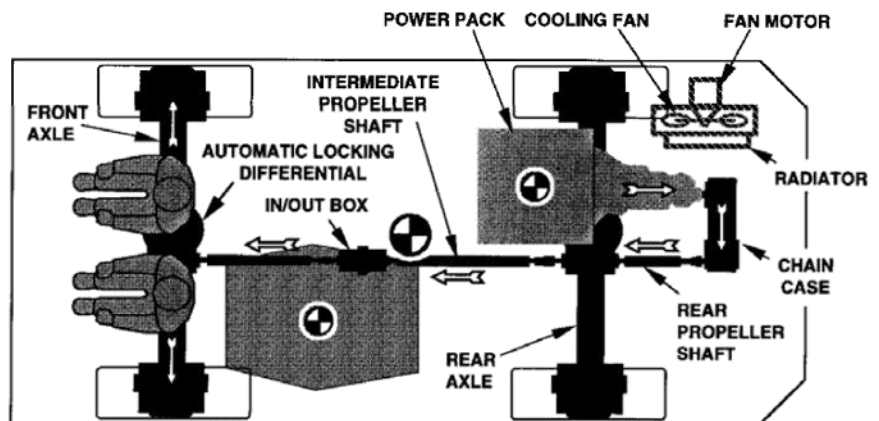
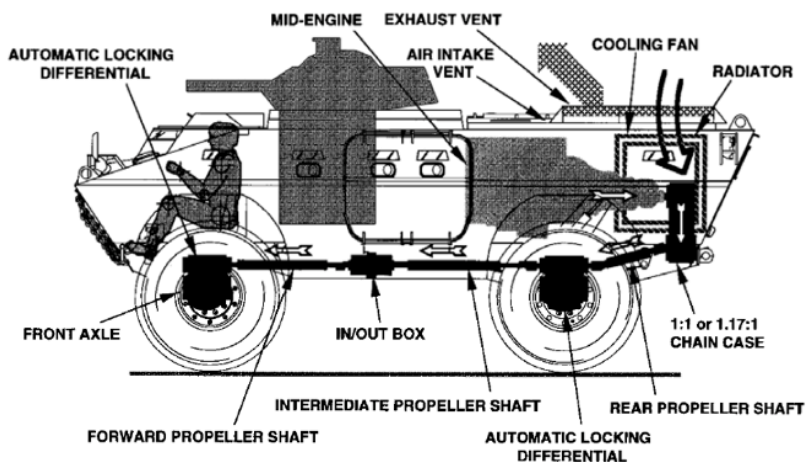
The basic design of the hull provides for easy changes of configuration.

DRAGOON ASV



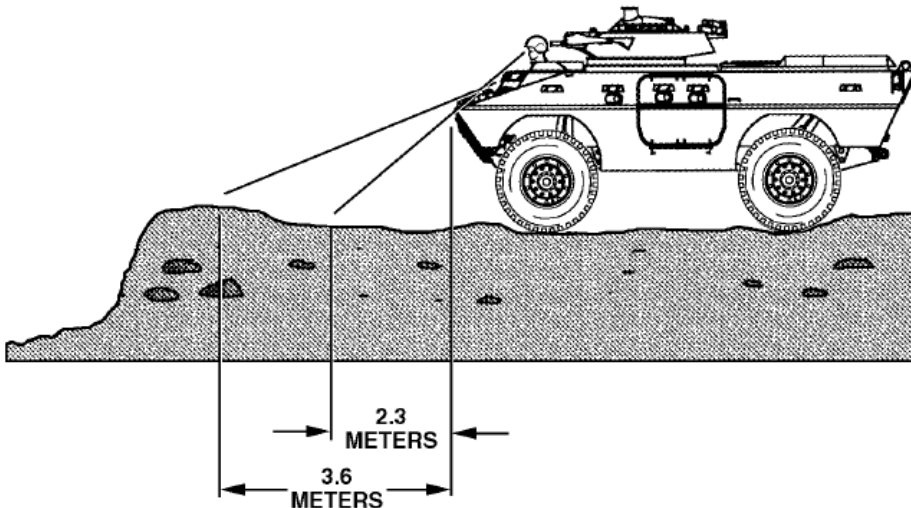
The ASV is coated with a two-part epoxy primer and military grade epoxy paint. The interior of the vehicle is finished with a heavy-duty epoxy coating.

The two double-width side doors are 1,066 mts wide and 0,889 mts high. The rear door is 0,916 mts high and 0,609 mts wide. All doors and hatches allow for swift entry and exit while providing security and watertightness.



DRAGOON ASV

The driver has enhanced vision with 4 ballistic glass windows, which provide him with a 180° field of view, while offering B7 protection level.



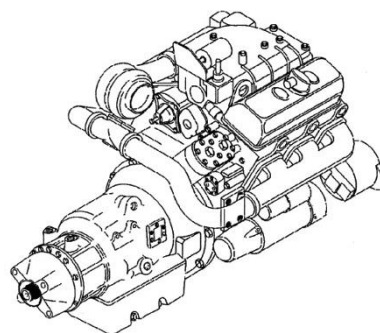
The vehicle is equipped with 2 outside rear-view mirrors.

8. POWER PLANT COMPARTMENT

The power plant compartment is located in the rear right side compartment of the vehicle.

It contains:

- Engine^{SEP}
- Transmission
- Transfer gearcase (drop-down box)
- Cooling pack
- Exhaust & Air filtration
- Hydraulic Systems



Access to the power plant is through inside panels and roof hatches, crew compartment access panels.

The ASV is reliable, simple to operate and provides for quick and easy service & maintenance.

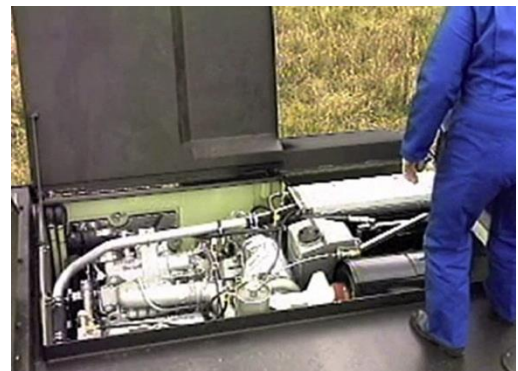
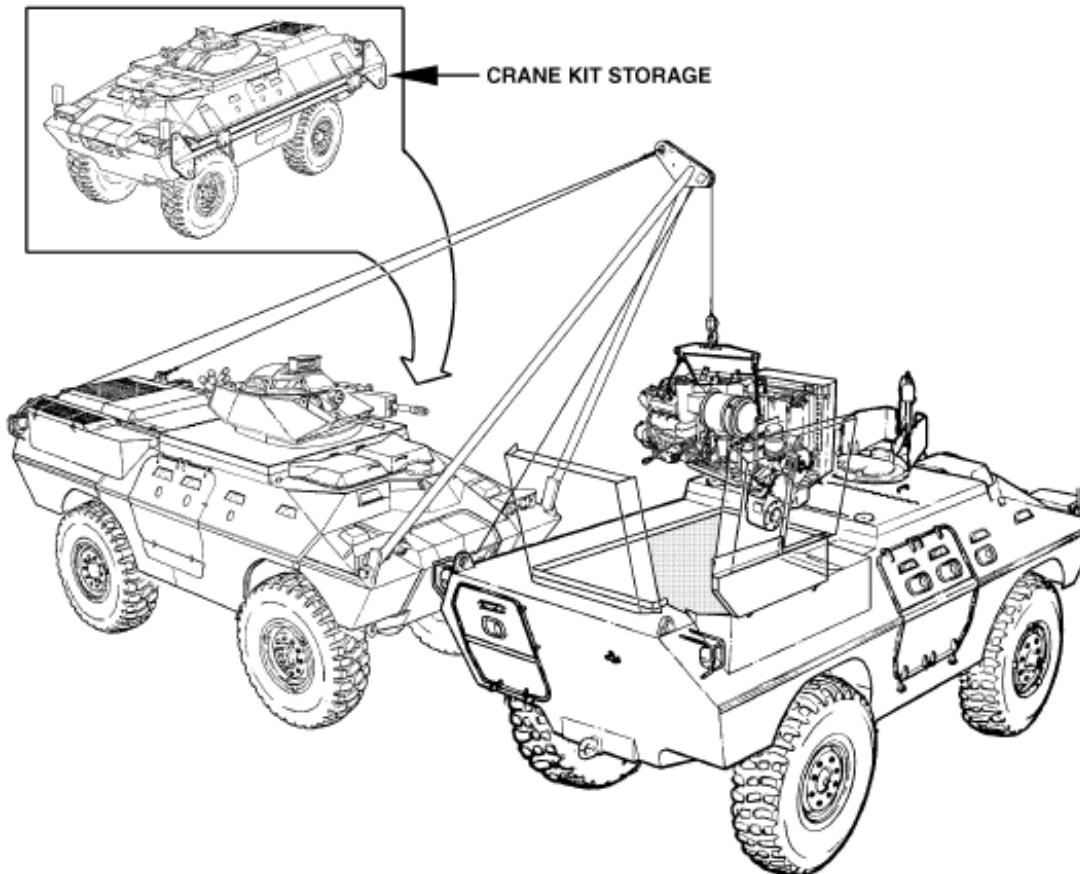
Mid-engine design and driveline offer excellent centre of gravity and improved interior layout for crew and turrets.

DRAGOON ASV

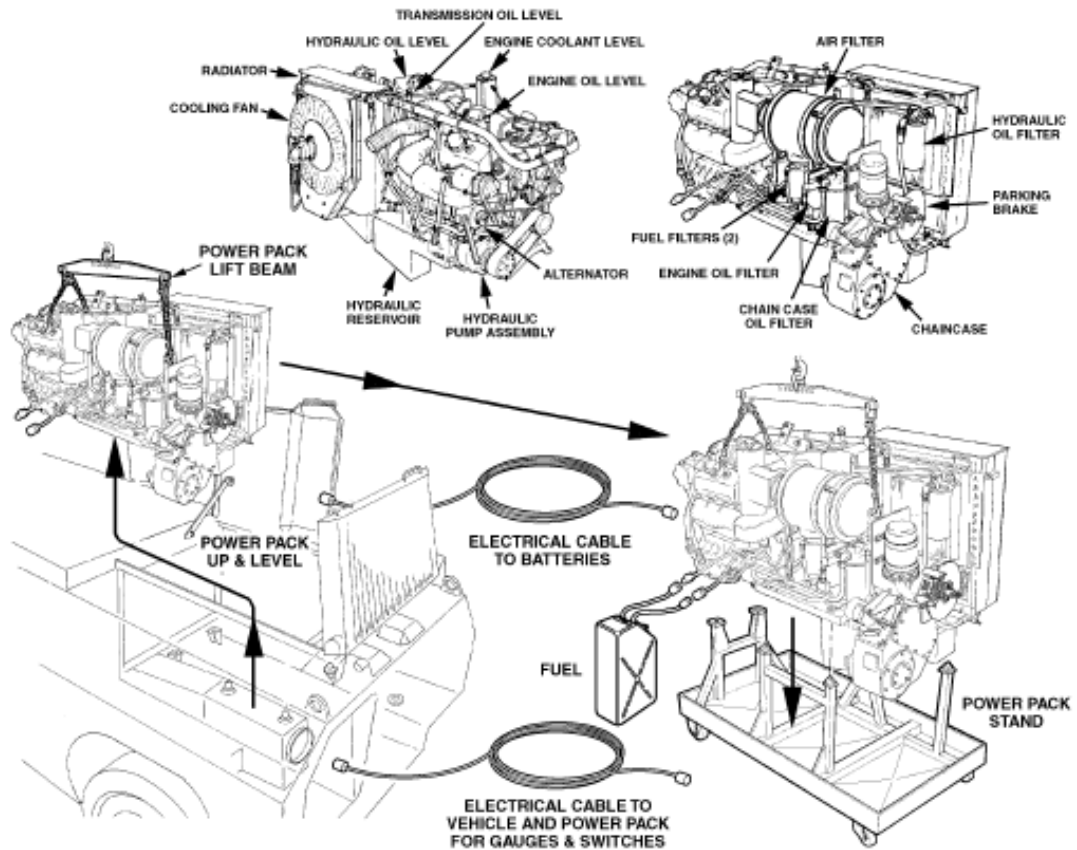
The Power Pack can be removed in less than 20 minutes by the crew.

Fluid checks are all accessible from on top with engine hood raised and filters easily accessible from rear door with engine closeout panel removed.

Every vehicle can be used for recovery purposes thanks to a special power pack lifting kit (not included):



9. POWER PACK REMOVAL/INSTALLATION PROCEDURE:



10. ENGINE

The diesel engine is the primary source of power for the carrier. The engine converts air and diesel fuel into energy and delivers this power to the transmission.

Specifications:

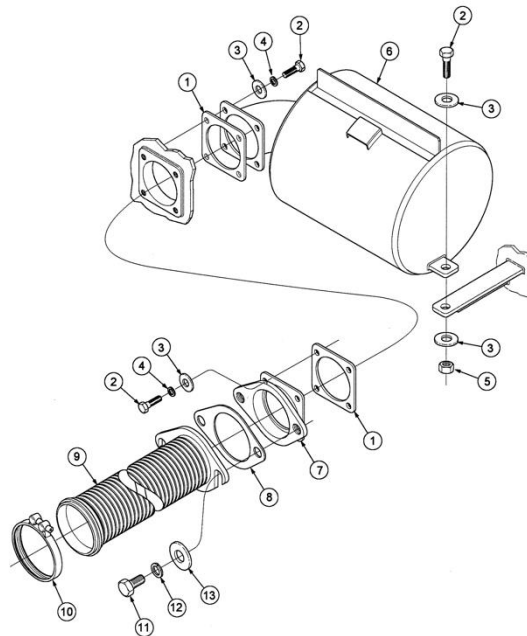
- Detroit Diesel 6V53T 224 kw at 2800 rpm (300 hp)
- Torque 903 Nm at 1600 rpm
- Turbo-charged, 2 cycle, V6
- Same engine as AIFV, M113A3, USMC LAV25, Cascavel, Urutu, AMX-13 dieselized, Mowag Piranha, Sheridan, Valkyr, YPR, ASLAV,...



11. EXHAUST SYSTEM

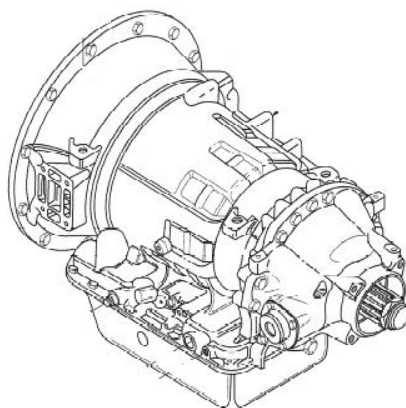
Major exhaust system parts are the turbocharger, exhaust manifolds, muffler, and exhaust pipes.

The turbocharger is driven by exhaust gases from the engine. The turbocharger helps the engine develop more power and operate more efficiently. The exhaust manifolds carry the exhaust gases to the turbocharger from the engine. The muffler cuts down engine noise and allows exhaust to escape through the exhaust pipes to outside of the carrier.



12. AUTOMATIC TRANSMISSION

- Allison MT653 Five Speed Full Automatic
- Same as M939 5-Ton Truck, USMC LAV25, Steyr Pandur



13. COOLING SYSTEM

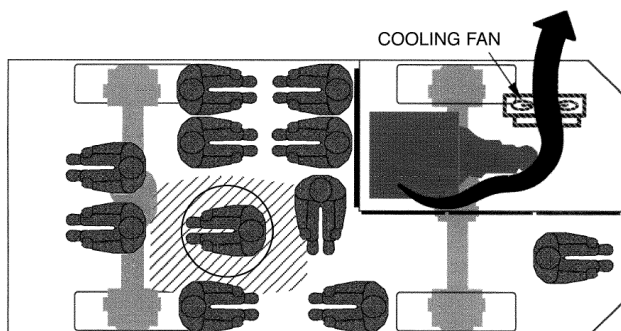
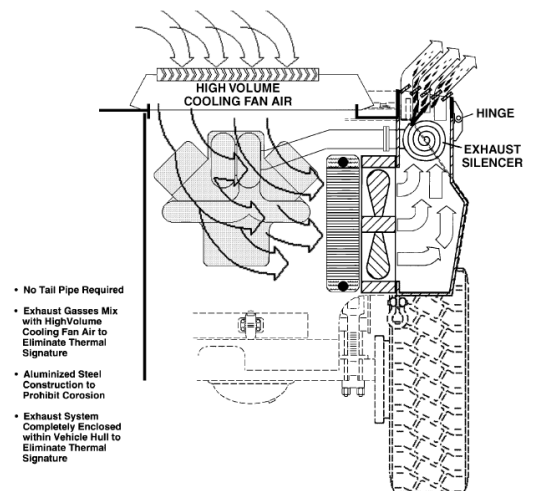
The cooling system cools the engine and transmission. It consists of a fan, fan drive, fan speed control assembly, radiator, coolant pump, auxiliary tank, transmission oil cooler, engine oil cooler, and thermostats. The liquid coolant is cycled through the engine and transmission oil cooler by the coolant pump. This process keeps the engine and transmission temperature in a safe operation range.

As coolant flows through the engine, it absorbs heat from the engine and transmission. The heated coolant then flows to the radiator to remove coolant heat. The coolant fan pulls outside air in and through the radiator to remove heat. The fan is powered by a 2-speed hydraulic fan drive.

The radiator auxiliary tank acts as an overflow tank to keep the cooling system from over-pressurizing. It also removes air from the engine coolant. There is a low coolant level transmitter to signal the operator if more coolant is needed.

Cooling System characteristics :

- Type: Forced Air cooling system
- Ambient conditions: Designed for extreme hot temperatures
- Cooling Fan: hydraulic fan, 2-Speed, sucking mode
- Cooling Modes:
 - Engine coolant: water-to-air radiator
 - Transmission: oil/water exchanger
 - Fan Drive: oil/water exchanger
 - ACU: air cooled condenser
 - Engine Compartment: hot air circulation

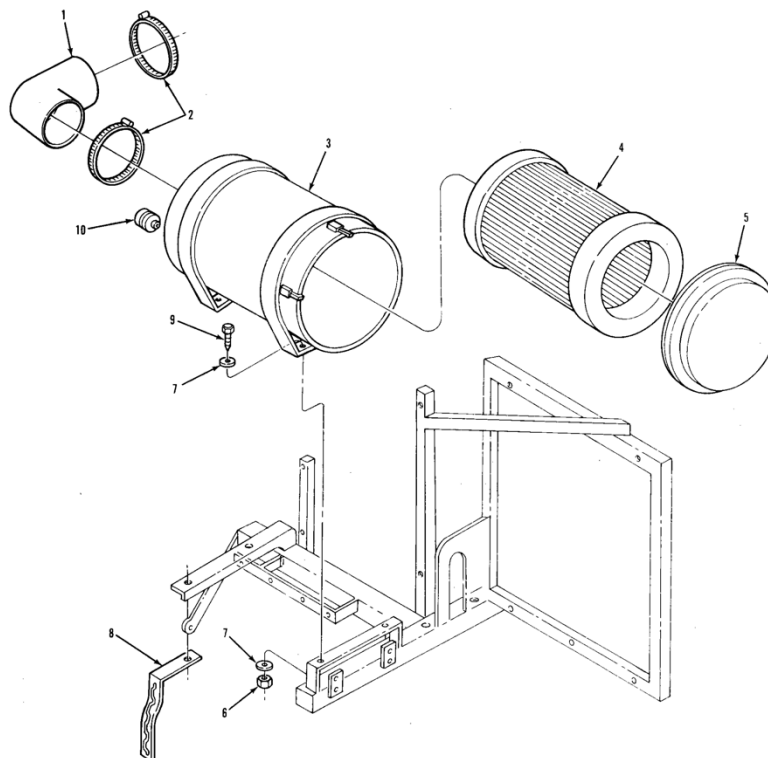


14. ENGINE AIR FILTRATION SYSTEM

The engine air filtration system allows clean air to enter the engine. The air cleaner cleans air that enters the engine. Dust is drawn out through a scavenge outlet. Air is filtered through a reusable filter element before delivery to the engine. An air filter indicator shows when the element is clogged and needs cleaning or replacing. After being filtered, the air moves through the turbocharger and into the engine cylinders.

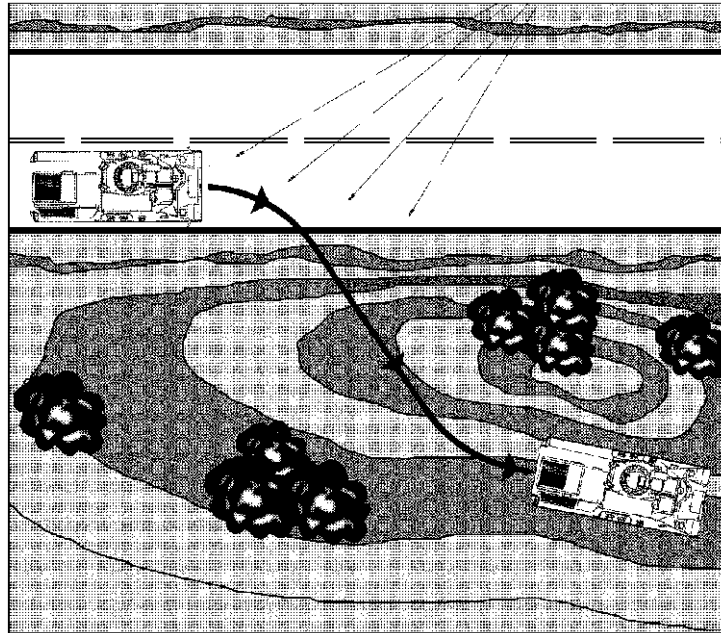
Characteristics:

- The air filtration system has been designed for extreme military environment with dust concentrations of 50-100 mg/m³
- The air entering the two-stage air cleaner is first pre-cleaned before reaching the main element.
- The air is sent through pre-cleaner tubes which remove between 75-98% of the contaminate from the air
- The filter element in the air cleaner removes around 99,9% of the air's dust.



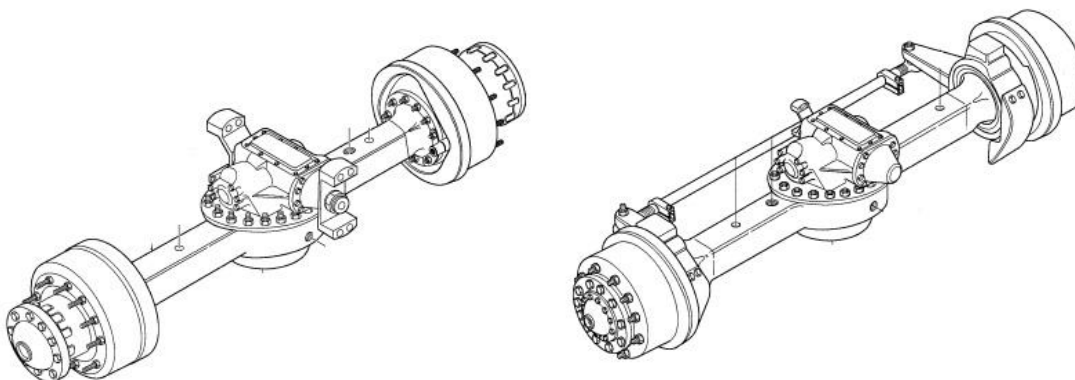
15. TRANSFER GEARCASE

The transfer gearcase transfers power from the power pack to the axles. The transfer gearcase is a compact unit installed at the rear of the power pack. An input/output box between the front and rear axles gives on the fly 4x2 to 4x4 switching.

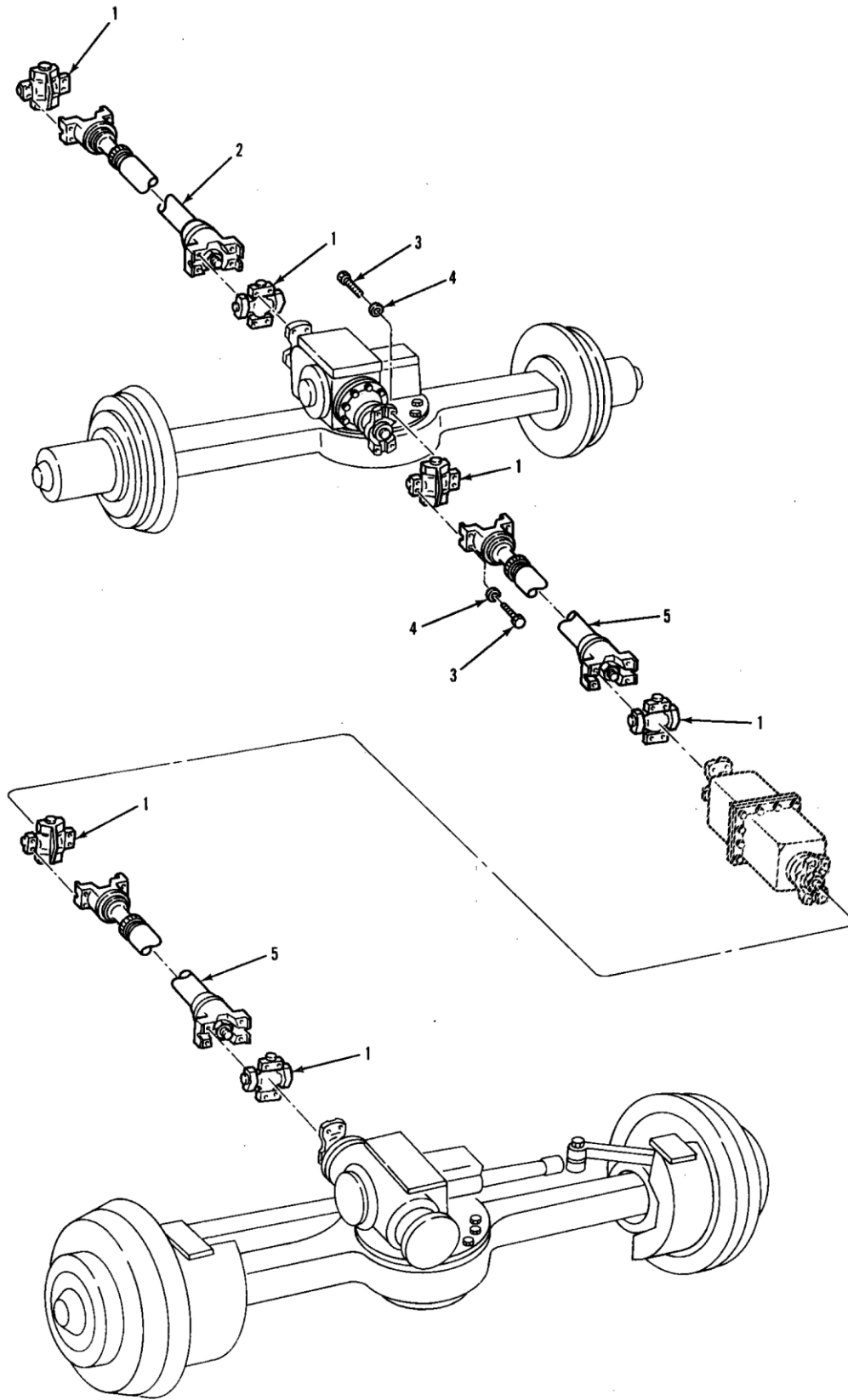


16. AXLES & STEERING

Heavy duty off-the-shelf military axles with air over hydraulic braking system (with electric backup parking brake). The hydraulic steering system is power assisted.

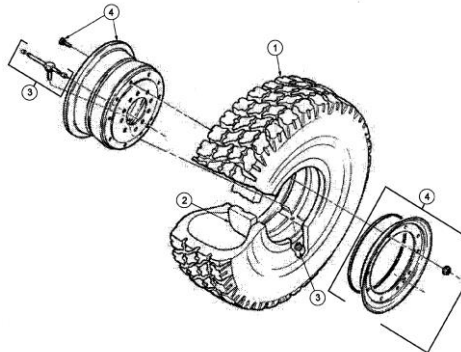
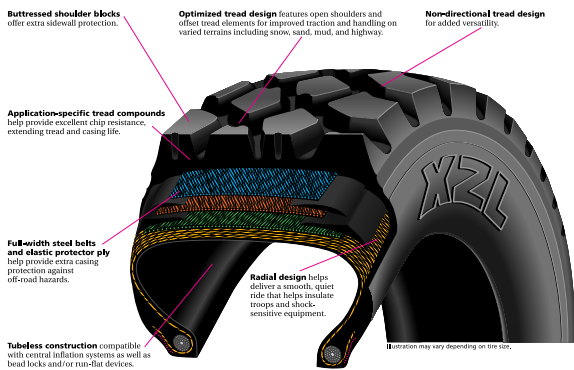


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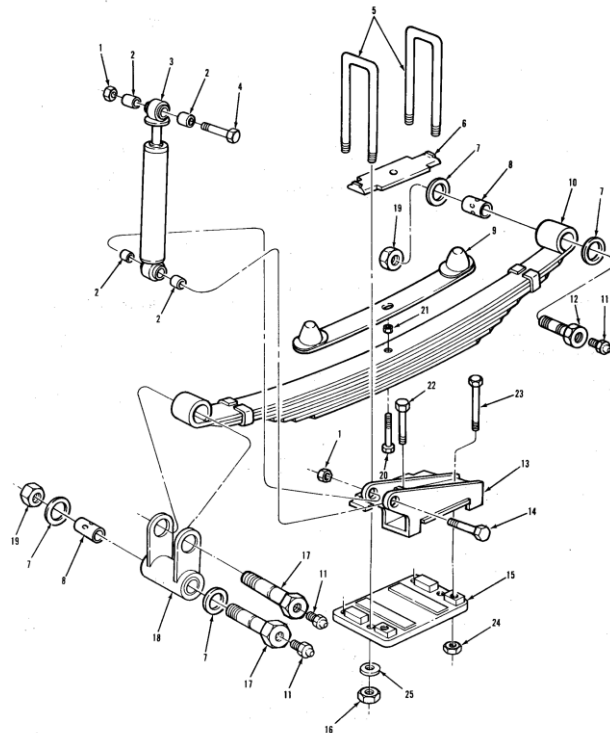
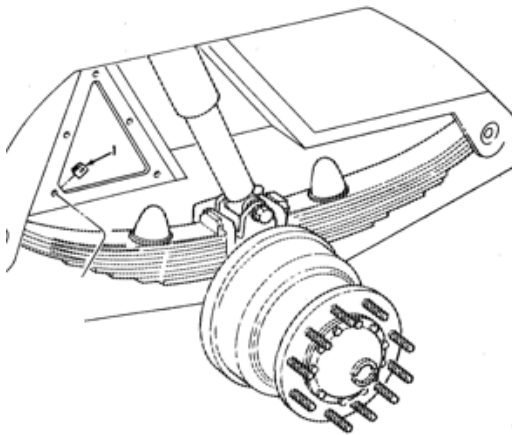
17. WHEELS AND TIRES

Size: 16.00R20
 Loaded radius: 24 in
 Type: XZL Michelin or similar
 Run-flat: bead-locks inserts

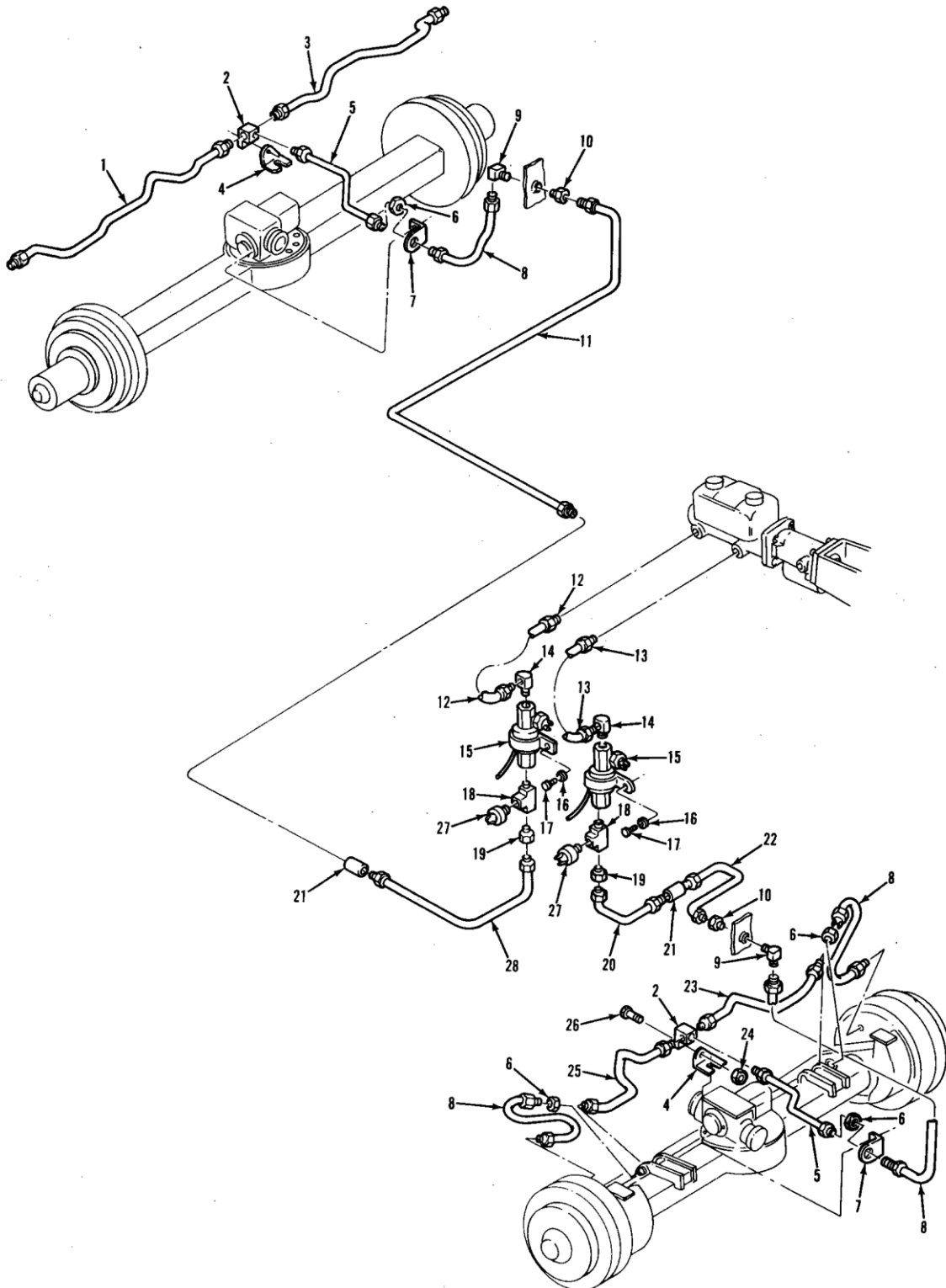


18. SUSPENSION SYSTEM

The suspension system supports the vehicle and delivers engine power to the road. It is based on heavy duty leaf springs and linear dampers.



19. BRAKING SYSTEM CONFIGURATION



20. AMPHIBIOUS OPERATION

The ASV is fully amphibious, propelled by all wheels. Turning is accomplished by steering the front wheels.

It does not have to be stopped to engage propellers and swimboard or make any special preparations to swim.

Combination of the following permit safe amphibious operations:

- Triple redundant bilge pump circuits.
- Bilge pump capacity 200 litres/min each. 600 litres/min total.
- Extremely low rates of water leakage, less than 20 litres/min maximum into the vehicle.



21. ELECTRICAL SYSTEM

The electrical system provides power for the carrier. The system operates on wet cell batteries and includes charging, regulating and monitoring equipment. The batteries provide a normal operating 24 volts with an amperage capability of 100 amps per hour.

The batteries supply the carrier with electricity when the engine is off. All electrical power is delivered through the power distribution box. Electrical power flows from the batteries through the power distribution box, cables, and wiring assemblies to the electrical equipment. The hull is a ground for the electrical system.

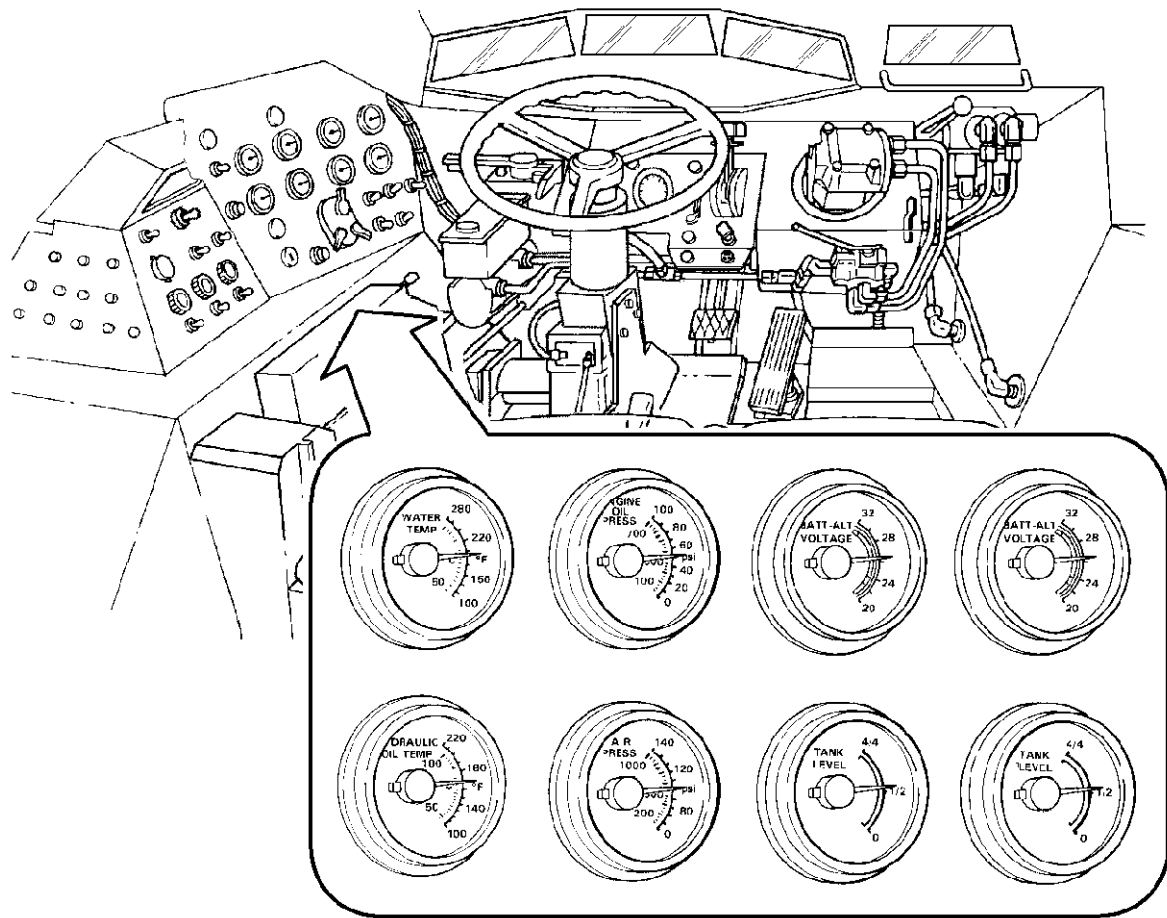
The generator recharges the batteries and supplies electricity while the engine is running. The generator has 100 amps per hour capacity.

Three electrically driven bilge pumps remove water and other liquids from the hull. Water enters the pumps through a screened inlet. The pumps force water out of the carrier through outlet tubes. The bilge pumps are controlled by a switch on the driver's instrument panel.

22. DRIVER INSTRUMENT PANEL

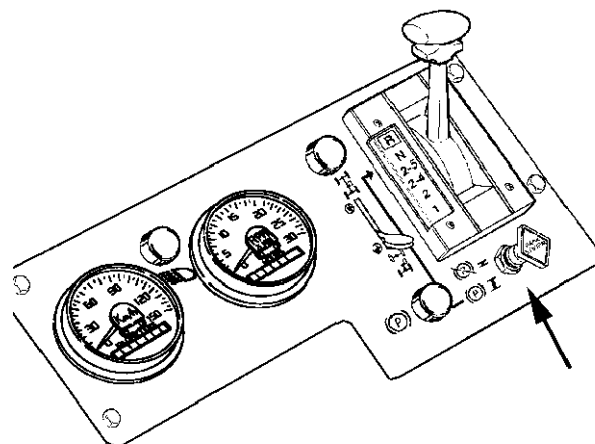
The Driver Instrument Panel gives the driver all required information regarding the functioning of the vehicle. The following gauges are installed:

1. engine coolant temp
2. engine oil pressure
3. first battery set voltage
4. secondary battery set voltage
5. hydraulic system oil temp
6. air system pressure
7. left fuel tank level
8. right fuel tank level



23. DRIVER DASHBOARD PANEL

The Driver Dashboard Panel is situated in front of the driver and includes an engine tachometer with hourmeter, a vehicle speedometer with counter, the transmission control lever, the parking switch and the transfer case control lever to switch from 4x4 to 4x2.

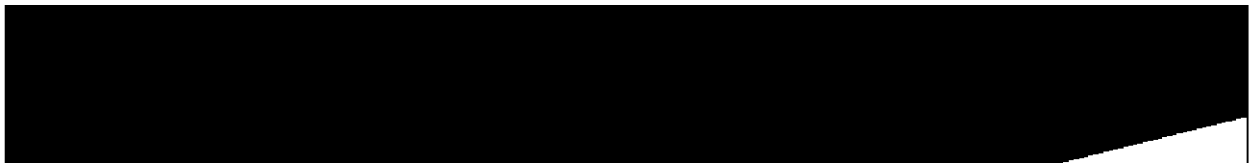
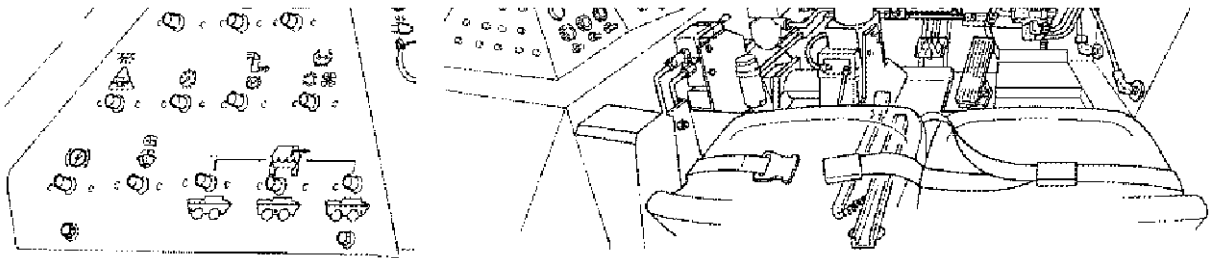


FRONT INSTRUMENT PANEL

24. CIRCUIT BREAKER PANEL

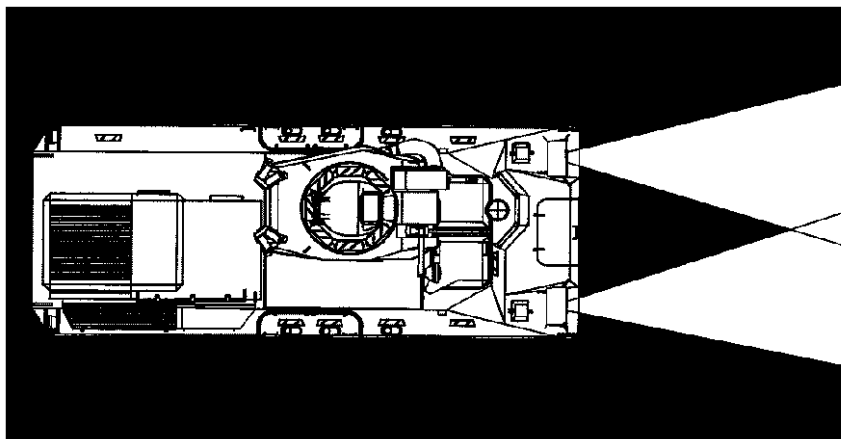
ASV circuit breaker panel is next to the driver's control panel on his left

- resetable button-type thermal circuit breakers are used
- within easy arms reach of the driver
- simple reset buttons allow for immediate corrective action if circuit breaker goes off
- no need for sudden stops or loss of control of the vehicle to reset breakers if required while driving vehicle for safety



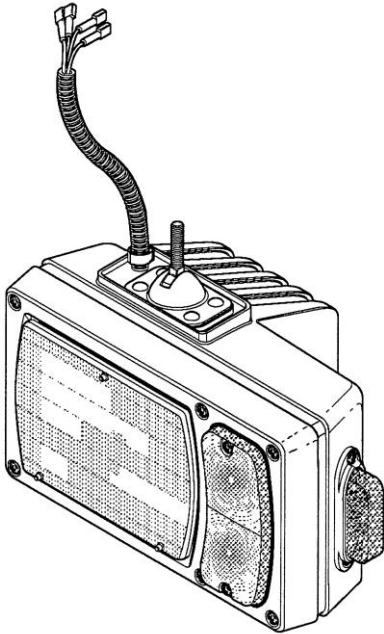
25. EXTERNAL LIGHTING

Exterior lights include service headlights, blackout marker lights, blackout headlight, and tail light-stop light.

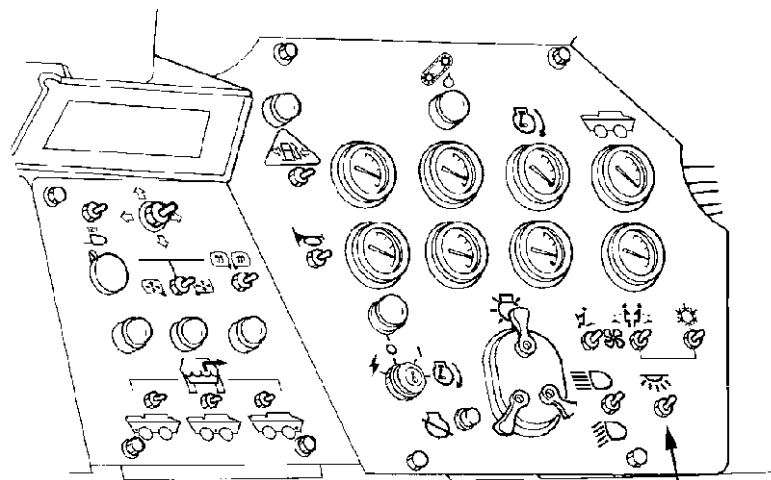
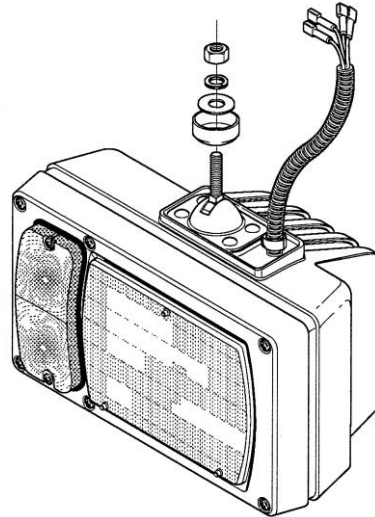


DRAGOON ASV

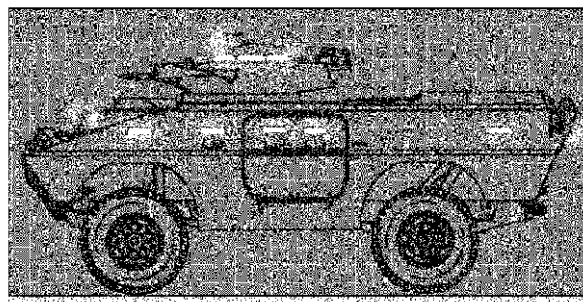
Driver headlight



co-driver headlight



DOME
LIGHT
SWITCH

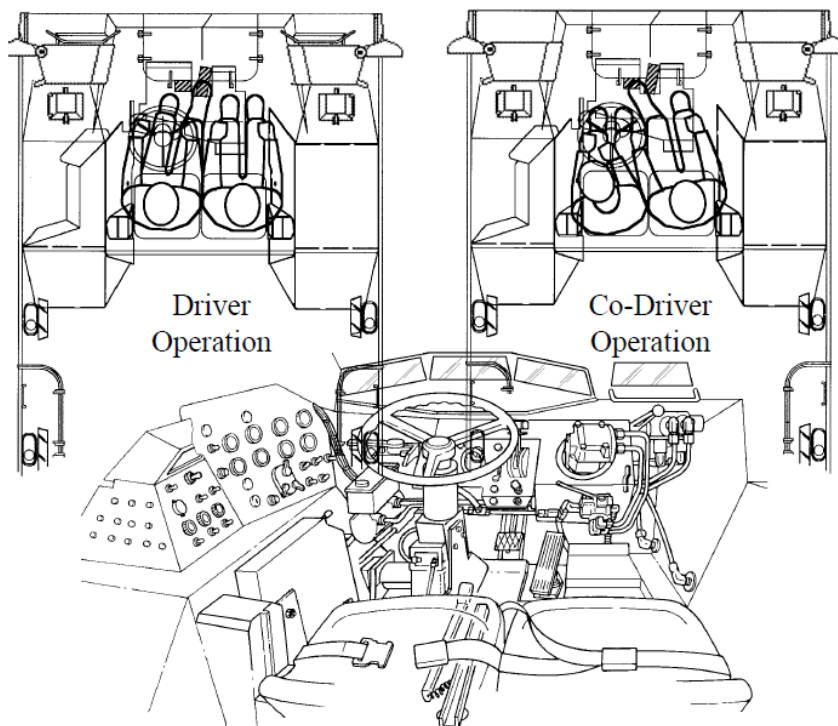


26. DRIVER CONTROLS

The driver controls regulate the engine, transmission, and steering braking systems of the carrier.

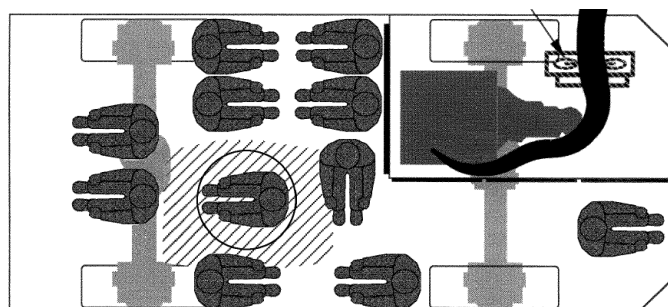
The throttle linkages are used to control the engine speed. The gear selector allows the driver to choose the proper gear for the carrier. The steering system controls the direction of the vehicle. The steering control consists of a steering wheel directly mounted onto the power assisted steering mechanism.

The brake system allows the driver to stop a moving carrier and hold the vehicle in position. The braking system consists of the service brake and the parking brake. The service brakes are applied by pedal. The parking brake mechanically locks the transmission brakes to prevent vehicle movement.



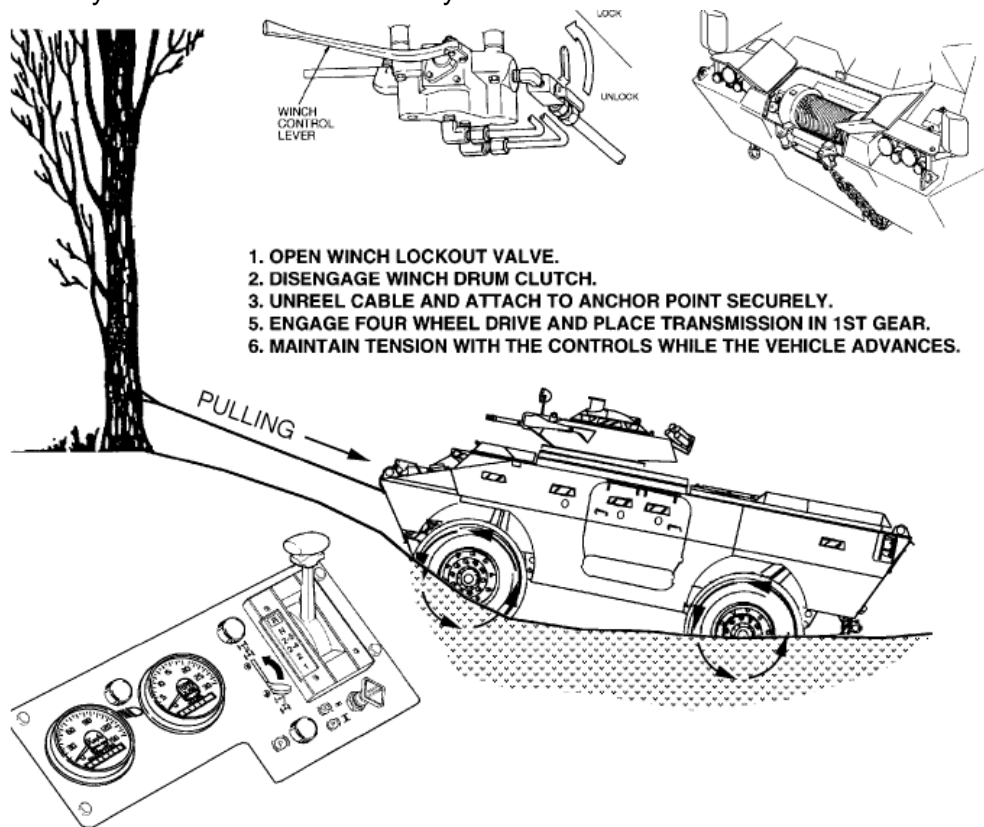
27. SEATS

The vehicle is equipped with separate seats for the driver and the commander with hydraulic height adjusting system. Personnel seats located on either side of the personnel compartment and rear side compartment provide seating for up to 9 combat equipped soldiers.



28. INTEGRATED WINCH

Front mounted hydraulic 9 tons self-recovery winch.

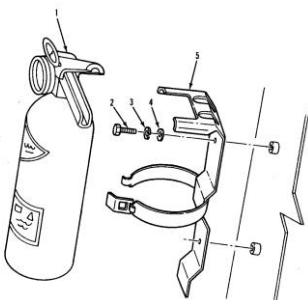


29. FIRE EXTINGUISHER SYSTEM

The crew fire extinguisher system consists of two CO₂ (Carbon Dioxide) cylinders, one fixed and one portable. Carbon Dioxide can put out fires quickly and effectively.

The fixed cylinder only extinguishes fires in the power plant compartment. It is located behind the driver and is actuated manually by a handle/knob on the cylinder or by an external handle connected to the cylinder by a cable.

The portable fire extinguisher is located in the crew compartment and is manually discharged.



30. AIR CONDITIONING UNIT & HEATING

The vehicle is equipped with a high performance Air Conditioning Unit (ACU) delivering 10kW of cooling and a heating system providing 20kW of heating to the crew compartment.

31. FUEL SUPPLY SYSTEM

The ASV is equipped with two 170 liters fuel tanks and includes an emergency fuel pump prime system. This feature is used in the event of the main fuel pump failing or to prime the engine if it should run out of fuel.

32. ARMOR PROTECTION KIT (APK) & RPG-7 PROTECTION KIT

The protection level can be increasing up to level 3+ as defined by STANAG 4569 by installing an APK.

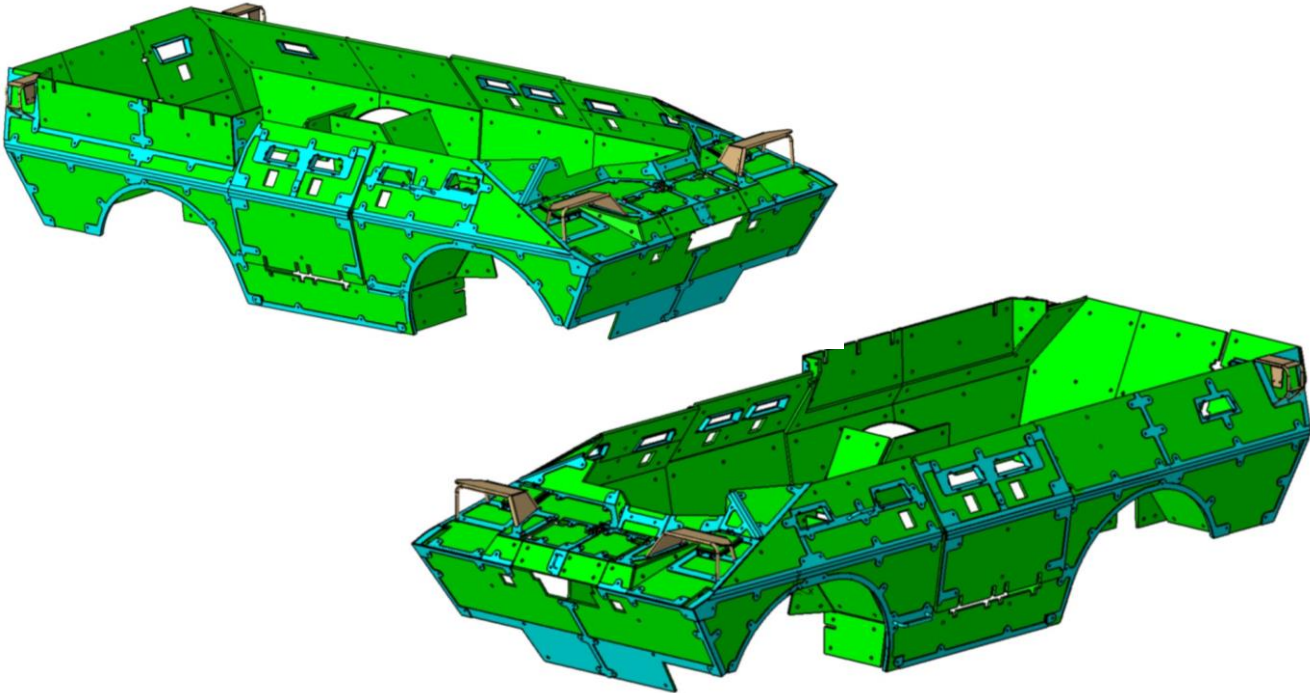
level	KE threat			
	Ammunition	V (m/s)	Az.	Elev.
3	7,62 mm x 51 AP (WC core)	930	0-360°	0-30°
3	7,62 mm x 54R B32 API	854	0-360°	0-30°
2	7,62 mm x 39 API BZ	695	0-360°	0-30°
1	7,62 mm x 51 NATO Ball	833	0-360°	0-30°
1	5,56 mm x 45 NATO SS109	900	0-360°	0-30°
1	5,56 mm x 45 M193	937	0-360°	0-30°

The APK is designed to cover as much of the exterior of the vehicle as possible to reduce and eliminate gaps in the protection while at the same time allowing for convenient vehicle maintenance access. The roof is not covered by the APK but provision is made to mount a steel roof protection kit.

The armour panels are designed specifically to the vehicle and moulded individually into shapes that match the vehicle contour and surfaces.

When finished, the panels are fully sealed against environmental effects and can withstand extensive wear and rugged conditions due to our unique composite package.

DRAGOON ASV



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