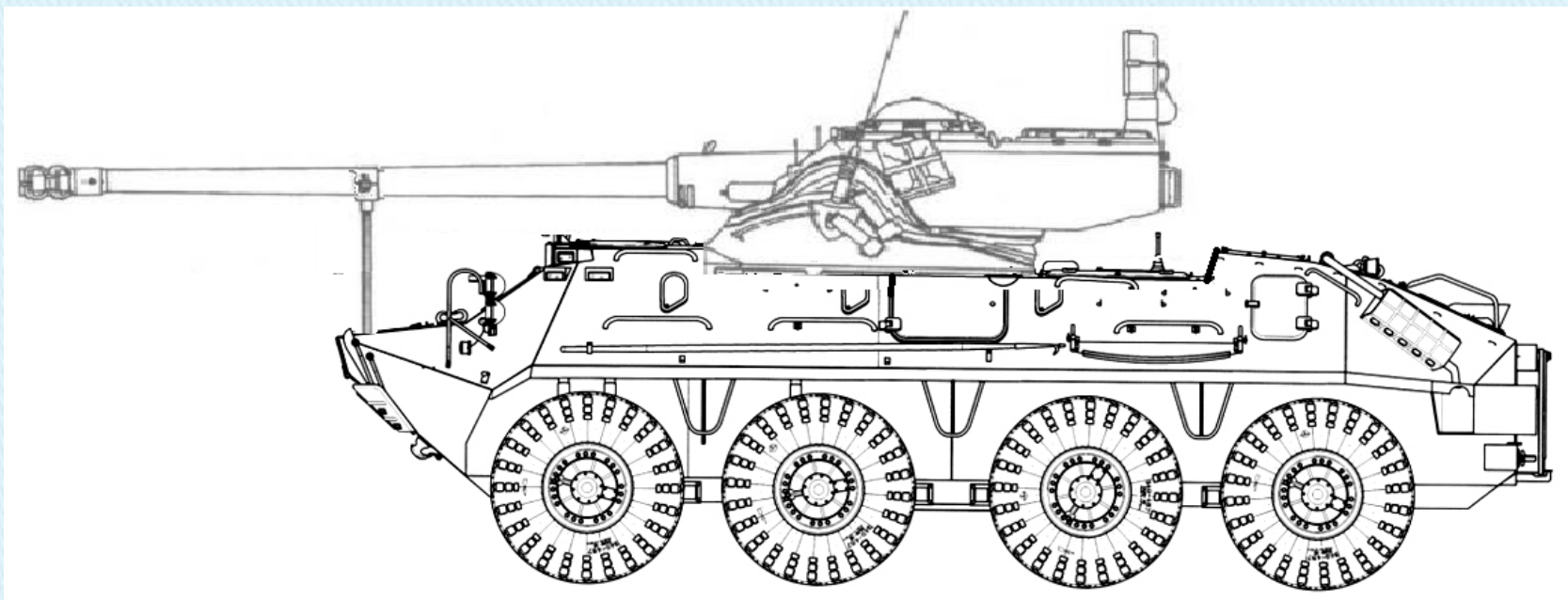


HYBRID AFSV VARAN-3

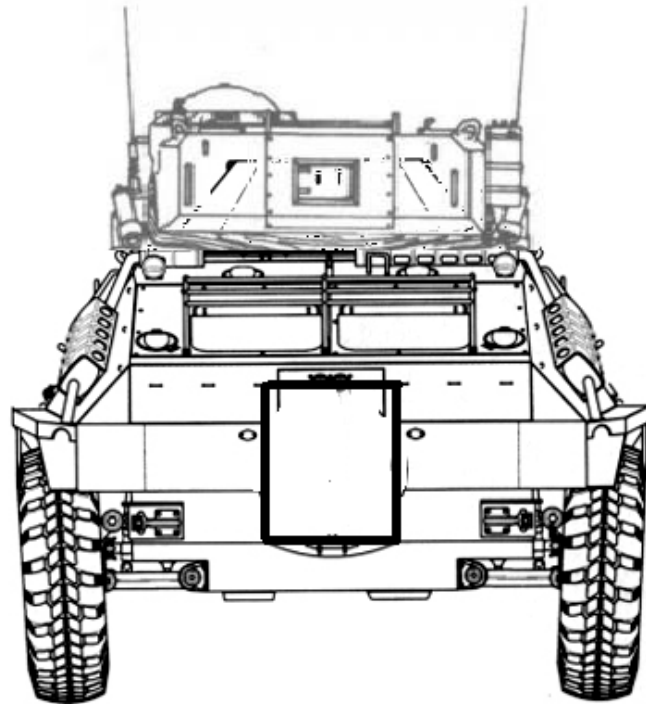
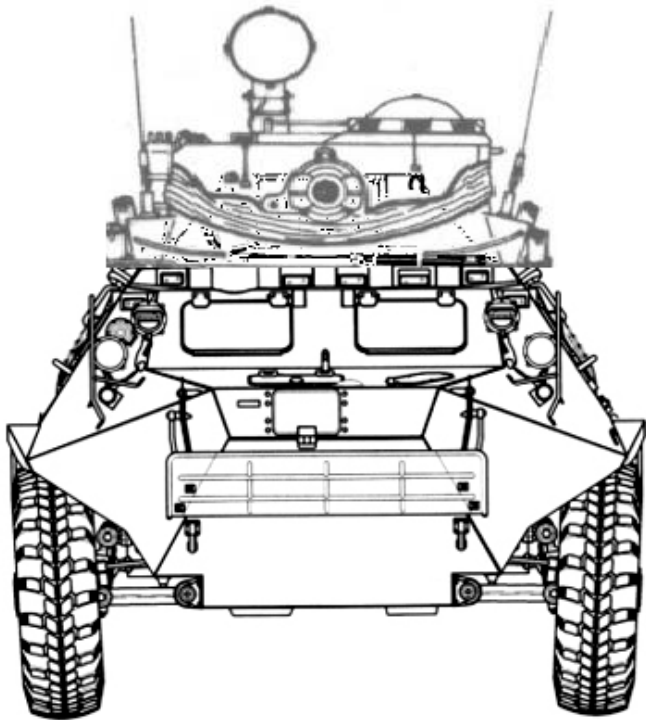
on base APC BTR-60



Varan-2 on base BTR-60

| | |
|-----------------------|---|
| Specifications | |
| Weight | 13 tons |
| Crew | 3 |
| Length | 7.56m |
| Width | 2.83m |
| Height | 2.68m |
| Base | 4.4m |
| Rut | 2.38m |
| Clearance | 0.475m |
| Maximum Speed | 105km/h |
| Fuel Capacity | 290 litre |
| Operational Range | 1000-1500km |
| Obstacle | |
| Ascent | 30 ⁰ |
| Wall | 0.5m |
| Trench | 2m |
| Ford | 1.6m |
| Engine | Cummins ISF2.8s4161P |
| Cylinders | L4 |
| Fuel | Diesel |
| Horsepower | 161hp (120kW) |
| Suspension | Individual torsion with hydraulic shock absorbers |
| Wheels | 8x8 |
| Tyres | 13,00-18 KI-80 |

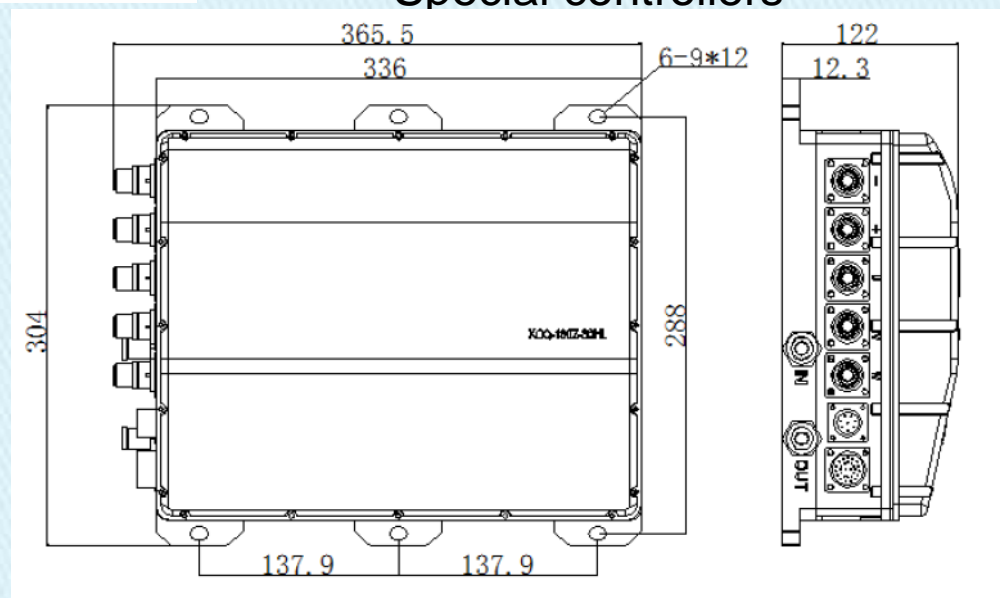
| | |
|----------------------------------|--|
| Drive travel about | Concept on base armored vehicles Krimsk was turned into a conventional vehicle electric drive technology demonstrator in Russian vehicle was fitted with a power supply control system feeding eight electric motor units and a two-phase pneumatic gearbox. |
| Drive line | Electrical |
| Alternator (power) | 120kW |
| Wheel drive (power) | 2x60kW |
| Max torque | 10,000Nm |
| Special features | 220V AC 50Hz / 380V AC 50Hz |
| Internal / External power supply | Skid steer Function Pivot neutral steer function |



Electric motor



Special controllers



Cummins ISF2.8s4161P



General of **ISF2.8s4161P** Diesel Engine for Vehicle

| | |
|--------------|---|
| Engine Model | ISF2.8s4161P |
| Bore*Stroke | 94*100mm |
| Type | 4 cylinder in-line |
| Displacement | 2.776L |
| Net Weight | 214KG |
| Engine Type | Bosch high pressure common rail, High-pressure fuel injection |
| Size | 606*641*632mm |

Technical Specification of **ISF2.8s4161P** Diesel Engine for Vehicle

| | |
|-----------------------------------|--------------------------|
| Max Output | 120KW |
| Horsepower | 161HP |
| Torque | 360N.m |
| Certification | Euro/China IV |
| Aspiration | Turbocharged/Aftercooled |
| Peak Torque/ Speed (N.m/r/min) | 1800-3000 |
| No-load highest speed(r/min) | 4750 |
| Idling Speed(r/min) | 750 |
| Compression Ratio | 16.5:1 |
| Rated Speed | 3600RPM |

conversions KIT water in fuel for diesel engines CUMMINS FULL SET
FULL SET!

- COMPLETE WITH DIGITAL PWM and MAF / MAP proofreaders;
- High-end electronics included in the package;
- The union of stainless steel;
- Generator type "dry cell" of the latest generation ;
- Very small dimensions: 240x190x90mm;
- Impressive Square production of hydrogen gas: 2268 cm²;
- Large volume production of hydrogen 3.5 liters per minute (15A);
- Suitable for all models of trucks and buses, the engine power to 480hp.
- Weight 8.2 KG



High-pressure power system



Alternator



speedometer Dash board



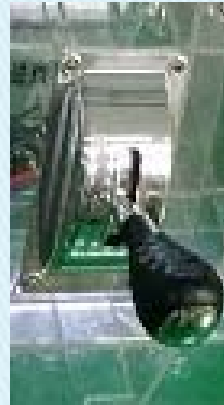
Accelerator



Brake Pedal



Electric Lever



Auto starter



| Armouring | |
|-------------------|------|
| Hull Front up | 11mm |
| Hull Front middle | 7mm |
| Hull Front botton | 9mm |
| Side Hull up | 7mm |
| Side Hull botton | 7mm |
| Rear Hull up | 5mm |
| Rear Hull up | 7mm |
| Bottom Hull | 5mm |
| Roof Hull | 7mm |
| Front Turret | 7mm |
| Side Turret | 7mm |
| Rear Turret | 7mm |
| Roof Turret | 7mm |

| Armament | |
|---|---------------|
| 105mm cannon | 32 projective |
| 12.7x108mm or 50BMG anti-aircraft machine gun | 600rds |
| 14.5x114mm anti-aircraft machine gun | 500rds |
| or 20x110mm automatic cannon | 500rds |
| or 23x115mm automatic cannon | 500rds |
| 7.62x54R or 7.62x51mm Coaxial machine gun | 2000rds |

PERSONAL RADIO BS & HS



PR-11

Operational characteristics for BS radio

| | |
|--------------------------|---|
| Net presets | 16 -position channel selector |
| Group address | <ul style="list-style-type: none"> • up to 99 groups • up to 99 addresses |
| Data and Voice operation | <ul style="list-style-type: none"> • semi-duplex • voice or data • priority break-in |
| Operational autonomy | 8 hours |
| Location | built GPS with automatic position report |
| Expected range | <ul style="list-style-type: none"> • open terrain: 2.5 km • urban: 500 m • loc: 20 km with PANEL antenna |
| Security | <ul style="list-style-type: none"> • remote track function that blocks audio, • reports GPS and battery status • remote KILL function that completely disables radio |
| Secure transmission | built-in AES-128, max 16 KEYS stored |
| Operational regime | <ul style="list-style-type: none"> - Team Leader Radio - Team Member Radio - REPEATER |

Technical characteristics for BS radio

| | |
|---------------------------------|--|
| Frequency range | 902-928 MHz |
| Transmitter power output | 100mW/500mW/1W |
| Modulation | GFSK, BT=0.5 |
| Over the air bit rate | 10 / 128 Kbit/s |
| Receiver sensitivity @ BER=10-3 | -110 / -100 dBm |
| Digital audio | 24 Kbit/s CVSDM |
| Data | RS232: 9.6Kbit/s 115.2 Kbit/s Ethernet: 10 Mb/s / 100Mb/s |
| Encryption | AES - 128 |
| ECCM | frequency hopping |
| Power supply | 8 - 36 V DC |
| Dimensions | 250 x 180 x 70 mm appr. |
| Weight | 2 kg |
| Operating regime | -35°C +55°C |

Operational characteristics for HS radio

| | |
|--------------------------|---|
| Net presets | 16 -position channel selector |
| Group address | <ul style="list-style-type: none"> • up to 99 groups • up to 99 addresses |
| Data and Voice operation | <ul style="list-style-type: none"> • semi-duplex • voice or data • priority break-in |
| Operational autonomy | 8 hours |
| Location | built GPS with automatic position report |
| Expected range | <ul style="list-style-type: none"> • open terrain: 2.5 km • urban: 500 m • loc: 20 km with PANEL antenna |
| Security | <ul style="list-style-type: none"> • remote track function that blocks audio, • reports GPS and battery status • remote KILL function that completely disables radio |
| Secure transmission | built-in AES-128, max 16 KEYS stored |
| Operational regime | <ul style="list-style-type: none"> - Team Leader Radio - Team Member Radio - REPEATER |

Technical characteristics for HS radio

| | |
|---------------------------------|--|
| Frequency range | 902-928 MHz |
| Transmitter power output | 100mW/500mW/1W |
| Modulation | GFSK, BT=0.5 |
| Over the air bit rate | 10 / 128 Kbit/s |
| Receiver sensitivity @ BER=10-3 | -110 / -100 dBm |
| Digital audio | 24 Kbit/s CVSDM |
| Data | RS232: 9.6Kbit/s 115.2 Kbit/s Ethernet: 10 Mb/s / 100Mb/s |
| Encryption | AES - 128 |
| ECCM | frequency hopping |
| Power supply | Li-Ion Battery, 7.4V/2500mAh |
| Dimensions | 180 x 85 x 35 mm |
| Weight | 0.5 kg, with battery |
| Operating regime | -35°C +55°C |

VEHICLE INTERCOM SYSTEM



Technical data

| | |
|-----------------------|--------------------------|
| Type of transmission | duplex |
| Interface | RS485 |
| Line rate | 64 kb/s |
| Signals | DTx, DRx, Clock |
| Output level | ± 5V |
| Input threshold level | ± 0.5V |
| Speech processing | PCM, A-law, G.711, G.712 |

| | |
|-------------------------|-------------------|
| Freq. range | 300 – 3000 Hz |
| Microphone impedance | 1600 ohm |
| Microphone sensitivity | -41 dB, @94dB SPL |
| Earphone impedance | 150 ohm |
| Audio power | max 50 mW |
| Distortion | 10% @1mW |
| PTT | 0-5 V, TTL |
| Microphone polarisation | 10 VDC |

| | |
|--------------------------------|---------------------|
| Supply | 18-36 V DC |
| Power consumption Control Unit | 3 W |
| Dimensions Control Unit | 250x200x80 mm appr. |
| Weight Control Unit | 2.6 kg |
| Power consumption Craw Unit | 1 W |
| Dimensions Craw Unit | 180x150x70 mm appr. |
| Weight Craw Unit | 1,2 kg |
| Relative Humidity | do 95% @ +55° C |
| Operating Temperature Range | -25°C - +55° C |

| | |
|----------------|------------------|
| Interface | 4 wire with E/M |
| Impedance | 600 ohm |
| Input level | +2 dB.....-10 dB |
| Output level | +2 dB.....-10 dB |
| E/M signalling | 0-5 V, TTL |

LASER DETECTOR & WARNING SYSTEM



Laser Detector & Warning System

Laser detector (warning) system consists of two units:

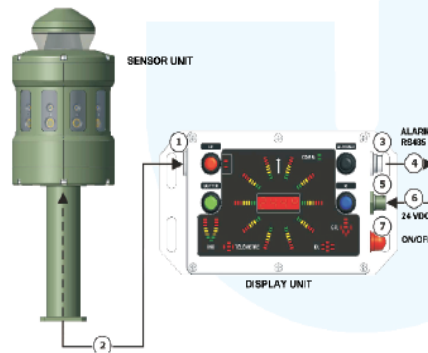
- Detector head and (LD-H),
- Control unit with display (LD-D).

LD is used for laser irradiation indication and warning.

If combat vehicle (ship, artillery post ...) is irradiated with laser beam (rangerfinder, designator/illuminator or laser guided missile) light and sound alarms will be activated.

Command unit display will show intensity, direction, angle and type of irradiation.

After warning, crew can activate countermeasures.



Direct irradiation detector

| | |
|-------------------------|------------------|
| Wavelength range | 0.4 um to 1.6 um |
| Number of receivers | 10 |
| Azimuth field of view | 10x36° = 360° |
| Elevation field of view | -20° to +60° |

Direct irradiation detector

| | |
|-------------------------|------------------|
| Wavelength range | 0.9 um to 1.6 um |
| Number of receivers | 1 |
| Azimuth field of view | 360° |
| Elevation field of view | -7° to -13° |

Indicator unit - Display

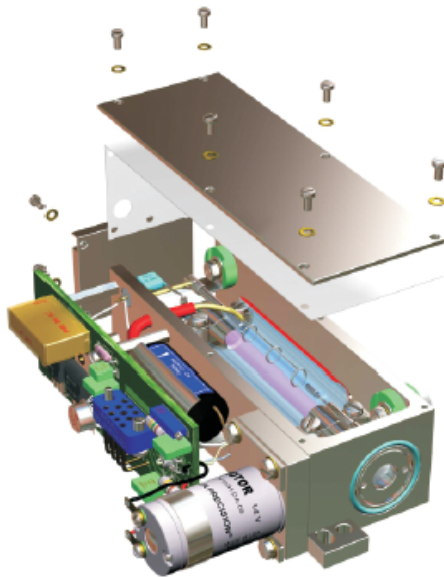
| | |
|------------------------------|--|
| Azimuth angle resolution | 10x36° LED |
| Numerical display resolution | 1° |
| Irradiation source | Laser rangefinder, Laser designator/illuminator, Laser guided missiles |

| | |
|--------------------------------|---|
| Memory | 20 newest readings |
| Data transfer | RS485, ModBUS, 19 200 bps, 8 bits of data, 1 stop bit, no parity |
| Digital outputs for activation | Sound alarm, Light alarm, Countermeasures |
| Operating temperature | -30°C to +63°C |
| Power supply and consumption | Accumulator 24 VDC/0,6A or 12 Vcc/1,2A, Battery pack (optional) |

Dimensions and weight

| | |
|---------------|-------------------------------|
| Detector head | Ø120mm X 190mm, < 2100g |
| Display | 220mm X 120mm X 70mm, < 1500g |
| Mounting pole | 55mm X 55mm X 150mm, < 900g |
| Cables | 3 pieces, < 1 kg |

LASER RANGEFINDER



Laser rangefinder for tank I

Laser rangefinder subsystem consists of five printed circuit boards and laser transmitter (shown in picture with one PCB).

Tehnical data

| | |
|-------------------------------------|----------------|
| Range | 200m + 9995m |
| Accuracy | ± 5m |
| Pulse repetition rate | 0.5 Hz |
| Maximum number of pulses per minute | 12 |
| No. of targets measured | 2 |
| Target radial resolution | 30m |
| Laser type | Nd:YAG |
| Wavelength | 1064nm |
| Temperature range | -25°C to +55°C |

WEATHER STATION



Measured data specifications:

| Wind speed | |
|------------|-------------------------------------|
| Range | 0 - 40m/s |
| Accuracy | ±10%, ±0.5m/s for wind speed < 5m/s |
| Resolution | 0.1m/s |

| Wind direction | |
|----------------|----------|
| Range | 0 - 360° |
| Accuracy | ± 5° |
| Resolution | 1° |

| Air temperature | |
|-------------------------|---------------|
| Range | -40°C - +70°C |
| Accuracy (-10°C - 85°C) | ± 2°C |
| Resolution | 0.1°C |

| Absolute atmospheric pressure | |
|-------------------------------|----------------|
| Range | 600 - 1300mBar |
| Accuracy | ±1.5mBar |
| Resolution | 1mBar |

| Relative air humidity (*optional, model MS-3/D-H only) | |
|--|------------|
| Range | 0 - 100%RH |
| Accuracy(10-90%RH) | ±3%RH |
| Resolution | 1%RH |

Device specifications:

| | |
|-----------------------------|-----------------------------|
| Power | 18 - 40 VDC |
| Operating temperature | -30°C - +60°C |
| Start-up time | < 40s |
| Data transmission interface | RS 485 |
| Max data cable length | 1500 m |
| Transmission interval | 1s or 100ms |
| Protocol | NMEA(1s); BYT (1s or 100ms) |
| Connector | Souriau 85107A12-10P50 |
| Height | 182 mm |
| Diameter top | 73 mm |
| Diameter base | 50 mm |
| Weight | 505 g |

Machine Gun



| | |
|--|----------------------------|
| Technical data | M87N, NSVT-N |
| Production of the country, the factory | Serbia, Russia, Kazakhstan |
| Principle of function | Gas-operated |
| On base | NSVT |
| Caliber | 50BMG (12.7x99mm) |
| Barrellength | 1100mm |
| Weapons length | 1560mm |
| Weight | 24.8kg |
| Effective range | 1500m |
| Rate of fire | 700rds/min |
| Muzzle velocity | 890m/c |

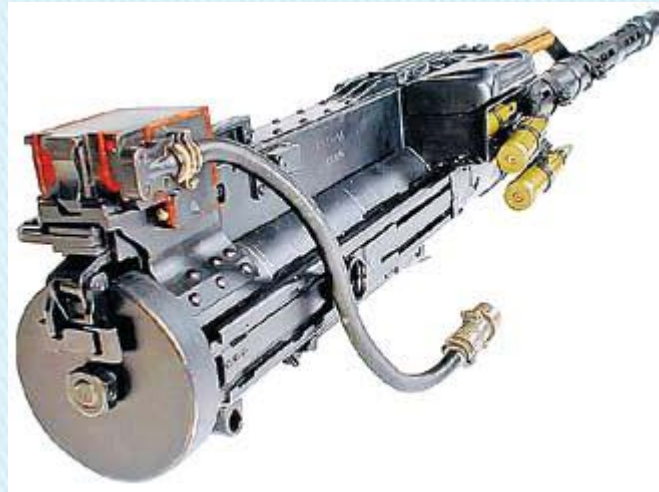
| | |
|--|----------------------------|
| Technical data | M87, NSVT |
| Production of the country, the factory | Serbia, Russia, Kazakhstan |
| Principle of function | Gas-operated |
| On base | NSVT |
| Caliber | 12.7x108mm |
| Barrellength | 1100mm |
| Weapons length | 1560mm |
| Weight | 24.8kg |
| Effective range | 1500m |
| Rate of fire | 700rds/min |
| Muzzle velocity | 845m/c |

Machine Gun



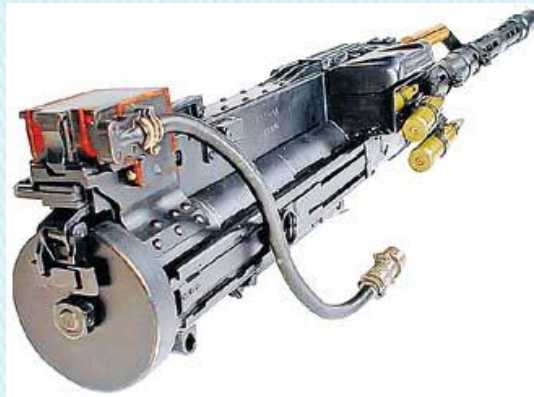
| | |
|--|--------------------------------|
| Technical data | DShKM-N, Type 54N |
| Production of the country, the factory | Serbia, Russia, Romania, China |
| Principle of function | Gas-operated |
| On base | DShK |
| Caliber | 50BMG (12.7x99mm) |
| Barrellength | 1070mm |
| Weapons length | 1625mm |
| Weight | 33.5kg |
| Effective range | 1500m |
| Rate of fire | 600rds/min |
| Muzzle velocity | 890m/c |
| Technical data | DShKM, Type 54 |
| Production of the country, the factory | Serbia, Russia, Romania, China |
| Principle of function | Gas-operated |
| On base | DShK |
| Caliber | 12.7x108mm |
| Barrellength | 1070mm |
| Weapons length | 1625mm |
| Weight | 33.5kg |
| Effective range | 1500m |
| Rate of fire | 600rds/min |
| Muzzle velocity | 845m/c |

Machine Gun



| | |
|--|---------------------|
| Technical data | KPV, Type 58 |
| Production of the country, the factory | Russia, China |
| Principle of function | short stroke barrel |
| On base | KPV |
| Caliber | 14.5x114mm |
| Barrel length | 1346mm |
| Weapons length | 2000mm |
| Weight | 52.3kg |
| Effective range | 2000m |
| Rate of fire | 600rds/min |
| Muzzle velocity | 976m/c |

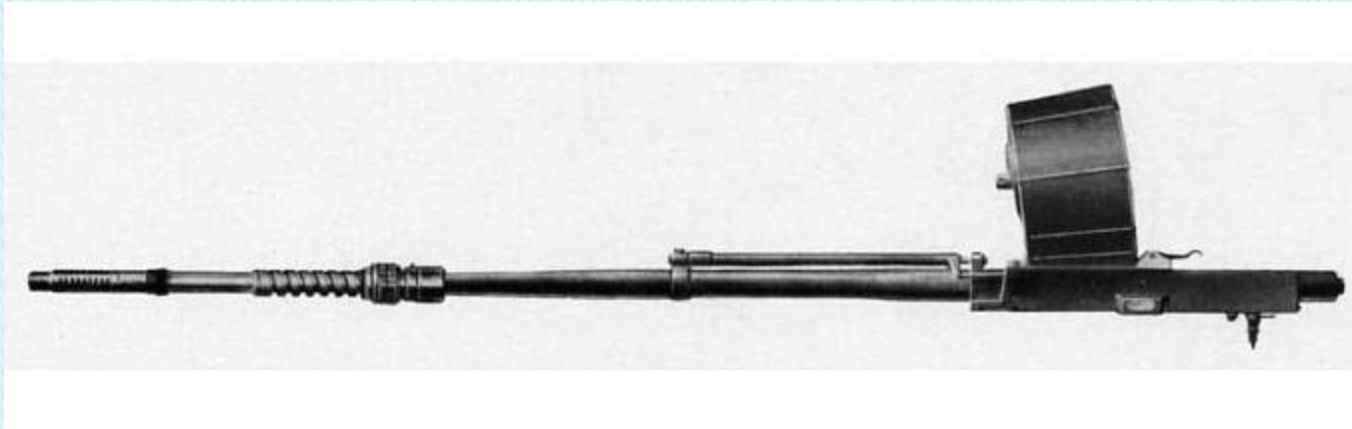
Anti-aircraft automatic cannon



| | |
|--|---------------------|
| Technical data | KPV-23 |
| Production of the country, the factory | Serbia |
| Principle of function | short stroke barrel |
| On base | KPV |
| Caliber | 23x115mm |
| Barrel length | 1346mm |
| Weapons length | 2000mm |
| Weight | 52.3kg |
| Effective range | 1500m |
| Rate of fire | 600rds/min |
| Muzzle velocity | 680m/c |

| | |
|--|---------------------|
| Technical data | KPV-20 |
| Production of the country, the factory | Serbia |
| Principle of function | short stroke barrel |
| On base | KPV |
| Caliber | 20x110mm |
| Barrel length | 1346mm |
| Weapons length | 2000mm |
| Weight | 52.3kg |
| Effective range | 1500m |
| Rate of fire | 600rds/min |
| Muzzle velocity | 835m/c |

Anti-aircraft automatic cannon



| | |
|--|----------------|
| Technical data | M55 |
| Production of the country, the factory | Serbia |
| Principle of function | Gas-operated |
| On base | HSS-804 |
| Caliber | 20x110mm |
| Barrel length | 1740mm |
| Weapons length | 2500mm |
| Weight | 24.85kg |
| Effective range | 1500m |
| Rate of fire | 600-750rds/min |
| Muzzle velocity | 880m/c |

Coaxil Machine Gun



| | |
|--|--------------------------------|
| Technical data | UKM-2000C, M86N, PKT-N, MG-TN, |
| Production of the country, the factory | Polish , Serbia, Bulgaria |
| Principle of function | Gas-operated |
| On base | PKT |
| Calibre | 7.62x51mm |
| Barrellenht | 626mm |
| Weapons lenght | 1098mm |
| Weght | 10.7kg |
| Efective range | 1500m |
| Rate of fire | 700-850rds/min |
| Muzzle velocity | 810m/c |

| | |
|--|---------------------------------|
| Technical data | PKT, M86, MG-T, Type 86 |
| Production of the country, the factory | Russia, Serbia, Bulgaria, China |
| Principle of function | Gas-operated |
| On base | PKT |
| Caliber | 7.62x54R |
| Barrellength | 722mm |
| Weapons length | 1098mm |
| Weight | 10.5kg |
| Effective range | 1500m |
| Rate of fire | 600-800rds/min |
| Muzzle velocity | 855m/c |

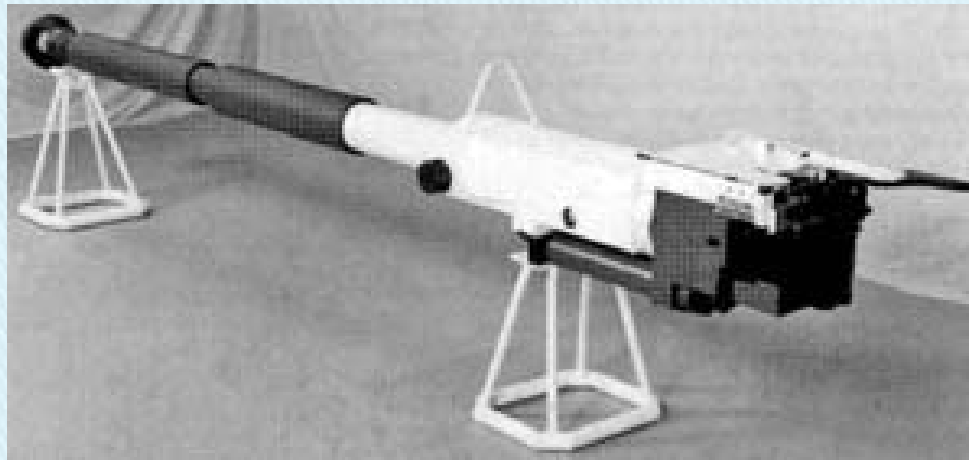
Coaxil Machine Gun



| | |
|--|----------------|
| Technical data | SGMT-N |
| Production of the country, the factory | Serbia |
| Principle of function | Gas-operated |
| On base | SGMT |
| Caliber | 7.62x51mm |
| Barrellength | 722mm |
| Weapons length | 1150mm |
| Weight | 10.5kg |
| Effective range | 1500m |
| Rate of fire | 600-800rds/min |
| Muzzle velocity | 810m/c |

| | |
|--|----------------|
| Technical data | SGMT, Type 59T |
| Production of the country, the factory | Russia, China |
| Principle of function | Gas-operated |
| On base | SGMT |
| Caliber | 7.62x54R |
| Barrellength | 722mm |
| Weapons length | 1150mm |
| Weight | 10.5kg |
| Effective range | 1500m |
| Rate of fire | 600-800rds/min |
| Muzzle velocity | 855m/c |

Cannon



| | |
|--|-----------|
| Technical data | CN-105/57 |
| Production of the country, the factory | France |
| On base | CN-105/57 |
| Caliber | 105mm |
| Barrel length | 4462mm |
| Weight | 1210kg |
| The length of a normal pullback | 368m |
| Rate of fire | 6 rds/min |

Grid protection for wheeled armored vehicles P \ominus

Presented in this anti-tank cumulative P \ominus is an adaptation of the protective devices used in tanks BTR-70, BTR-80, T-55 and T-62 during combat operations in Afghanistan. RE protect the sides and stern of the hull and turret of the anti-tank grenade PG-7 and PG-9 with a probability of 0.66.

RE installed on BTR-80 and T-62 have been tested with positive results and have shown high efficiency in the fighting in Chechnya and Georgia. Equipment MCV Khazar set P \ominus possible in military terms, using individual spare parts kit. Duration equipment MCV Khazar set P \ominus was 5.0 h., And the complexity, 12.5 hours.

In order to ensure technological maintenance of the chassis and avoid damaging them to march over rough terrain board made folding screens body in a horizontal plane. The design allows you to firmly fix the P \ominus folding in the upper section (stowed) position. Folding of the section in the lower position not fixed rigidly, they move towards the wheels and suspension limited limiters welded at the top of the section.



Installation scheme combined lattice screens (right of the screen in the raised position)

The duration of the installation using the RE staff toolkit was 7 hours., And the complexity of 21 hours. The total duration of the hardware and fasteners for mounting P \ominus MCV Khazar was 11 hr., And the total complexity of this work was 29 hours.

Installation P \ominus resulted in some increase in the dimensions in width (about 300 mm on each board and machine weight 1000 kg.

coated with special paint to reduce visibility in the infrared spectrum
through a thermal imager

Russian variant Intermat Low Emissivity Paint

