T-72BME TANK

BelTechExport

86-B, Nezavisimosti ave., Minsk,
220012, Republic of Belarus
www.bte.by

Telephone: +375 17 358 83 83
Fax: +375 17 373 80 12
E-mail: mail@bte.by

T-72BME Tank

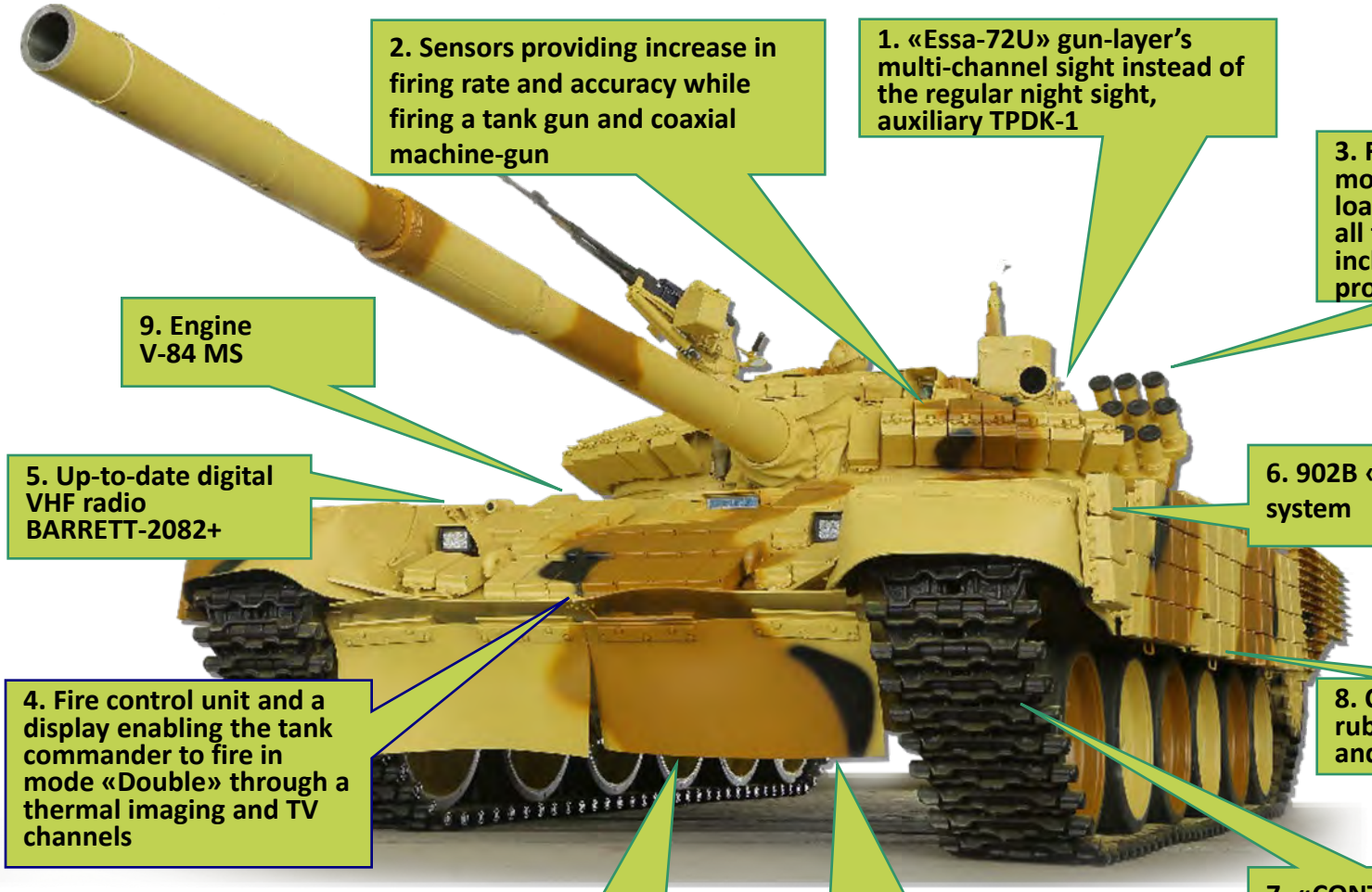
T-72BME tank is the product of in-depth modernization of T-72 tanks, in accordance with specified requirements to the means of armed confrontation in the XXI-st century. Characteristics of the tank are most closely approximate to the characteristics of the newest up-to-date tanks of T-90 type. While performing the modernization, the latest achievements in development of fire control, surveillance and advanced weapons protection systems were used.

The essence of modernization of T-72BME tank is the installation of a new sighting system with a thermal imaging sight, armouring reinforcement by means of combining the monolithic and combined armour with additional installation of reactive armour and counter-HEAT side screens, increase of mobility due to installation of a more powerful engine, and endurance while conducting the ambush and defence operations by means of use of the built-in autonomous power source.

The main peculiar features of the tank are:

- Installation of the complex control system «Essa-72U», including the multi-channel thermal imaging sight, a ballistic computer, thermal indicators and a commander's back-up sight, providing the efficient defeat of enemy's objects at maximum ranges in any weather conditions around the clock;
- Installation of a set of sensors (a wind sensor, gun position sensor, atmospheric pressure sensor, roll and pitch sensors), which allowed to reduce considerably the time of guidance on a target, improve firing accuracy from stationary position and on move;
- enabling the tank to fire all types of 125 mm rounds, including the modern tank guided projectiles;
- Installation of reactive armour set of type «Contact-1»;
- Installation of 902B «Tucha» system with eight launchers;
- Installation of the up-to-date engine V-84MS of power 840 h.p.;
- Installation of a digital VHF radio of the latest generation BARRETT-2082+;
- Installation of the up-to-date infra-red or a driver's thermal vision device;
- Installation of autonomous diesel power source of power of 9,9 kWt to provide operation of the tank main systems in defence and economy of resource of the main engine.

T-72BME Tank



1. «Essa-72U» gun-layer's multi-channel sight instead of the regular night sight, auxiliary TPDK-1

2. Sensors providing increase in firing rate and accuracy while firing a tank gun and coaxial machine-gun

3. Fire control system with a modernized automatic loader, which provides firing all types of ammunition, including the guided projectiles

4. Fire control unit and a display enabling the tank commander to fire in mode «Double» through a thermal imaging and TV channels

5. Up-to-date digital VHF radio BARRETT-2082+

6. 902B «TUCHA» system

7. «CONTACT-1» reactive armor

8. Counter-HEAT rubber-fabric and framed screens

9. Engine V-84 MS

10. TVNE-4B driver mechanic's night vision device or night driving thermal imaging system (NDTIS)

11. Autonomous diesel power source of power of 9,9 kWt

1. «Essa-72U» gun-layer's multi-channel stabilized sight (instead of the regular night sight)

OPTICAL CHANNELS
- television channel of wide and narrow fields of view
- thermal imaging channel of 3 ÷ 5 micron or 8 ÷ 12 micron

LASER RANGE FINDER
Monopulse, 1,06 micron

CONTROL CHANNEL
Laser channel for guided ammunition
9M119, 9M119M, 9M119M1

BALLISTIC COMPUTER
Digital

METEO SENSORS
- Temperature sensor,
- Air temperature sensor
- Atmospheric pressure sensor

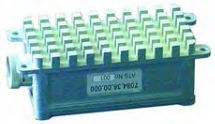
FEATURES
It can be additionally completed with a barrel bending sensor, providing the operational boresighting through an indicator on breech face

1. «Essa-72U» gun-layer's multi-channel stabilized sight (instead of the regular night sight)

Television channel	
Range of detection of “tank” type target (on-board projection) while observing in the wide field of the TV-channel during the daytime at meteorological range of visibility (MRV) of more than 10 km at light intensity of 5000 lux, m , not less than	5000
Range of detection/ recognition of “tank” type target (on-board projection) while observing in the narrow field of the TV-channel during the daytime at meteorological range of visibility (MRV) of more than 10 km with light intensity of 5000 lux, m , not less than	7 000 / 5 000
Field of view, not less than: 1. wide 2. narrow 3. with electronic magnification	 6° × 4° 30´ 2° × 1° 30´ 1° × 45´
Thermal Imaging channel	
Spectrum operating region, micron	8 ÷ 12 or 3 ÷ 5
Range of detection of “tank” type target at night through the thermal imaging channel at atmospheric transparence of σ=0,2km–1 and target temperature contrast of ΔT=2°C, m, at least	5 500
Range of recognition of “tank” type target at night through the thermal imaging channel at atmospheric transparence of σ=0,2km–1 and target temperature contrast of ΔT=2°C, m, at least	3 500
Field of view, not less than: 1. wide 2. narrow 3. with electronic magnification	 6° × 4° 48´ 2° × 1° 36´ 1° × 48´
Laser range finder	
Range measurement scale, m	100 ÷ 10 000
Range measurement resolution, m	± 5
Emission wave length, micron	1,06
Laser guidance channel	
Missile control program range, m	100 ÷ 10 000
Emission wavelength, micron	1,06
Fields of view stabilization system	
Independent stabilization of field of view in two planes	Vertical Horizontal
Mean-square value of stabilization errors, mrad, not more than	0,15

2. Sensors, providing the increase in firing rate and accuracy while firing a tank gun and coaxial machine-gun

Air temperature sensor



Charge temperature sensor

Atmospheric pressure sensor

Wind sensor

Gun position sensor

Roll sensor

3. Fire control system

Gun layer's station

Commander's station

ESSA-72U
(gun-layer's thermal sight)

TV channel
Thermal imaging channel
Range-finder channel
Missile control channel

TPD-K1 gun-layer's sight

TKN-3 commander's sight

Gun position sensor

Roll sensor

Commander's control unit

Voltage converter for missile channel

Mirror stabilization control unit

Wind sensor

Point computer

Vertical drive

Air temperature and atmospheric pressure sensors

Charge temperature sensor

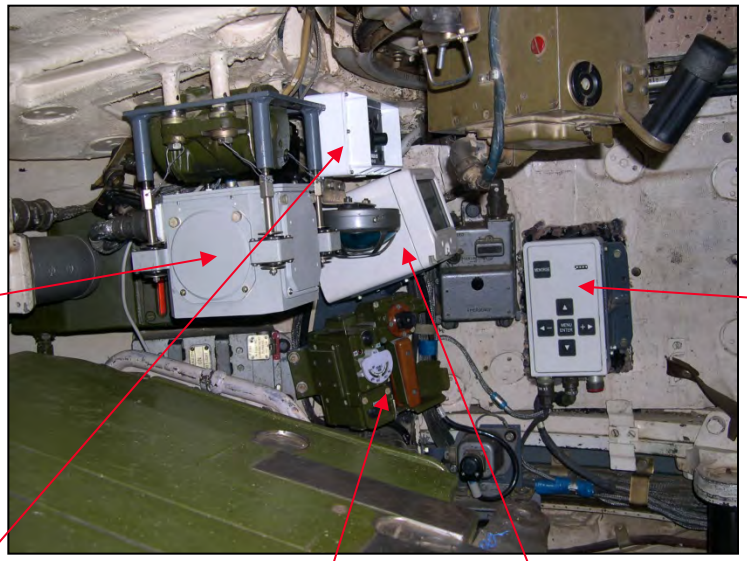
Loading mechanism

Main stabilizer (K1) modernized control unit

Horizontal drive

4. Enabling a tank commander to fire in mode “Double” through a thermal channel imaging and TV-channel

Commander’s station



Roll sensor

Score computer control panel

Camera control panel

Commander’s control panel

Commander’s viewing system

5. Up-to-date digital VHF radio BARRETT-2082+

The installed up-to-date radio station Barrett-2082+ provides improvement of reliability, communication stability and anti-jamming security.

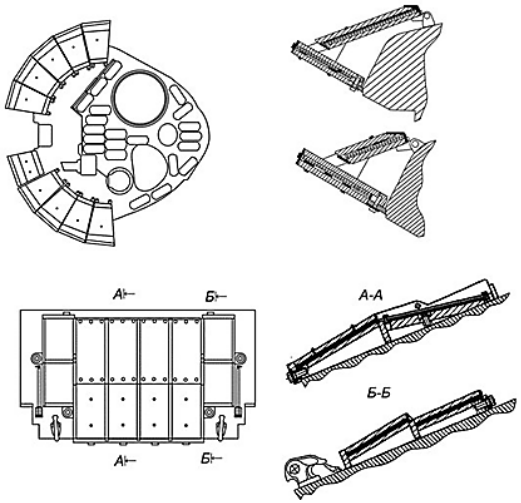
6. Reactive armor system of «Contact-1» type

The outboard reactive armor is mounted on the front part and sidewalls of the hull and turret.

227 reactive armor pods are installed on the tank:

- on the hull – 61
- on the turret – 70
- on the side screens – 96

Protection against grenade-launchers and anti-tank guided missiles is improved in 1,5-1,8 times.



7. System 902B «Tucha»

The smoke-screen laying system 902B «Tucha», installed on the tank, provides camouflaging of the vehicle in variable combat conditions by smoke screening. System 902B «Tucha» includes eight launchers and system control panel.

The launchers are mounted outside of the turret, they are fixed on removable flanges and each of them has a contact unit connected with the control panel through a cable assembly. The control panel is located inside the tank on the gun-layer's station and connected to the on-board net.

Smoke screening can be performed by single shots of smoke grenades or salvo of up to four grenades.

Number of launchers, pcs.	8
Smoke grenade caliber, mm	81
Loading	From chase, manual effort
Launching range, m	250—300
Maximum front of smoke screen (a salvo of four launchers)	110—120
Power supply to 902B system, V	22–29
Smoke grenade mass, kg	2,4
Launcher mass, kg	3,6

8. Counter-HEAT screens on the tank sides

They are intended to protect tank against HEAT ammunition.

9. Engine V-84MS

Engine	V-46-6	V-84MS
Brief description of the engine	four-stroke , V-type, 12-cylinder diesel engine with driven supercharger, liquid cooling	four-stroke, V-type, 12-cylinder diesel engine with driven supercharger, improved heat exchange of outlet manifolds, liquid cooling
Power capacity, kW (h.p)	574 (780)	618 (840)
Rotation speed s-1 (rev./min)	33,3 (2000)	33,3 (2000)
Specific fuel consumption, g/kW.h (g/h.p.h)	245 (180)	247 (182)
Adjustability factor	1,15	1,15
Dimensions LxWxH, mm	1480x896x902	1480x896x902
Mass, kg	980	1020

10. TNVE-4B device or thermal imaging device or night driving thermal imaging system (NDTIS)

It improves reliability and endurance at night time.

TNVE-4B:

NDTIS:

11. Autonomous diesel power source

In case of ambush or defensive activities, the tank has a high degree of autonomous operations due to the use of a built-in autonomous power supply source, providing 9.9 kWt of power. This considerably increases the unit's endurance, as there is no requirement to start the tank's engine.

Comparative characteristics of T-72A, T-72B, T-72BME tanks

Tank modification		T-72A (model of the year 1979)	T -72B (model of the year 1985)	T-72BME (model of the year 2018)
Weapon system				
Tank gun	Mark	125 mm 2A46	125 mm 2A46M	125 mm 2A46: Dispersion of all types of rounds is decreased for 10% owing to installation of gauges, increasing the fire accuracy, and a ballistic computer
	Rate of fire, rounds per min.	8	8	8
	Ammunition load, pcs.	44	44	44
Coaxial machine gun	Mark	7,62 mm PKT	7,62 mm PKT	7,62 mm PKT
	Ammunition load, pcs.	2 000	2 000	2 000
Machinegun	Mark	12,7 mm NSVT	12,7 mm NSVT	12,7 mm NSVT
	Ammunition load, pcs.	300	300	300
Sighting system				
Daylight sight	Mark	TPDK-1 (primary sight)	TPDK -1 (primary sight)	TPDK -1 (auxiliary sight)
	Type of range finder, Measuring range	quantum range finder from 500 up to 4 000 m	quantum range finder from 500 up to 4 000 m	quantum range finder from 500 up to 4 000 m
	Aiming range of defeat of targets at daytime, m	up to 4 000	up to 4 000	up to 4 000
Night sight	Mark	ТПН-1-49-23 or ТПН-3-49	Sight-guidance unit 1К13 ВОМ	none
	Aiming range of defeat of targets at night: in active mode, m in passive mode, m	 up to 1 300 up to 500	 up to 1 200 up to 1 100	 none none

Comparative characteristics of T-72A, T-72B, T-72BME tanks

Tank modification		T-72A (model of the year 1979)	T -72B (model of the year 1985)	T-72BME (model of the year 2018)
Multichannel gun-layer's sight	Mark	none	none	«Essa-72U»
	TV channel: Target detection range Target identification range	none - -	none - -	available 7 000 m 5 000 m
	Thermal imaging channel: Target detection range Target identification range	none - -	none - -	available 5 500 m 3 500 m
	Type of range finder, Band of measurement of range	none -	none -	Laser range finder, from 100 up to 10 000 m
	Type of ballistic computer	none	none	Digital ballistics computer
Gauges, providing improvement of fire accuracy	1. air temperature sensor 2. charge temperature sensor 3. gun position sensor 4. roll sensor 5. atmospheric pressure sensor 6. wind sensor	none none none none none none	data is input manually none none data is input manually none	Available, automatic input of data Available, automatic input of data Available, automatic input of data Available, automatic input of data Available, automatic input of data Available, automatic input of data
Tank commander's vision device	Mark	Passive-active vision device TKN-3B	Passive-active vision device TKN-3B	Commander's passive-active vision and target indicating device TKN-3B, «Double» system with a control panel and monitor for firing a tank gun and machine gun
	Range of vision at night: infra-red channel TV channel	up to 400 m none	up to 400 m none	up to 400 m up to 3 500 m
	Possibility of firing the tank gun by a commander	none	none	firing the tank gun 2A46 in mode «Double»
Guided rocket projectile	Mark	none	9M119	9M119

Comparative characteristics of T-72A, T-72B, T-72BME tanks

Tank modification		T-72A (model of the year 1979)	T -72B (model of the year 1985)	T-72BME (model of the year 2018)
Loading	Type	Electromechanical automatic loading device	Electromechanical automatic loading device	Electromechanical automatic loading device
	Possibility of laying the ATGM in automatic loader	none	available	available
Driver mechanic's night vision device	Mark	TVNE-4PA	TVNE-4B	TVNE-4B/TSNV
	Range of vision at night, m	60–80	up to 120	up to 120/200
Means of communication				
Type of radio	Type	R-123M	R-123M (P-173)	BARRETT-2082+ (digital)
	Communication range , km	not less than 20	not less than 20	Not less than 25, provides instant selection of preset channels on any of ten pre-selected frequencies
Protection				
Reactive armour	Type	none	Out-board explosive reactive armour «Contact-1»	Out-board explosive reactive armour «Contact-1»
	Number of containers	none	227	227
	Reinforcement of side projection hardness	none	Side screens with reactive armour	Side screens with reactive armour (96 containers), reinforcement of armour against RPG and ATGM in 1,5-1,8 times
Stealth facilities				
Smoke screening system	Mark	none	902B «Tucha»	902B «Tucha»
	Number of smoke grenades, pcs.	none	8	8
	Range of grenades launching, m	none	250-300	250-300
Mobility				
Engine	Mark	V-46-6	V-84-1	V-84 MS
	Power	780 h.p.	840 h.p.	840 h.p.
Tracked running gear		Rubber-jointed track	Rubber-jointed track	Rubber-jointed track
Weight, tons		41,0	44,5	44,0