

Late Cold War T series Tank recognition

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What am I going to cover?

This is a guide in which you will find information about how to differentiate between T-64, T-72, T-80, T-90 types and their variants from each other.

(you will not find every variant and one of prototypes in this guide, I am mainly focusing on variants what were or are in service with a few exceptions what are usually export variants)

I. Part: Differentiating the types from each other

page 6-26

- I. Road Wheels
- II. Idler Wheels
- III. Exhaust
- IV. Drivers Hatch
- V. IR Searchlight
- VI. Heavy Machinegun
- VII. Fording Tube
- VIII. Engine Deck
- IX. Tracks
- X. Drive Sprocket

(if you want just the quickest most basic information how to differentiate between types look at the highlighted chapters with orange)

II. Part: Recognizing passive and active protection systems what are necessary to differentiate between variants

page 27-51

III. Part: Differentiating the variants from each other

page 52- **Missing at the moment**

Types and Variants what this guide will cover

Type marked with: ●

Ukrainian variants: ■

Yugoslav variants: ■■

-Earliest version of the types is at the top

Variant marked with: ○

Polish variants: ■■

Export variants: *T-something*

-Latest at the bottom

T-64

- T-64 (object 432)
- T-64A
- T-64B
- T-64B1
- T-64BV
- T-64B1M**
- T-64BM1 Bulat
- T-64BM2 Bulat
- T-64BV model 2017

T-72

- T-72 Ural
- T-72A
- T-72M**
- T-72M1**
- T-72B
- T-72B1
- M-84**
- T-72AV
- T-72B obr. 1989 (model 1989)
- T-72BA
- PT-91 Twardy**
- T-72B3
- T-72B3 model 2016 (T-72B3M)
- T-72AMT**
- T 72M1 model 2022

T-80

- T-80
- T-80B
- T-80BV
- T-80U
- T-80UK
- T-80UD
- T-80UE1
- T-80UM2
- T-84**
- T-84 Oplot**
- T-84 Oplot-M**
- T-80BVM

T-90

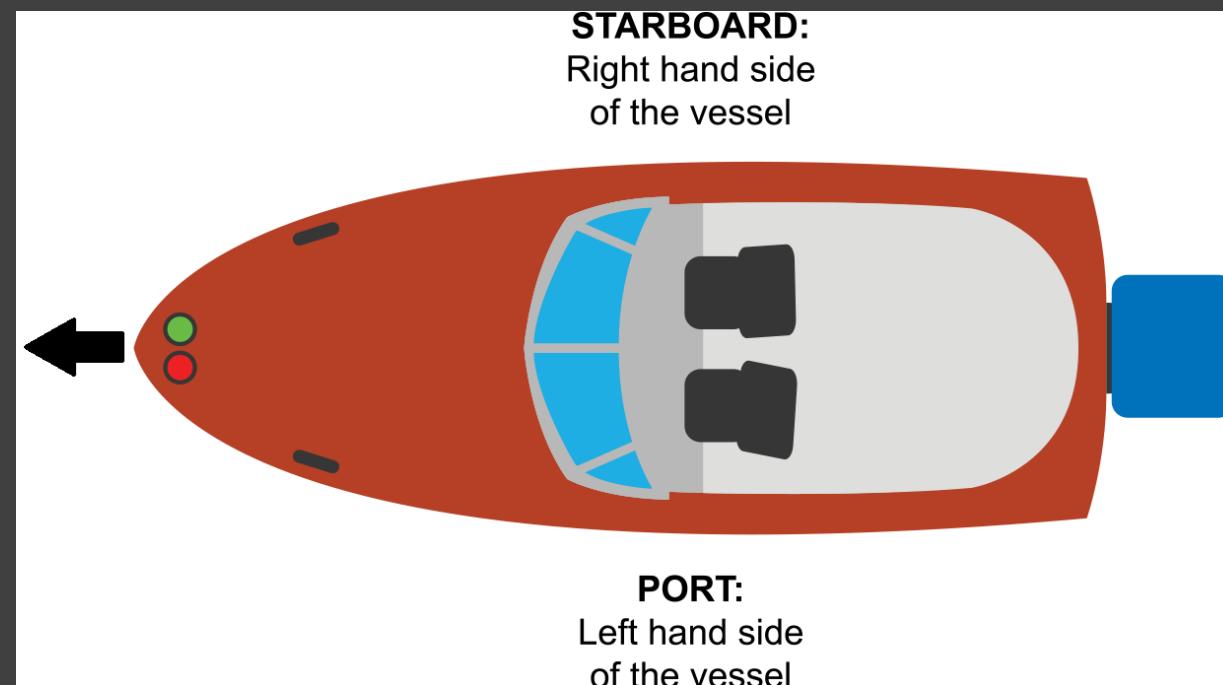
- T-90 obr. 1992 (model 1992)
- T-90A
- T-90M

A few important words

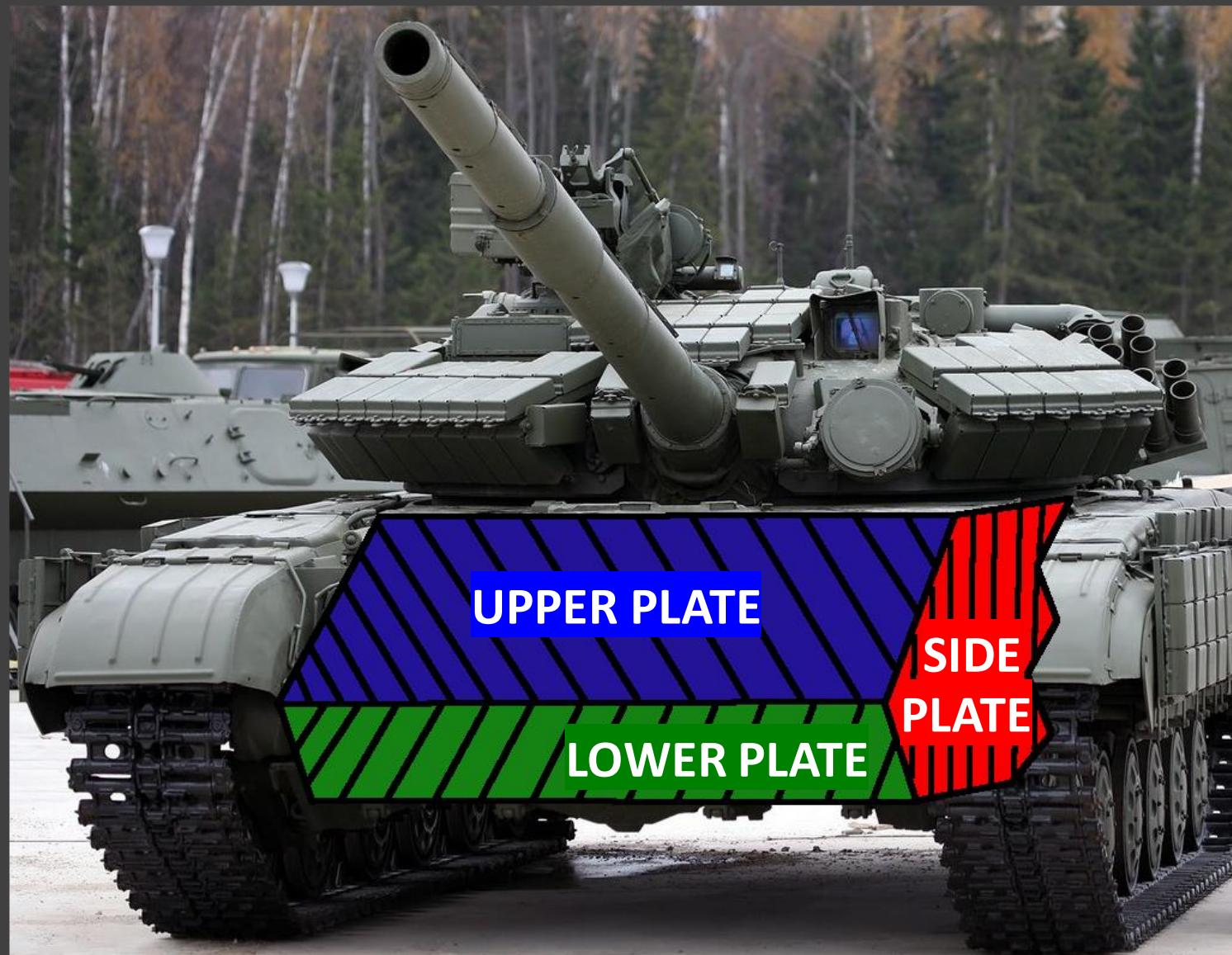
To prevent confusion when we are looking at something from the front I will use **Port** and **Starboard** terms to differentiate between sides.

If you are not familiar with these terms here is a quick rundown:

- **Port side:** if you are in your car and looking forward your left side is the port side of the vehicle
- **Starboard side:** if you are in your car and looking forward your right side is the starboard side of the vehicle



A few important definitions



TURRET CHEEKS

I. PART

I. Road Wheels

T-64



T-80



I.

II.

III.



T-72 / T-90

T-64:

- small full metal wheels
- big circular flat wheel hub what has 6 screws
- 10 U shaped dents on the wheel

T-72 / T-90 (T-90M):

- large wheels with thick rubber coating on its rims
- The wheel hub is a half sphere and around it is 6 screws
- it has 6 or 8 dents with 1 screw in each (they look like flower petals)
- T-90 types only use the II. III. variants but, **variant III. only used on T-90M**

T-80:

- large deep wheels with a thick rubber coating on its rims
- large cylindrical wheel hub with a half sphere in the middle surrounded by 10 screws
- around the wheel hub is 10 long screws

II. Idler Wheels

T-64



T-80



T-64:

- idlers are basically T-64 road wheels just with a slightly different wheel hub
- small full metal wheels
- the wheel hub has 1 big screw in the middle and 6 screws around it
- 10 U shaped dents on the wheel

T-72 / T-90:

- small full metal wheels
- large wheel hub with a half sphere in the middle with 1 screw surrounded by 10 screws
- five triangle shaped holes + 5 protruding "blades"

T-80:

- small "wire like" full metal wheel
- large wheel hub with a half sphere in the middle surrounded by 10 screws
- 10 trapezoid holes



T-72 / T-90

III. Exhaust

First:

- if you see an **exhaust at the port side** of a T series tank that has to be a **T-72 or T-90** ((T-44; T-54; T-55; T-62;... has the exhaust at the side too but we are talking about the aforementioned types))
- If the **exhaust is at the back** it is a **T-64 or a T-80**

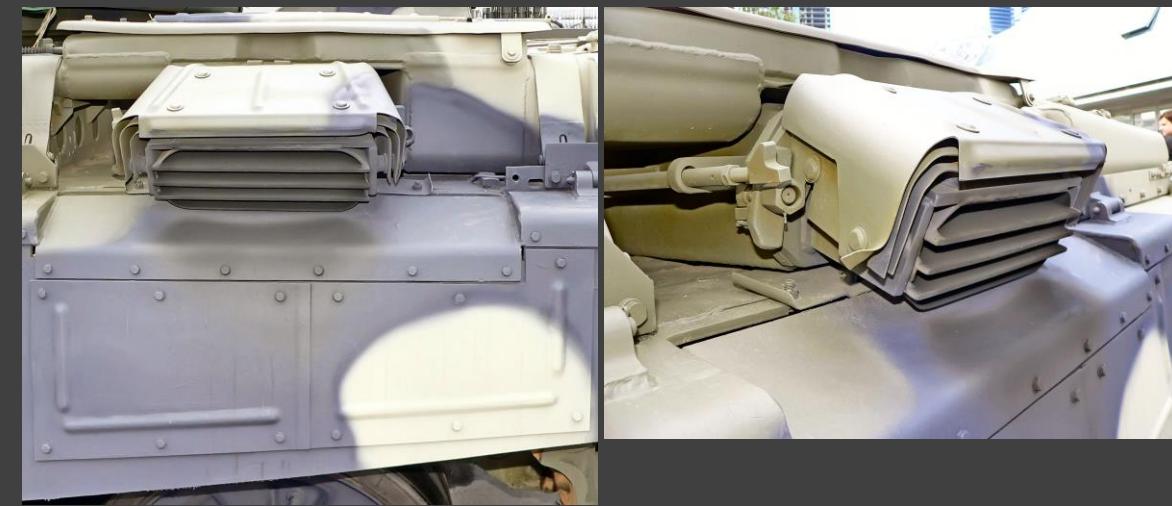
At the port side there is two main type of exhausts:

1. if you see these oval shaped; long; slightly curved exhausts with a metal cover, that is a **T-72 or a T-90 obr. 1992 (model 1992)** **BUT JUST THIS VARIANT OF THE T-90 HAS THIS TYPE OF EXHAUST**
2. these small rectangle shaped exhausts with 3 horizontal plates are **ONLY ON T-90A and T-90M tanks**

1.

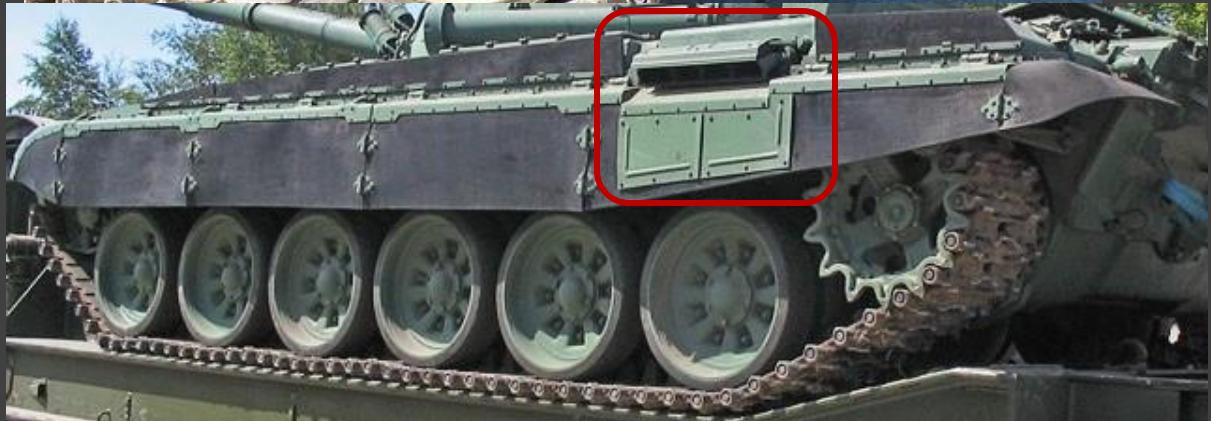


2.



III. Exhaust

T-72 / T-90



III. Exhaust

At the back there are two main types (**and 2 exceptions**) of exhausts:

1. if you see an exhaust that is at the same level as the engine deck; covers 2/3 of the length on the back plate; divided to 2 parts with horizontal, thin, long, rectangular openings; and has a wedge shaped small metal cover at the port side **that is a T-64**
2. If the exhaust is at the middle of the back plate; lower than the engine deck; has large grates with lots of openings **that is a T-80**

1.



2.



III. Exhaust

T-64



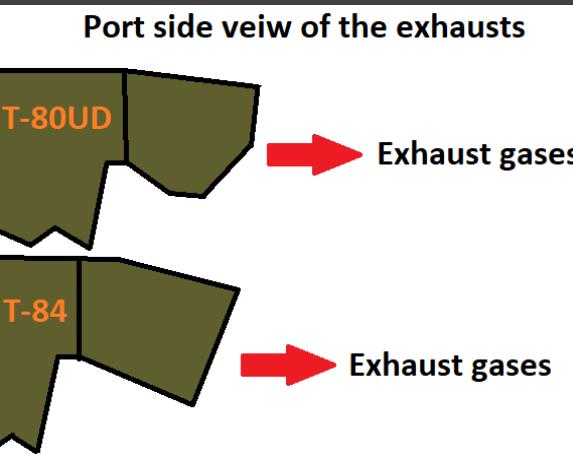
T-80



III. Exhaust

Exceptions

T-80UD and T-84 have a mix between the T-64, T-80 exhausts. Both tanks exhaust is at the middle of the back plate, and they are on the same level as the engine deck with a small angle. Looking at them from behind they are covering 2/3 of the width of the backplate, their shape is rectangular with large grates. Difference between the two is where the exhaust gases leave on T-80UD its angled twice while on T-84 is one continuous angle.



T-80UD



T-84



IV. Drivers Hatch

T-64BV



T-64



T-72 / T-90

T-64, T-72, T-90 types have 1 big periscope before the drivers hatch, while every T-80 has 3 small periscopes before the drivers hatch

T-80BV



T-80

V. IR Searchlight

First IR Searchlight is a shortening for Infrared Searchlight, you will see these devices on vehicles what are using image intensifier to operate at night or in dark conditions (on vehicles what are using thermal sights you will never see these).

They are always on the turret face and can be easily recognized by their circular shape.

If you see a IR Searchlight at the port side of the turret face that is 100% sure a T-64. (exception T-72 Ural and the T-80 [not the collective T-80, the 1976 variant what was the first version] because those tank have T-64A turrets).

If you see a IR Searchlight at the starboard side of the turret face that is a T-72 or a T-80 (exception again T-72 Ural and T-80 those have it at the port side [not the collective T-80, the 1976 variant what was the first version] and T-64B1M).

There is no T-90 variant what has IR Searchlight.



T-90

VI. Heavy Machinegun

In general you will see two type of heavy machinegun mount on these tanks:

- Facing forward: T-64, T-80, T-90
- Facing backwards: T-72

T-64, T-80, T-90 types have these mounted above the commander's cupola main periscope, the only way to rotate these is by moving the cupola so it always facing that direction where the commander main periscope is.

Exceptions:

1. **T-80U; T-80UK:** these tank have a tall cylindrical pipe before the commander's cupola at the starboard side, this is the mount for the heavy machinegun
2. **T-90M:** this variant of the T-90 has a remotely operated panoramic sight behind the commander's cupola what has a heavy machinegun at its left side

T-72 variants have their heavy machinegun mounted behind the commander's cupola hatch on a protruding metal support facing backwards, the only way to rotate these is by moving the cupola so it always faces 180° the opposite way where the commander main periscope looks.



T-64



T-64



T-64

VI. Heavy Machinegun

T-72 variants have their heavy machinegun mounted behind the commander's cupola hatch on a protruding metal support facing backwards, the only way to rotate these is by mowing the cupola so it always faces 180° the opposite way where the commander main periscope looks.



T-72



T-72



T-72

Commander's main periscope

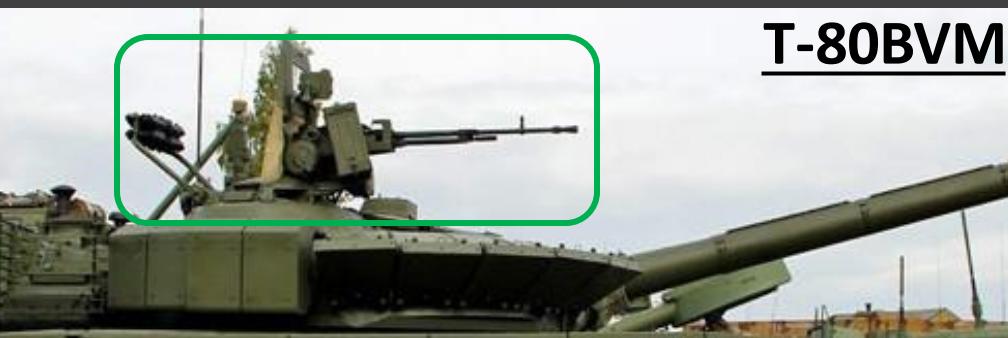
VI. Heavy Machinegun

Exceptions

T-80BVM

T-80U; T-80UK: these tank have a tall cylindrical pipe before the commander's cupola at the starboard side, this is the mount for the heavy machinegun

(T-80BV and T-80BVM pictures are here to show the difference between the mounting locations)



VI. Heavy Machinegun

Exceptions

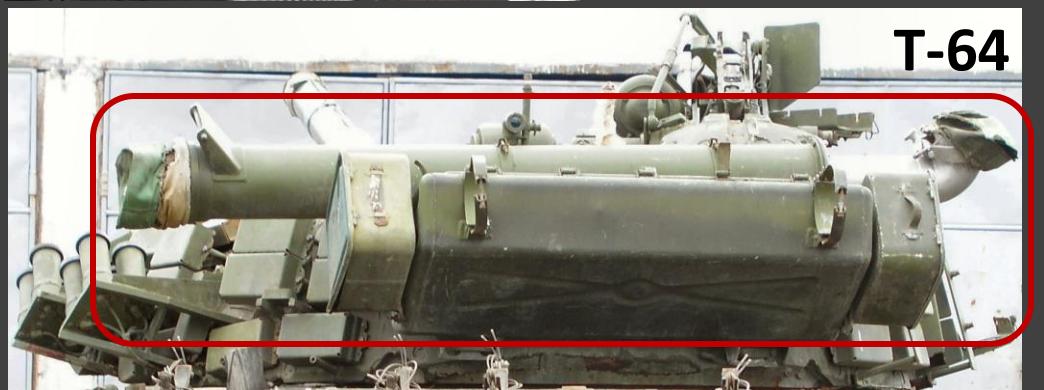
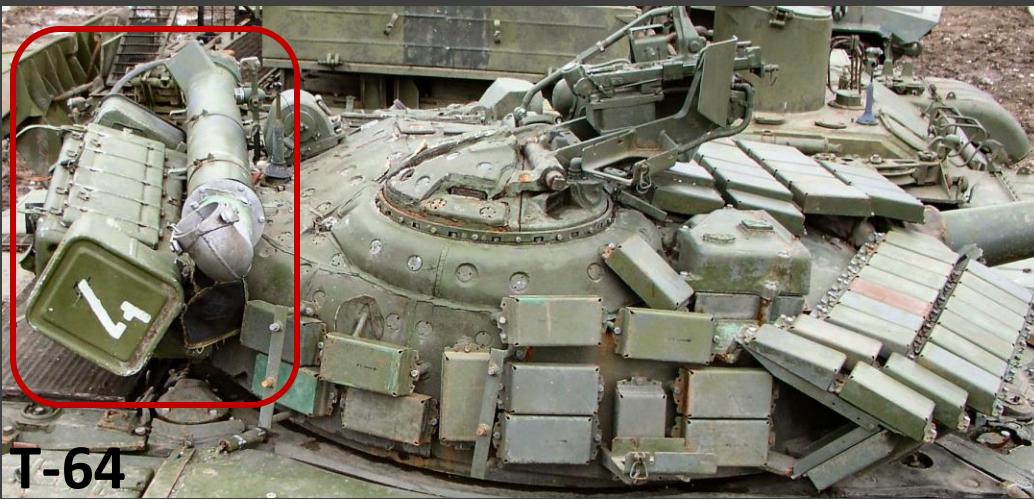
T-90M: this variant of the T-90 has a **remotely operated panoramic sight** behind the commander's cupola what has a **heavy machinegun** at its left side



VII. Fording Tube T-64

Fording Tubes are those large long tubes at the side or at the back of a turret on soviet tanks, these are used at river crossings. When installed they supply air to the crew and engine while the vehicle is under water.

T-64 have a relatively short small diameter fording tube, at one side is a smaller diameter tube what shaped like a L, on the other side is a metal plug what usually has a rubberized canvas cover. **ITS ALWAYS MOUNTED ON THE BACK OF THE TURRET** behind the commander's cupola, above the very distinctive looking sheet metal box what is unique to the T-64. (this box in most cases have one small rectangular box on its two sides)



VIII. Fording Tube T-80

You can easily spot T-80s by their fording tubes. These are large diameter ,long tubes and **THEY ARE ALWAYS LOCATED BEHIND THE TURRET** on two brackets what are spacing and elevating them from the back of the turret. Usually you will see these in two type of configuration:

I. at one side is a rectangular cover, on the other side is a circular cover, and in most cases there is two rectangular shaped boxes on the tube, there is always a lot of space between the tube and the turret (variants: T-80 [the first version of the T-80s]; T-80B; T-80BV)

II. at one side is a rectangular cover, on the other side is a complex shape adapter for the exhaust, between the tube and the turret usually is an oval shaped tube facing up with a rectangular bottom this is the air intake adapter (every variant of T-80 after the T-80BV)



I.



II.

VIII. Fording Tube T-72 / T-90

I.

- Just old and export variants of T-72 used this attachment point at the **port side of the turret** for the fording tube.
 - a) Old variants of T-72: *T-72 Ural; T-72A*
 - b) Export variants: *T-72M; T-72M1; M-84*

II.

- Every variant of T-72 after T-72A what is not export and all T-90 use this position at the **back of the turret** for the fording tube.
 - a) so *T-72B; T-72B1; T-72AV; T-72BA; T-72B obr. 1989 (model 1989); T-72B3; T-72B3 model 2016 (T-72B3M)*
 - b) so *T-90 obr. 1992 (model 1992); T-90A; T-90M*



I.



II.



VIII. Engine Deck

T-64:

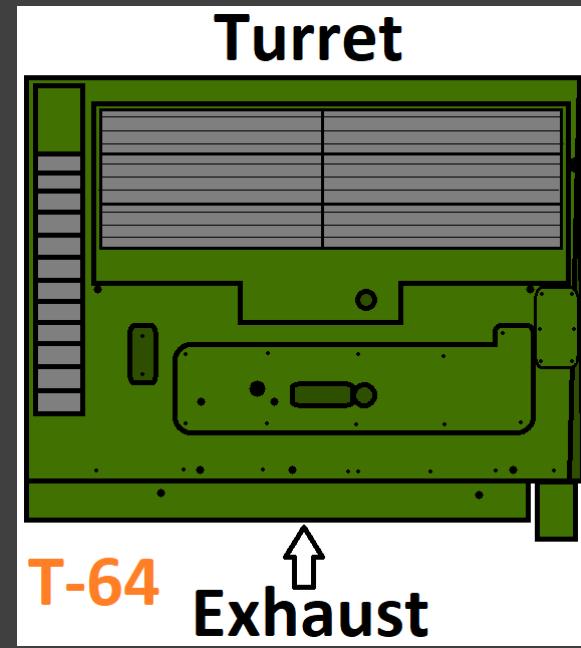
- a long vertical thin intake at the port side
- behind the turret is a large horizontal intake, with 6 rectangular segments, covering half of the engine deck

T-72 / T-90:

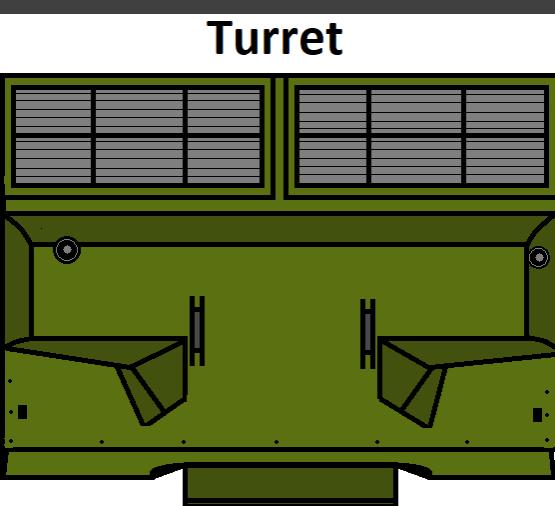
- Large horizontal metal cover behind the turret what is covering half of the engine deck
- two large horizontal intakes be side each other, with 6 rectangular segments each
- behind the large horizontal intakes is a smaller horizontal intake with 2 segments

T-80:

- behind the turret is 2 separate horizontal intakes with 6 segments, what are covering 1/3 of the engine deck
- rest of the engine deck in most cases full metal



T-64 Exhaust



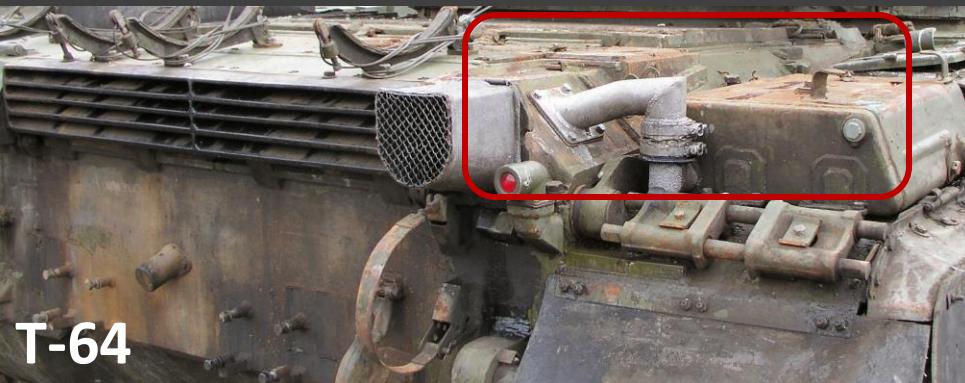
T-80 Exhaust



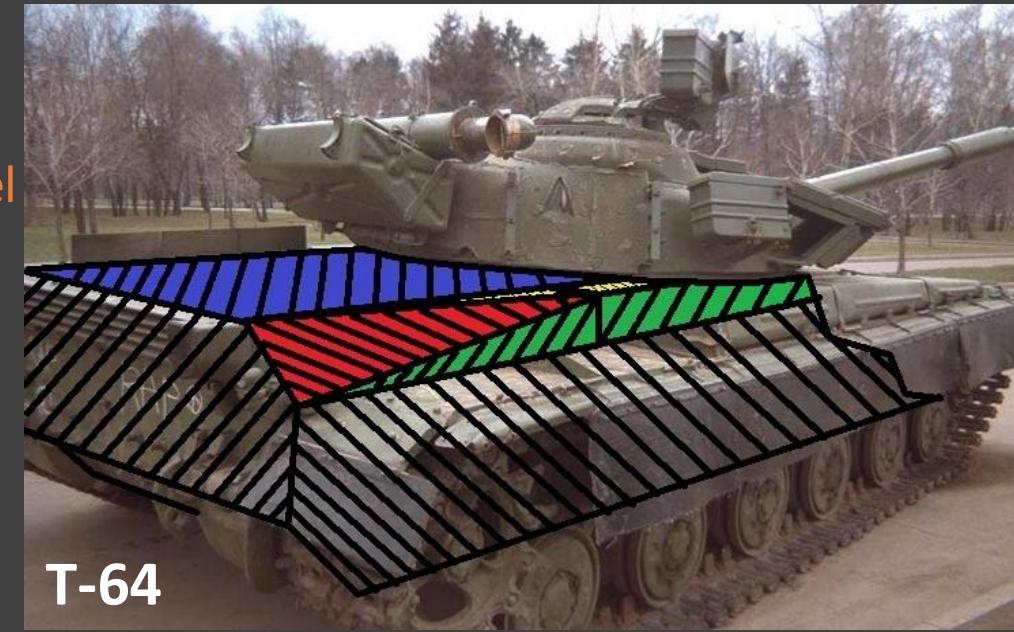
T-80

VIII. Engine Deck

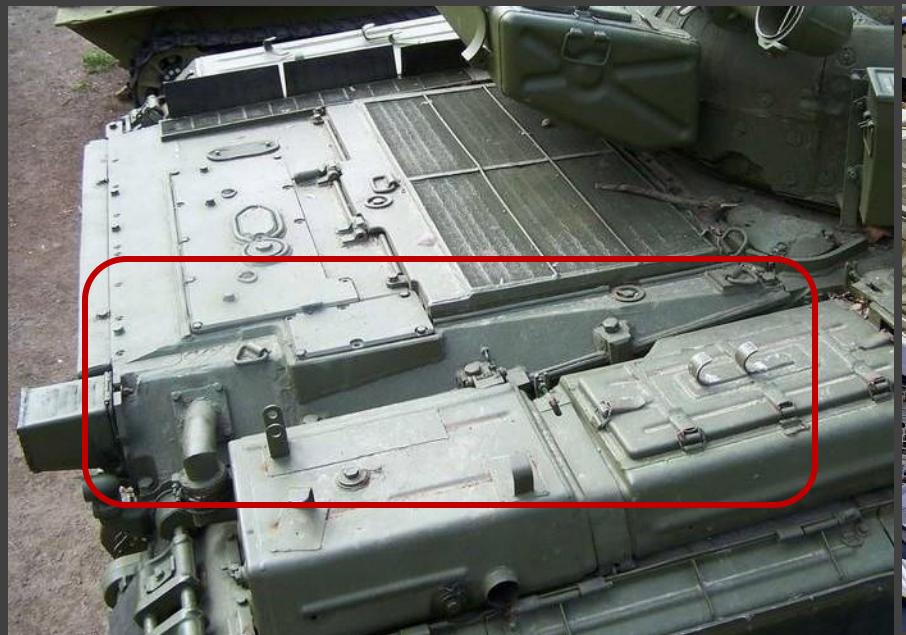
T-64 have a unique feature. On their starboard side engine deck is a **45° angel cut** what slowly tapers up until it reaches the horizontal level of the engine deck, **only T-64 has this feature among the T series tanks.**



T-64



T-64



T-72 / T-90



T-80

IX. Tracks

I.

- only used on T-64 variants

II.

- used on T-72 variants and on T-90 obr. 1992 (model 1992) BUT JUST ON THIS VARIANT OF T-90

III.

- used on all T-80 variants, T-72B3; T-72B3 model 2016 (T-72B3M), T-90A; T-90M,



I.



III.



II.



X. Drive Sprocket

V.

I.

- only used on T-64 variants

II.

- used on all T-72 variants (except T-72B3; T-72B3 model 2016 [T-72B3M]) and on T-90 obr. 1992 (model 1992) **BUT JUST ON THIS VARIANT OF T-90**

III.

- used on T-72B3; T-90A

IV.

- used on all T-80 variants (except T-84 variants) and on T-72B3 model 2016 (T-72B3M); T-90M

V.

- only used on T-84 variants



I.



II.



III.



IV.



III. PART

Recognizing passive and active protection systems

First, what is passive and active protection system?:

I. **Passive protection systems**: usually add-on armors what are defending the vehicle by just being installed, without needing any other action to work.

II. **Active protection systems (APS)**: is a system designed to actively prevent certain anti-tank weapons from destroying a vehicle.:

- **Soft kill** : Countermeasures that either conceal the vehicle from, or disrupt the guidance of an incoming guided missile threat.
- **Hard kill** : Countermeasures that physically strike an incoming threat to damage or destroy it and thereby limit its ability to penetrate armor.

III. **Sensors**: I am mainly thinking about meteorological sensors.

I. Passive Protection Systems

ERA = Explosive Reactive Armor: these are sacrificial armor blocks, what are design to explode when hit to destroy or degrade the penetration of projectiles (mainly designed against HEAT [High Explosive Anty Tank] and APFSDS [Armor Piercing Fin Stabilized Discarding Sabo] projectiles)

1. Soviet/Russian:

- Kontakt 1 / 4S20
- Kontakt 5 / 4S22
- Relikt / 4S23
- 4S24 blocks

2. Ukrainian:

- Nozh
- Duplet

3. Polish:

- Erewa 2

4. Cage armor

II. Active Protection Systems

APS = Active Protection System shortening

1. Soft kill:

- Shtora-1
- Lazer warning receivers
- Smoke dischargers

2. Hard kill:

- Drozd
- Zaslin

I. Passive Protection Systems

1. Soviet/Russian:

Kontakt 1 / 4S20 : you can easily differentiate **kontakt 1** blocks from other ERAs because they are **always mounted in small rectangular shaped boxes on the exterior of the vehicle**. You will see them mounted on the turret; upper plate; lower plate and sides of the tanks **usually following the shape of the vehicle, exception is the turret face on some variants those have placed in a V shape, namely: T-64BV; T-72AV; T-80BV**

Only variants with **kontakt 1**: T-64BV; T-72B; T-72B1; T-72AV; T-80BV



4S20 Kontakt-1 ERA



T-72B1



T-80BV



T-64BV



I. Passive Protection Systems

1. Soviet/Russian:

Kontakt 5 / 4S22 : kontakt 5 is placed in a far larger rectangular shaped boxes than kontakt 1 and you can easily differentiate between the two especially on the turret faces. Kontakt 5 is always built into the upper plate and side skirts of the vehicles, unlike kontakt 1 blocks what are always outside of the upper plate and side skirts.

Kontakt 1



Kontak 5



1



I. Passive Protection Systems

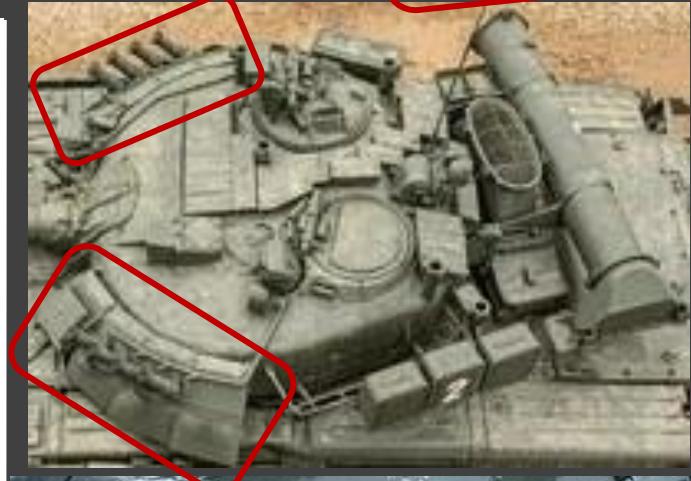
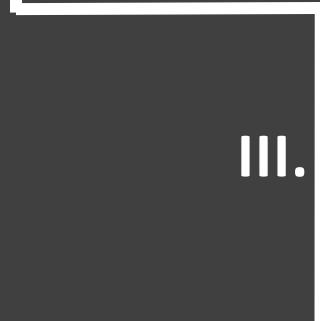
1. Soviet/Russian:

Kontakt 5 / 4S22 on the turret:

I. only used on late T-72 variants in this configuration, you can easily differentiate this between other ERA by the huge gaps between the kontakt 5 blocks. T-72B obr. 1989 (model 1989); T-72BA; T-72B3; T-72B3 model 2016 (T-72B3M)

II. This configuration only used on T-90 variants, namely: T-90 obr. 1992 (model 1992); T-90A

III. This configuration only used on T-80U variants, namely: T-80U; T-80UK; T-80UD; T-80UE1; T-80UM2; T-84



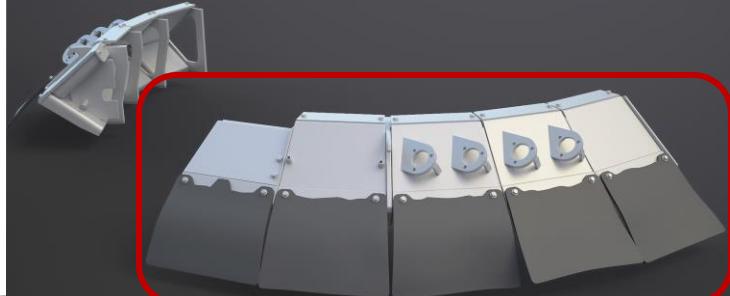
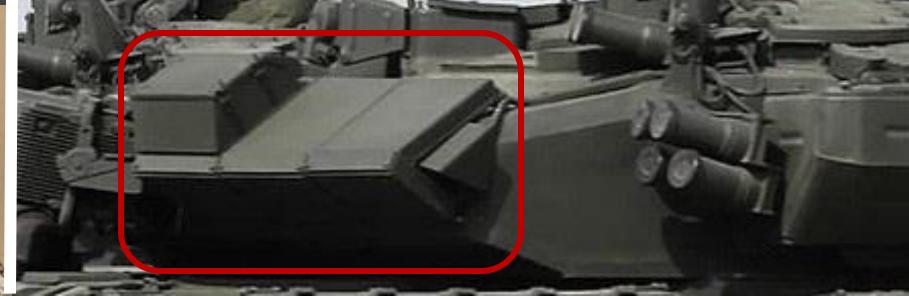
I.



II.



III.



I. Passive Protection Systems

1. Soviet/Russian:

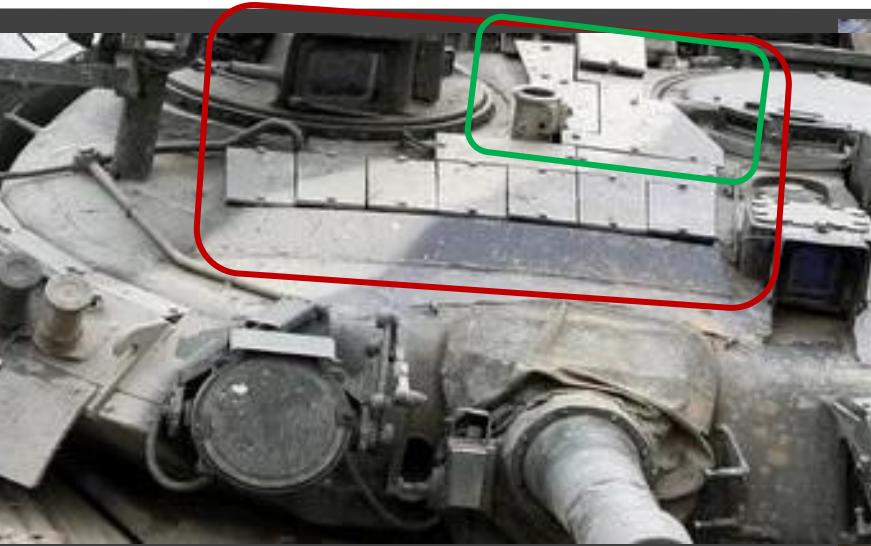
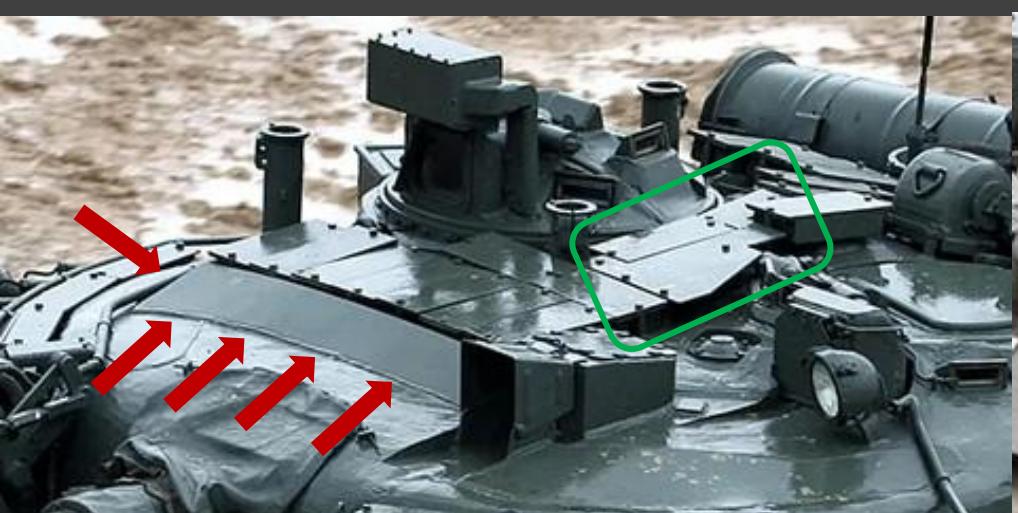
Kontakt 5 / 4S22 on the top of the turret:

I. small, thin, rectangular boxes with angles on their shorter ends are only used on late T-72, T-90 variants (except T-90M) and T-80BVM.:

T-72B obr. 1989 (model 1989); T-72BA; T-72B3; T-72B3 model 2016 (T-72B3M); T-90 obr. 1992 (model 1992); T-90A; T-80BVM

II. small, thin, rectangular kontakt 5 boxes only used on T-80U variants (and T-84). If you look at the front there will be a small raised angled metal plate before the ERA blocks and two complex shaped ERA between the commander gunner hatch.:

T-80U; T-80UK; T-80UD; T-80UE1; T-80UM2; T-84



I. Passive Protection Systems

1. Soviet/Russian:

Kontakt 5 / 4S22 on the upper plate:

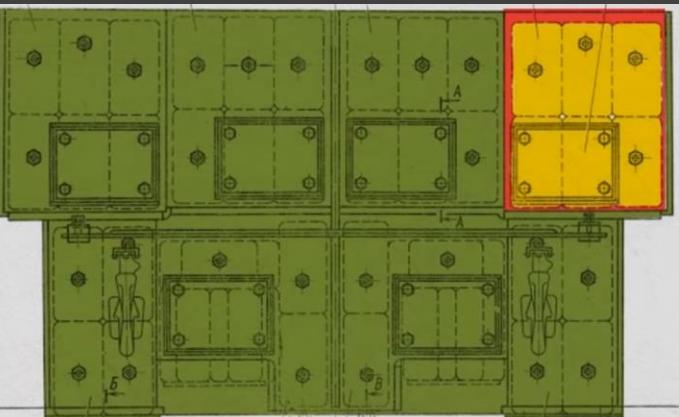
I. 6 rectangular shaped covers in 2 horizontal rows (four in the upper row two in the lower), a big horizontal water reflector between the headlights, and the TOWING HOOKS are ON THE ERA BLOCKS. This type of kontakt 5 upper plate is used just on late T-72 and T-90 variants (except T-90M).:

T-72B obr. 1989 (model 1989); T-72BA; T-72B3; T-72B3 model 2016 (T-72B3M);
T-90 obr. 1992 (model 1992); T-90A

II. 6 rectangular shaped covers positioned vertically at the middle of the upper plate, on them is a short horizontal water reflector; there is a large space ahead of the driver's periscopes what is not covered with ERA; the TOWING HOOKS have cut outs in the ERA because they are mounted ON THE MAIN ARMOR OF THE TANK NOT ON THE ERA (because of this they sit low). This type of kontkat 5 upper plate only used on T-80U variants (and only on T-84).:

T-80U; T-80UK; T-80UD; T-80UE1; T-80UM2; T-84

I.



I. Passive Protection Systems

1. Soviet/Russian:

Kontakt 5 / 4S22 on the sides: sometimes kontakt 5 side panels are not installed on the vehicles, usually you will see this happen on T-72 and T-90 tanks.

I. 6 large metal blocks in 3 vertical row, on the rubber side skirt covering 1/3 length of the vehicle only on T-80U variants (and T-84).

II. 3 large rectangular metal box, on the rubber side skirt covering 1/3 length of the vehicle only used on late T-72 and T-90 variants.:

- T-72 obr. 1989 (model 1989)
- T-72BA
- T-72B3
- T-90 obr. 1992 (model 1992)
- T-90A

I.

II.



I. Passive Protection Systems

1. Soviet/Russian:

Relikt / 4S23 : relikt on the turrets are large rectangular boxes mounted in a V shape and always closely connected (they are larger than kontkat 5 blocks)

On the upper plate you will see 1 type: ahead of the driver's periscopes is 4 vertical rectangular covers with 2 horizontal row of screws and 3 row of short fins, other parts of the plate have a smooth finish, where the upper and lower plate meets is a row of large 6 screws what are always visible.

Relikt only used on T-80BVM and T-90M.



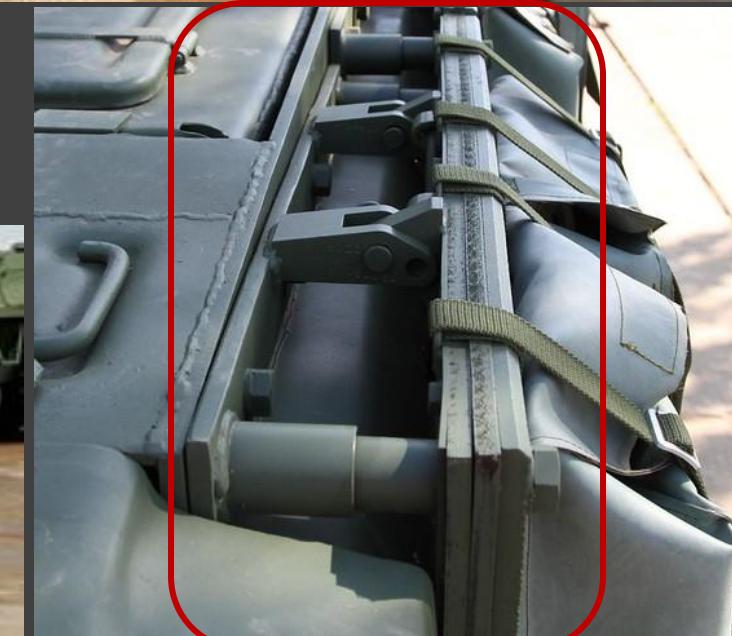
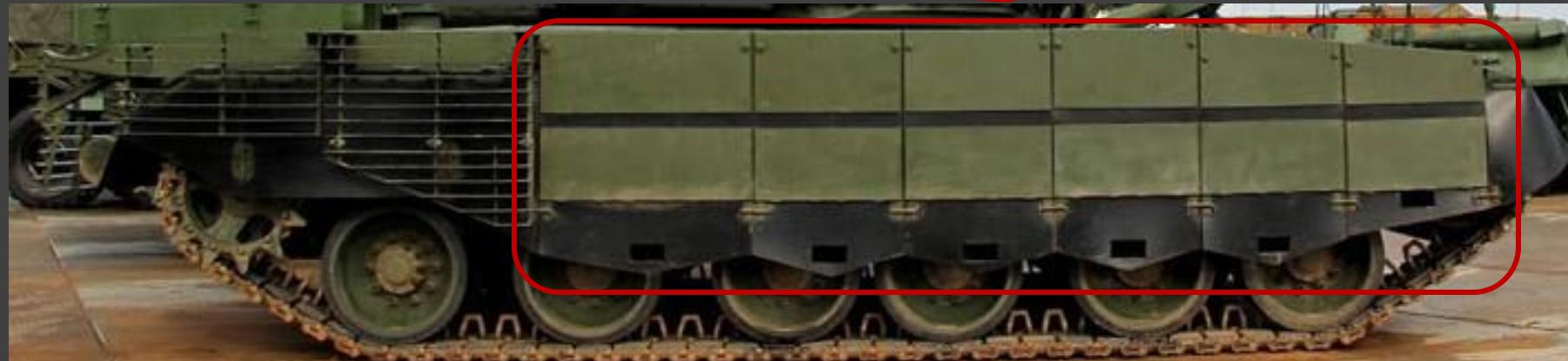
I. Passive Protection Systems

1. Soviet/Russian:

Relikt / 4S23 on the sides:

12 large rectangular metal sheets integrated into the rubber side skirt
in 6 rows covering 2/3 length of the vehicle **only used on:**

- T-72B3
- T-72B3 model 2016 (T-72B3M)
- T-80BVM
- T-90M



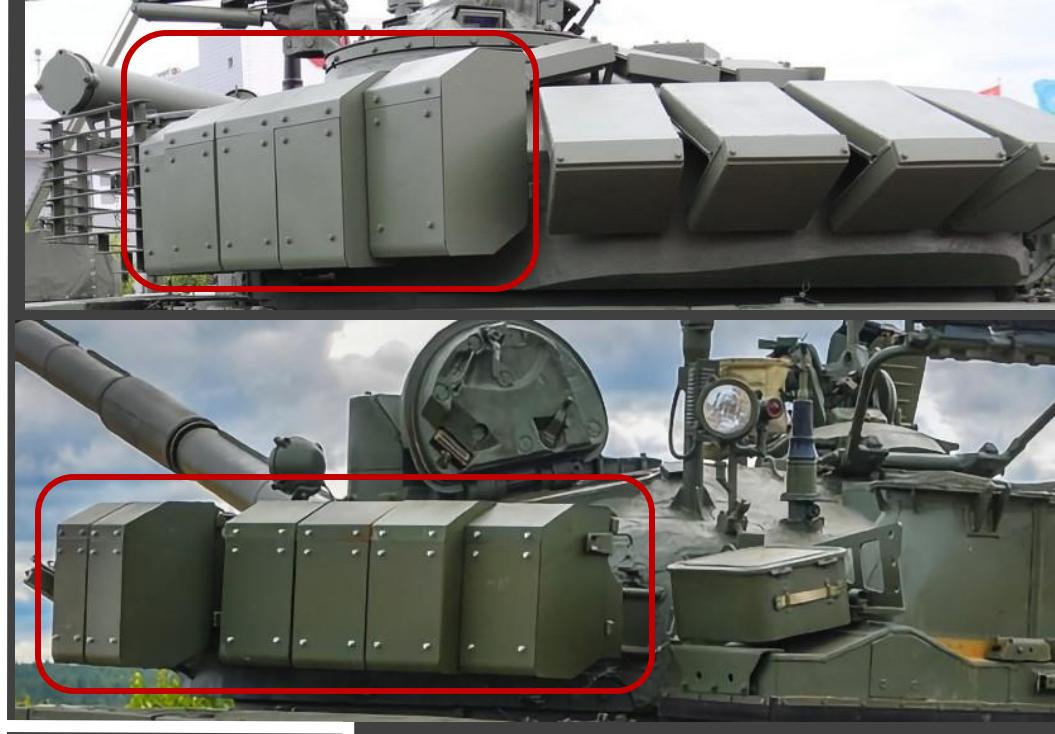
I. Passive Protection Systems

1. Soviet/Russian:

4S24 blocks :

I. These ERA bags are always used at the sides, on top of the side skirts, in most cases you will see them on T-72B3; T-72B3 model 2016 (T-72B3M); T-80BVM

II. These blocks are always mounted on the turret sides of tanks.: T-72B3; T-72B3 model 2016 (T-72B3M); T-80BVM



I.



I. Passive Protection Systems

2. Ukrainian:

Nozh : you will find them in two forms,:
I. in long rectangular blocks what are always mounted together without any gap between them, in most cases they cover the whole area where they are placed. On the turret faces you will see them placed in V shape usually with rubber skirts, on the upper plates you will see them in long vertical blocks with a big cut out for the driver periscopes, and the TOWING HOOKS ARE ON THE SAME LEVEL WITH THE ERA BLOCKS.

II. in Kontakt 1 blocks only on T-64BV model 2017; T-72AMT

Only used on T-64B1M; T-64BM1; T-64BM2; T-64 model 2017; T-84 Oplot



I. Passive Protection Systems

2. Ukrainian:

Nozh on the turret:

- I. thin long blocks with large rubber skirts **only on T-64BM1; T-64BM2**
- II. in **kontakt 1 blocks only on T-64BV model 2017**
- III. **large trapezoid shaped blocks in V shape what are closely connected, without rubber skirts, where the two blocks meet is a complex shaped metal cover only on T-64B1M**
- IV. **closely connected thin long blocks in a V shape covering the whole turret face, thin rubber skirts are always mounted (sometimes they are flipped up see on picture 1) only on T-84 Oplot**



IV.



III.



II.



I.



I. Passive Protection Systems

2. Ukrainian:

Nozh at the sides:

I. in kontakt 1 blocks only on T-64BV model 2017

II. large, vertical rectangular boxes covering 2/3 of the sides only on T-64B1M

III. similar to kontakt 5 on T-80U sides but it's much thicker and the 6 mounting screws are in small protruding metal tubes only on T-64BM1; T-64BM2



T-64BM2



Kontakt 5 blocks on T-80U



I.



II.



T-64B1M

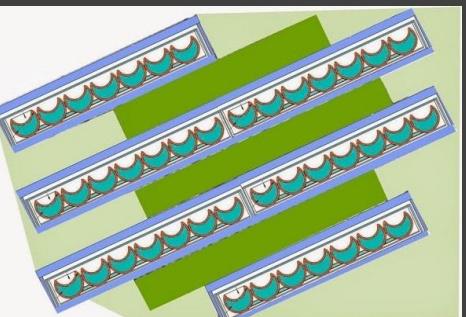
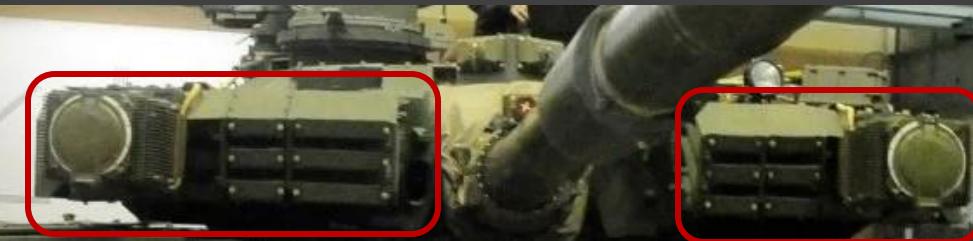
I. Passive Protection Systems

2. Ukrainian:

Duplet :

duplet is basically 2-4 nozh ERA blocks stacked on each other with fillers between them, the width of the blocks is the same as nozh but they are way taller because there is multiple inside them.

At the moment only T-84 Oplot-M fitted with this ERA.

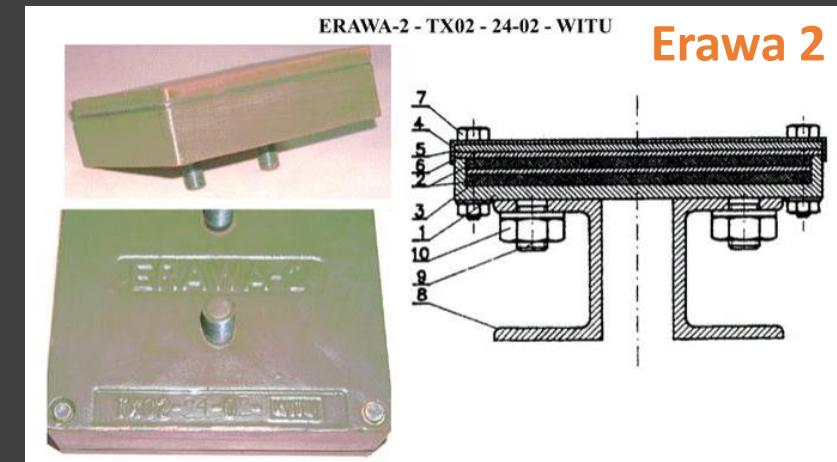


I. Passive Protection Systems

3. Polish:

Erawa 2 :

Erawa 2 blocks are small square shaped, mounted close to each other; the **only** tank equipped with this ERA is PT-91



I. Passive Protection Systems

4. Cage armor:

Welded metal structures what are resembling cages, usually mounted at the sides and back on vehicles. Their role is to destroy or "catch" HEAT projectiles and initiate their fuse ahead of the main armor of the vehicle, if this is achieved the jet from the projectile will slow and cool down while traveling the plus distance in air degrading its penetration.



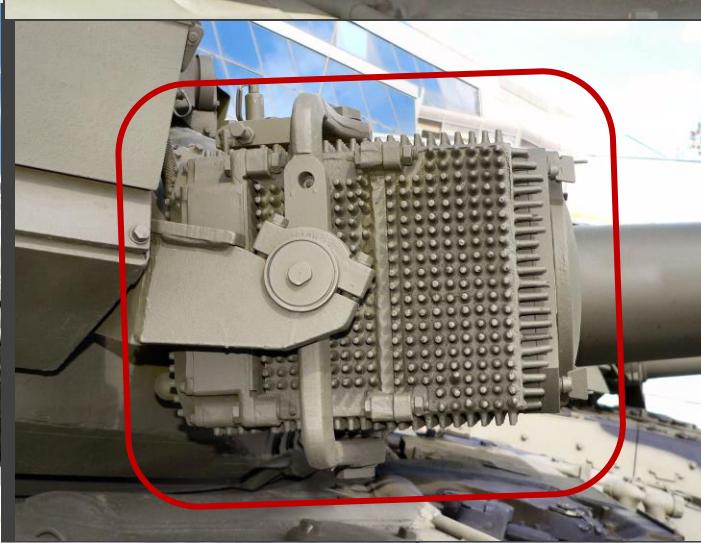
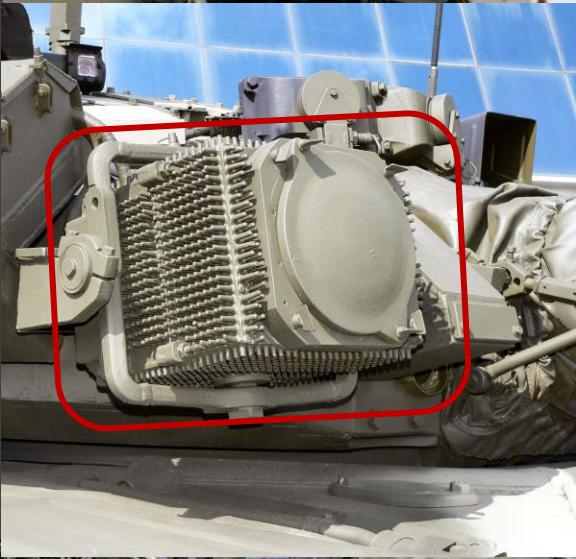
II. Active Protection Systems

1. Soft kill protection systems:

Sthora-1 : is an electro-optical jammer "dazzler" that disrupts the control of semiautomatic antitank guided missiles, laser rangefinders and target designators. These devices **always on the turret face at both sides**, have a **cubical shape with a big circular cover or without the cover you can see the circular lenses**. Its exterior is covered with fins what are providing passive cooling. These dazzlers are **always paired with laser warning receivers** what are above the main gun.

Used on.:

T-80UK; T-90 obr. 1992 (model 1992); T-90A; T-84; T-84 Oplot; (**T-84 Oplot-M has a very similar system what is called Varta**)

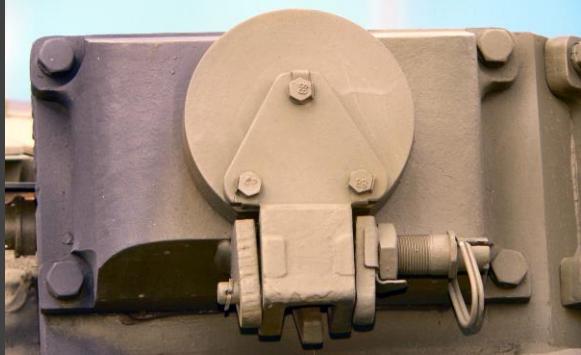
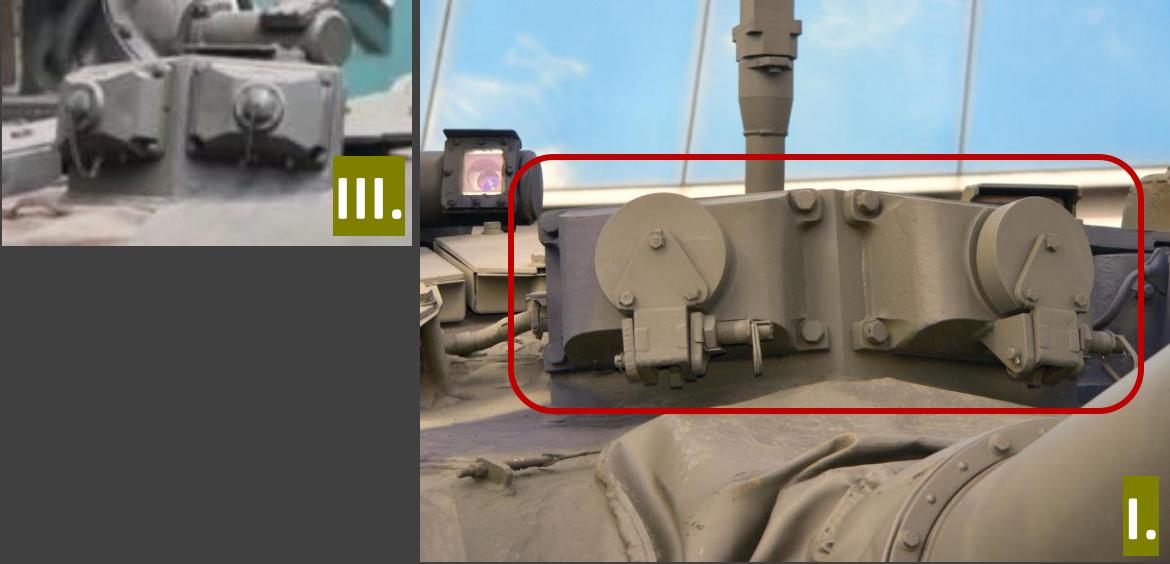


II. Active Protection Systems

1. Soft kill protection systems:

Lazer warning receivers : small rectangular boxes, slightly facing away from each other, with two small circular lenses, **above the main gun (exception T-90M)**; in most cases these are paired with Sthora-1 or Varta dazzlers (exception T-90M).

- I. T-80UK; T-90 obr 1992 (model 1992); T-90A; T-84
- II. T-90M
- III. T-84 Oplot; T-84 Oplot-M

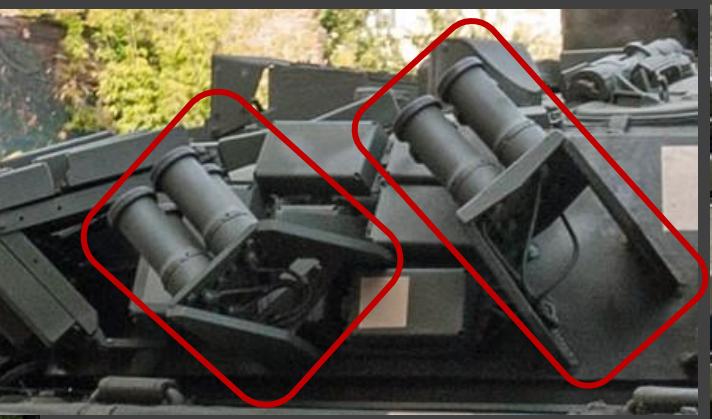


II. Active Protection Systems

1. Soft kill protection systems:

Smoke dischargers :

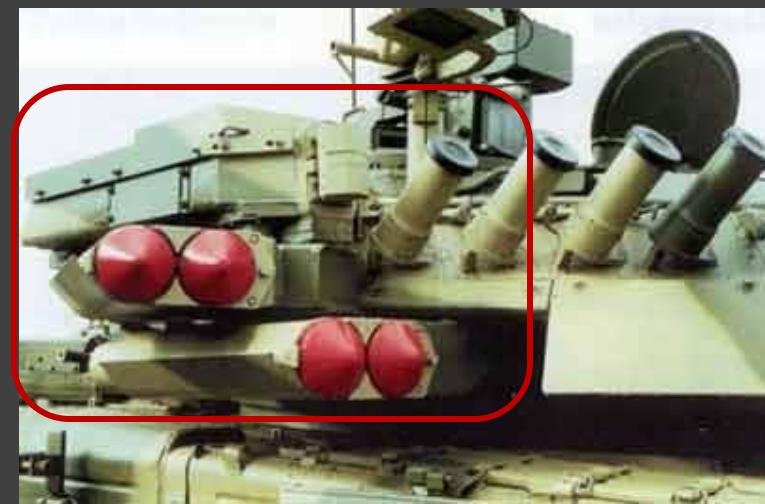
Cylindrical tubes at the sides or front of the turrets, each carries a smoke grenade, when deployed each can launch a smoke grenade what generates smoke between 25-40 sec to conceal the vehicle.



II. Active Protection Systems

2. Hard kill protection systems:

Drozd-2 : This system consist 4 launchers at both side of the turret, 2 looking forward and 2 looking slightly away the vehicle; above them at both sides one large rectangular metal box this is the radar and behind the launchers at the port side is a large metal box. Only one prototype was made with this APS named T-80UM2, (but this vehicle was lost in early March 2022 in Ukraine)

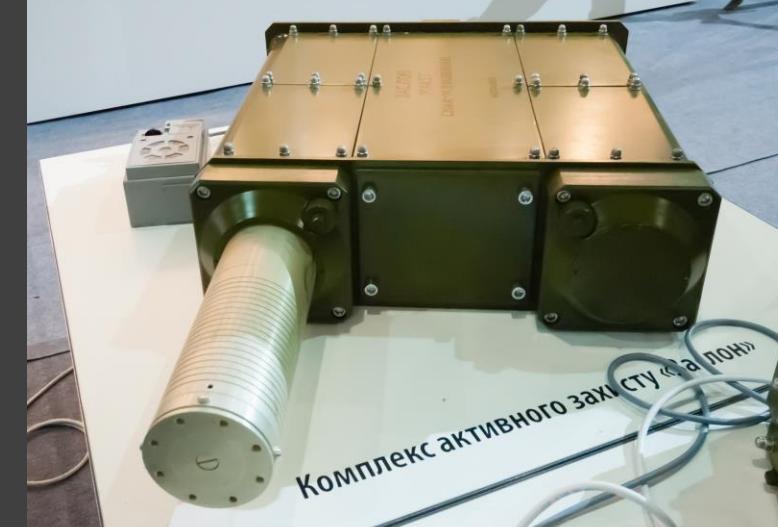
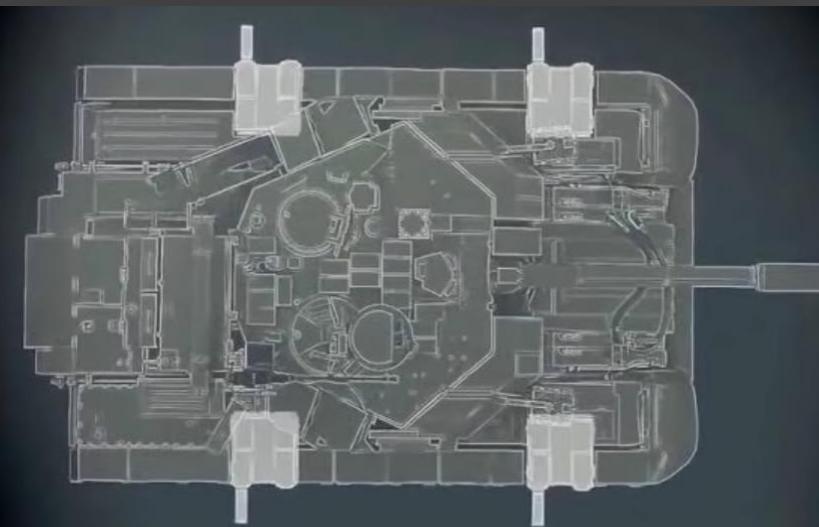
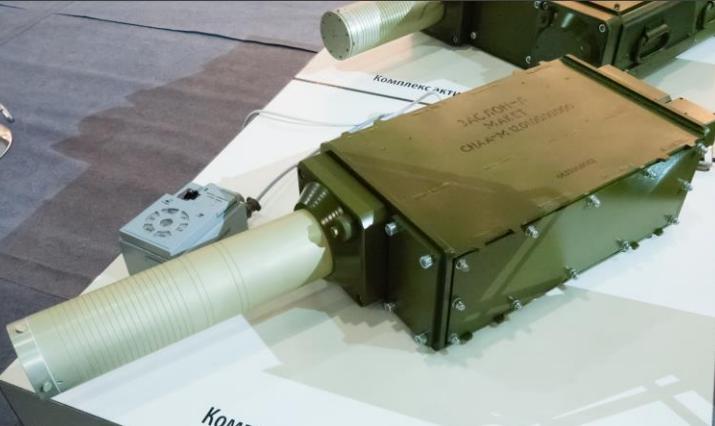


II. Active Protection Systems

2. Hard kill protection systems:

Zaslin :

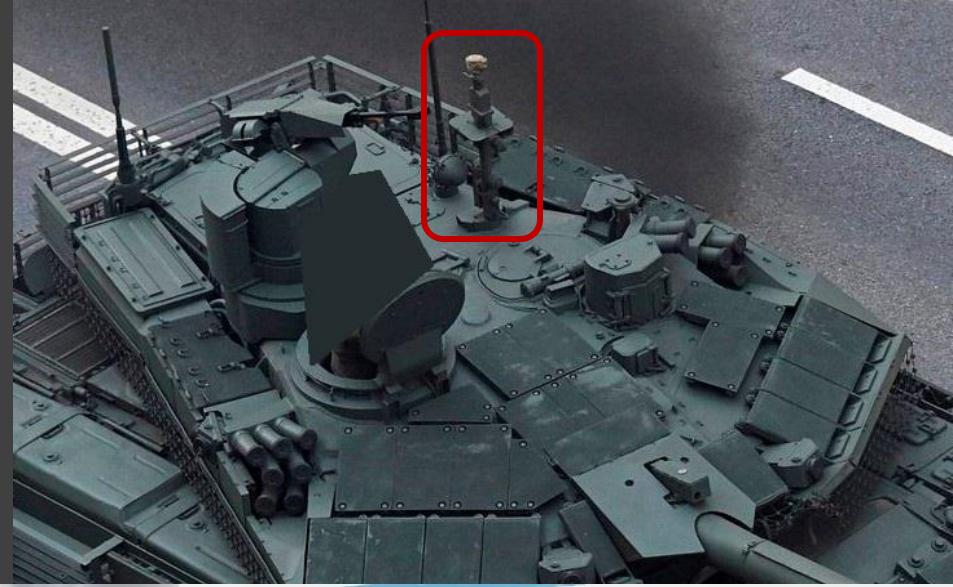
There is a very small chance you will see them mounted on the sides and roof of T-84 Oplot-M models.



III. Sensors

Meteorological sensors:

These are always located behind the gunner's hatch at the port side of the turret



I am currently working on this

III. PART

Variants

Type marked with: ●

Ukrainian variants: ■

Yugoslav variants: ■

-Earliest version of the types is at the top

Variant marked with: ○

Polish variants: ■

Export variants: *T-something*

-Latest at the bottom

T-64

- T-64 (object 432)
- T-64A
- T-64B
- T-64B1
- T-64BV
- T-64B1M**
- T-64BM1 Bulat
- T-64BM2 Bulat
- T-64BV model 2017

T-72

- T-72 Ural
- T-72A
- T-72M**
- T-72M1**
- T-72B
- T-72B1
- M-84**
- T-72AV
- T-72B obr. 1989 (model 1989)
- T-72BA
- PT-91 Twardy**
- T-72B3
- T-72B3 model 2016 (T-72B3M)
- T-72AMT**
- T 72M1 model 2022**

T-80

- T-80
- T-80B
- T-80BV
- T-80U
- T-80UK
- T-80UD
- T-80UE1
- T-80UM2
- T-84**
- T-84 Oplot**
- T-84 Oplot-M**
- T-80BVM

T-90

- T-90 obr. 1992 (model 1992)
- T-90A
- T-90M

T-64

T-64 (object 432) : *page 58*

- **optical rangefinder in the turret, 2 thin deep cuts for its lenses on the frontal turret roof**
- IR searchlight at the port side of the turret cheek
- 115mm main gun (same on T-62)
- lacks top mounted heavy machinegun
- lacks smoke dischargers
- the only T-64 what has **3 driver periscopes**
- **ahead of the driver's hatch is a raised metal part what is shaped like a diamond**
- lacks V shape water reflector from the upper plate

T-64A : *page 59-61*

- new turret **with optical rangefinder, 1 thin deep cut on the port side of the frontal turret roof – on the starboard side the rangefinder extends out of the turret in a rectangular shape**
- IR searchlight at the port side of the turret cheek
- new 125mm main gun
- heavy machinegun mounted above the commander's hatch
- lacks smoke dischargers
- 1 driver periscope
- V shaped water deflector on the upper plate

T-64B : *page 62-63*

- new turret **with laser rangefinder so the optical rangefinder is no longer present**
- it has the guidance system for launching Kobra ATGM missiles, so **there is a Kobra sight at the starboard side of the turret in front of the commander's cupola, it's a small rectangular shaped box**
- the gunner's scope is far larger than on previous variants (port side of the frontal turret roof)
- IR searchlight at the port side turret cheek
- heavy machinegun mounted above the commander's hatch
- 8 smoke dischargers; 4 at the starboard side turret cheek in a straight line, 4 at the port side turret cheek in a rectangular shape
- V shaped water deflector on the upper plate

T-64B1 : page 64-65

- It looks exactly like a T-64B, except it lacks the guidance system to launch Kobra ATGM missiles **so the Kobra sight is missing at the starboard side of the turret in front of the commander's hatch (small rectangular box)**

T-64BV : page 66-67

- it's a T-64B, T-64B1 or T-64BM (T-64BM is a T-64B with a new 1000hp engine there is no visual difference) **equipped with kontakt 1 ERA** [because if this sometimes you will see T-64BVs without Kobra sight those tanks were upgraded T-64B1s]
- **kontakt 1 ERA is mounted:**
 - on the **turret cheeks in a V form**; **have a rectangular shape without a curve**; **on top of the V is two kontakt 1 blocks in each vertical row** (this is unique for the T-64BV)
 - on the **turret roof in a diamond shape**
 - on the **turret sides following the shape of the turret**
 - on the **upper plate**, almost all is covered with ERA except around the driver's hatch
 - on the **lower plate**, **1 horizontal row where it meets the upper plate**
 - **each side covering the first 2/3 length of the tank**
- **IR searchlight** is placed on the port side **turret cheek main armor**, there is cut out in the ERA blocks here for the IR searchlight
- 8 smoke dischargers after the port side **turret cheek ERA**

T-64B1M : page 68-69

- Ukrainian upgrade for T-64B1, so it **lacks the Kobra missile sight**
- the **turret has a pretty unique extension at its back**
- **nozh ERA is mounted:**
 - on the **turret cheeks in a curved V shape without any gaps between the ERA blocks**, **there is no rubber skirts at the end of the nozh blocks**, and **where the two blocks meet you can see a complex metal shape surrounded with 5 screws in two rows**
 - on the **turret roof what is curved and covers the whole frontal part**
 - on the **upper plate**, almost all is covered with ERA except around the driver's hatch, **towing hooks are on the same level as the ERA blocks**
 - **each side covering the first 2/3 length of the vehicle**
- **IR searchlight** is mounted on the **starboard side** **turret cheek ERA**
- 4 smoke dischargers on each side of the **turret** after the last ERA block

T-64BM1 Bulat : page 70

- Ukrainian upgrade for T-64B **IT LACKS THERMAL SIGHT, SO IT STILL RETAINS THE IR SEARCHLIGHT**
- Nozh ERA is mounted:
 - on the **turret cheeks in a curved V shape without any gaps between the ERA blocks**, it extends over the **turret cheeks to cover some part of the turret sides**, large rubber skirts are mounted on the **turret cheek ERA blocks**
 - on the **turret roof in a curved shape covering most of the frontal part of the roof**, they are closely connected to each other
 - on the **upper plate**, almost all is covered with ERA except around the driver's hatch, **towing hooks are on the same level as the ERA blocks**
 - **each side, covering the first 1/3 of the tank with 6 long blocks**
- IR searchlight mounted **on the port side turret cheek**, directly to the main turret armor **so there is a cut out in the turret cheek ERA blocks**
- 4 smoke dischargers on each side of the turret after the ERA blocks

T-64BM2 Bulat : page 71-73

- looks almost like a T-64BM1 Bulat but **IT HAS A THERMAL SIGHT, SO IT LACKS THE IR SEARCHLIGHT** and there is **NO CUT OUT IN THE PORT SIDE TURRET CHEEK ERA**, the ERA blocks cover the whole turret face
- Nozh ERA is mounted:
 - on the **turret cheeks in a curved V shape without any gaps between the ERA blocks**, it extends over the **turret cheeks to cover some part of the turret sides**, large rubber skirts are mounted on the **turret cheek ERA blocks**
 - on the **turret roof in a curved shape covering most of the frontal part of the roof**, they are closely connected to each other
 - on the **upper plate**, almost all is covered with ERA except around the driver's hatch, **towing hooks are on the same level as the ERA blocks**
 - **each side, covering the first 1/3 of the tank with 6 long blocks**
- 4 smoke dischargers on each side of the turret after the ERA blocks
- sometimes you will see cage armor mounted on the last 1/3 of the sides protecting the engine bay
- Sometimes you will see rubber skirt mounted on the lower plate

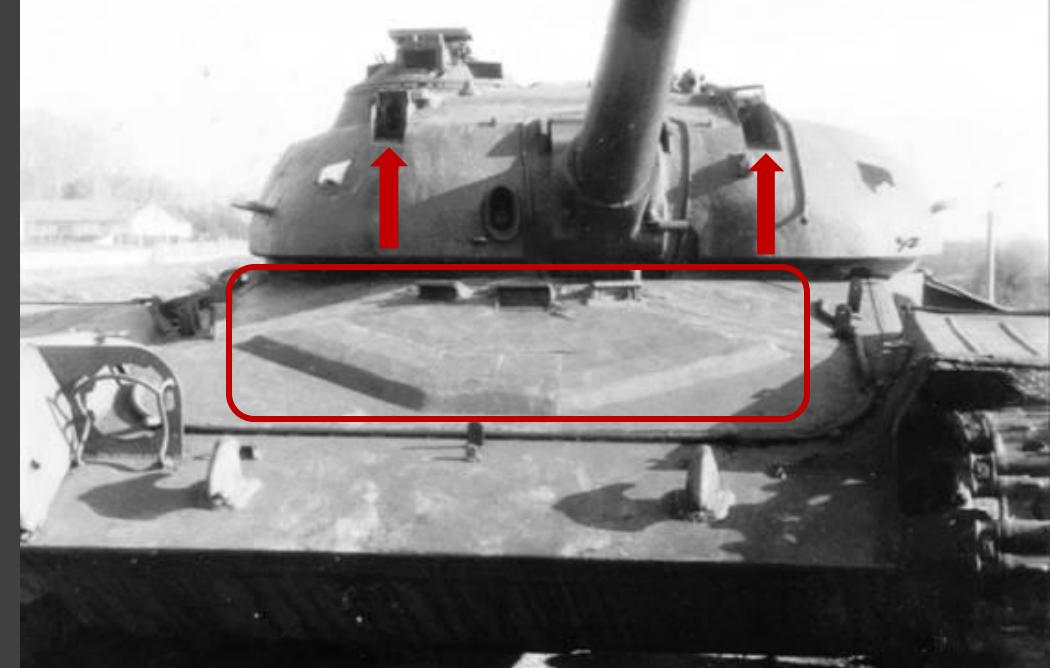
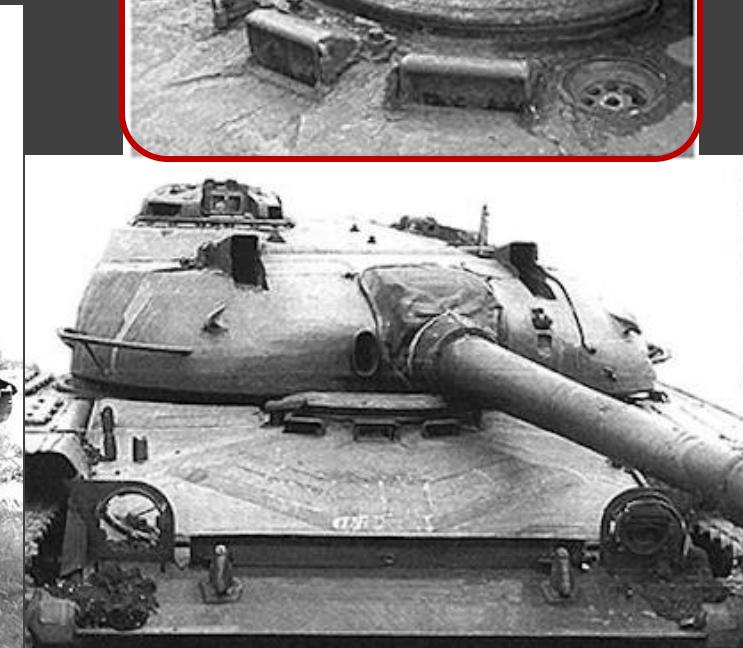
T-64BV model 2017 : page 74-76

- looks almost like a T-64BV but **IT HAS A THERMAL SIGHT, SO IT LACKS THE IR SEARCHLIGHT** and there is **NO CUT OUT IN THE PORT SIDE TURRET CHEEK ERA**, the ERA blocks cover the whole turret face
- most cases there is a **rubber skirt on the lower plate**

T-64 (object 432)

This was the first variant what went into production in 1963, it was produced in low numbers before they revised the design and a upgraded version T-64A went into production in 1969, because of this the chance to see one of these is really small.:

- **optical rangefinder in the turret, 2 thin deep cuts for its lenses at the turret front**
- **IR searchlight at the port side of the turret face**
- **115mm main gun (same on T-62)**
- **lacks top mounted heavy machinegun**
- **lacks smoke dischargers**
- the only T-64 variant what has **3 driver periscopes**
- **ahead of the driver's hatch is a raised metal part what is shaped like a diamond**
- **lacks V shape water reflector from the upper plate**



T-64A

- new turret with optical rangefinder, 1 thin deep cut on the port side of the frontal turret roof – on the starboard side the rangefinder extends out of the turret in a rectangular shape
- IR searchlight at the port side of the turret cheek
- new 125mm main gun
- heavy machinegun mounted above the commander's hatch
- lacks smoke dischargers
- 1 driver periscope
- V shaped water deflector on the upper plate



T-64A Turret

- new turret with optical rangefinder, 1 thin deep cut on the port side of the frontal turret roof – on the starboard side the rangefinder extends out of the turret in a rectangular shape
- IR searchlight at the port side of the turret cheek
- new 125mm main gun
- heavy machinegun mounted above the commander's hatch
- lacks smoke dischargers



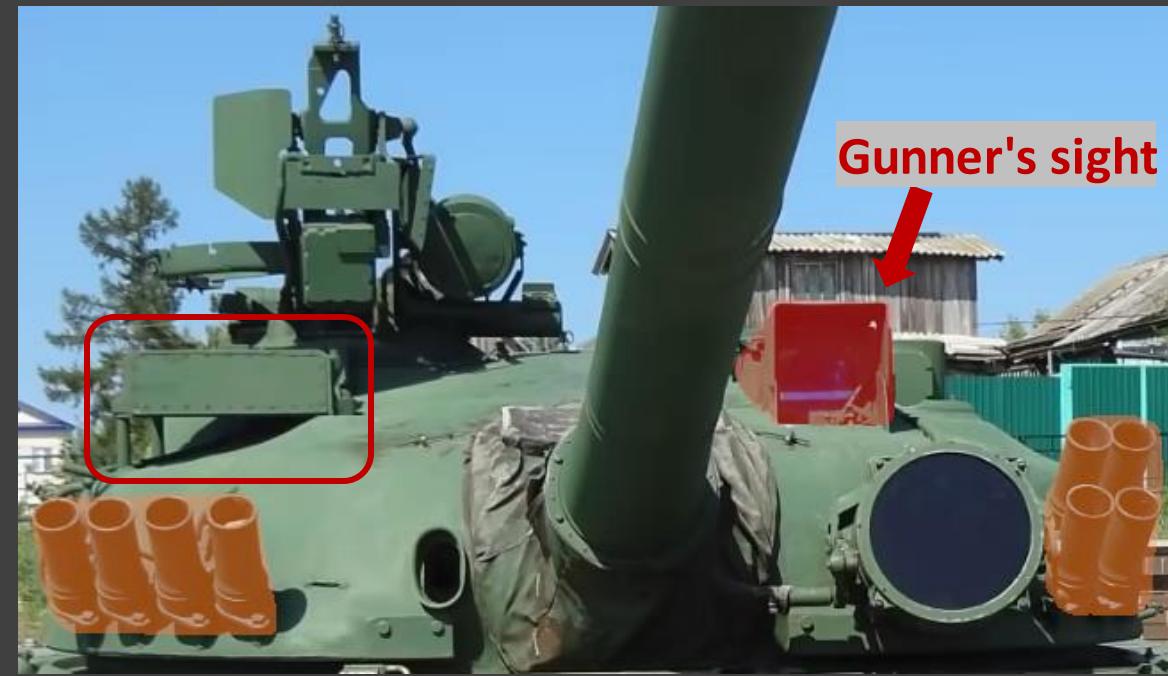
Starboard side view of the turret

T-64A



T-64B

- new turret with laser rangefinder so the optical rangefinder is no longer present
- it has the guidance system for launching Kobra ATGM missiles, so there is a Kobra sight at the starboard side of the turret in front of the commander's cupola, it's a small rectangular shaped box
- the gunner's scope is far larger than on previous variants (port side of the frontal turret roof)
- IR searchlight at the port side turret cheek
- heavy machinegun mounted above the commander's hatch
- 8 smoke dischargers; 4 at the starboard side turret cheek in a straight line, 4 at the port side turret cheek in a rectangular shape
- V shaped water deflector on the upper plate



Kobra sight

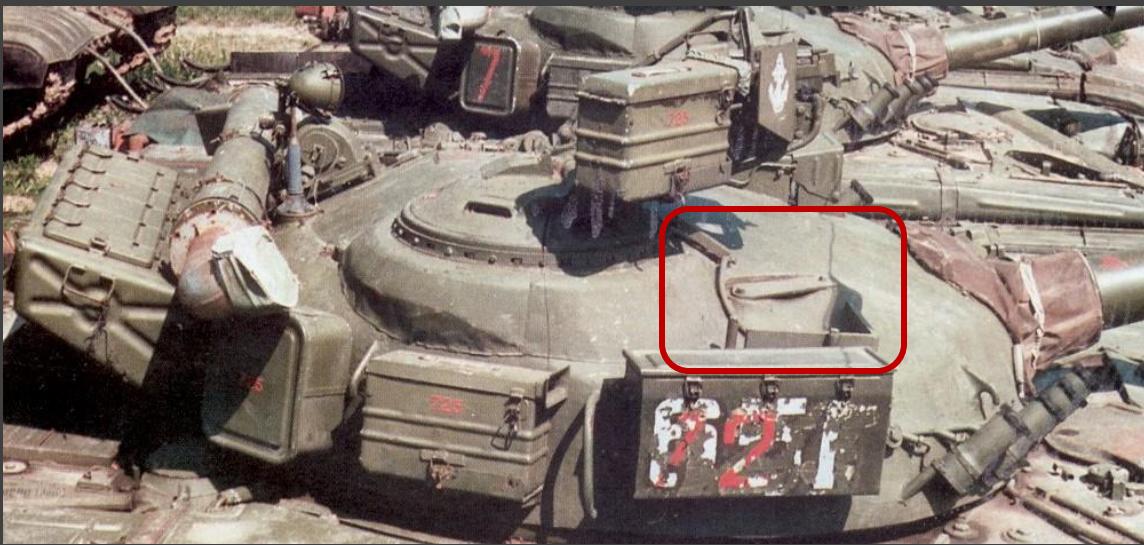


T-64B



T-64B1

It looks exactly like a T-64B, except it lacks the guidance system to launch Kobra ATGM missiles so the Kobra sight is missing at the starboard side of the turret in front of the commander's hatch (small rectangular box)



T-64B1



T-64BV

- it's a T-64B, T-64B1 or T-64BM (T-64BM is a T-64B with a new 1000hp engine there is no visual difference) equipped with kontakt 1 ERA [because if this sometimes you will see T-64BVs without Kobra sight those tanks were upgraded T-64B1s]
- kontakt 1 ERA is mounted:
 - on the **turret cheeks in a V form**; have a **rectangular shape without a curve**; on top of the V is two kontakt 1 blocks in each vertical row (this is unique for the T-64BV)
 - on the **turret roof in a diamond shape**
 - on the **turret sides following the shape of the turret**
 - on the **upper plate**, almost all is covered with ERA except around the driver's hatch, **towing hooks are NOT on the same level as the ERA blocks**
 - on the **lower plate**, **1 horizontal row where it meets the upper plate**
 - **each side covering the first 2/3 length of the tank**
- **IR searchlight** is placed on the port side **turret cheek main armor**, there is cut out in the ERA blocks here for the IR searchlight
- 8 smoke dischargers after the port side **turret cheek ERA**

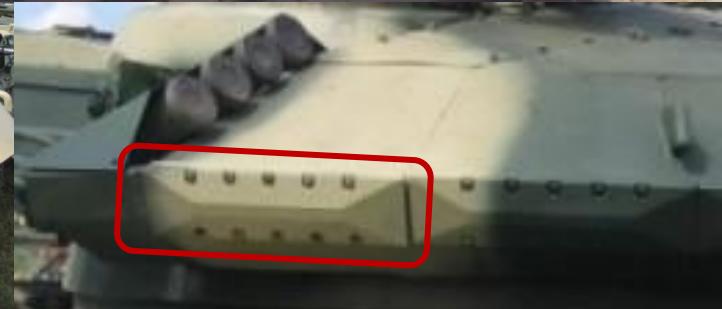


T-64BV



T-64B1M

- Ukrainian upgrade for T-64B1, so it lacks the Kobra missile sight
- the turret has a pretty unique extension at its back
- nozh ERA is mounted:
 - on the turret cheeks in a curved V shape without any gaps between the ERA blocks, there is no rubber skirts at the end of the nozh blocks, and where the two blocks meet you can see a complex metal shape surrounded with 5 screws in two rows
 - on the turret roof what is curved and covers the whole frontal part
 - on the upper plate, almost all is covered with ERA except around the driver's hatch, **towing hooks** are **ON** the same level as the ERA blocks
 - **each side covering the first 2/3 length of the vehicle**
- IR searchlight is mounted **on the starboard side** turret cheek ERA
- 4 smoke dischargers on each side of the turret after the last ERA block

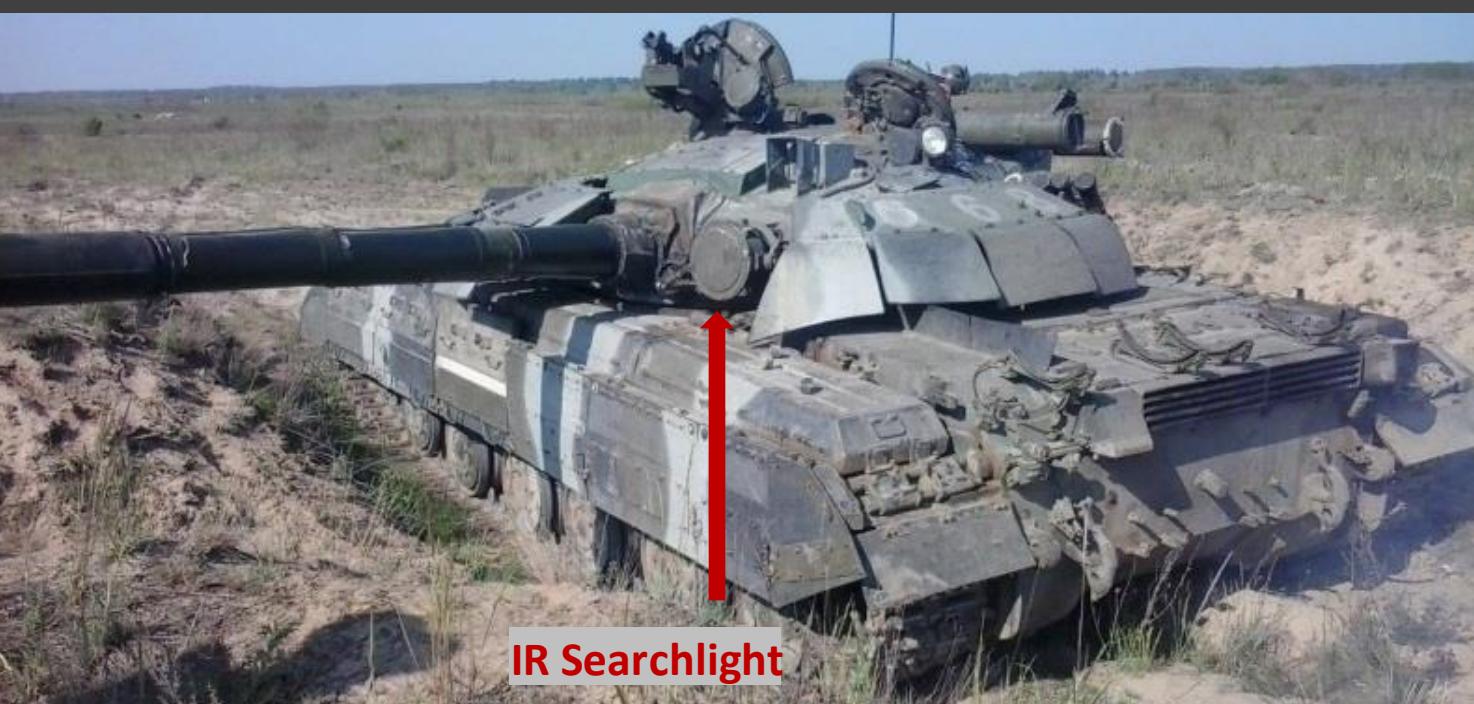


T-64B1M



T-64BM1 Bulat

- Ukrainian upgrade for T-64B **IT LACKS THERMAL SIGHT, SO IT STILL RETAINS THE IR SEARCHLIGHT**
- Nozh ERA is mounted:
 - on the **turret cheeks** in a curved V shape without any gaps between the ERA blocks, it extends over the **turret cheeks** to cover some part of the **turret sides**, large rubber skirts are mounted on the **turret cheek ERA blocks**
 - on the **turret roof** in a curved shape covering most of the frontal part of the **roof**, they are closely connected to each other
 - on the **upper plate**, almost all is covered with ERA except around the driver's hatch, **towing hooks are on the same level as the ERA blocks**
 - **each side, covering the first 1/3 of the tank with 6 long blocks**
- IR searchlight mounted **on the port side turret cheek**, directly to the main turret armor **so there is a cut out in the turret cheek ERA blocks**
- 4 smoke dischargers on each side of the turret after the ERA blocks



IR Searchlight

T-64BM2 Bulat

- looks almost like a T-64BM1 Bulat but **IT HAS A THERMAL SIGHT, SO IT LACKS THE IR SEARCHLIGHT** and there is **NO CUT OUT IN THE PORT SIDE TURRET CHEEK ERA**, the ERA blocks cover the whole turret face
- Nozh ERA is mounted:
 - on the **turret cheeks in a curved V shape without any gaps between the ERA blocks**, it extends over the **turret cheeks to cover some part of the turret sides**, large rubber skirts are mounted on the **turret cheek ERA blocks**
 - on the **turret roof in a curved shape covering most of the frontal part of the roof**, they are closely connected to each other
 - on the **upper plate**, almost all is covered with ERA except around the driver's hatch, **towing hooks are on the same level as the ERA blocks**
 - each side, covering the first 1/3 of the tank with 6 long blocks**
- 4 smoke dischargers on each side of the turret after the ERA blocks
- sometimes you will see cage armor mounted on the last 1/3 of the sides protecting the engine bay
- Sometimes you will see rubber skirt mounted on the lower plate



T-64BM2 Bulat



T-64BM1 Bulat

T-64BM2 Bulat



Cage armor



Rubber skirt

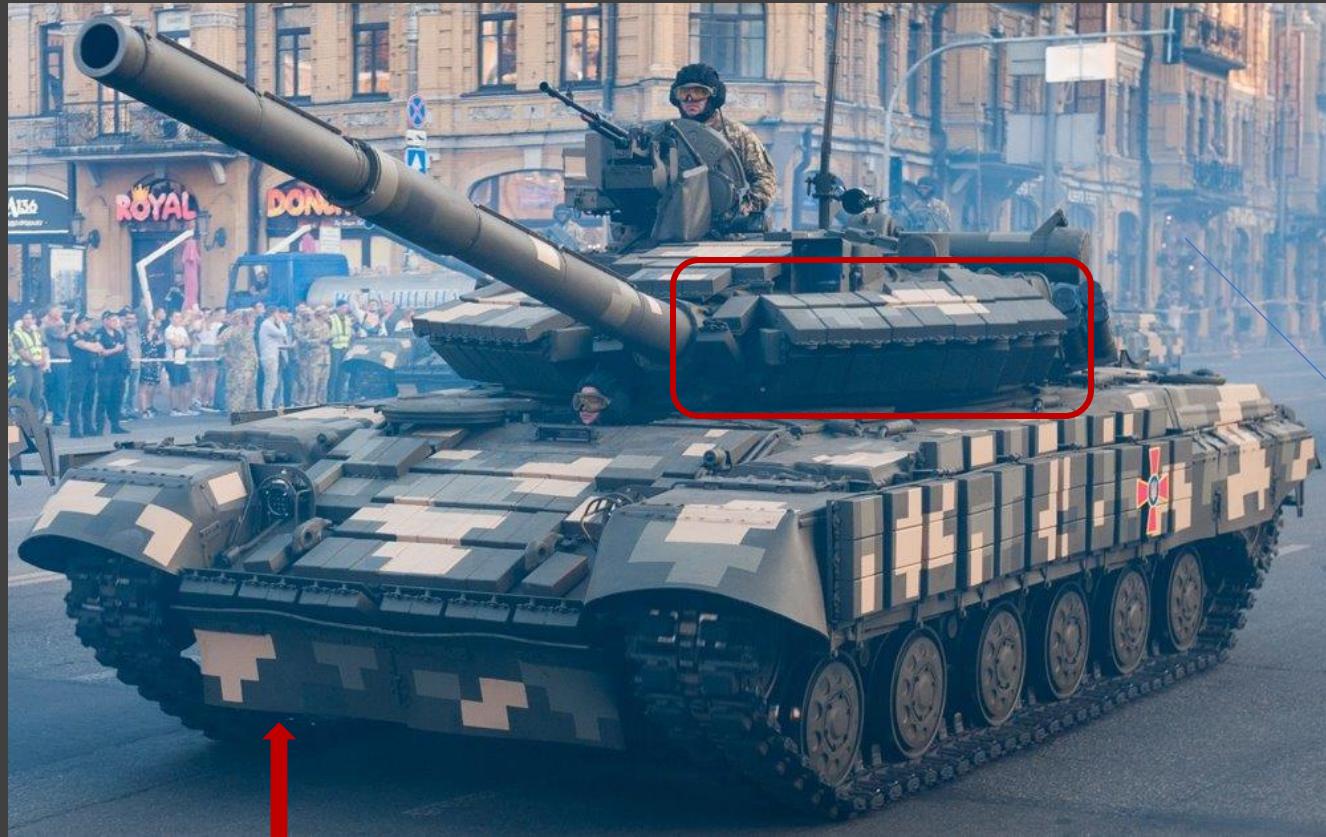


T-64BM2 Bulat



T-64BV model 2017

- looks almost like a T-64BV but **IT HAS A THERMAL SIGHT, SO IT LACKS THE IR SEARCHLIGHT** and there is **NO CUT OUT IN THE PORT SIDE TURRET CHEEK ERA**, the ERA blocks cover the whole turret face
- most cases there is a rubber skirt on the lower plate



T-64BV model 2017

Rubber skirt



T-64BV

T-64BV model 2017



T-64BV model 2017



T-72

T-72A Turret

There is an angled, straight cut on the bottom of the turret cheeks.

Used on.: T-72A; T-72M1; T-72AV



T-72M Turret

Very similar to the T-72A turret but it has less protection (lacks the composite filler), because of that there are **NO CUTS** on the turret cheeks.

Used on.: T-72M



T-72B Turret

Large roughly 30° curved cut on the bottom of the turret cheeks, two large oval shaped welded holes on the turret roof (this is where the composite filler is placed in the turret)

Used on.: T-72B; T-72B1; T-72B obr. 1989 (model 1989); T-72BA; T-72B3;

T-72B3 model 2016 (T-72B3M); T-90 obr. 1992 (model 1992)



T-72 Ural :

- T-72 Ural has the turret of the T-64A, see here.: *page 60*
so this turret has an **optical rangefinder in the turret roof: 1 thin deep cut on the port side of the frontal turret roof – on the starboard side the rangefinder extends out of the turret in a rectangular shape**
- IR searchlight usually mounted on the **starboard side turret cheek**, but sometimes you will see it on the port side turret cheek
- heavy machinegun mounted behind the commander's copula facing aft
- lacks smoke dischargers
- V shape water deflector on the upper plate
- fording tube is mounted on the port side of the turret

T-72A :

- NEW turret with composite filler in the turret cheeks, see here.: *page 78*
you can spot this new turret by the **angled, straight cut on the lower part of turret cheeks**
- it has a **laser rangefinder** so the **optical range finder is no longer present**
- IR searchlight is on the **starboard side turret cheek**
- heavy machinegun mounted behind the commander's copula facing aft
- 12 smoke dischargers: 5 on the starboard side turret cheek, 7 on the port side turret cheek in a L shape
- V shape water deflector on the upper plate
- fording tube is mounted on the port side of the turret

T-72M :

- first export variant of the T-72A
- NEW turret what is similar to T-72A but lacks the composite filler because of this there are **NO CUTS** on the **turret cheeks**, see here.: *page 79*
- except the turret everything else is the same like on T-72A

T-72M1 :

- second export variant of the T-72A, **there is no visual difference between it and the T-72A**

T-72B :

- NEW turret with new type of composite filler, see here.: *page 80*
- large roughly 30° curved cut on the bottom of the turret cheeks, two large oval shaped welded holes on the turret roof (this is where the composite filler is placed in the turret)
- kontak 1 ERA is mounted.:
 - On the **turret face following the shape of the turret armor**
 - **3 blocks in 1 horizontal row above the main gun mantlet on a sheet metal support what is mounted to the gun**
 - On the **turret roof following the shape of the roof** covering most of the frontal section
 - On the **turret sides following the shape of the sides**
 - On the **upper plate covering most if it towing hooks are NOT on the same level as the ERA blocks**
 - On the **lower plate 1 row where it meets the upper plate**
 - **Each side, covering the first 2/3 of the vehicle**
- IR searchlight is on the **starboard side turret cheek**
- 8 smoke dischargers on the port side of the turret in 3 rows (starting top 3; 3; 2 in a row)
- night sight has a motor to open and close its cover, this sight is located on the **port side of the gunner's hatch**
- fording tube is mounted behind the turret

T-72B1 :

- it looks like a T-72B, except the **night sight lacks the dedicated motor for its cover (manually operated)** because of this the sight is smaller and the **cover has 4 screws in each corner**. This device is located at the port side of the turret roof, at the port side of the gunner's hatch.

M-84 :

- a license produced T-72M in **Yugoslavia**
- it has a **very similar** turret to the T-72M, no cuts on the lower part of the turret cheeks
- **NEW Yugoslav** made fire control system what **combines the gunner and night sight in one unit**, this placed on the **port side turret roof ahead of the gunner's hatch**; sometimes IR searchlight on the starboard turret cheek
- there is a **meteorological sensor above the main gun on a large cylindrical tube**
- **4 ribs ahead of the driver's periscope**
- everything else is the same like on T-72A

T-72AV :

- it's an upgraded T-72A with kontakt 1 ERA
- it has the T-72A turret.: angled, straight cut on the lower part of turret cheeks
- kontak 1 ERA is mounted.:
 - on the turret cheeks in a V shape
 - 3 blocks in 1 horizontal row above the main gun mantlet on a sheet metal support what is mounted to the gun
 - on the turret roof, covering the frontal part of the roof
 - on the upper plate covering most if it towing hooks are NOT on the same level as the ERA blocks
 - on the lower plate 1 row where it meets the upper plate
 - each side, covering the first 2/3 of the vehicle
- IR searchlight is on the starboard side turret cheek, there is a cut out in the ERA blocks for it
- 8 smoke dischargers on the port side of the turret in 3 rows (starting top 3; 3; 2 in a row)
- fording tube is mounted behind the turret
- everything else it the same like on T-72A

T-72B obr. 1989 (model 1989) :

- it's an upgraded T-72B
- it has the T-72B turret.: large roughly 30° curved cut on the bottom of the turret cheeks, two large oval shaped welded holes on the turret roof
- kontakt 5 ERA is mounted.:
 - on the turret cheeks in large rectangular boxes in a V shape, 4 pair on each side with wide gaps between the ERA blocks; and there are large unprotected armor parts on both side of the gun
 - on the turret roof in small, thin, rectangular boxes with angels on their shorter ends, mostly in front of the commander's hatch and between the commander's and gunner's hatch
 - built into the upper plate, 6 rectangular shaped covers in 2 horizontal rows (four in the upper row two in the lower), a big horizontal water reflector between the headlights, and the TOWING HOOKS are ON THE ERA BLOCKS
 - each side in 3 large rectangular metal boxes covering the first 1/3 of the vehicle
- IR searchlight is on the starboard side turret cheek, mounted on the main armor of the turret
- 8 smoke dischargers on the port side of the turret in 3 rows (starting top 3; 3; 2 in a row)
- fording tube is mounted behind the turret

T-72BA :

- It's a T-72B obr. 1989 (model 1989) with a meteorological sensor behind the gunner's hatch, a tall cylindrical device

PT-91 Twardy :

- Polish upgrade for T-72M1 and T-72A tanks
- it has a thermal sight at the port side of the turret roof, ahead of the gunner's hatch; large rectangular box
- ERA is mounted.:
 - On the turret face covering it completely without any gaps
 - On the turret roof covering it almost completely without any gaps
 - On the upper plate
 - Each side covering the first 1/3 of the vehicle
- 24 smoke dischargers: 12 on each side of the turret
- laser warning receiver are on both turret cheeks, small vertical cylinders
- rubber skirt on the lower plate

T-72B3 :

- It looks exactly like a T-72B obr. 1989 (model 1989) except it has a THERMAL SIGHT at the port side turret roof in front of the gunner's hatch, large rectangular box; because of this LACKS THE IR SEARCHLIGHT from the starboard side turret cheek and in its place is a V shaped kontakt 5 block.
- sometimes relikt side skirt mounted on the sides, 12 large rectangular metal sheets in 6 rows covering 2/3 length of the vehicle
- T-80 tracks with a new drive sprocket wheel

T-72B3 model 2016 (T-72B3M) :

- It's a T-72B3 EXCEPT.:
- it has cage armor mounted:
 - on the back side of the turret
 - last 1/3 length of the vehicle sides
 - on the back plate
- 2S24 blocks on the turret sides
- on each side of the vehicle is relikt integrated into the rubber side skirt; 12 large rectangular metal sheets in 6 rows covering 2/3 length of the vehicle; usually 2S24 bags are mounted on top of the relikt skirt
- on the port side turret cheek right next to the gun is a + V shaped kontakt 5 block mounted, with this there is 5 pairs placed on both turret cheeks
- the fording tube is mounted behind the turret, above a large metal box
- T-80 tracks with a new drive sprocket wheel

T-72AMT :

- Ukrainian upgrade for T-72A
- nozh ERA is mounted.:
 - On the turret cheeks in a curved V shape without any gaps between the ERA blocks, large rubber skirts are mounted on the turret cheek ERA blocks
 - 3 blocks what are identical to the ones on the turret roof, in a horizontal row above the gun mantlet, on a metal support what is mounted to the gun
 - on the turret roof in a curved shape covering most of the frontal part of the roof, they are closely connected to each other
 - on the upper plate in kontakt 1 blocks, almost all is covered with ERA except around the driver's hatch, towing hooks are NOT on the same level as the ERA blocks
 - on the lower plate in kontakt 1 blocks, 1 horizontal row where the lower and upper plate meets, 2 rubber skirt are mounted here
 - each side in 8 long blocks covering 2/3 of the vehicle sides (this mounting is unique to this tank)
- IR searchlight is on the starboard side turret cheek, there is a cut out in the ERA blocks for it
- heavy machinegun is mounted above the commander's hatch, facing forward
- 8 smoke dischargers on the port side of the turret in 3 rows (starting top 3; 3; 2 in a row)
- fording tube is mounted behind the turret
- sometimes cage armor is mounted on the last 1/3 of the vehicle side, and on the back side of the turret
- an external generator is located aft on the starboard side mudguard, large rectangular box

T-72M1 model 2022 :

- **THIS IS NOT AN OFFICIAL DESIGNATION!**, there are a few pictures of a consistent modernization on the donated T-72M1 and T-72M tanks by the Ukrainian Armed Forces and I came up with this name for them.
- Ukrainian upgrade for T-72M and T-72M1
- nozh ERA is mounted.:
 - on the turret cheeks in kontakt 1 blocks, under the smoke dischargers in a half V configuration
 - in kontakt 1 blocks 3 blocks in 1 horizontal row above the main gun mantlet on a sheet metal support what is mounted to the gun
 - on the turret sides in kontakt 1 blocks following the shape of the turret
 - on the turret roof in kontakt 1 blocks following the shape of the armor covering most of the frontal section
 - on the upper plate in kontakt 1 blocks covering most if it towing hooks are NOT on the same level as the ERA blocks
 - on the lower plate in kontakt 1 blocks 1 row where it meets the upper plate
 - each side in kontakt 1 blocks covering 2/3 of the vehicle
- IR searchlight is on the starboard side turret cheek, there is a cut out in the ERA blocks for it
- 12 smoke dischargers: 5 on the starboard side turret cheek, 7 on the port side turret cheek in a L shape
- fording tube is mounted on the port side of the turret

T-72 Ural

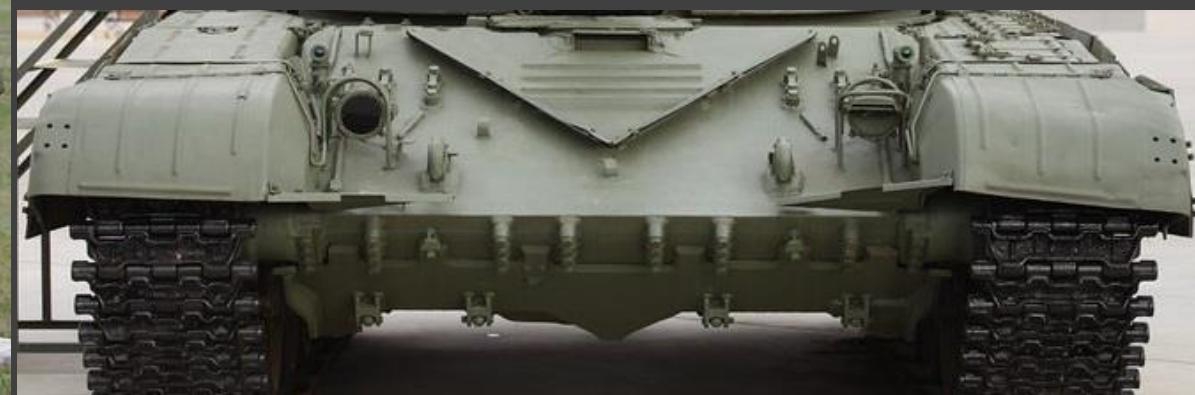
- T-72 Ural has the turret of the T-64A, see here.: page 60
so this turret has an **optical rangefinder in the turret roof**: **1 thin deep cut on the port side of the frontal turret roof – on the starboard side**
the rangefinder extends out of the turret in a rectangular shape
- IR searchlight usually mounted on the **starboard side turret cheek**, but sometimes you will see it on the port side turret cheek
- heavy machinegun mounted behind the commander's copula facing aft
- lacks smoke dischargers
- V shape water deflector on the upper plate
- fording tube is mounted on the port side of the turret



Optical rangefinder



Gunner's sight



T-72 Ural



T-72A

- NEW **turret** with composite filler in the turret cheeks, see here.: *page 78*
you can spot this new turret by the **angled, straight cut on the lower part of** **turret cheeks**
- it has a **laser rangefinder** so the **optical range finder** is no longer present
- **IR searchlight** is on the **starboard side** **turret cheek**
- heavy machinegun mounted behind the commander's copula facing aft
- 12 smoke dischargers: 5 on the starboard side **turret cheek**, 7 on the port side **turret cheek** in a L shape
- V shape water deflector on the upper plate
- fording tube is mounted on the port side of the **turret**



T-72A



T-72M

- first export variant of the T-72A
- NEW turret what is similar to T-72A but lacks the composite filler because of this there are **NO CUTS** on the turret cheeks, see here.: *page 79*
- except the turret everything else is the same like on T-72A



T-72M



T-72A

T-72M



T-72M1

- second export variant of the T-72A, there are no visual difference between it and the T-72A



T-72B

- NEW turret with new type of composite filler, see here.: *page 80*
- large roughly 30° curved cut on the bottom of the turret cheeks, two large oval shaped welded holes on the turret roof (this is where the composite filler is placed in the turret)
- kontak 1 ERA is mounted.:
 - On the **turret face** following the shape of the **turret armor**
 - **3 blocks in 1 horizontal row** above the main gun mantlet on a sheet metal support what is mounted to the gun
 - On the **turret roof** following the shape of the **roof** covering most of the frontal section
 - On the **turret sides** following the shape of the **sides**
 - On the **upper plate** covering most if it **towing hooks are NOT on the same level as the ERA blocks**
 - On the **lower plate** 1 row where it meets the upper plate
 - **Each side, covering the first 2/3 of the vehicle**
- IR searchlight is on the **starboard side** **turret cheek**
- 8 smoke dischargers on the port side of the turret in 3 rows (starting top 3; 3; 2 in a row)
- night sight has a motor to open and close its cover, this sight is located on the **port side** of the gunner's hatch
- fording tube is mounted behind the turret

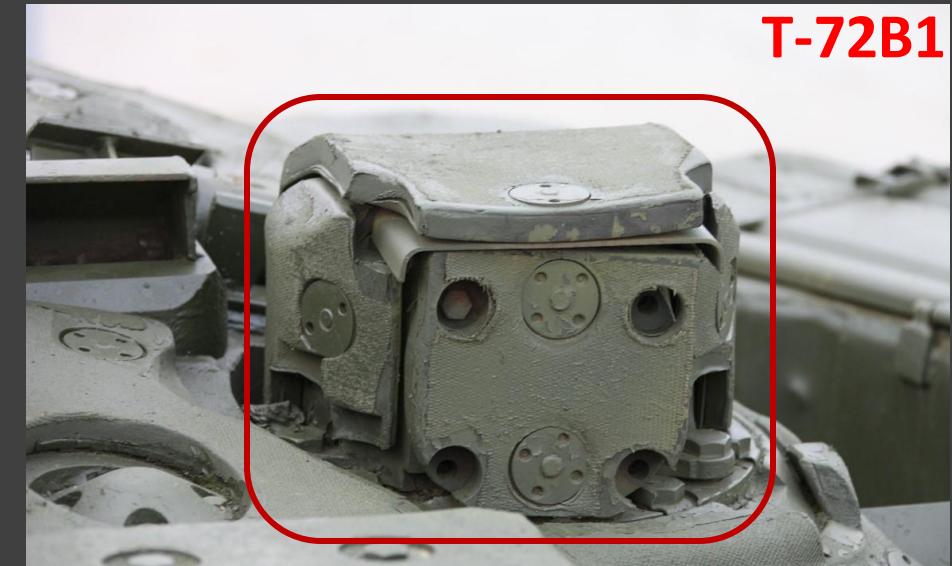
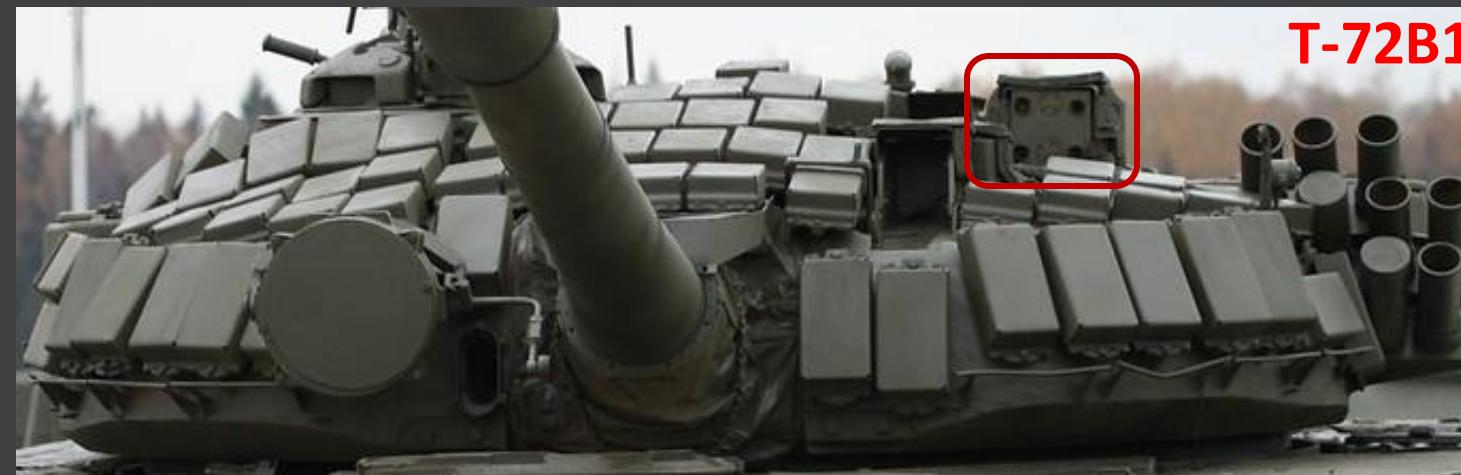


T-72B



T-72B1

- it looks like a T-72B, except the night sight lacks the dedicated motor for it's cover (manually operated) because of this the sight is smaller and the cover has 4 screws in each corner. This device is located at the port side of the turret roof, at the port side of the gunner's hatch.

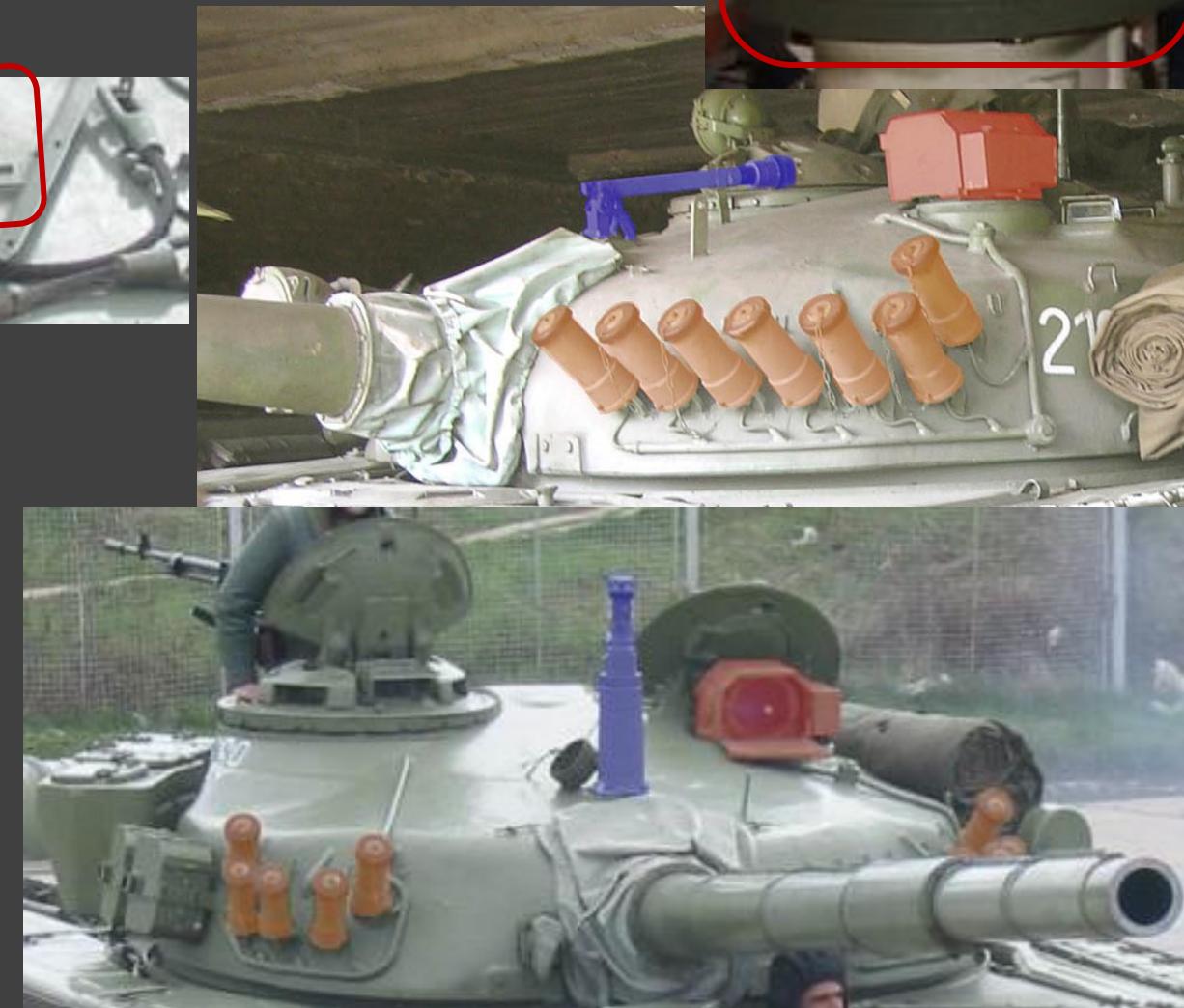


T-72B1



M-84

- a license produced T-72M in Yugoslavia
- it has a **very similar** turret to the T-72M, no cuts on the lower part of the turret cheeks
- **NEW** Yugoslav made fire control system what combines the gunner and night sight in one unit, this placed on the port side turret roof ahead of the gunner's hatch; sometimes IR searchlight on the starboard turret cheek
- there is a meteorological sensor above the main gun on a large cylindrical tube
- 4 ribs ahead of the driver's periscope
- everything else is the same like on T-72A



M-84



T-72AV

- it's an upgraded T-72A with kontakt 1 ERA
- it has the T-72A turret.: angled, straight cut on the lower part of turret cheeks
- kontak1 ERA is mounted.:
 - on the turret cheeks in a V shape
 - 3 blocks in 1 horizontal row above the main gun mantlet on a sheet metal support what is mounted to the gun
 - on the turret roof, covering the frontal part of the roof
 - on the upper plate covering most if it towing hooks are NOT on the same level as the ERA blocks
 - on the lower plate 1 row where it meets the upper plate
 - each side, covering the first 2/3 of the vehicle
- IR searchlight is on the starboard side turret cheek, there is a cut out in the ERA blocks for it
- 8 smoke dischargers on the port side of the turret in 3 rows (starting top 3; 3; 2 in a row)
- fording tube is mounted behind the turret
- everything else it the same like on T-72A



T-72AV



T-72B obr. 1989 (model 1989)

- it's an upgraded T-72B
- it has the T-72B turret.: large roughly 30° curved cut on the bottom of the turret cheeks, two large oval shaped welded holes on the turret roof
- kontakt 5 ERA is mounted.:
 - on the turret cheeks in large rectangular boxes in a V shape, 4 pair on each side with wide gaps between the ERA blocks; and there are large unprotected armor parts on both side of the gun
 - on the turret roof in small, thin, rectangular boxes with angles on their shorter ends, mostly in front of the commander's hatch and between the commander's and gunner's hatch
 - built into the upper plate, 6 rectangular shaped covers in 2 horizontal rows (four in the upper row two in the lower), a big horizontal water reflector between the headlights, and the **TOWING HOOKS** are **ON THE ERA BLOCKS**
 - each side in 3 large rectangular metal boxes covering the first 1/3 of the vehicle
- IR searchlight is on the starboard side turret cheek, mounted **on the main armor of the turret**
- 8 smoke dischargers on the port side of the turret in 3 rows (starting top 3; 3; 2 in a row)
- fording tube is mounted behind the turret



T-72B obr. 1989 (model 1989)



T-72B obr. 1989 (model 1989)



T-72BA

- It's a T-72B obr. 1989 (model 1989) with a meteorological sensor behind the gunner's hatch, a tall cylindrical device

T-72BA

PT-91 Twardy

T

PT-91 Twardy

T

T-72B3

- It looks exactly like a T-72B obr. 1989 (model 1989) except it has a **THERMAL SIGHT** at the port side turret roof in front of the gunner's hatch, large rectangular box; because of this **LACKS THE IR SEARCHLIGHT** from the starboard side turret cheek and in its place is a V shaped kontakt 5 block.
- sometimes relict side skirt mounted on the sides, 12 large rectangular metal sheets in 6 rows covering 2/3 length of the vehicle
- T-80 tracks with a new drive sprocket wheel

T-72B3

T-72B3 model 2016 (T-72B3M)

- It's a T-72B3 EXCEPT.:
- it has cage armor mounted:
 - on the back side of the turret
 - last 1/3 length of the vehicle sides
 - on the back plate
- 2S24 blocks on the turret sides
- on each side of the vehicle is relikt integrated into the rubber side skirt; 12 large rectangular metal sheets in 6 rows covering 2/3 length of the vehicle; usually 2S24 bags are mounted on top of the relikt skirt
- on the port side turret cheek right next to the gun is a + V shaped kontakt 5 block mounted, with this there is 5 pairs placed on both turret cheeks
- the fording tube is mounted behind the turret, above a large metal box
- T-80 tracks with a new drive sprocket wheel

T-72B3 model 2016 (T-72B3M)

T-72AMT

- Ukrainian upgrade for T-72A
- nozh ERA is mounted.:
 - On the **turret cheeks** in a curved V shape without any gaps between the ERA blocks, large rubber skirts are mounted on the **turret cheek ERA blocks**
 - **3 blocks** what are identical to the ones on the **turret roof**, in a horizontal row above the gun mantlet, on a metal support what is mounted to the gun
 - on the **turret roof** in a curved shape covering most of the frontal part of the roof, they are closely connected to each other
 - on the **upper plate** in **kontakt 1 blocks**, almost all is covered with ERA except around the driver's hatch, towing hooks are **NOT** on the same level as the ERA blocks
 - on the **lower plate** in **kontakt 1 blocks**, 1 horizontal row where the lower and upper plate meets, 2 rubber skirt are mounted here
 - **each side in 8 long blocks** covering **2/3 of the vehicle sides** (this mounting is unique to this tank)
- IR searchlight is on the **starboard side** **turret cheek**, there is a **cut out** in the **ERA blocks** for it
- heavy machinegun is mounted above the commander's hatch, facing forward
- 8 smoke dischargers on the port side of the turret in 3 rows (starting top 3; 3; 2 in a row)
- fording tube is mounted behind the turret
- sometimes cage armor is mounted on the **last 1/3 of the vehicle side**, and on the **back side of the turret**
- an external generator is located aft on the starboard side mudguard, large rectangular box

T-72AMT

T-72M1 model 2022

- **THIS IS NOT AN OFFICIAL DESIGNATION!**, there are a few pictures of a consistent modernization on the donated T-72M1 and T-72M tanks by the Ukrainian Armed Forces and I came up with this name for them.
- Ukrainian upgrade for T-72M and T-72M1
- nozh ERA is mounted.:
 - on the **turret cheeks** in **kontakt 1 blocks**, under the smoke dischargers in a half V configuration
 - in **kontakt 1 blocks** 3 blocks in 1 horizontal row above the main gun mantlet on a sheet metal support what is mounted to the gun
 - on the **turret sides** in **kontakt 1 blocks** following the shape of the turret
 - on the **turret roof** in **kontakt 1 blocks** following the shape of the armor covering most of the frontal section
 - on the **upper plate** in **kontakt 1 blocks** covering most if it towing hooks are **NOT** on the same level as the ERA blocks
 - on the **lower plate** in **kontakt 1 blocks** 1 row where it meets the upper plate
 - **each side in kontakt 1 blocks covering 2/3 of the vehicle**
- **IR searchlight** is on the **starboard side turret cheek**, there is a **cut out** in the **ERA blocks** for it
- 12 smoke dischargers: 5 on the starboard side turret cheek, 7 on the port side turret cheek in a L shape
- fording tube is mounted on the port side of the turret



T-72M1 model 2022



T-80

T-80B Turret

There is an angled, straight cut on the bottom of the turret cheeks.

Used on.: T-72A; T-72M1; T-72AV



T-80U Turret

There is an angled, straight cut on the bottom of the turret cheeks.

Used on.: T-72A; T-72M1; T-72AV



T-90