

1982

## ST 7-193, Tank Identification Handbook, 1982

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ST 7-193 FY 82  
UNITED STATES ARMY

## **TANK IDENTIFICATION HANDBOOK**

**UNITED STATES ARMY INFANTRY SCHOOL  
FORT BENNING, GEORGIA**

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# TANK IDENTIFICATION HANDBOOK

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## Section I. GENERAL

Purpose. The purpose of the Tank Identification Handbook is to help the infantryman recognize selected foreign and U.S. tanks.

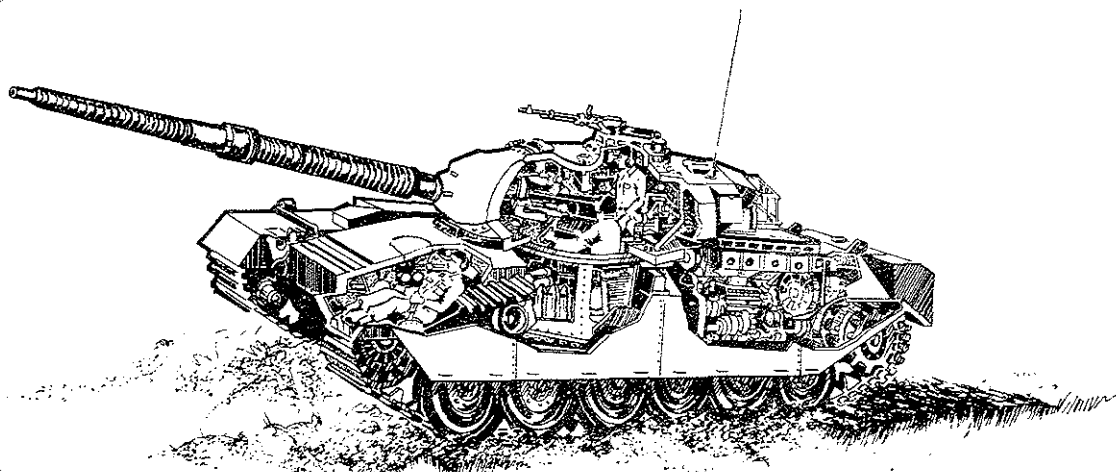
- Instructions.
- 1 - Briefly study the descriptive information provided for each vehicle.
  - 2 - Examine the vehicle profiles provided on the back, along with the corresponding identifiable characteristics.
  - 3 - Study one section at a time, i. e., one country's vehicles.
  - 4 - Review again by starting from the rear and flip forward. Mentally recall the recognition features for each silhouette and check your answer.
  - 5 - Vehicle and mobility characteristics are provided for general information and comparison purposes only.
  - 6 - For a general review, flip from section to section.
  - 7 - Carry this handbook with you to the field.



## Section II. THIS IS A TANK

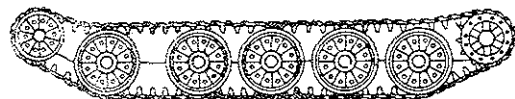
A tank is defined as a full-track enclosed armored fighting vehicle that usually mounts a cannon and automatic weapons and has excellent cross-country mobility, armor protection, firepower, and the capability of shock action.

This cutaway of a British Chieftain shows the typical location of the crew, ammunition, and engine found in most main battle tanks.



## 1. TRACK AND SUSPENSION SYSTEM

Many tanks may be definitely recognized by track and suspension systems. However, recognition by these features may be difficult as wheels or tracks will often be obscured by grass or defilade terrain. The following are examples of suspension systems:

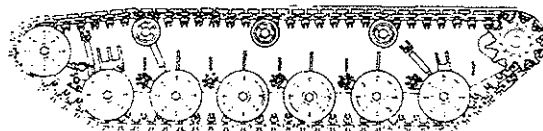


**FLAT  
TRACK**

Characteristic of most  
Warsaw pact vehicles

**SUSPENDED TRACK**

Characteristic of most  
allied vehicles

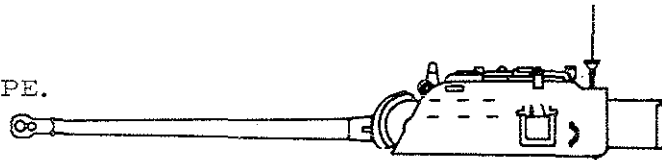




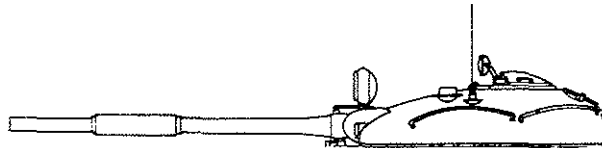
## 2. TURRET

The turret is the rotating armored structure on the top of the vehicle. Present-day turrets are streamlined, elongated and usually well sloped. Overhanging turrets and turret bulges are common. The following are samples of present-day turrets.

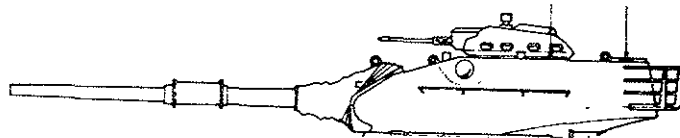
OLDER MODEL TURRET, BULKY IN SHAPE.



NEW MODEL TURRET, WELL SLOPED.



NEW MODEL TURRET, STREAMLINED.



### 3. MAIN GUN

The armament varies from machineguns to large cannons. In turreted vehicles the heavy armament is found in the turret. The following are examples of the size and shape of cannons, muzzle brakes, and blast deflectors.

**MULTI-BAFFLE**

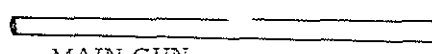
**SINGLE BAFFLE**



**DOUBLE BAFFLE**



### **MUZZLE BRAKES**



**MAIN GUN**



**MAIN GUN WITH BORE EVACUATOR**

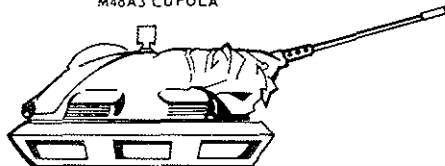


**MAIN GUN WITH BORE EVACUATOR AND  
MUZZLE BRAKE/BLAST DEFLECTOR**

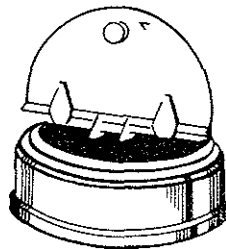
#### 4. CUPOLAS

The cupola is a small turret-like projection on top of the turret, which mounts a machinegun.

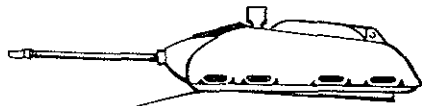
M48A3 CUPOLA



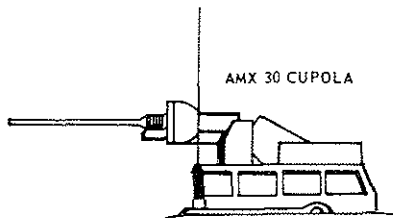
HATCH (NOT A CUPOLA)



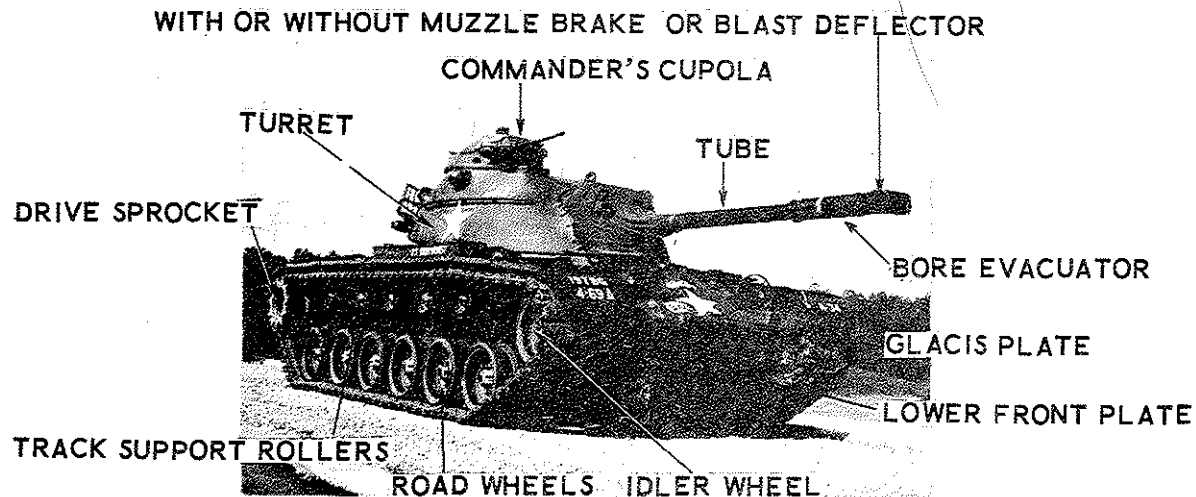
M60A1 CUPOLA



AMX 30 CUPOLA



IDENTIFY TANK PARTS ON THIS PAGE AND REFER TO THE FOLLOWING PAGES FOR THE DEFINITION.



1. bore evacuator - that device located on the main gun tube which forces most smoke and gas from the bore when the gun is fired.
2. cupola - a dome-shaped, armor plated, revolving gun or command turret.
3. drive sprocket - the sprocket which transfers the power from the engine to the tracks.
4. hull - the massive armored body, exclusive of tracks, engine, turret and armament.
5. idler - a wheel which permits the track to roll and helps maintain track tension, but neither drives the track nor supports the weight of the tank.
6. muzzle brake - the device attached to the muzzle of a weapon which utilizes escaping gases to reduce recoil.

7. rear deck - that portion of a tank to the rear of the main gun turret, above the engine compartment.
8. road wheel - supports the weight of the tank on the lower portion of the track.
9. skirt - the thinner metal that hangs over a portion of the track and suspension system.
10. track support rollers - a roller wheel used to hold up and carry the upper portion of the track to the idler or driving sprocket.
11. tube - the barrel of the main gun.
12. turret - low, armored, usually revolving, tower-like structure for a gun and gunner or guns and their crew.
13. turret overhang - the rear portion of the turret that extends and hangs over the rear deck.
14. glacis plate - sloping armor plate around turrets and hatches.



### Section III. HOW TO IDENTIFY

The Infantry School method of tank identification is designed around four areas common to all tanks:

1. Suspension System
2. Turret
3. Main Gun
4. Tank Commander's Cupola

The absence, presence, and/or location of certain equipment within these four areas will identify any tank in the world. For example, all U.S. main battle tanks have prominent cupolas, while no Soviet tank has a cupola.



There are four basic questions that you should ask yourself when attempting to identify any tank:

- a. Does the suspension system feature both road wheels and support rollers, or just road wheels? Is the spacing between the road wheels an equal distance, or is there a noticeably larger gap between one or more sets of the road wheels?
- b. What is the size, shape, and location of the turret in relation to the hull?
- c. Does the main gun possess a bore evacuator, blast deflector, or muzzle brake, and if so, where are these items located along the main gun tube?
- d. Does the vehicle possess a prominent tank commander's cupola, hatch, or distinct weapon system on top of the turret, or is it completely void of these items?

When identifying tanks, consider the following points and compare them.

1. TRACK AND SUSPENSION SYSTEM. Many tanks may be definitely recognized by track and suspension systems. However, recognition by this feature is often difficult as wheels or tracks will often be obscured by grass or defilade. These are the features of the track and suspension system that are important:

- a. Spacing between road wheels.
- b. Does it have support or return rollers?
- c. Is part of the suspension system covered by an armored skirt?

2. TURRET. The turret is the rotating armored structure on the top of the vehicle (page 5). Distinguishing features of the turret are --

- a. Position on the hull.
  - (1) Well forward as on Russian T-34's (page 56).
  - (2) Just forward of center as on US M60 (page 24).

(3) Near the center as on the T-54 (page 60).

(4) Near the rear as on the AMX-13 (page 42).

b. Shape. There are many possible shapes for armored vehicles for armored vehicle turrets but present-day vehicles, especially tanks, have progressed beyond the old nomenclature of cylindrical, conical, prismatic, etc. Present-day turrets go in for a more streamlined appearance and are usually elongated and well sloped. Overhanging turrets and turret bulges are common.

3. MAIN GUN. The armament varies from machineguns to large cannons. In turreted vehicles the heaviest armament normally is in the turret. Look for the following:

a. Muzzle brake (single, double, or multi-baffled; blast deflector).

b. Bore evacuator and its location.

(1) On the end as on the M48A3 (page 20) or Soviet T54/55 (page 60 & 64).

(2) Between the turret and the first half of the main gun as on the M60A1 (page 24).

(3) Between the muzzle end and the halfway point as on the Soviet T62 (page 68).

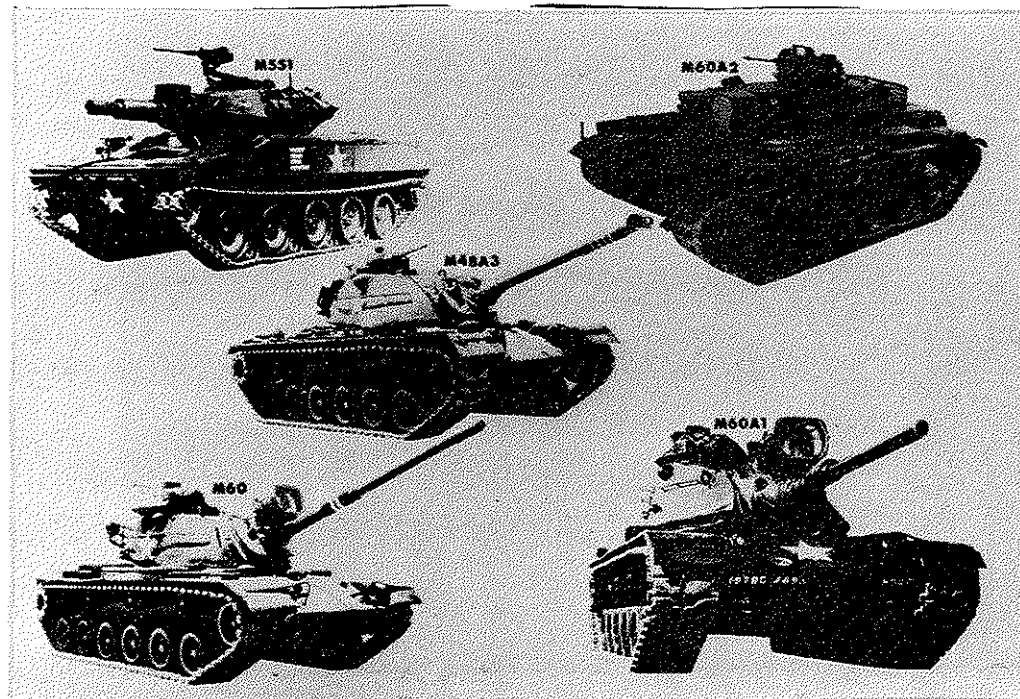
4. CUPOLA. The cupola is a small turret like projection on top of the turret. Note the types of cupolas (page 7).

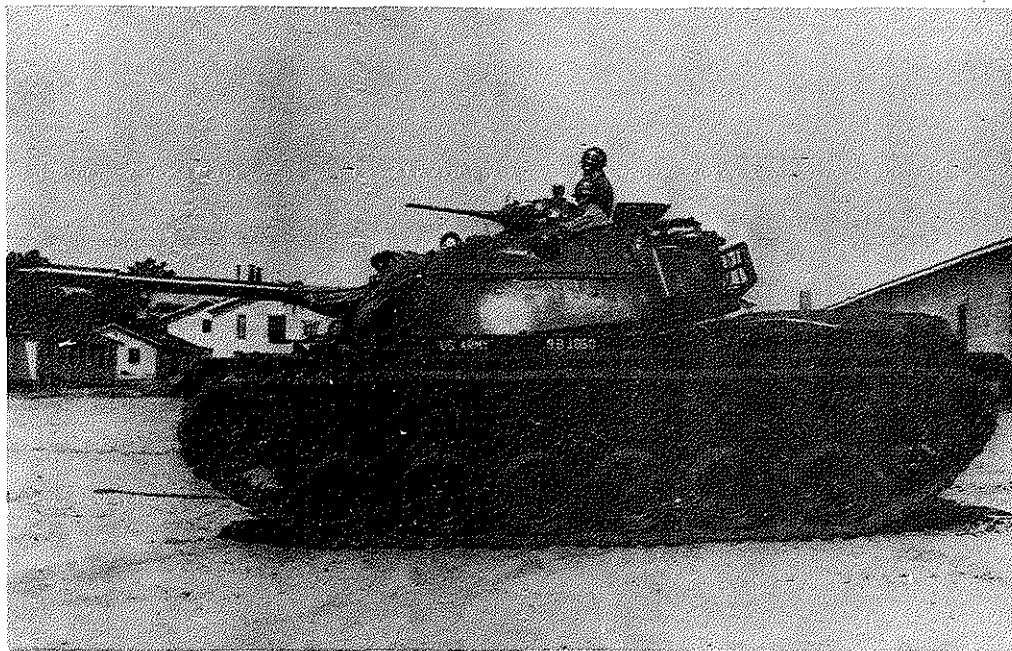
a. Is there a cupola present as found on all U.S. main battle tanks?

b. Is there no cupola present? (Soviet tanks do not have cupolas. Some allied vehicles have cupolas, while others do not.)

5. MEASUREMENTS AND CHARACTERISTICS. The measurements and characteristics given are approximate and may vary slightly from one publication to another. These minor variations are of little importance to the soldier who uses this book for tank identification and to gain a good knowledge of tank characteristics. The length measurements given are those of the body of the tank and do not include the gun. Height measurements are generally to the top of the permanent turret structure, but may in some cases include the height of a mounted machinegun. Fording depths given are those which require no prior tank preparation. Many tanks do have special fording kits allowing them, in some cases, to cross a body of water completely submerged.

SECTION IV  
U.S. TANKS AND RECONNAISSANCE VEHICLES





## M48A3

a. General Description. The 90-mm gun, full-tracked combat tank is a fully armored combat vehicle. The M48A3 tank is an updated M48 series tank with a Continental V-12, air-cooled engine; an improved engine deck that reduces infrared radiation and improves engine cooling; an improved fire control system incorporating a coincidence rangefinder that allows more rapid engagement of targets. Earlier models of the M48 series have different combinations of the commander's cupola and power packs. The M48A3 can be recognized by the turtle shaped front of the hull, blast deflector, bore evacuator almost at end of barrel, turret overhang, and the caliber .50 machinegun in commander's cupola.

b. Vehicle Characteristics.

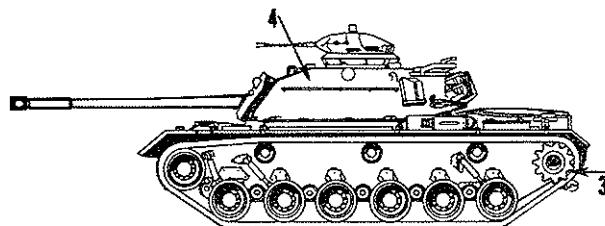
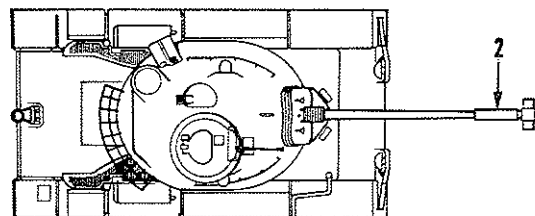
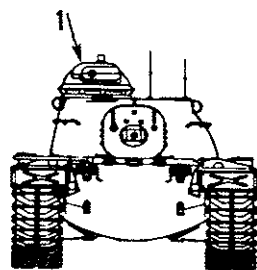
- (1) Weight: 47273 Kg. (52 tons)
- (2) Height: 3.09 m. (10 feet 3 inches)
- (3) Length: 6.87 m. (22 feet 7 inches)
- (4) Width: 3.63 m. (11 feet 11 inches)
- (5) Speed: 48.3 Kmph. (30 miles per hour)
- (6) Cruising range: 500 Km. (310 miles (approx))

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%
- (2) Ditch crossing capability: 2.59 m. (8 ft 6 inches)
- (3) Fording capability: 1.2 m. (4 ft)
- (4) Vertical obstacle climbing capability: .91 m. (3 feet)

d. Armament. One 90-mm gun, one 7.62-mm and one caliber .50 machinegun.

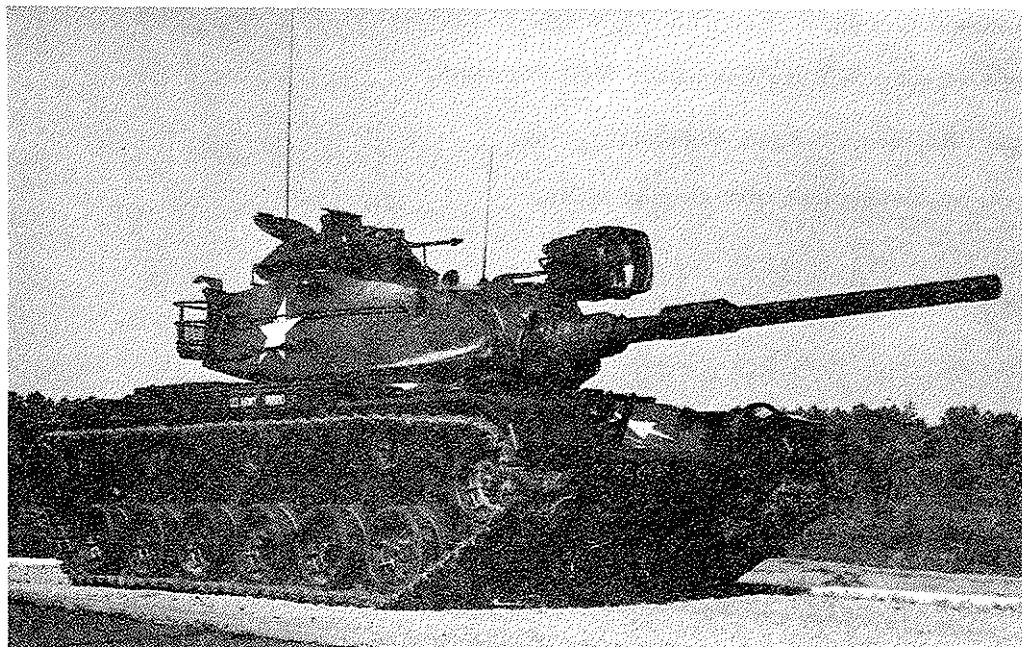
e. Employment. The M48A3 was the standard American tank but it is being replaced with the M60 series or M48A5 tanks. The M48A5 is equipped with a 105mm tank gun and improved diesel engine.





U.S. M48A3

1. Prominent Cupola.
2. Blast Deflector & Bore Evacuator Well Forward.
3. Support Rollers - 6 Road Wheels.
4. Turret hemispherical with sloping sides.



## M60/M60A1

a. General Description. The 105-mm gun, full-tracked combat tank is a heavily armored combat vehicle. The hull and turret of the M60 and M60A1 tanks are composed of homogeneous armor steel castings. Armament consists of a 105-mm gun with a 7.62-mm machinegun coaxially-mounted in the combination gun mount, and a caliber .50 M85 machinegun mounted in the tank commander's cupola. The tank has no blast deflector but does have a bore evacuator located approximately two-thirds of the way from the muzzle of the gun tube, and a turret overhang.

b. Vehicle Characteristics:

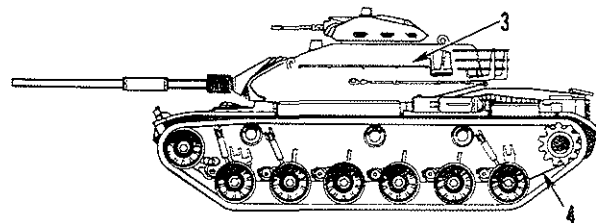
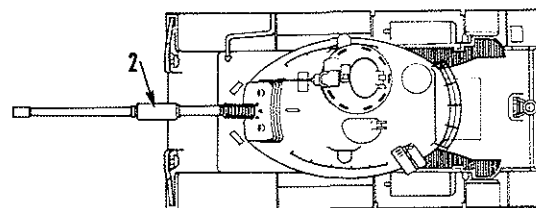
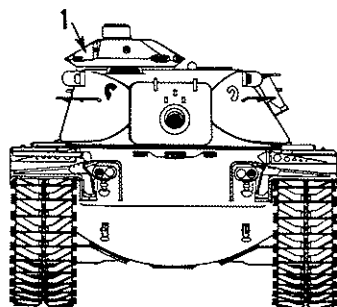
- (1) Weight: M60: 46364 Kg; M60A1: 48182 Kg. (M60 51 tons; M60A1 53 tons)
- (2) Height: M60: 3.2 m; M60A1: 3.26 m.  
(M60 10 ft 6 ins; M60A1 10 ft 8 ins)
- (3) Length: M60: 22 ft 9 ins; M60A1: 6.95 m  
(22 ft 9 ins)
- (4) Width: 3.63 m. (11 feet 11 inches)
- (5) Speed: 48.3 Kmph. (30 miles per hour(max))
- (6) Cruising range: 500 Km. (310 miles)

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%
- (2) Ditch crossing capability: 2.59.  
(8 ft 6 ins)
- (3) Fording capability: 1.2 m. (4 ft)
- (4) Vertical obstacle climbing capability:  
.91 m. (3 feet)

d. Armament. One 105-mm high velocity gun, one caliber .50 and one 7.62-mm machinegun.

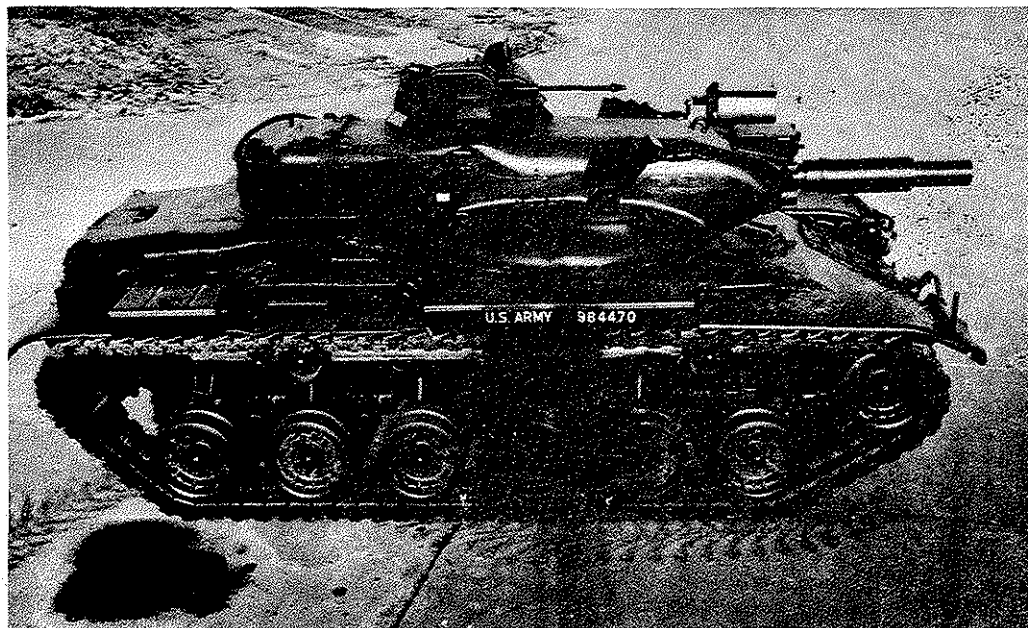
e. Employment. Quantity production of the M60 series tanks began in 1960. It is the standard tank and has replaced the M48A3 in the tank battalion.



U.S. M60A1

1. Prominent Cupola.
2. Bore Evacuator Centered Main Gun.
3. Turret Needle - Nosed With Sloping Sides.
4. Support Rollers - 6 Road Wheels.

NOTE: M60 turret is the same shape as the M48A3 turret.



## M60A2

a. General Description. The M60A2, a full-tracked combat tank, is a fully armored combat vehicle. It has the basic hull and suspension of the M60; however, the turret has been designed for the 152-mm gun launcher. In addition, the vehicle has a coaxially-mounted 7.62-mm machinegun, a cupola-mounted caliber .50 machinegun, and eight grenade dispensers. The vehicle is readily identified by its large bore, short main gun, its rectangular turret shape, the Xenon searchlight mounted on the left side, and the commander's cupola toward the rear of the turret.

b. Vehicle Characteristics.

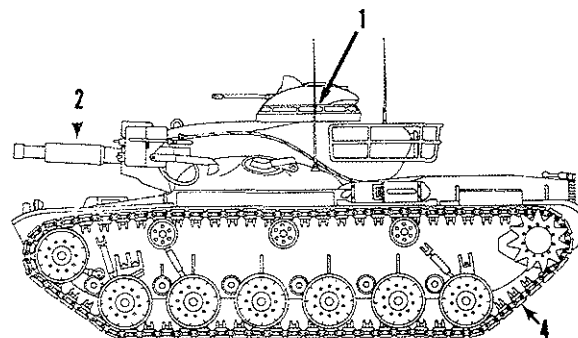
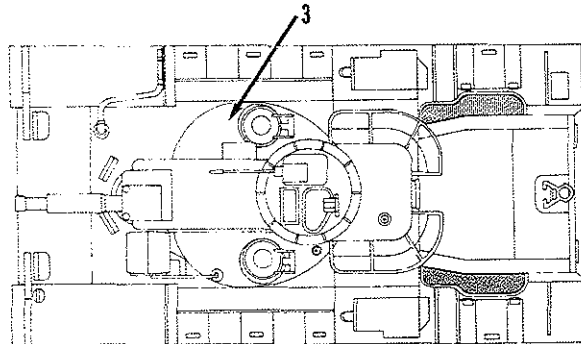
- (1) Weight: 52,727 Kg. (58 tons)
- (2) Height: 3.26 m. (10 ft 8 ins)
- (3) Length: 6.95 m. (22 ft 9 ins)
- (4) Width: 3.63 m. (11 ft 11 ins)
- (5) Speed: 48.3 Kmph. (30 miles per hr)
- (6) Cruising range: 500 Km. (310 miles)

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 2.58 m.  
(8 ft 6 ins)
- (3) Fording capability: 1.22 m. (4 ft)
- (4) Vertical obstacle climbing capability:  
.91 m. (3 feet)

c. Armament. One 152-mm gun launcher, one 7.62-mm and one caliber .50 machinegun, and eight grenade launchers. This vehicle fires the shillelagh missile, as well as a full compliment of conventional 152-mm ammunition.

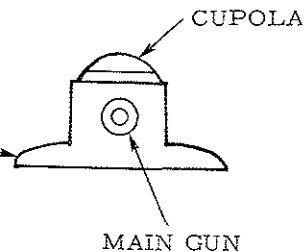
d. Employment. The M60A2 has been produced in limited numbers. It is presently the only missile-firing main battle tank in the U.S. inventory and is employed, usually in overwatch positions, with other M60A2 tanks.





# U.S. M60A2

1. Prominent Cupola.
2. Short - Stubby Main Gun.
3. Turret Rectangular - Rounded at Base.
4. Support Rollers - 6 Road Wheels.





## General Sheridan M551

a. General Description. The General Sheridan is a lightweight, full-tracked, amphibious, armored reconnaissance airborne assault vehicle mounting a 152-mm gun launcher. In addition, the vehicle has a coaxially-mounted 7.62-mm machinegun, a turret-mounted caliber .50 machinegun, and eight grenade dispensers. The vehicle is readily identified by its large bore, short main gun, angular turret, absence of support rollers, flat deck, and shape of glacis plate. The suspension system employs the flat track.

b. Vehicle Characteristics.

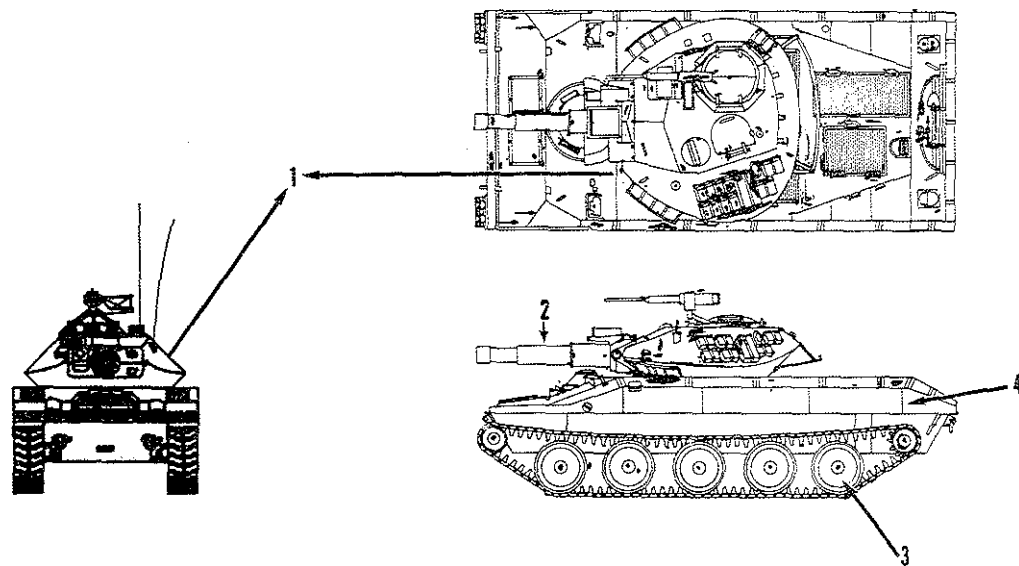
- (1) Weight: 15,000 Kg. (16.5 tons)
- (2) Height: 2.4 m. (8 feet)
- (3) Length: 6.1 m. (20 feet)
- (4) Width: 2.8 m. (9 feet 2 inches)
- (5) Speed: 70 Km/h. (43 miles per hr)
- (6) Cruising range: 600 Km. (373 miles)
- (7) Water speed: 5 Km/h. (3 mph)

c. Mobility Characteristics.

- (1) Slope ascending capability: 60 percent.
- (2) Ditch crossing capability: 2.54 m.  
(8 ft 3 ins)
- (3) Fording capability: amphibious.
- (4) Vertical obstacle climbing capability:  
.91 m. (3 feet)

d. Armament. One 152-mm gun launcher, one caliber .50 and one 7.62-mm machinegun. The maximum effective range of the shillelagh missile is classified. For conventional rounds, the maximum effective range is 1500 meters. The maximum effective ranges for the caliber .50 and 7.62-mm machineguns are, respectively, 1600 and 900 meters.

e. Employment. The first production vehicles were completed in June 1966. The M551 can be found in most armored cavalry squadrons.



## U.S. M551

1. Angular Turret.
2. Short Stubby Main Gun.
3. No Support Rollers - Only U.S. Tank-Like Vehicle Designed this Way.
4. Boat Like Hull.

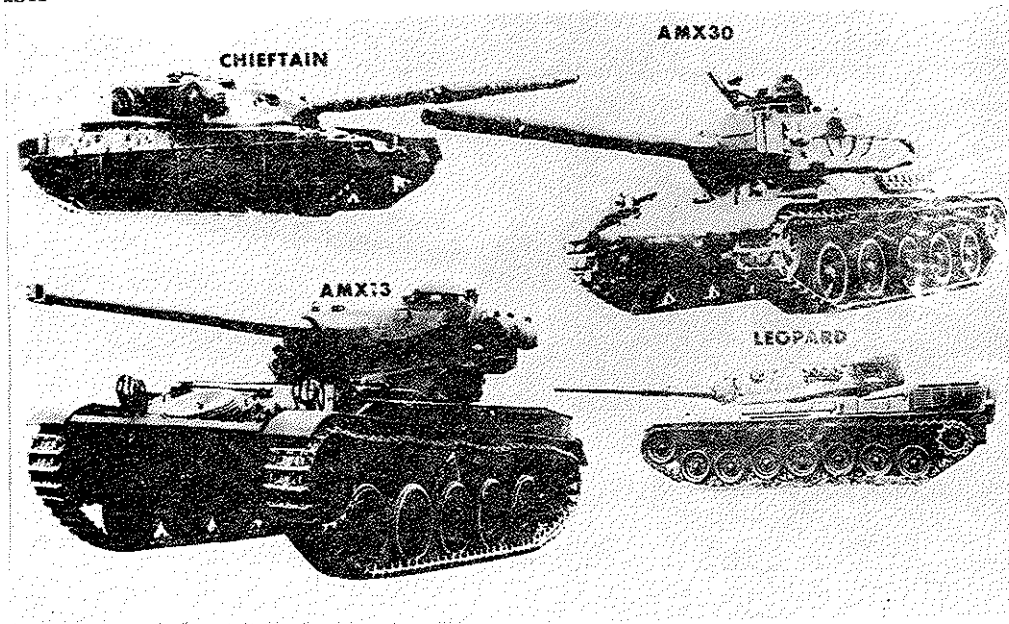


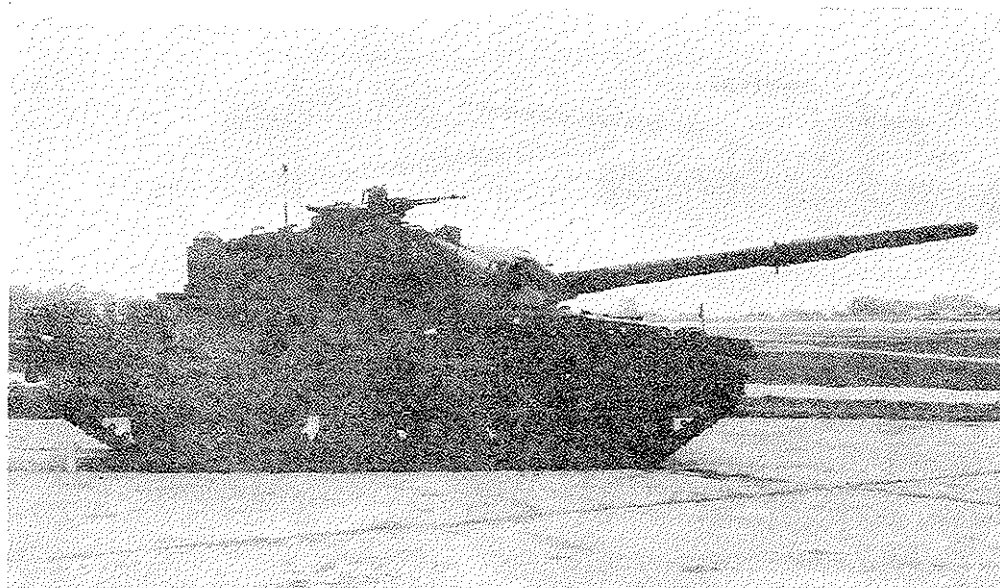
SECTION V  
ALLIED TANKS

BRITISH

FRENCH

GERMAN







## BRITISH CHIEFTAIN

a. General Description. The Chieftain is the current main battle tank of the United Kingdom, and mounts a 120-mm high velocity tank gun as a main armament. The Chieftain is readily recognized by its large silhouette and large asbestos-wrapped gun tube with the bore evacuator approximately one-third down from the muzzle end. Other features are the six large road wheels, skirting armor, well-rounded turret with grenade launchers on each side, the armor enclosed searchlight on the left side of the turret, the commander's cupola which is contra-rotating and can be opened to an umbrella-like position, and the 7.62-mm machinegun mounted on the front of the cupola which can be aimed and fired from the inside of the tank.

b. Vehicle Characteristics.

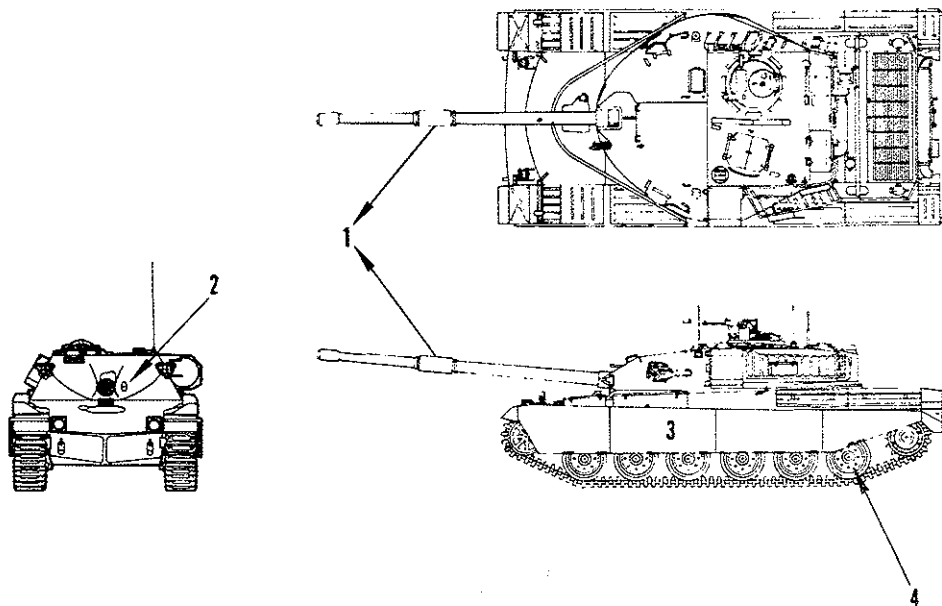
- (1) Weight: 48,909 Kg. (53.8 tons)
- (2) Length: 7.6 m. (24 feet 8 inches)
- (3) Width: 3.5 m. (11 feet 6 inches)
- (4) Height: 2.89 m. (9 feet 6 inches)
- (5) Speed: 48 Kmph. (30 miles per hour)
- (6) Cruising range: 500 Km. (310 miles)

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 3.1 m.  
(10 feet 4 inches)
- (3) Fording capability: 1.1 m. (3 feet  
6 inches)
- (4) Vertical obstacle climbing capability:  
.9 m. (2 feet 11 inches).

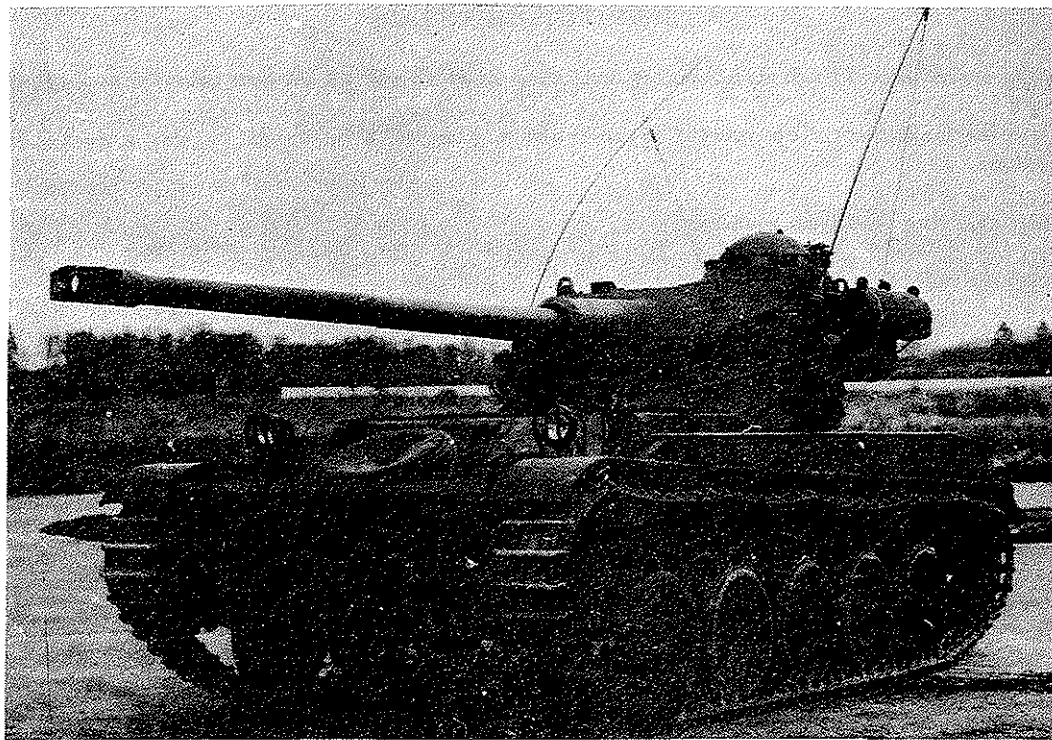
d. Armament. 120-mm high velocity gun, one caliber .50 ranging machinegun and two 7.62-mm machineguns, one coaxial and one mounted on the commander's contrarotating cupola.

e. Employment. The first production vehicle was built in mid-1965.



## BRITISH CHIEFTAIN

1. Bore evacuator 1/3 distance from muzzle, heat shielding on gun tube (see photograph).
2. Turret-prominent slop upward from front to rear with rear half having a rectangular appearance.
3. Side skirting (may be removed).
4. Support rollers, 6 road wheels.



## FRENCH AMX13

a. General Description. The AMX13 is a family of light tanks in four versions, mounting 75-mm, 90-mm, and 105-mm guns. Two types of missiles are mounted in conjunction with the 75-mm gun: the SS-11 and the Harpon antitank missiles. Both are mounted in a group of four. The tank is easily recognizable by its hull which is sloped to the rear, the turret which sits well to the rear of center, the oscillating mass of the turret, the five single road wheels with two support rollers with the back angled from front to rear. The 75-mm gun has a single baffle muzzle brake; the 105-mm gun has a double baffle muzzle brake, the 90-mm gun has an insulated barrel with a break in the insulation about midway up the barrel and a single baffle muzzle brake.

b. Vehicle Characteristics.

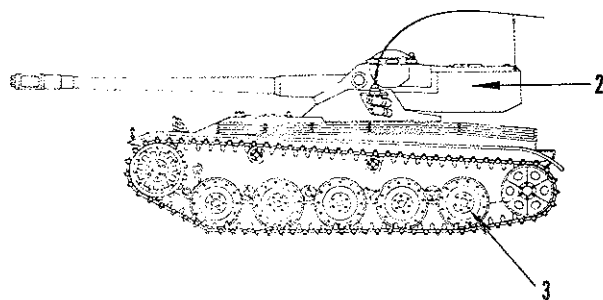
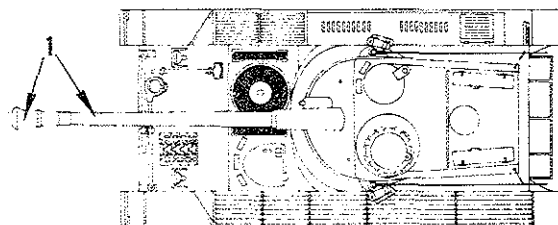
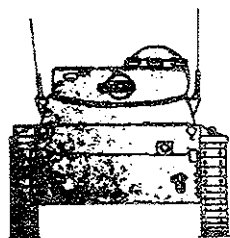
- (1) Weight: 14,909 Kg. (16.4 tons)
- (2) Height: 2.36 m. (7 feet 9 inches)
- (3) Length: 4.88 m. (16 feet)
- (4) Width: 2.5 m. (8 feet 3 inches)
- (5) Speed: 60 Kmph. (37 miles per hour)
- (6) Cruising range: 338 Km. (210 miles)

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 1.6 m. (6 feet)
- (3) Fording capability: .80 m. (2 feet 7 inches)
- (4) Vertical obstacle climbing capability: .65 m. (2 feet 2 inches)

d. Armament. 75-mm, 90-mm, 105-mm guns, or four SS-11 or Harpon missiles in conjunction with the 75-mm gun, one 7.5-mm machinegun coaxially mounted, and a 7.5-mm machinegun can be mounted on the turret.

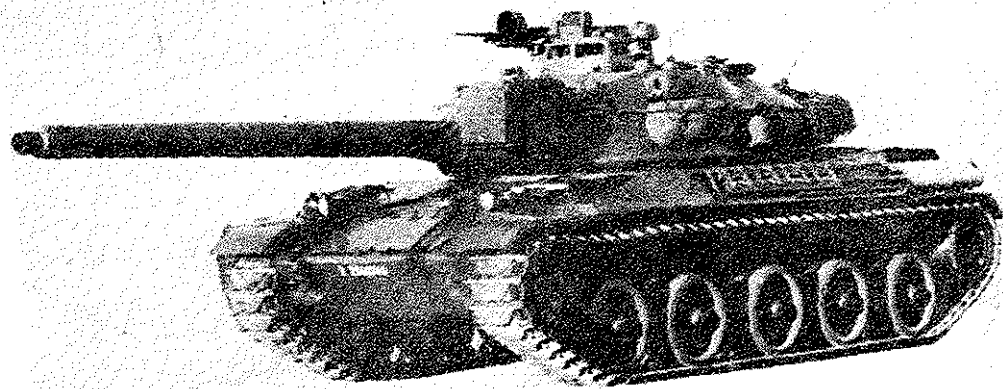
e. Employment. Used for reconnaissance and as a tank destroyer.



### FRENCH AMX 13

1. Main gun large in proportion to tank hull, fitted w/muzzle brake.
2. Long turret overhang, turret elevates w/main gun.
3. Support rollers, angled downward to rear.

NOTE: Vehicle may mount various sized main guns and different turrets.





## FRENCH AMX30

a. General Description. The 105-mm gun full-tracked, combat tank, AMX30 is a heavily armored, low silhouette, combat vehicle. Its main gun has no muzzle brake or bore evacuator, but has a four-section aluminum heat shield. The turret is one piece of case armor steel. This tank provides NBC protection for the crew because 100 percent of the outside air is filtered. The vehicle can be identified by the following characteristics; streamlined turret with grenade dispenser, sloped armor, the square infrared searchlight mounted left of the main gun, gun tube without muzzle brake and bore evacuator, five road wheels, and five support rollers.

b. Vehicle Characteristics.

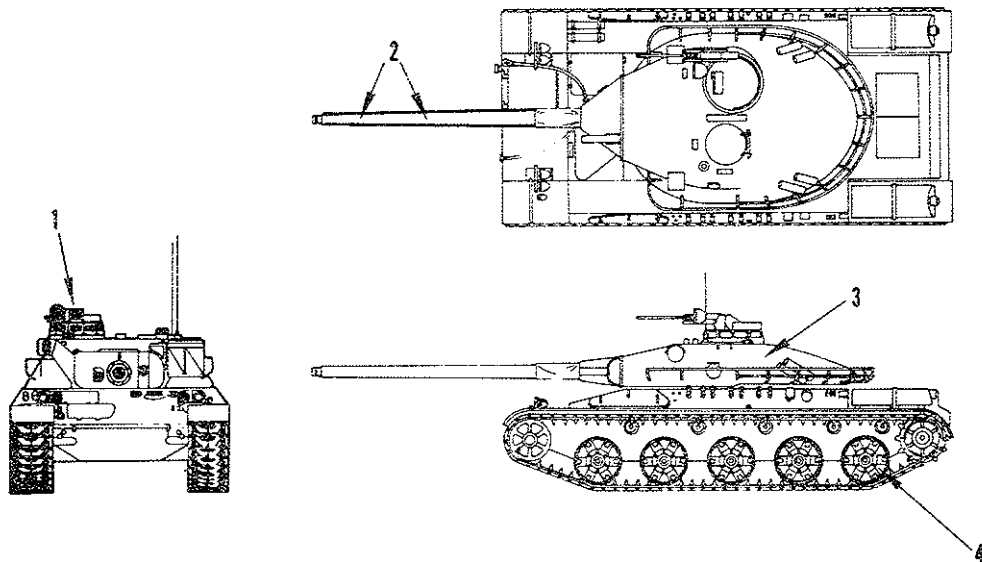
- (1) Weight: 35,909 Kg. (39.5 tons)
- (2) Height: 2.84 m. (9 feet 4 inches)
- (3) Length: 6.29 m. (20 feet 8 inches)
- (4) Width: 3.10 m. (10 feet 2 inches (approx))
- (5) Speed: 65 Kmph. (40 miles per hour)
- (6) Cruising range: 483 Km. (300 miles)

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 2.89 m. (9 feet 6 inches)
- (3) Fording capability: 2.2 m. (7 feet 2 inches)
- (4) Vertical obstacle climbing capability: .9 m. (3 feet)

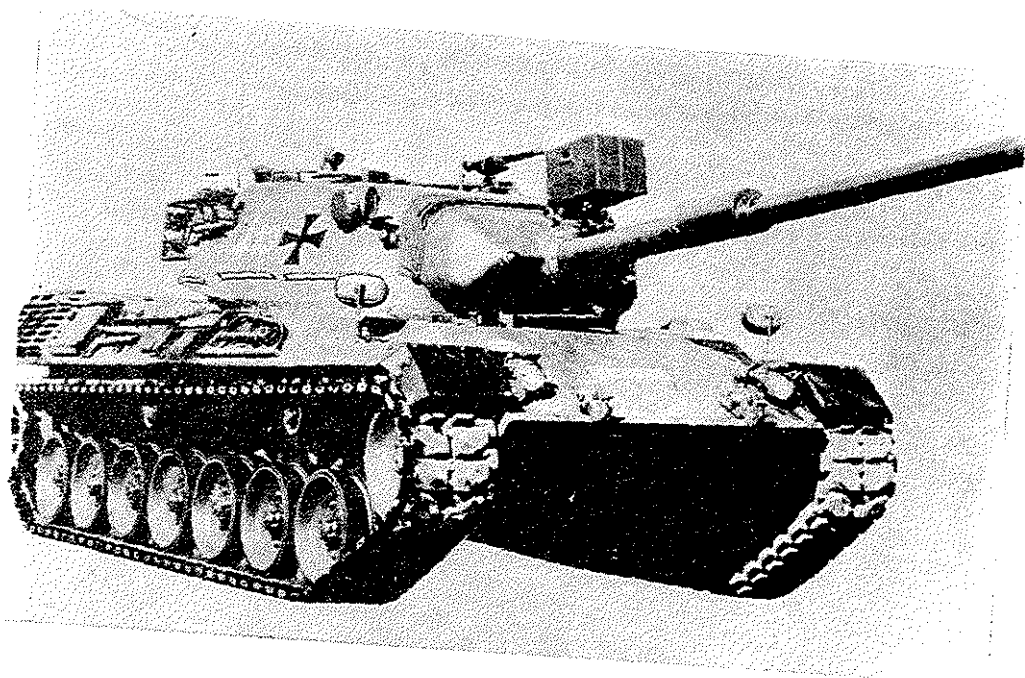
d. Armament. One 105-mm gun, one 12.7-mm machinegun, and one 7.62-mm machinegun.

e. Employment. The AMX30 was developed from tripartite specification set forth by France, Germany, and Italy in 1957. However, only the French adopted it. Production was initiated in 1966.



## FRENCH AMX 30

1. Prominent cupola.
2. Large main gun w/heat shield encased gun tube (see picture).
3. Long sloping turret.
4. Support rollers - 5 roadwheels.



## GERMAN LEOPARD

a. General Description. The Leopard is a full-tracked, low silhouette combat vehicle armed with a 105-mm high velocity gun. The hull and turret are designed to give maximum protection against an atomic blast. The hull has particularly clean lines, with one large exhaust grille on each side. The suspension has seven road wheels and four unevenly spaced support rollers on each side. A bore evacuator is one-third of the way up the barrel, but no muzzle brake is present. The rear deck is raised and the caliber .50 machinegun is externally mounted on the turret.

b. Vehicle Characteristics.

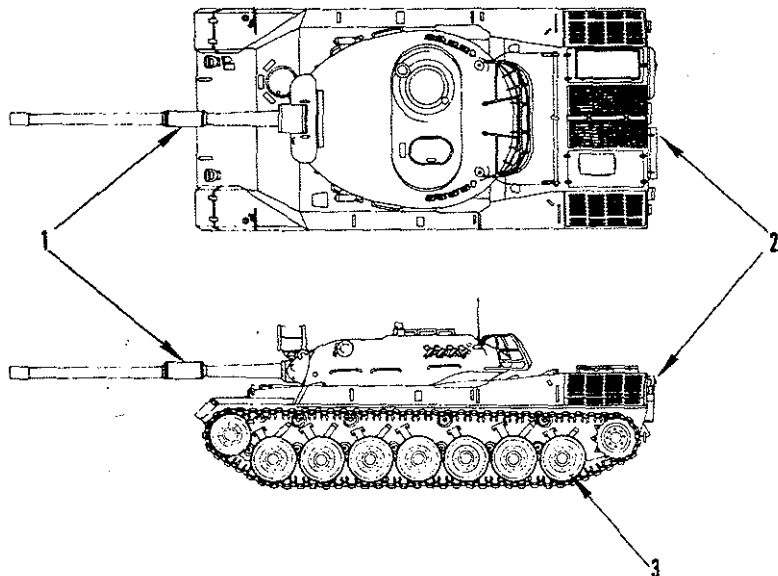
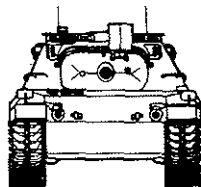
- (1) Weight: 40,273 Kg. (44.3 tons)
- (2) Height: 2.4 m. (8 feet)
- (3) Length: 6.96 m. (22 feet 10 inches)
- (4) Width: 3.26 m. (10 feet 8 inches)
- (5) Speed: 65 Kmph. (40.5 miles per hour)
- (6) Cruising range: 604 Km. (375 miles)

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 2.9 m. (9 feet 6 inches)
- (3) Fording capability: To turret roof
- (4) Vertical obstacle climbing capability: 1.15m. (3 feet 9 inches)

d. Armament. One 105-mm gun, one caliber .50 machinegun and one 7.62 machinegun.

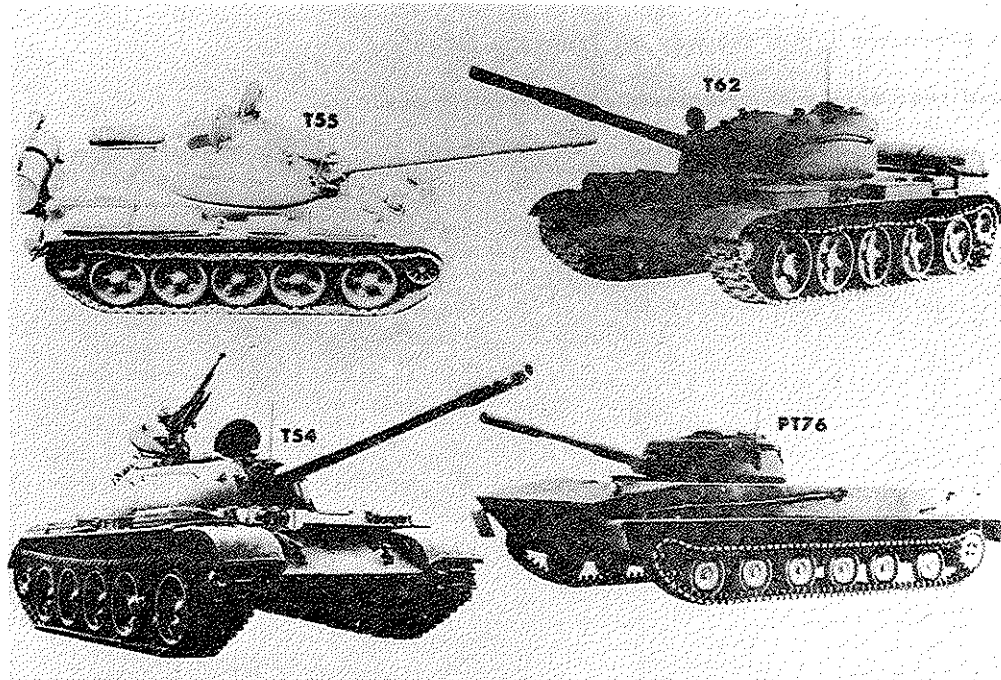
e. Employment. In 1963 the Leopard was officially adopted as the main battle tank of the West German Army. First production vehicles were completed in September 1965.



## WEST GERMAN LEOPARD

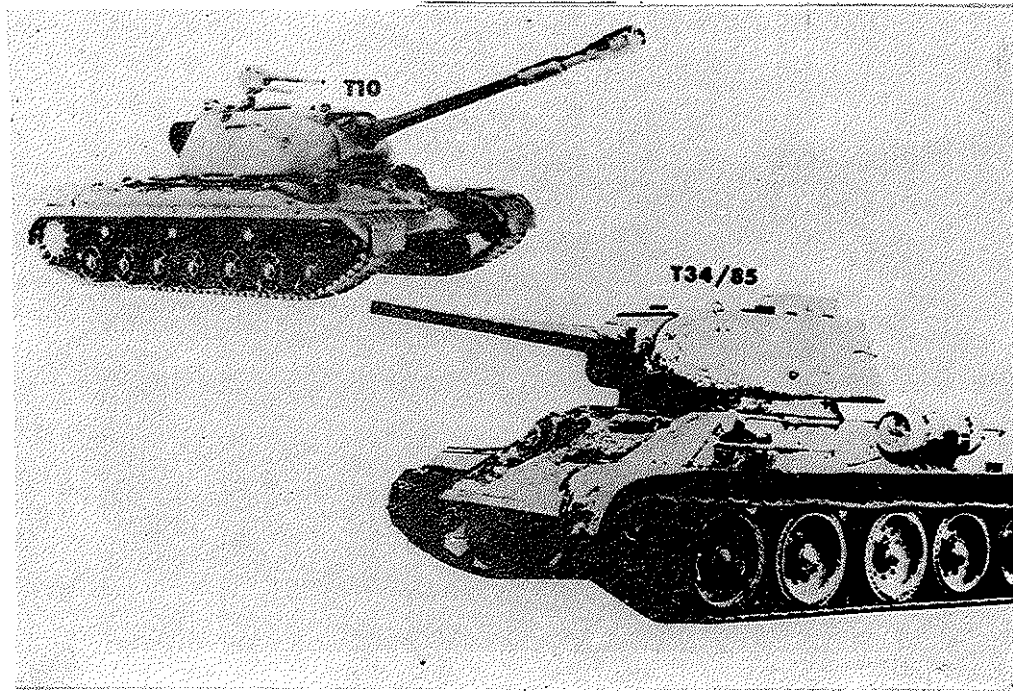
1. Bore evacuator 1/3 of the way out from the turret.
2. Raised rear deck with prominent engine ventilators.
3. Support rollers - 7 roadwheels.

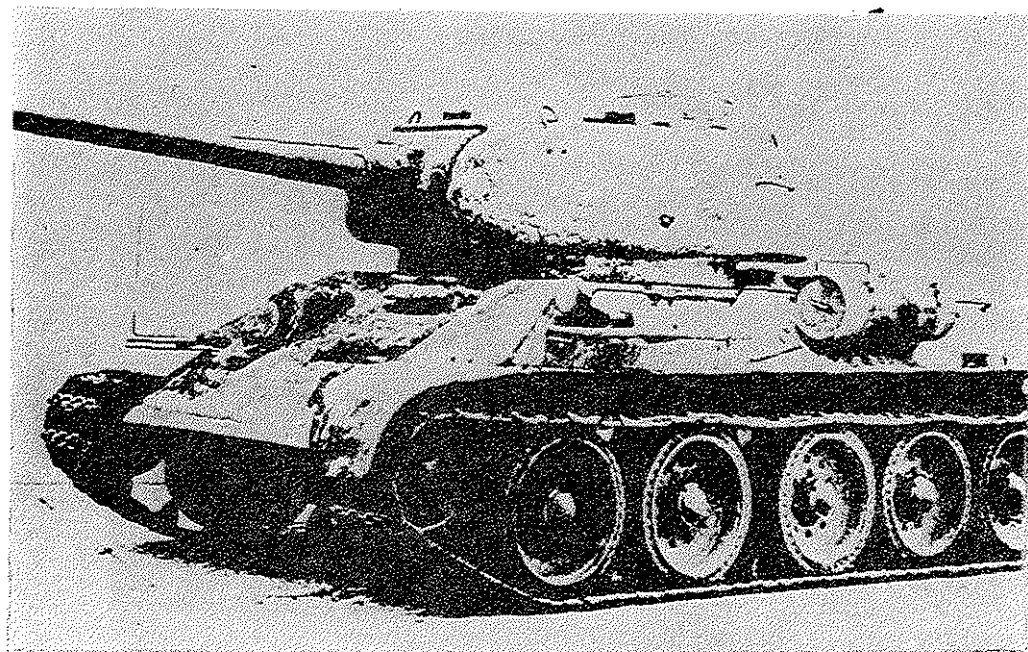
SECTION VI  
SOVIET TANKS





## SOVIET TANKS





## T34/85

a. General Description. Despite its early introduction (1944), the T34/85 is still considered a good armored vehicle. It features sloped armor, a low silhouette, good cross-country capability, effective firepower, and a good cruising range. It can be readily recognized by its Christie-type suspension system (absence of support rollers), a well-sloped front plate with a hinged driver's hatch, a ball-mounted machinegun, and a hexagonal turret, and a long-barreled 85-mm gun without muzzle brake.

b. Vehicle Characteristics.

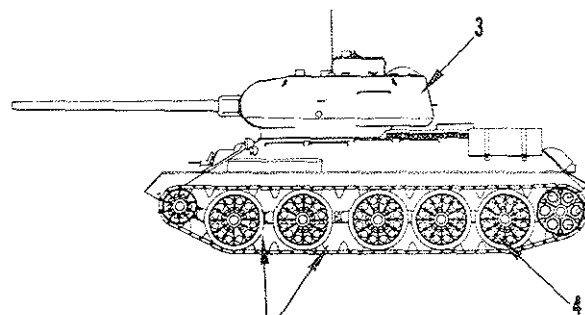
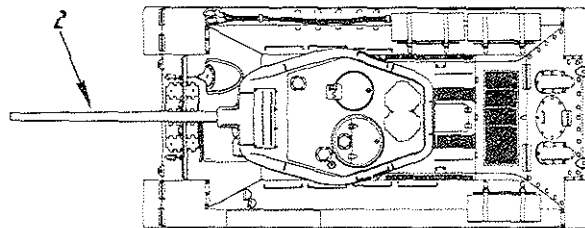
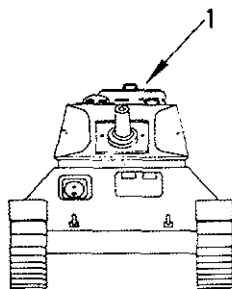
- (1) Weight: 31,818 Kg. (35 tons)
- (2) Height: 2.4 m. (7 feet 11 inches)
- (3) Length: 6.1 m. (20 feet)
- (4) Width: 3.05m. (10 feet)
- (5) Speed: 56 Kmph. (35 miles per hr (approx))
- (6) Cruising range: 306 Km (190 miles) without auxilliary tanks; 500 Km (310 miles) with auxilliary tanks.

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 2.3 m. (7 feet 6 inches)
- (3) Fording capability: 1.2 m. (4 feet 2 inches)
- (4) Vertical obstacle climbing capability: .7 m. (2 feet 6 inches)

d. Armament. One 85-mm gun and two 7.62-mm machineguns. The 85-mm gun will penetrate 114-mm of armor at 502 meters. The maximum effective range of the 7.62-mm machinegun is 900 meters.

e. Employment. In 1944, the T34/85 began to replace older models of the T34 series and became standard equipment of the medium tank and tank-assault gun regiments. Since 1955 it has been superseded by the T54 and T55 series tanks. However, the T34/85 is utilized by some Warsaw Pact units and is still a respectable combat tank when properly employed.



NOTE GAPS

## SOVIET T34

1. Prominent hatch.
2. No accessories on main gun.
3. Box like turret.
4. No support rollers - large roadwheels. Distinct gap between #1 and #2 roadwheel and #2 and #3 roadwheel.



## T54

a. General Description. The T54 was the Soviet medium tank. Numerous modifications on the T54 have resulted in new submodels. The T54 has excellent mobility and well-shaped armor. This tank features a Christie suspension system with a larger space between the first and second road wheels. The turret has the shape of a flattened, elongated hemisphere and has a ventilator opening in front of the loader's hatch. The main gun bore evacuator is located near the muzzle of the main gun. T54 models may have infrared searchlights for the commander and the gunner.

b. Vehicle Characteristics.

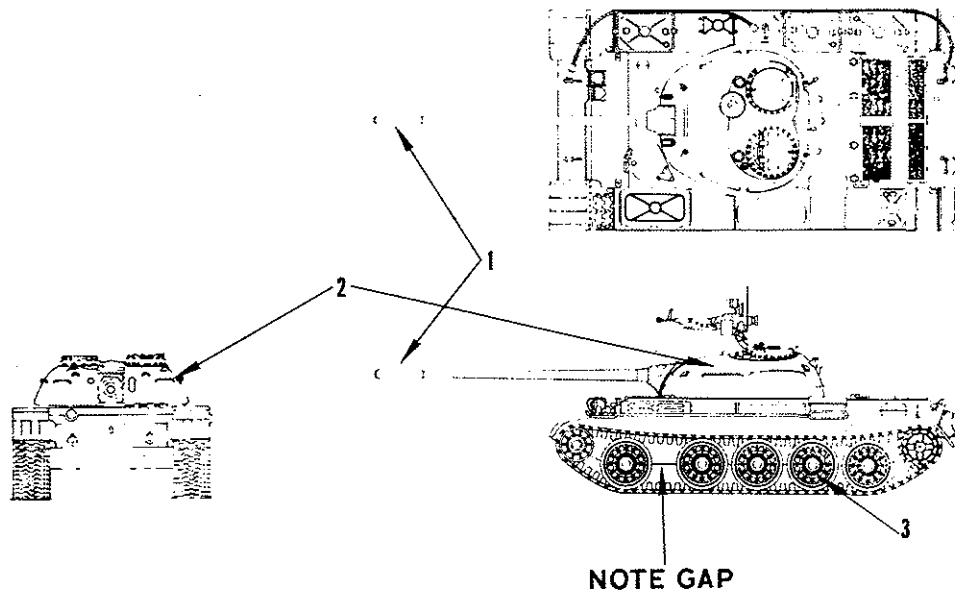
- (1) Weight: 36,364 Kg. (7 feet 11 inches)
- (2) Height: 2.4 m. (7 feet 11 inches)
- (3) Length: 6.5 m. (21 feet 2 inches)
- (4) Width: 3.27 m. (10 feet 9 inches)
- (5) Speed: 50 Kmph. (31 miles per hour)
- (6) Cruising range: Without auxilliary tanks 402 Km (250 miles) with auxilliary tanks 676 Km (420 miles).

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 2.7 m. (8 feet 10 inches)
- (3) Fording capability: 1.5 m. (4 feet 11 inches)
- (4) Verticle obstacle climbing capability: .8 m. (2 feet 7 inches)

d. Armament. One 100-mm gun, one 12.7-mm machinegun, and two 7.62-mm machineguns, one of which is coaxially-mounted on the turret; the second machinegun is fixed in the hull front.

e. Employment. The T54 series tanks are found in all Warsaw Pact Armies, where they have largely replaced the older T34/85 since 1955.

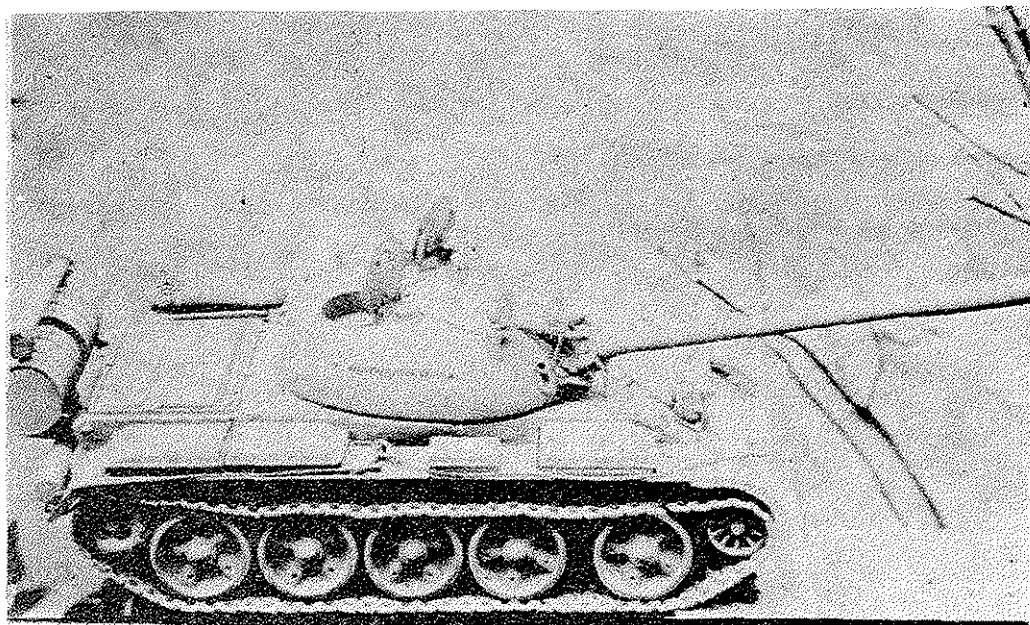




## SOVIET T54

1. Bore evacuator at muzzle end.
2. Well rounded turret.
3. No support rollers, large roadwheels.

NOTE: Gap between 1st and 2d roadwheels.



## T55

a. General Description. The T55 is an improved version of the T54 series of medium tanks. The T55 has the same 100-mm gun (with a bore evacuator on the end of the gun tube) as the T54. The T55 has the same Christie suspension system as the T54. The T55, however, has neither the ventilator opening in front of the loader's hatch nor an antiaircraft machinegun. The T55 has an infrared searchlight mounted to the right of the gun tube.

b. Vehicle Characteristics.

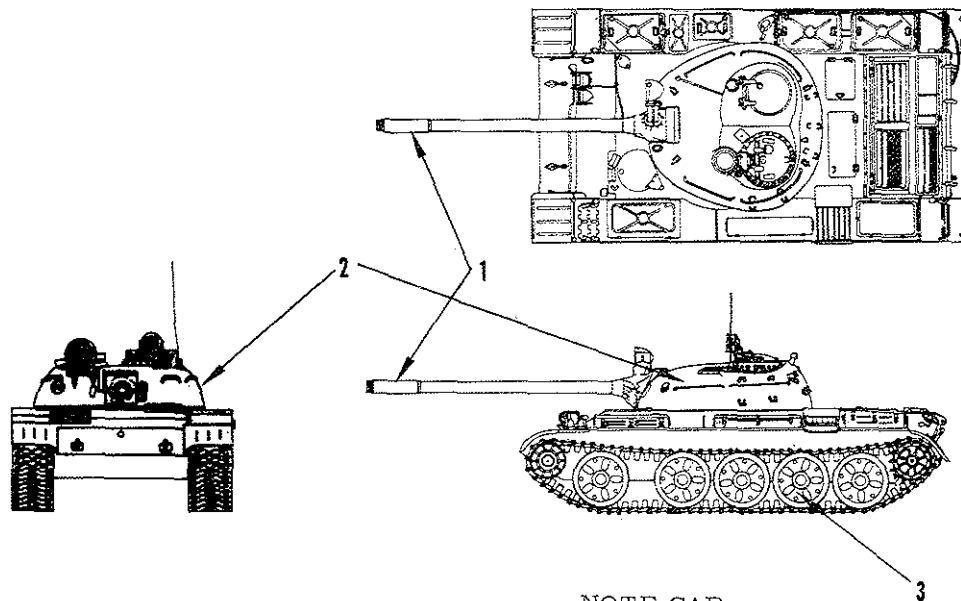
- (1) Weight: 36,364 Kg. (40 tons)
- (2) Height: 2.4 m. (7 feet 9 inches)
- (3) Length: 6.5 m. (21 feet 2 inches)
- (4) Width: 3.24 m. (10 feet 7 inches)
- (5) Speed: 48.3 Kmph. (30 miles per hour)
- (6) Cruising range: Without auxiliary tank  
402 Km (250 miles) with auxiliary tank  
603 Km (375 miles).

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 2.7 m.  
(8 feet 10 inches)
- (3) Fording capability: 1.3 m. (4 feet  
7 inches)
- (4) Vertical obstacle climbing capability:  
.8m. (2 feet 7 inches)

d. Armament. One 100-mm gun and two 7.62-mm machineguns. (Latest models have discontinued the bow machinegunners.)

e. Employment. The Soviets first displayed the T55 medium tank in the 7 November 1961 parade in Moscow. It has been widely issued in the Soviet Forces, and can be found in other armies of the Warsaw Pact as a replacement for the older T54.



NOTE GAP

## SOVIET T55

1. Bore evacuator at muzzle end.
2. Well rounded turret.
3. No support rollers, large roadwheels.

NOTE: Gap between 1st and 2d roadwheels.



## T62

a. General Description. The T62 is the newest Soviet medium tank. It features the Christie suspension system with five large road wheels. The T62 has a well-rounded turret, comparatively low silhouette, and well-sloped frontal armor. The main gun has a bore evacuator located approximately one-third of the distance from the muzzle. The large spacing between the last three road wheels differentiates the T62 from the T54/T55 series of medium tanks.

b. Vehicle Characteristics.

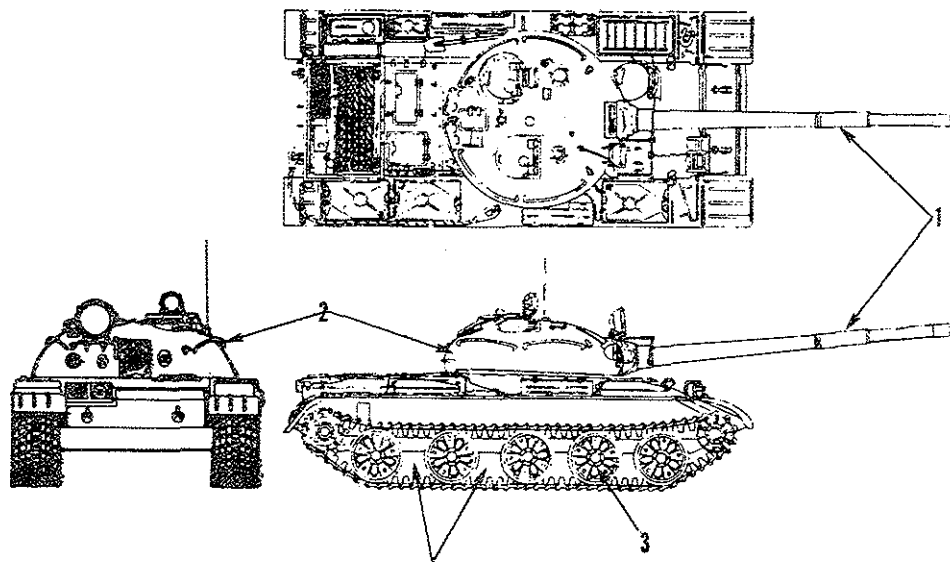
- (1) Weight: 37,273 Kg. (41 tons)
- (2) Height: 2.4 m. (7 feet 10 inches)
- (3) Length: 6.85 m. (22 feet 6 inches)
- (4) Width: 3.4 m. (11 feet)
- (5) Speed: 48.3 Kmph. (30 miles per hour)
- (6) Cruising range: 402 Km. (250 miles)

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 2.8 m. (9 feet 2 inches)
- (3) Fording capability: 1.4 m. (4 feet 6 inches)
- (4) Vertical obstacle climbing capability: .8 m. (2 feet 7 inches)

d. Armament. 115-mm smooth bore main gun and one 7.62-mm machinegun. A 12.7-mm machinegun may be mounted on the turret roof on T62A models.

e. Employment. The T62 medium tank was first shown to the public in the 9 May 1965 Victory Parade in Moscow. Since then it has been widely issued to Soviet units, including those in East Germany.



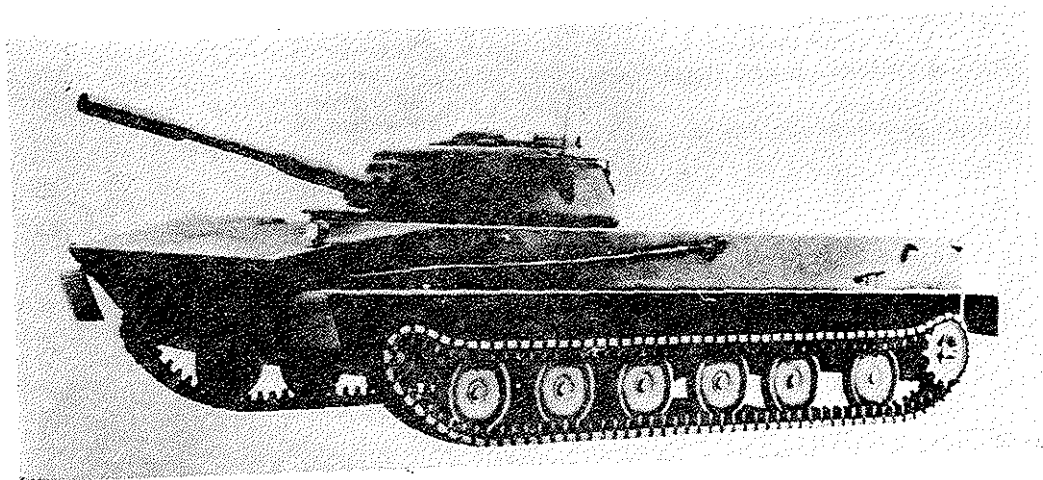
NOTE GAP



## SOVIET T62

1. Bore evacuator 1/3 the way in from the muzzle of the main gun tube.
2. Well rounded turret.
3. No support rollers, large roadwheels.

NOTE: Large gap between 4th and 5th roadwheels.



## PT76

a. General Description. The PT76 is a lightly armored, very mobile, amphibious vehicle. It features the Christie suspension system with six road wheels. It has a round turret with well-sloped sides and a large hatch. There are two openings in the rear of the hull for the hydrojet water propulsion system. The turret is set well forward on the hull. The shape of the hull has a general boat-like appearance. The chassis, with extensive modifications, is used in several other vehicles; for example, the BTR50P, APC.

b. Vehicle Characteristics.

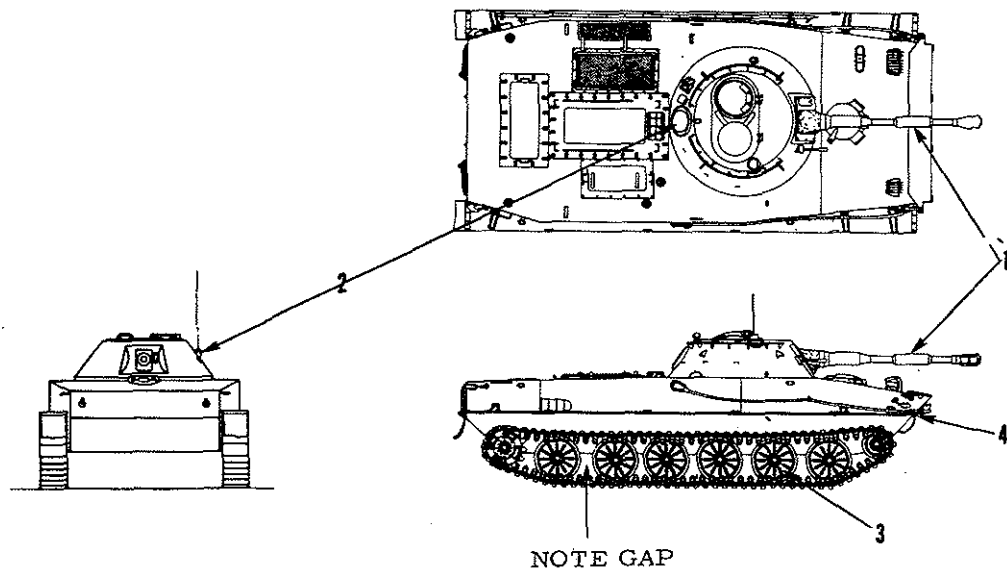
- (1) Weight: 14,091 Kg. (15.5 tons)
- (2) Height: 2.1 m. (7 feet 2 inches)
- (3) Length: 6.9 m. (22 feet 8 inches)
- (4) Width: 3.2 m. (10 feet 5 inches)
- (5) Speed: land, 43.5 Km/h (27 miles per hour); water, 9.65 Km/h (6 miles per hour).
- (6) Cruising range: without auxiliary tanks  
249 Km. (155 miles)

c. Mobility Characteristics.

- (1) Slope ascending capability: 70%.
- (2) Ditch crossing capability: 2.8 m.  
(9 feet 2 inches)
- (3) Fording capability: amphibious.
- (4) Vertical obstacle climbing capability:  
1.1 m. (3 feet 7 inches)

d. Armament. One 76-mm gun and one 7.62-mm machinegun.

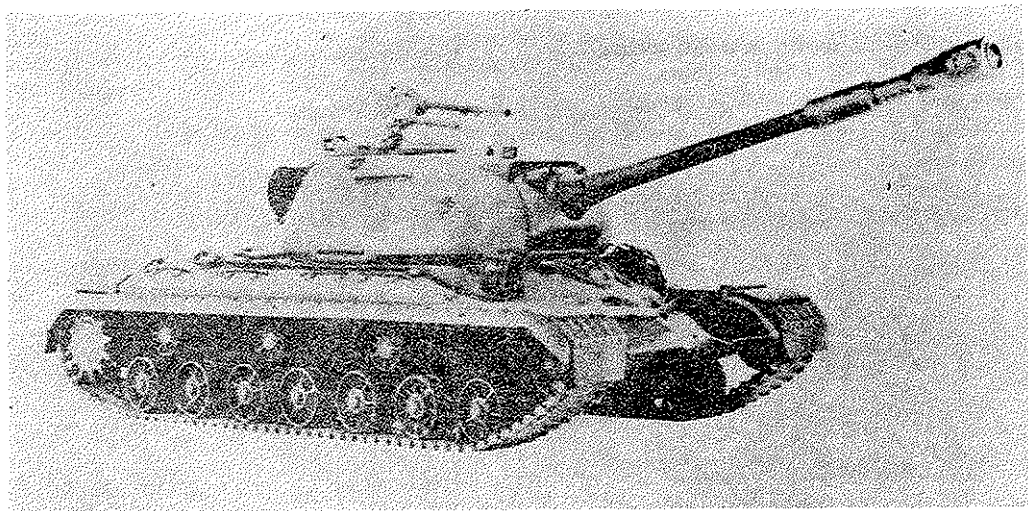
e. Employment. Used since 1955 by the reconnaissance companies and battalions in the Soviet Union and the Warsaw Pact Countries.



### SOVIET PT76

1. Short main gun w/muzzle brake and bore evacuator.
2. Turret angular, well forward on hull.
3. No support rollers.
4. Boat like hull.

NOTE: Large gap between 5th and 6th road wheels.



## T10

a. General Description. The T10 is the first of the latest series of Soviet heavy tanks and is armed with an improved model of the 122-mm gun. The basic role of the T10 is that of a long range killer. In general appearance, the T10 closely resembles the JS-3, its predecessor. Distinguishing features are seven road wheels and three support wheels, gun with a bore evacuator and dual baffle muzzle brake, large turret with a coaxially-mounted 12.7-mm machine-gun; cut-off corners on rear fuel tanks, and angularity of hull armor. The vulnerability of this tank has been reduced by the increasing frontal armor and angularity.

b. Vehicle Characteristics.

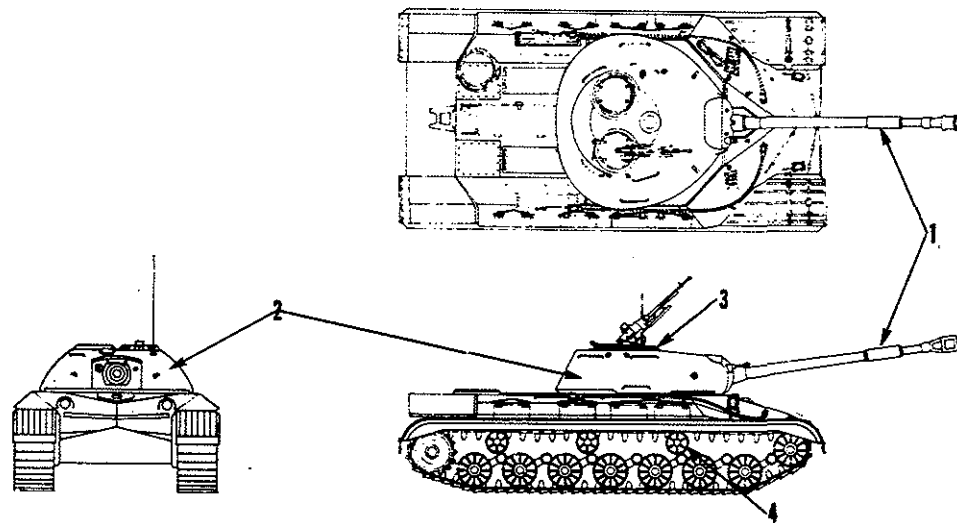
- (1) Weight: 49,091 Kg. (54 tons)
- (2) Height: 2.3 m. (7 feet 6 inches)
- (3) Length: 7.4 m. (24 feet 4 inches)
- (4) Width: 3.4 m. (11 feet 3 inches)
- (5) Speed: 35 Kmph. (22 miles per hour)
- (6) Cruising range: without auxiliary tanks, 220 Km (137 miles).

c. Mobility Characteristics.

- (1) Slope ascending capability: 60%.
- (2) Ditch crossing capability: 3 m. (9 feet 10 inches)
- (3) Fording capability: 1.2 m. (4 feet)
- (4) Vertical obstacle climbing capability: 1.0 m. (3 feet 3 inches)

d. Armament. One 122-mm gun and two 12.7-mm machineguns.

e. Employment. First appeared in 1957. Replaced earlier models in the heavy-tank regiments of the division.





## SOVIET T10

1. Muzzle brake, bore evacuator near muzzle end.
2. Well rounded turret, well forward on hull.
3. No cupola.
4. Support rollers - 7 roadwheels.

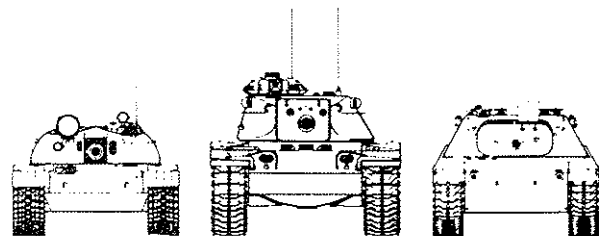
## A BRIEF HISTORY OF SOVIET TANKS

The Soviets have long been one of the world's leading producers of armored vehicles. Originally basing their models on foreign designs from Great Britain and the United States, they rapidly developed their own ideas on armor, and by the outbreak of World War II had produced an outstanding family of tanks, of which the original T34 was the finest medium tank of the day.

This development has proceeded without interruption. Tank design and production have a high priority in the Soviet Union, and the excellent results have been passed along to the troops. The standard reconnaissance tank is the amphibious PT76. The T34(85) has as its replacement the excellent T54/55 series, although some T34(85)'s are still in use. The T54 itself has undergone numerous modifications and has emerged as the T55. The new T62 medium tank, based on the T54/55 series but incorporating a new gun, has made its appearance.

The standard heavy tank is the T10M, but T10's, JS3's and JS2's are still standard in many tank units. In addition the Soviets use tank chassis of all types for a variety of purposes such as assault guns, self-propelled antiaircraft guns, rocket launchers, and tank recovery vehicles.

An outstanding feature of Soviet armor is the widespread use of very fine snorkeling equipment enabling tanks to cross inland waterways without the use of bridges or ferries. Soviet tanks also have infrared night driving and sighting capability and main armament stabilization.

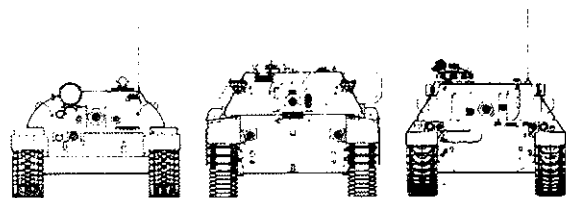


T. 54/55

M. 60

LEOPARD

**COMPARATIVE FRONTAL SILHOUETTES  
(TO SCALE)**



T. 62

CHIEFTAIN

AMX - 30



## Section VII. VULNERABILITIES

The Soviet medium series tank, (T54, 55, and 62) are vulnerable to all U.S. antitank weapons. Specific examples of Soviet medium tank vulnerabilities are external fuel tanks located on both fenders, which are susceptible to indirect artillery and small arms fire. Internal fuel tanks are located along the right side, with the majority being in and around the driver's compartment. The main gun ammunition is stored in the turret area, both on the floor of the vehicle and in the turret itself. A hit in one of the internal fuel cells or the ammunition (Fig 1, page 83) will almost always result in a catastrophic kill (completely destroyed).

Fig 2, page 84, shows the most favorable direction of attack for dismounted infantry, using the LAW, or a satchel charge. The LAW will penetrate the front of the Soviet medium tank (the front has the heaviest armor), but if you attack the tank in the shaded area (most favorable direction of attack, Fig 2 page 84, you have time to fire more than one LAW at the tank before the enemy can traverse the turret and fire at you. The turret on the Soviet medium tank traverses quite slowly, approximately  $15^{\circ}$  per second. That means it takes a full 24 seconds to traverse  $360^{\circ}$ . This time lapse can be used to your advantage. If the tank were moving directly away from you, it would take the enemy 12 seconds to traverse the turret ( $180^{\circ} \div 15^{\circ}$  per second = 12 seconds) and bring you under fire. This 12-second reaction time starts after he knows you are there and if you use proper camouflage techniques, he shouldn't know you're even in the area until that first LAW round impacts on his vehicle! If you have additional LAW's extended prior to firing the first round, you will have time to pick up and fire a second and probably a third LAW before the turret is traversed and you are brought under direct fire. However, with the engine and thinner armor on the rear of the hull and turret, if you hold the proper sight picture

with the LAW, the tank should be immobilized or destroyed by the second round, if not destroyed by the first round.

The Soviet medium tank has visual dead space of 10 meters and principal weapon dead space of 20 meters (Fig 2 page 84). This means if you are closer than 20 meters to the tank, he can't shoot and hit you with the main gun or coaxially mounted machinegun, because the weapons will not depress any lower. (This is assuming that all hatches are closed.). Once you move within 10 meters of the tank, the crew can no longer see you (again, assuming all hatches are closed). You can then throw a "Molotov Cocktail" or place a satchel charge next to the turret to destroy the vehicle.

For the antitank gunner that can hit a particular spot on the tank, the cutaway of the Soviet T55 (Fig 1, page 83) will be invaluable. You can see that a hit from the turret on down to the floor, will hit the crew, ammunition, and/or fuel.

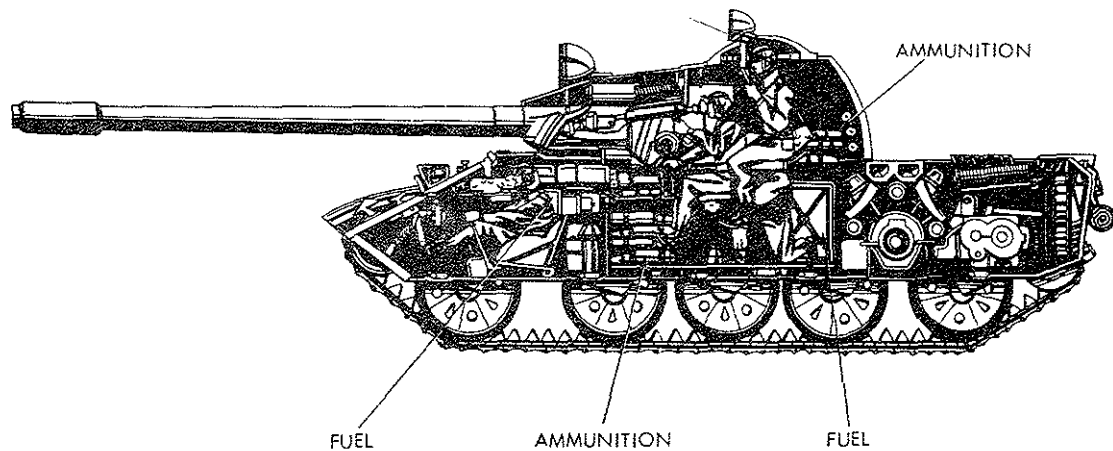


Figure 1

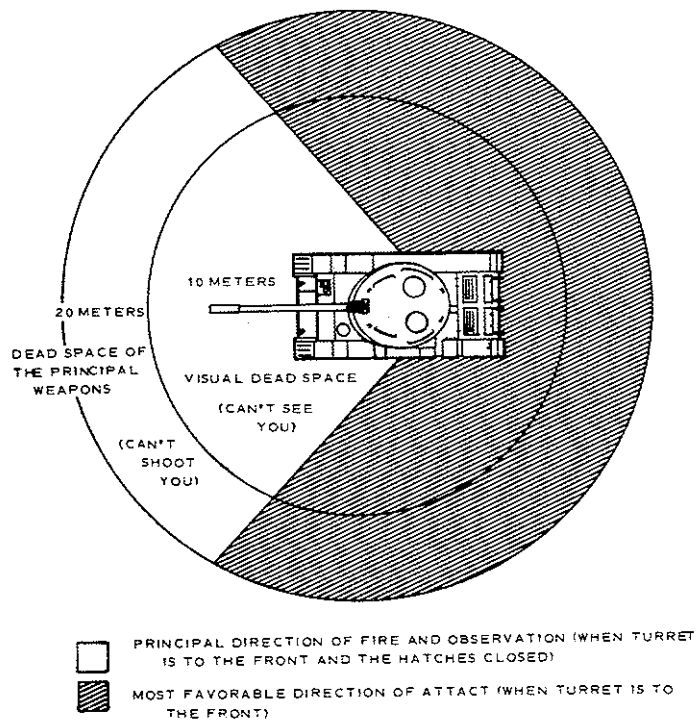


Figure 2



APPENDIX A

TANK IDENTIFICATION INSTRUCTION



## APPENDIX A

### ONE METHOD OF TANK IDENTIFICATION INSTRUCTION

The United States Army Infantry School has found that silhouettes of tanks are of limited training value.

The method of tank identification developed by the Weapons Dept, USAIS, has overcome this deficiency by using 3-dimensional scale model plastic tanks that can be placed in an infinite number of positions, which simulates the conditions that can be expected in combat, something that silhouettes and pictures cannot do.

1. Each student should have and retain a copy of this Tank Identification Handbook (ST 7-193 FY 77). This handbook explains the 4-step method of identification and additional copies can be ordered by sending a letter of justification to:

Commandant  
United States Army Infantry School  
ATTN: ATSH-AWT (sd)  
Fort Benning, Georgia 31905

2. A 2' x 4' chart of each tank you intend to teach can be made by your local Training Aids Service Office (TASO), Fig 3 (page 91) and Fig 4 (page 92). The 3-view line drawings are simply enlarged photos of the 3 views found in the Tank Identification Handbook. The black and white

picture at the top could be an enlargement taken from the handbook, or you can substitute any picture of the vehicle that you desire. This black and white picture is 16" x 20". Remember, you must have one chart for each tank you wish to teach.

3. The final items needed to conduct tank identification training are scale model plastic tanks. You probably will not be able to find models of all tanks, but you can find enough to test the students' ability to identify tanks, using the 4-step method that was developed by Weapons Department, USAIS. The models used at Fort Benning, are on a 1/35 scale, and are commercially available. Smaller scale models sacrifice important details which are useful in identification. Your TASO should be able to purchase the models locally, through the PX, or hobby shops in your area. The terrain board (Fig 5, page 93) is not needed to conduct Tank ID training. The models can be placed on the ground, behind rocks, bushes, or other natural objects available in your training area. By using known scale (1/35) models, you can simulate any range from 5 meters to 5000 meters. On a 1/35 scale, each meter you move the model will give you the same effect if the real tank were 35 meters away. For example, if the models were placed 43 meters to the front, they would simulate what the actual tank would look like at 1505 meters. At that range, it is almost impossible to identify the vehicles without some optical aid. To make the training realistic, the students can use the optical sight of their own antitank weapon, such as the TOW, Dragon, 106-mm Recoilless Rifle, etc. If not available, binoculars will work. Remember that the models simulate a certain distance and will look like the actual tanks do, with or without optical sights, at the same range (in this case, 1505 meters).

4. We have developed a 15-minute TV program on Tank Identification that explains this method in great detail. It would prove invaluable to the instructor. If you desire a copy of this film, again your local TASO can obtain a copy through the TASO at Fort Benning. Have them request film #2E-071-0609-B, "TANK IDENTIFICATION".

If you desire any further information on Tank Identification, please contact:

Weapons Department  
U. S. Army Infantry School  
Fort Benning, Georgia 31905

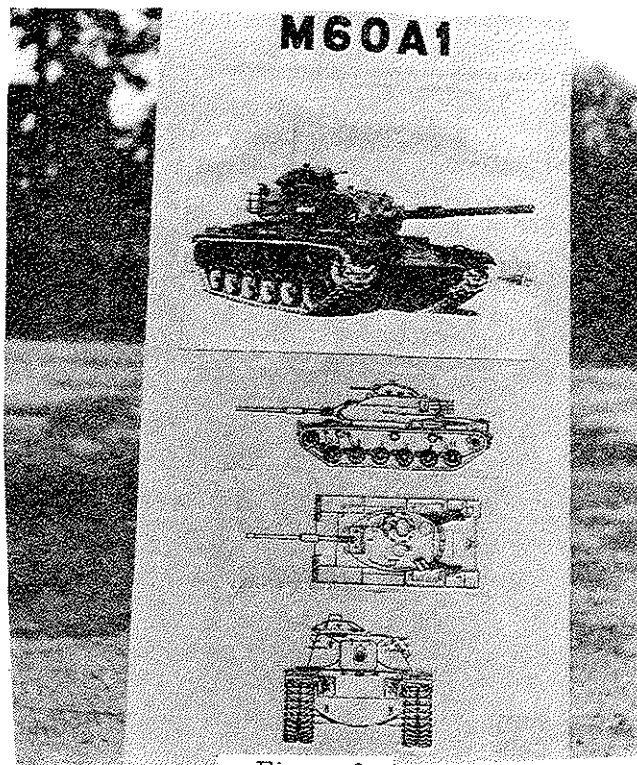


Figure 3

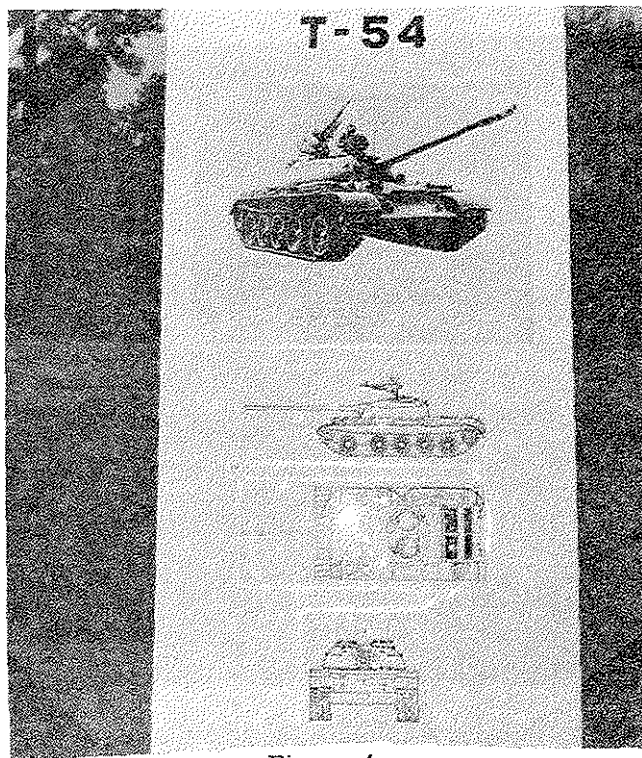


Figure 4



Figure 5



## APPENDIX B

## REFERENCES

## APPENDIX B

The following are the principal references for Tank Identification.

1. Department of the Army Pamphlets

USAREUR PAM 525-1	Military Operations - Tips for Tankers
USAREUR PAM 30-60-1	Identification Handbook
ST-3-7-173 FY 72	To Catch a Tank
ST-7-175 FY 72	Tactical Vehicles

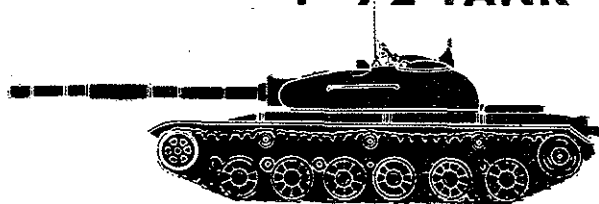
2. Field Manuals

FM 23-3  
FM 30-40

- |                         |   |
|-------------------------|---|
| 3. Ogorkiewicz, R. M.   | <u>Design and Development of Fighting Vehicles.</u> |
| 4. Senger and Etterlin. | <u>World's Armored Fighting Vehicles.</u>           |
| 5. John Milsom.         | <u>Russian Tanks 1900-1970.</u>                     |
| 6. Christopher F. Foss. | <u>Armored Fighting Vehicles of the World.</u>      |

APPENDIX C  
LATE MODEL SOVIET VEHICLES

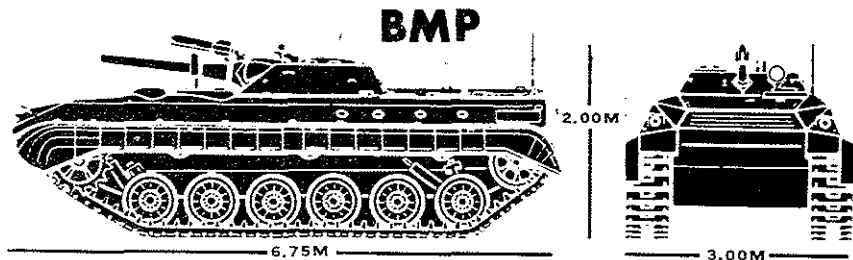
## T-72 TANK



### SUCCESSOR TO THE T-62 BATTLE TANK

1. TURRET CENTRALLY MOUNTED ON CHASSIS
2. TANK COMMANDER'S IR SEARCHLIGHT IS LOCATED ON RIGHT OF TURRET HATCH
3. VEHICLE ID NIGHT LIGHT
4. GUN SIMILAR TO T-62
5. THREE TRACK SUPPORT ROLLERS
6. SIX EVENLY SPACED ROAD WHEELS

1. WADING CAPABILITY SIMILAR TO T-55
2. GUN 115MM TO 122MM
3. COAX 7.62MM MG
4. CBR PROTECTIVE LINER
5. CREW: 4



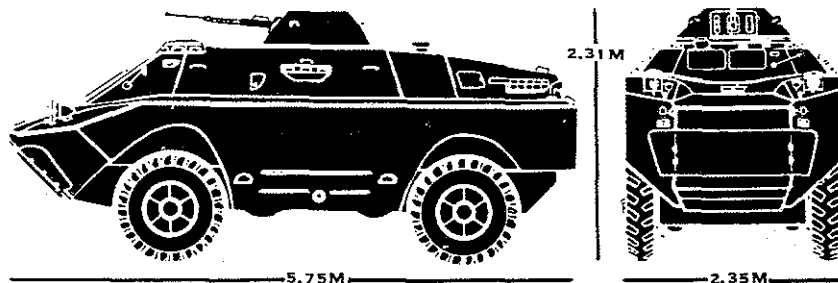
ISSUED TO HIGH PRIORITY SOVIET MOTORIZED RIFLE REGIMENTS REPLACING OLDER  
MODEL ARMORED PERSONNEL CARRIERS

1. FULLY ARMORED AMPHIBIOUS INFANTRY COMBAT  
VEHICLE
2. SHARP SLOPING FRONT
3. TRUNCATED CONE TURRET EQUIPPED WITH CANNON,  
MACHINEGUN, AND ATGM LAUNCH RAIL
4. THREE TRACK SUPPORT ROLLERS AND SIX UNEVENLY  
SPACED ROAD WHEELS
5. FOUR VISION BLOCKS AND FIRING PORTS EACH SIDE OF  
PASSENGER COMPARTMENT
6. TWO REAR EXIT DOORS

1. SAGGER ATGM LAUNCHER
2. 73MM AT GUN
3. 7.62MM COAX MG
4. EQUIPPED WITH OVERPRESSURE  
SYSTEM
5. PROPELLED IN WATER BY TRACKS
6. PASSENGERS: 8
7. CREW: 3

TWENTY

## BTR-40P 2 (BRDM-2)



REPLACING THE OLDER BTR-40 P IN MOST OF THE WARSAW PACT ARMIES

GENERALLY IDENTICAL TO BTR-40 P EXCEPT FOR THE FOLLOWING FEATURES:

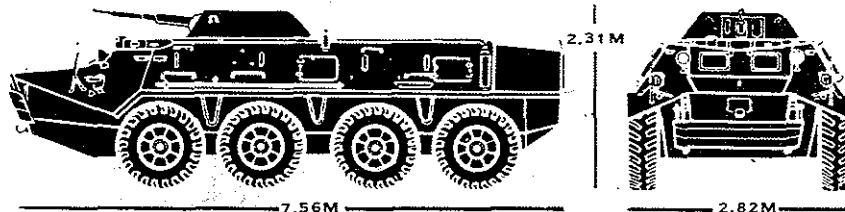
CONICAL MACHINEGUN TURRET SIMILAR TO THAT OF THE BTR-60 PB  
TWO FRONT CUPOLAS  
VISION BLOCKS CENTRALLY LOCATED ON BOTH SIDES

1. 14.5MM MG
2. 7.62MM MG
3. CREW: 4
4. IN ADDITION TO CHARACTERISTICS BTR-40P 2 ALREADY MENTIONED, THIS VEHICLE IS EQUIPPED WITH A LAND NAVIGATION SYSTEM THAT GIVES COORDINATE READINGS.

LIKE THE BRDM, THE BRDM-2 COMES IN FOUR VERSIONS INCLUDING THE BASIC RECONNAISSANCE VEHICLE; THE BRDM 2 RADIOLOGICAL - CHEMICAL RECON VEHICLE, THE BRDM-2 COMMAND VEHICLE WITHOUT A GUN TURRET, AND AN ANTITANK GUIDED MISSILE VEHICLE SHOWN BELOW

*BRDM-2*

## BTR-60 PB



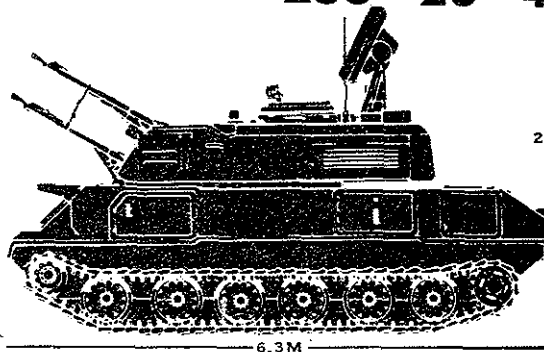
ARMORED PERSONNEL CARRIER FOUND IN MOTORIZED RIFLE UNITS OF MOST OF THE WARSAW PACT ARMIES. IT IS ALSO THE STANDARD APC OF THE SOVIET NAVAL INFANTRY.

1. EIGHT-WHEEL DRIVE AMPHIBIOUS VEHICLE
2. FLAT FRONT TRUNCATED CONE TURRET FOR MACHINE-GUNS
3. FITTED WITH OVERHEAD ARMOR COVER
4. SLOPING SIDES WITH THREE FIRING PORTS IN EACH SIDE

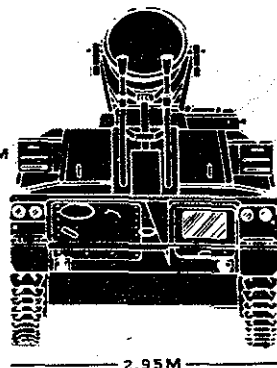
1. 14.5MM MG
2. 7.62MM MG
3. TIRES HAVE A CENTRALIZED PRESSURE REGULATION SYSTEM
4. PROPELLED IN WATER BY HYDRO-JET
5. PASSENGERS: 14
6. CREW: 2

12025

# ZSU-23-4



2.25M



2.95M

TRACKED SELF-PROPELLED ANTIAIRCRAFT AUTOMATIC WEAPON REPLACING THE ZSU-57-2 IN SOME MOTORIZED RIFLE AND TANK REGIMENTS (SECONDARY MISSION, ENGAGEMENT OF GROUND-TYPE TARGETS)

1. MODIFIED PT76 TANK CHASSIS CARRYING A LARGE LIGHTLY ARMORED TURRET
2. IN ADDITION TO FOUR (QUAD) MACHINEGUNS, THE TURRET MOUNTS A LARGE DISH SHAPED RADAR THAT, IN TRAVEL POSITION, CAN BE DROPPED BEHIND THE TURRET
3. SIX ROAD WHEELS SUPPORT A DEAD TRACK
1. QUAD 23MM GUNS
2. RATE OF FIRE: 1000/M PER BARREL
3. SLANT RANGE: 3000M
4. FIRE CONTROL: RADAR OPIC
5. CREW: 4