Chapter 4
Tanks/Assault Vehicles

The lethality and variety of weapons available to armored, mechanized, and infantry forces for the close fight require a continued and expanded use of heavily armored fighting vehicles (AFVs). This chapter provides a representative sampling of AFVs in use today and designed for combat assault. The selection is not comprehensive, rather reflects a mix of systems currently available for the OPFOR and likely to be encountered in varying levels of conflict. The selection is also used to highlight trends within this field of weapons.

Vehicles used for combat assault in this Guide are divided into two categories—*main battle tanks and light tanks/assault vehicles*. Tanks are tracked, heavily armored vehicles with guns of generally 75 mm or more. Among modern trends in AFVs are: increased variety of systems worldwide, and a wider application of these systems for varied roles and missions on the battlefield. As a result, technology sharing and proliferation of upgrade packages have blurred lines among vehicles used for assault, antiarmor, combat reconnaissance and fire support missions. Another trend is increased weight for all types of armored vehicles. With heavier armor protection packages, higher-output engines and larger weapons, a significant proportion of medium tanks have grown into the heavy tank weight category. Therefore, the term ***main battle tank*** is more relevant than previous weight categories.

There are still ***light tanks*** on the battlefield, although increased armor and gun size on light armored fighting vehicles such as infantry fighting vehicles and armored reconnaissance vehicles have blurred lines of distinction. A number of AFVs, such as the British Scorpion and French AMX-13 can be characterized as reconnaissance vehicles, tank destroyers, fire support vehicles, or assault vehicles; but they have tracks, armor protection, and guns of 60 mm or greater. Thus, they can also be used for light tank missions. The term ***assault vehicle*** currently represents a narrow category of older vehicles used by (former) Soviet forces - medium-armored vehicles with medium-heavy guns and no turrets. None of these vehicles were selected for this initial publication. Some representative systems will be included in the next iteration. With blurring of lines among roles and missions for heavier LAFVs and light tanks, the term *assault vehicle* will likely broaden to reflect a variety of modern programs for light - medium armored vehicles with medium to heavy guns, for use in the assault role.

Two notable trends for vehicles in this chapter are a reflection of increasing systems costs and declines or leveling of military budgets - development of variants off of established systems, and use of equipment/packages to extend the use life of systems and enhance their effectiveness. As a result, seemingly old and out-of-date tanks, some of which pre-date World War II, can be a threat to modern armored and mechanized forces. The WEG highlights a variety of upgrades as well as limitations for selected tanks. Systems-related trends can be divided among mobility, survivability, and lethality, as noted on the data sheets.

To improve mobility and compensate for weight increases, many forces have replaced older engines with more powerful diesel engines. Swim capability is limited to a few light tanks.

Within the area of survivability, the most obvious consideration is increasing armor protection levels. A prominent trend is the application of additional armor, such as plate armor or panels on turrets, side-skirts over tracks, and addition of explosive reactive armor (ERA). Additional protection measures include use of entrenching blades for self-emplacement, mine-clearing plows and rollers, nuclear, biological and chemical (NBC) protection, vehicle smoke emission systems, and smoke grenade launchers. To complement these systems are sensors such as mine detectors, laser warning receivers, and radar warning receivers. A trend receiving increasing attention is the use of active measures: electro-optical countermeasures, such as infrared jammers, and active protection systems (also known as defensive aides suites) designed to intercept incoming projectiles and destroy them prior to impact.

The area of lethality has seen a variety of upgrades, including: gun replacement, improved stabilization and fire control systems, additional weapons such as antitank guided missile systems, and improved ammunition. Critical parameters include fire on the move capability, which can be linked to stabilization, rate of fire, integrated sights, acquisition ranges, and weapon range. Note, because weapon range is really a function of sights, gun precision, the type of mount, and specific round ballistics, the WEG will incorporate those factors in the round data, as maximum aimed range. That figure conforms to the OPFOR tactics and accounts for technical capabilities (see Glossary). Maximum effective range is also included (see Glossary).

The WEG notes a variety of new ammunition natures, such as electronically fuzed tank rounds for use against helicopters, and OPFOR availability of western-style HEAT-multipurpose rounds, which can be used as both antitank and antipersonnel rounds, for greater flexibility and lethality. For some systems, the ammunition mix could be determined or estimated. For others, that data was not available. Within each category, the specific round mix will depend on tactical considerations, comparative lethality and the intended targets. A general rule for OPFOR is that tanks will have approximately 50% antitank rounds and 50% rounds for use against soft targets. Because of the relative increase in protection against HEAT rounds vs kinetic energy rounds, mix estimates reflect a bias toward KE rounds. The term *stowed rounds* does not mean rounds which are not in the tank's autoloader. Rounds in ready reach are ready rounds. Stowed rounds are those which are in compartments away from the gunner's or loader's positions, requiring a slower than normal rate of fire (see Glossary). In calculating tank rounds, the figure does not include the tactical possibility of adding an additional round in the breach.

Secondary arms continue to play an important role for OPFOR tanks, because their use permits the main gun to focus fires more on heavy and area targets. Tankers will fire main guns at hovering or slow-flying aircraft; however, the more likely weapon is the antiaircraft machinegun. Similarly, OPFOR tanks will fire main guns at personnel and other soft targets as required; but the more efficient weapon for targets at close range is the coaxial machinegun.

Questions and comments on data listed in this chapter should be addressed to:

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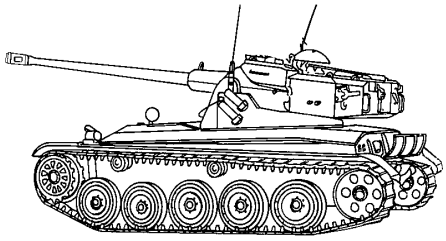
French Light Tank AMX-13



AMX-13 Model 51/75 mm Gun

Weapons & Ammunition Types	Typical Combat Load
90-mm rifled gun	
APFSDS-T	**34**
HEAT	
HE	
Cannister	
7.62-mm coax MG	**3,600**

SYSTEM
Alternative Designations: AMX-13/90
Date of Introduction: 1966
Proliferation: At least 15 countries
Description:
Crew: 3
Combat Weight (mt): 15.0
Chassis Length Overall (m): 4.88
Height Overall (m): 2.28
Width Overall (m): 2.51
Ground Pressure (kg/cm^2): 0.74

Automotive Performance:
Engine Type: 250-hp Gasoline
Cruising Range (km): 350
Speed (km/h):
- Max Road: 60
- Max Off-Road: INA
- Average Cross-Country: INA
- Max Swim: N/A

Fording Depths (m): 0.6 unprepared, 2.1 with snorkel

Radio: TR-VP118 and intercom

Protection:
Armor, Turret Front (mm): 25 at 45° impact angle
Applique Armor (mm): N/A
Explosive Reactive Armor (mm): N/A
Active Protective System: N/A
Mineclearing Equipment: N/A
Self-Entrenching Blade: N/A
NBC Protection System: N/A
Smoke Equipment: 2 smoke grenade launchers each side of turret

ARMAMENT
Main Armaments:
Caliber, Type, Name: 90-mm rifled gun CN-90-F3
Rate of Fire (rd/min): INA
Loader Type: Autoloader and manual
Ready/Stowed Rounds: 10 in autoloader, 11/13 in hull
Elevation (°): -5.5/+12.5
Fire on Move: N/A

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x51) MG, AA52
Mount Type: Turret coax
Maximum Aimed Range (m): INA
Max Effective Range (m):
- Day: INA
- Night: INA

Fire on Move: Yes
Rate of Fire (rd/min): INA

FIRE CONTROL
FCS Name: INA
Main Gun Stabilization: N/A
Rangefinder: N/A
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: L862, 7.5x and 8x
  - Field of View (°): INA
  - Acquisition Range (m): INA
- Night: OB-11-A, 5x
  - Field of View (°): INA
  - Acquisition Range (m): 800-1,000

Commander Fire Main Gun: No

VARIANTS
AMX-13 Model 51: Original tank destroyer/recon vehicle, Model 51, w/75-mm gun. Many variants and upgrades have diesel engines and a 7.62-mm AA MG. Two versions were fitted with 2 x SS-11 or 3 x HOT ATGM launchers
AMX-13/90: This is the variant portrayed on this data sheet.
AMX-13/105: Variant with a GIAT 105G1 105-mm gun.
AMX-13 CD Model 55: Armored recovery variant.
AMX-13 DCA: Air defense variant with twin 30-mm guns.
AMX-13 with LAR: Multiple Rocket Launcher System.
AMX 105-mm Mk 61: Self-propelled howitzer variant.
AMX F3: 155-mm self-propelled gun.
AMX-VCI: Variant used as an APC.

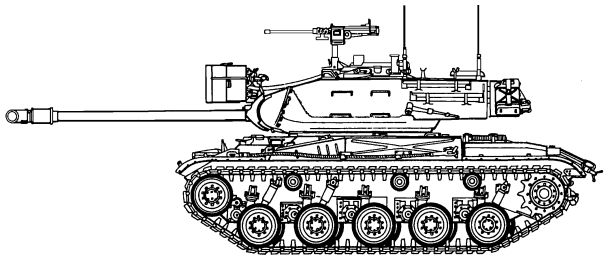
MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
90-mm APFSDS-T, NFI
- Maximum Aimed Range (m): INA
- Max Effective Range (m):
  - Day: 2,000
  - Night: 800-1,000
- Armor Penetration (mm): INA

90-mm HEAT, NFI
- Maximum Aimed Range (m): INA
- Max Effective Range (m):
  - Day: 1,000
  - Night: N/A
- Armor Penetration (mm): 160 (RHA) at 60° impact angle

Other Ammunition Types: HE, Cannister, Smoke

NOTES
Israeli EL-OP thermal sights are available for use on the tank.

US Light Tank M41A3



Weapons & Ammunition Types	Typical Combat Load
76-mm rifled gun M32	**65**
APDS-T/APFSDS-T	20
HEAT -T	20
Frag-HE	20
Cannister	5
7.62-mm coax MG	**5,000**
12.7-mm AA MG	**2,175**

SYSTEM
Alternative Designations: Walker Tank, Walker Bulldog
Date of Introduction: 1951
Proliferation: At least 18 countries
Description:
Crew: 4
Combat Weight (mt): 23.5
Chassis Length Overall (m): 5.82
Height Overall (m): 2.73
Width Overall (m): 3.20
Ground Pressure (kg/cm^2): 0.72

Automotive Performance:
Engine Type: 500-hp Gasoline
Cruising Range (km): 161
Speed (km/h):
Max Road: 72
Max Off-Road: 48
Average Cross-Country: 40
Max Swim: N/A
Fording Depths (m): 1.0 Unprepared, 2.4 prepared

Radio: INA

Protection:
Armor, Turret Front (mm): 38
Applique Armor (mm): Available
Explosive Reactive Armor (mm): N/A
Active Protective System: N/A
Mineclearing Equipment: N/A
Self-Entrenching Blade: N/A
NBC Protection System: N/A
Smoke Equipment: N/A

ARMAMENT
Main Armament:
Caliber, Type, Name: 76-mm rifled gun M32
Rate of Fire (rd/min): INA
Loader Type: Manual
Ready/Stowed Rounds: INA
Elevation (°): -9.75/ +19.75
Fire on Move: No

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x51) MG, M9194E1
Mount Type: Turret coax
Maximum Aimed Range (m):
Max Effective Range (m):
Day: INA
Night: N/A
Fire on Move: Yes
Rate of Fire: INA

Caliber, Type, Name: .50 (12.7 x 99) AA machinegun, M2HB
Mount Type: Cupola AA mount
Maximum Aimed Range (m): INA
Max Effective Range (m):
Day: 2,000
Night: INA
Fire on Move: Yes
Rate of Fire (rd/min): 450-550

FIRE CONTROL
FCS Name: INA
Main Gun Stabilization: N/A
Rangefinder: N/A
Infrared Searchlight: Available
Sights w/Magnification:
Gunner:
Day: M97A1 and M20A1
Field of View (°): INA
Acquisition Range (m): INA
Night: Available
Commander Fire Main Gun: No

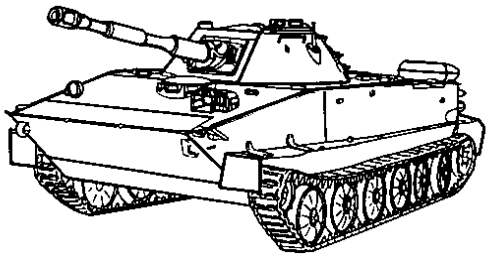
VARIANTS
M41 DK-1: Danish variant with diesel engine and LRF-based fire control. Other upgrades are side skirts, thermal sights, NBC protection, smoke grenade launchers and 7.62-mm AA MG.
Brazilian M41: Upgrades are similar to DK-1 except for AA MG and change to 90-mm gun using Cockerill Mk III ammunition.
Uruguayan M41: M41A3 fitted with Cockerill Mk III gun.
YUNG HU: Taiwanese upgrade with diesel engine.
M42/Duster: Air defense gun system with twin 40-mm AA cannon.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
76-mm APFSDS-T, AAI M464
Maximum Aimed Range (m): INA
Max Effective Range (m): INA
Armor Penetration (mm): NATO triple heavy (57°) at 1000 m

Other Ammunition Types: M33A1 and A2 APDS-T, M319 and M339 AP-T, M496 HEAT-T, HE, Smoke (WP), M363 cannister

NOTES
German Atlas offers the MOLF 1-plane stabilized laser rangefinder fire control system and retrofit kit The FCS includes a thermal night sight. Israeli EL-OP offers a FCS for the system. Maximum range for the canister round is 155 meters.

Russian Amphibious Tank PT-76B



Weapons & Ammunition Types	Typical Combat Load
76-mm rifled gun D-56	**40**
HVAP, AP-T/API-T	10
HEAT	10
Frag-HE	20
7.62-mm coax MG	1,**000**

SYSTEM
Alternative Designations: INA
Date of Introduction: 1952
Proliferation: At least 21 countries
Description:
Crew: 3
Combat Weight (mt): 14.0
Chassis Length Overall (m): 6.91
Height Overall (m): 2.26
Width Overall (m): 3.14
Ground Pressure (kg/cm^2): 0.46

Automotive Performance:
Engine Type: 240-hp Diesel
Cruising Range (km): 260
Speed (km/h):
Max Road: 44
Max Off-Road: INA
Average Cross-Country: 25
Max Swim: 10
Fording Depth (m): Amphibious

Radio: R-123
Protection:
Armor, Turret Front (mm): 20
Applique Armor (mm): N/A
Explosive Reactive Armor (mm): N/A
Active Protective System: N/A
Mineclearing Equipment: N/A
Self-Entrenching Blade: N/A
NBC Protection System: N/A
Smoke Equipment: VEESS

ARMAMENT
Main Armament:
Caliber, Type, Name: 76-mm rifled gun D-56B
Rate of Fire (rd/min): 6-8
Loader Type: Manual
Ready/Stowed Rounds: INA
Elevation (°): -4/+30
Fire on Move: Yes

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x54R) machinegun PKT
Mount Type: Coax
Maximum Aimed Range (m): 1,500
Max Effective Range (m):
Day: 1,000/400-500 on the move
Night: 600
Fire on Move: Yes
Rate of Fire (rd/min): 250 practical / 650 cyclic, 2-10 round bursts

FIRE CONTROL
FCS Name: INA
Main Gun Stabilization: 2-plane
Rangefinder: N/A
Infrared Searchlight: Available
Sights w/Magnification:
Gunner: TShK-66
Day:
Field of View (°): INA
Acquisition Range (m): 4,000
Night: TVN-28 IR Available
Field of View (°): INA
Acquisition Range (m): 600
Commander Fire Main Gun: No

VARIANTS
Polish PT-76: Variant with a separate commander's hatch and 12.7-mm MG.

Type 63: Chinese variant with a new turret, 85-mm gun, and 12.7-mm AA MG.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
76-mm HVAP-T, BM-354P
Maximum Aimed Range (m): 1,060
Max Effective Range (m):
Day: 650
Night: 600
Armor Penetration (mm): 127 at muzzle, 50 at 1,000 m

76-mm HEAT, BK-350M
Maximum Aimed Range (m): 1,000
Max Effective Range (m):
Day: 650
Night: 600
Armor Penetration (mm): 280 to max range

76-mm, Frag-HE, OF-350
Maximum Aimed Range (m): 4,000
Max Effective Range (m):
Day: INA
Night: 600
Armor Penetration (mm): INA

Other Ammunition Types: 76-mm AP-T, BR-350 API-T

NOTES
Original PT-76 was produced in limited numbers with a non-stabilized main gun. Some PT-76s are augmented with 12.7-mm AA MGs.
Israel offers an upgrade package with a 90-mm gun, LRF fire control and a 300-hp engine.

British Combat Reconnaissance Vehicle, Tracked Scorpion _____

Weapons & Ammunition Types	Typical Combat Load
76-mm rifled gun	**40**
HESH	
HE	
Cannister	
7.62-mm coax MG	**3,600**

SYSTEM
Alternative Designations: FV101
Date of Introduction: 1972
Proliferation: At least 18 countries
Description:
Crew: 3
Combat Weight (mt): 8.07
Chassis Length Overall (m): 4.79
Height Overall (m): 2.10
Width Overall (m): 2.24
Ground Pressure (kg/cm^2): 0.36

Automotive Performance:
Engine Type: 190-hp Gasoline
Cruising Range (km): 650
Speed (km/h):
- Max Road: 80
- Max Off-Road: INA
- Average Cross-Country: INA
- Max Swim: 4/6 with propeller

Fording Depth (m): 1.07, amphibious

Radio: INA

Protection:
Armor, Turret Front (mm): Against 14.5-mm projectiles
Applique Armor (mm): N/A
Explosive Reactive Armor (mm): N/A
Active Protective System: N/A
Mineclearing Equipment: N/A
Self-Entrenching Blade: N/A
NBC Protection System: Yes
Smoke Equipment: 4 smoke grenade launchers each side of turret

ARMAMENT
Main Armament:
Caliber, Type, Name: 76-mm rifled gun L23A1
Rate of Fire (rd/min): 6
Loader Type: INA
Ready/Stowed Rounds: INA
Elevation (°): -10/ +35
Fire on Move: N/A

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x51) MG, L8A1
Mount Type: Turret coax
Maximum Aimed Range (m): INA
Max Effective Range (m): INA
Fire on Move: Yes
Rate of Fire (rd/min): INA

FIRE CONTROL
FCS Name: INA
Main Gun Stabilization: N/A
Rangefinder: Laser rangefinder
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: Barr and Stroud Tank Laser Sight, 10x
  - Field of View (°): INA
  - Acquisition Range (m): 2,200
- Night: GEC Sensors SS100, II, x5.8/1.6
  - Field of View (°): 8/28
  - Acquisition Range (m): INA

Commander Fire Main Gun: No

VARIANTS
Scorpion 90: Variant with a 90-mm Cockerill Mk III gun.

A number of vehicles use the same Alvis chassis. They include the **Scimitar** armored reconnaissance vehicle, **Striker** armored ATGM launcher vehicle, **Spartan** armored personnel carrier or Milan ATGM launcher, **Stormer** modernized APC, **Samaritan** armored ambulance, and **Saber** modernized reconnaissance vehicle.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
76-mm HESH, L29
- Maximum Aimed Range (m): 2,200
- Max Effective Range (m): INA
- Armor Penetration (mm): INA

Other Ammunition Types: L24A1/2 HE (max effective range--indirect fire: 5,000 meters), L33A1 Cannister (max effective range: 100 meters), L32A5 Smoke (BE), L42 Illumination

NOTES
As a reflection of the vehicle's suitability for a variety of roles, in recent times it is referred to as an armored reconnaissance vehicle or combat vehicle reconnaissance (tracked)--CVR (T).

A British upgrade program includes a diesel engine, thermal sights, and secure communications. The Tank Laser Sight and Avimo LV10 Day/Night LRF sight can accept a thermal channel. Thermal sights are available for use on the tank.

British Main Battle Tank Chieftain Mk 5

Weapons & Ammunition Types	Typical Combat Load
120-mm rifled gun	**64**
APFSDS-T	20
HESH	44
7.62-mm MG	**6,200**
--Coaxial and Stowed	**6,000**
--Cupola AA MG	**200**

SYSTEM
Alternative Designations: FV 4201
Date of Introduction: 1967 Original Chieftain
Proliferation: At least 6 countries
Description:
Crew: 4
Combat Weight (mt): 55.00
Chassis Length Overall (m): 7.48
Height Overall (m): 2.90
Width Overall (m): 3.51
Ground Pressure (kg/cm^2): 0.90

Automotive Performance:
Engine Type: 750-hp Diesel
Cruising Range (km): 400-500
Speed (km/h):
- Max Road: 48
- Max Off-Road: INA
- Average Cross-Country: 30
- Max Swim: N/A

Fording Depths (m): 1.1 Unprepared

Radio: C42/Larkspur VHF

Protection:
Armor, Turret Front (mm): 300 (RHA)
Applique Armor (mm): ROMOR applique on turret, side skirts
Explosive Reactive Armor (mm): N/A
Active Protective System: N/A
Mineclearing Equipment: Plow variant, and AVLB/engineer variant
Self-Entrenching Blade: No
NBC Protection System: Yes
Smoke Equipment: Smoke grenade launchers (6 each side of turret)

ARMAMENT
Main Armaments:
Caliber, Type, Name: 120-mm rifled gun, L11A5
Rate of Fire (rd/min): 8-10 first minute/6 sustained
Loader Type: Separate-loading manual
Ready/Stowed Rounds: INA
Elevation (°): -10 to +20
Fire on Move: Yes

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 51) Machine gun L8A1
Mount Type: Turret Coax
Maximum Aimed Range (m): INA
Max Effective Range (m):
- Day: 800
- Night: INA

Fire on Move: Yes
Rate of Fire: INA

Caliber, Type, Name: 7.62-mm (7.62x 51) AA Machine gun L37A1
Mount Type: Cupola
Maximum Aimed Range (m): INA
Max Effective Range (m):
- Day: 800
- Night: INA

Fire on Move: Yes
Rate of Fire (rd/min): INA

ATGM Launcher: N/A

FIRE CONTROL
FCS Name: Improved Fire Control System (IFCS)
Main Gun Stabilization: 2-plane
Rangefinder: Laser, Nd-Yag
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: Barr and Stroud Tank Laser Sight (TLS), 8x
  - Field of View (°): 10
  - Acquisition Range (m): 5,000
- Night: 1R18 Thermal sight, 3x
  - Field of View (°): INA
  - Acquisition Range (m): INA

Commander Fire Main Gun: INA

VARIANTS
Mk 5: Final production variant, with a new engine and NBC system, modified auxiliary weapons and sights. Mk 6-11 are upgrades to earlier models, with addition of IFCS. Mk 12 added ROMOR (aka: Stillbrew) spaced armor boxes. Mk 11 and Mk 12 have Thermal Observation and Gunnery Sight (TOGS).

A variety of support vehicles were developed from the tank. They include recovery vehicles, AVLB, dozer, mineclearer, air defense and 155-mm SP artillery systems.

Khalid/Shir 1: Jordanian variant which has chassis, turret and weaponry of the Chieftain, but which incorporates engine and running gear upgrades of Challenger I. The fire control has seen a number of improvements, including a new ballistic computer.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
120-mm APFSDS-T, L23A1
- Maximum Aimed Range (m): 5,000
- Max Effective Range (m):
  - Day: 3,000
  - Night: INA
- Armor Penetration (mm): INA

British Main Battle Tank Chieftain Mk 5 continued

120-mm High-Explosive Squash-Head (HESH), L31 Maximum Aimed Range (m): 5,000 Max Effective Range (m): Day: 3,000 Night: INA Armor Penetration (mm): INA	**Other Ammunition Types:** L15 APDS, L34 WP Smoke

NOTES
Early Chieftains and some later modified tanks mount the 50. Cal M2HB machinegun over the main gun as a ranging gun. Iran and Kuwait retained the .50 Cal MG.

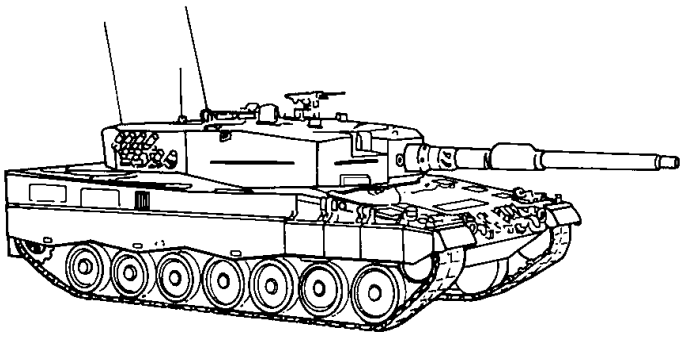
The HESH round is used for antitank chemical-energy (CE) antiarmor missions, and for HE effects against personnel and materiel.

The Iranians claim to employ a snorkel system on Chieftain, for fording to 5 meters depth.

A variety of fire control systems and thermal sights are available for Chieftain. At 324 Chieftains have been upgraded with the Barr and Stroud TOGS thermal sight system. The 1R26 thermal camera can be used with the 1R18 thermal night sight. It has wide (13.6°) and narrow (4.75°) fields of view, and is compatible with TOGS format. GEC Sensors offers a long list of sights including: Multisensors Platform, Tank Thermal Sensor, and SS100/110 thermal night sight. Marconi, Nanoquest, and Pilkington offer day and night sights for the Chieftain.

Charm Armament upgrade program, with the 120-mm L30 gun incorporated in Challenger 1, is available for Chieftain modification programs.

German Main Battle Tank Leopard 2



Weapons & Ammunition Types	Typical Combat Load
120-mm smoothbore gun	**42**
APFSDS-T	
HEAT-MP-T	
7.62-mm machineguns	**4750**
--Coaxial	**2000**
--Cupola MG/stowed	**2750**

SYSTEM
Alternative Designations: Swiss Pz 87, Swedish Strv 121
Date of Introduction: 1979
Proliferation: At least 7 countries
Description:
Crew: 4
Combat Weight (mt): 55.15
Chassis Length Overall (m): 7.69
Height Overall (m): 2.79
Width Overall (m): 3.70
Ground Pressure (kg/cm^2): 0.83

Automotive Performance:
Engine Type: 1,500-hp Diesel
Cruising Range (km): 550
Speed (km/h):
- Max Road: 72
- Max Off-Road: 45
- Average Cross-Country: 40
- Max Swim: N/A

Fording Depths (m): 1.0 Unprepared, 4.0 with snorkel

Radio: INA

Protection:
Armor, Turret Front (mm): 700 KE/1,000 against HEAT rounds
Applique Armor (mm): Track skirt
Explosive Reactive Armor (mm): N/A
Active Protective System: Galix (See note Strv 122)
Mineclearing Equipment: No
Self-Entrenching Blade: No
NBC Protection System: Yes
Smoke Equipment: Smoke grenade launchers, 8 each side of turret

ARMAMENT
Main Armaments:
Caliber, Type, Name: 120-mm smoothbore gun M256
Rate of Fire (rd/min): INA
Loader Type: Manual
Ready/Stowed Rounds: 15/27
Elevation (°): -9 to +20
Fire on Move: Yes

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 51) Machinegun MG3A1
Mount Type: Turret Coax
Maximum Aimed Range(m): INA
Max Effective Range (m):
- Day: INA
- Night: INA

Fire on Move: Yes
Rate of Fire (rd/min): 1,200

Caliber, Type, Name: 7.62-mm (7.62x 51) Machinegun MG3A1
Mount Type: Turret Cupola
Maximum Aimed Range(m): INA
Max Effective Range (m):
- Day: INA
- Night: INA

Fire on Move: Yes
Rate of Fire (rd/min): 1,200
ATGM Launcher: N/A

FIRE CONTROL
FCS Name: INA
Main Gun Stabilization: WNA-H22, 2-plane
Rangefinder: Laser neodymium
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: Krupp-Atlas EMES-15, 12x / FERO Z18 secondary, 8x
  - Field of View (°): 5/10
  - Acquisition Range (m): INA
- Night: Zeiss thermal imager
  - Field of View (°): INA
  - Acquisition Range (m): INA

Commander Fire Main Gun: Yes

VARIANTS
A variety of MBT variants from 2A1 to 2A4 denote minor changes, as well as FCS upgrades. Combat support variants include an armored recovery vehicle.

Pz87: Swiss variant with indigenous machineguns, communications and FCS, and improved NBC equipment.

Dutch Leopard 2: Uses indigenous equipment as noted above.

Leopard 2A5/Leopard 2 (Improved): Recent upgrade with spaced armor added to turret front, and increased armor on hull and side skirts. Other improvements include improved stabilization, suspension, navigation, fire control, and hatch design.

Strv 122: Swedish-licensed variant resembling 2A5 with an indigenous turret and other upgrades. The tank features French Galix active protection system and improved command and control. Sweden developed an HE-T round designed to range 2,000 meters or more for its Leopard-2 and Strv-122 tanks. With additional armor, Strv 122 will weigh 62 mt.

German Main Battle Tank Leopard 2 continued

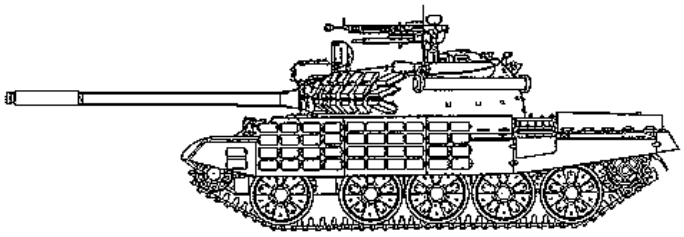
MAIN ARMAMENT AMMUNITION **Caliber, Type, Name:** 120-mm APFSDS-T, DM43 Maximum Aimed Range(m): 3,500 Max Effective Range (m): Day: INA Night: INA Armor Penetration (mm): 450 at 2,000 meters 120-mm APFSDS-T, US Olin GD120 Maximum Aimed Range(m): 3,500 Max Effective Range (m): Day: 3,000 Night: INA Armor Penetration (mm): 520 at 2,000 meters	120-mm HEAT-MP-T, DM-12A1/US Olin M830 Maximum Aimed Range(m): INA Max Effective Range (m): Day: 2,500 Night: INA Armor Penetration (mm): INA **Other Ammunition Types:** US-produced M829, M829A1 APFSDS-T; US M830A1 HEAT-MP-T (MPAT), GE DM12A1 (US copy M830) HEAT-MP-T (MPAT)

NOTES

A variety of upgrade programs and options are available for the Leopard 2. These include the Atlas Elektronik Vehicle Integrated Command and Information System (IFIS), a digital command and information system.

A new longer gun barrel (L55 gun barrel, 1.30 meters longer) is available. It permits effective use of a new APFSDS-T round, DM53 (LKE II), with a longer rod penetrator, and which is under development. The German Army has decided not to buy the DM43 APFSDS-T round (aka: LKE 1), rather to wait and upgrade to the DM53.

Russian Main Battle Tank T-55AMV



Weapons & Ammunition Types	Typical Combat Load
100-mm rifled gun	(mix est) **43**
APFSDS-T	14
HEAT	3
Frag-HE	21
ATGM	5
7.62-mm coax PKT MG	**1,250**
12.7-mm AA MG	**500**

SYSTEM
Alternative Designations: INA
Date of Introduction: 1983
Proliferation: At least 3 countries
Description:
Crew: 4
Combat Weight (mt): 40.5
Chassis Length Overall (m): 6.20
Height Overall (m): 2.32
Width Overall (m): 3.60
Ground Pressure (kg/cm^2): 0.89

Automotive Performance:
Engine Type: 620-690 hp Diesel
Cruising Range (km): 390/600 with extra tanks
Speed (km/h):
- Max Road: 50
- Max Off-Road: 35
- Average Cross-Country: 25
- Max Swim: N/A

Fording Depths (m): 1.4 Unprepared, 5.5 with snorkel

Radio: R-173, R-173P, R-124 intercom

Protection:
Armor, Turret Front (mm): 200 (base T-55 armor)
Applique Armor (mm): Rubber screens and box armor
Explosive Reactive Armor (mm): 1st Gen raises to KE/700-900 against HEAT; 2nd Gen raises to 450-480 KE/700-900 HEAT
Active Protective System: Russian Drozd APS available
Mineclearing Equipment: Roller-plow set, and plows available
Self-Entrenching Blade: No
NBC Protection System: Yes
Smoke Equipment: Smoke grenade launchers (4x 81-mm each side of turret), and 24 grenades. Vehicle engine exhaust smoke system

ARMAMENT
Main Armaments:
Caliber, Type, Name: 100-mm rifled gun, D-10T2S
Rate of Fire (rd/min): 5-7
Loader Type: Manual
Ready/Stowed Rounds: INA
Elevation (°): -5 to +18
Fire on Move: Yes (gun rounds only--ATGMs require a short halt)

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 54R) Machinegun PKT-T
Mount Type: Turret coax
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 800
- Night: 800

Fire on Move: Yes
Rate of Fire (rd/min): 250 rpm practical, 800 cyclic, 2-10 rd bursts

Caliber, Type, Name: 12.7-mm (12.7x108) AA MG DShKM
Mount Type: Turret top
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 1,500
- Night: N/A

Fire on Move: Yes
Rate of Fire (rd/min): 80-100 practical, 600 cyclic, 2-10 rd bursts

ATGM Launcher :
Name: D-10T2S gun
Launch Method: Gun-launched
Guidance: SACLOS, Infrared laser-beam rider
Command Link: Encoded laser-beam
Launcher Dismountable: No

FIRE CONTROL
FCS Name: Volna
Main Gun Stabilization: M1 Tsiklon 2-plane
Rangefinder: KDT-2 Laser
Infrared Searchlight: L-4
Sights w/Magnification:
Gunner:
- Day: TShSM-32PV, 3.5x and 7x
  - Field of View (°): 18 and 8
  - Acquisition Range (m): 4,000
- Night: 1K13
  - Field of View (°): INA
  - Acquisition Range (m): 800-1,300, gun rounds only

Commander Fire Main Gun: No

VARIANTS
More than a dozen countries have produced upgraded T-55 variants with similar capabilities in protection and lethality. Many countries have upgraded to a larger main gun.

T-55AMV is derived from a line of variants of T-55 MBT. **T-55A** added an NBC protection system. **T-55M** added the Volna fire control system (with ATGM launcher), improved gun stabilization and sights, improved engine, new radio, and increased protection. That included side skirts, smoke grenade launchers, applique armor, and fire protection. **T-55AM** added bra armor, an armor band around the turret for 180° coverage. The -AMV upgrade means substitution of ERA for the bra armor. Variants ending with **-1** denote replacement of the engine w/V-46 engine from T-72 MBT.
The Ukraine and Syria will upgrade to the T-55AMV standard.

Russian Main Battle Tank T-55AMV continued

T-55AM2B: Czech version of T-55AMV with Kladivo fire control.
T-55AM2: Variant does not have ATGM capability or Volna FCS.
T-55AM2P: Polish version of T-55AMV but with Merida FCS.
T-55AMD: Variant with the Drozd APS instead of ERA.
T-55AD Drozd: Variant with Drozd but not Volna FCS and ERA.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
100-mm BM-8 Russian
Maximum Aimed Range (m): 2,500
Max Effective Range (m):
Day: 1,500
Night: 800-1,300
Armor Penetration (mm): 200 at 1,000 meters

100-mm APFSDS-T, BM-25
Maximum Aimed Range (m): 2,500
Max Effective Range (m):
Day: INA
Night: 800-1,300
Armor Penetration (mm): INA

100-mm APFSDS-T, BM-412M, Romanian
Maximum Aimed Range (m): 2,500
Max Effective Range (m):
Day: 2, 000+ (est)
Night: 800-1,300
Armor Penetration (mm): 418 at 2,000 m, 380 at 3,000 m

100-mm APFSDS-T, M1000, Belgian
Maximum Aimed Range (m): 2,500
Max Effective Range (m):
Day: 2,500 (est)
Night: 800-1,300
Armor Penetration (mm): NATO triple heavy target, 4,500 m

100-mm HEAT, BK-17
Maximum Aimed Range (m): 2,500
Max Effective Range (m):
Day: 1,000 (est)
Night: 800-1,000 (est)
Armor Penetration (mm): 380

100-mm Frag-HE, OF-32
Maximum Aimed Range (m): 4,000
Max Effective Range (m):
Day: <2,500
Night: 800-1,300
Armor Penetration (mm): INA

Other Ammunition Types: A variety of other rounds within the range noted above are available. They include the GIAT NR 322/ NR 352 APFSDS-T and Slovak JPrSv AP-T with ranges beyond 2,000 m.

Antitank Guided Missiles:
Name: AT-10/BASTION
Warhead Type: Shaped charge (HEAT)
Armor Penetration (mm): 650 (RHA)
Range (m): 4,000 (day only, see NOTES)

Name: AT-10 Improved
Warhead Type: Tandem shaped charge
Armor Penetration (mm): 700 (RHA) behind ERA
Range (m): 4,000 (day only, see NOTES)

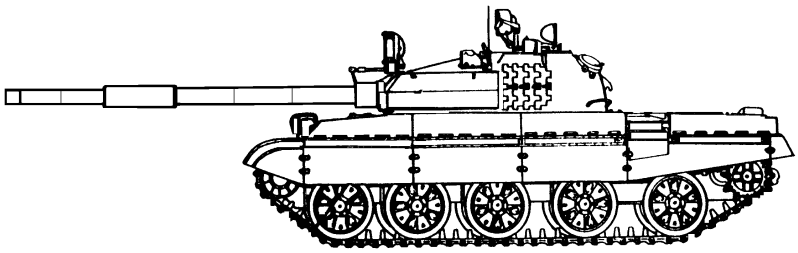
NOTES
The 1K13 sight is both night sight and ATGM launcher sight; however, it cannot be used for both functions simultaneously.

T-55s with "bra armor", semi-circular add-on armor, have turret protection increased to 330 mm (KE) and 400-450 mm (CE). Other improvements available include a hull bottom reinforced against mines, better engines, rubber track pads, and a thermal sleeve for the gun.

Optional sights and fire control systems include the Israeli El-Op Red Tiger and Matador FCS, Swedish NobelTech T-series sight, and German Atlas MOLF. The Serbian SUV-T55A FCS, British Marconi Digital FCS, South African Tiger, and Belgian SABCA Titan offer upgraded function. One of the best is the Slovenian EFCS-3 integrated FCS.

A variety of thermal sights is available. They include the Russian/French ALIS and Namut-type sight from Peleng. There are thermal sights available for installation which permit night launch of ATGMs.

Russian Main Battle Tank T-62M



Weapons & Ammunition Types	Typical Combat Load
115-mm rifled gun	(mix est) **40**
APFSDS-T	12
HEAT	3
Frag-HE	20
ATGM	5
7.62-mm coax PKT MG	**2,500**

SYSTEM
Alternative Designations: INA
Date of Introduction: 1983
Proliferation: At least 1 country

Description:
Crew: 4
Combat Weight (mt): 41.5
Chassis Length Overall (m): 6.63
Height Overall (m): 2.4
Width Overall (m): 3.52
Ground Pressure (kg/cm^2): INA

Automotive Performance:
Engine Type: 620-hp Diesel
Cruising Range (km): 450/650 with extra tanks
Speed (km/h):
- Max Road: 45
- Max Off-Road: INA
- Average Cross-Country: INA
- Max Swim: N/A

Fording Depths (m): 1.4 Unprepared, 5.5 with snorkel

Radio: R-173, R-173P, R-124 intercom

Protection:
Armor, Turret Front (mm): 230
Applique Armor (mm): Bra armor (+100 on turret) and track skirts
Explosive Reactive Armor (mm): Available, replaces bra armor
Active Protective System: Russian Drozd APS will fit
Mineclearing Equipment: Roller-plow set, and plows
Self-Entrenching Blade: No
NBC Protection System: Nuclear radiation only
Smoke Equipment: Vehicle engine exhaust smoke system
2 x 4 Smoke grenade launchers

ARMAMENT
Main Armaments:
Caliber, Type, Name: 115-mm smoothbore gun, 2A20/Sheksna
Rate of Fire (rd/min): 3-5
Loader Type: Manual
Ready/Stowed Rounds: INA
Elevation (°): -5 to +18
Fire on Move: Yes (gun rounds only--ATGMs require a short halt)

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 54R) machinegun PKT
Mount Type: Turret coax
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 800
- Night: 800

Fire on Move: Yes
Rate of Fire (rd/min): 250 rpm practical, 800 cyclic, 2-10 rd bursts

ATGM Launcher:
Name: 2A20 gun
Launch Method: Gun-launched
Guidance: SACLOS, Infrared laser-beam rider
Command Link: Encoded laser-beam
Launcher Dismountable: No

FIRE CONTROL
FCS Name: Volna
Main Gun Stabilization: M1 Meteor 2-plane
Rangefinder: KTD-2 Laser
Infrared Searchlight: L-4
Sights w/Magnification:
Gunner:
- Day: TShSM-41U, 3.5x and 7x
  - Field of View (°): 18 and 8
  - Acquisition Range (m): 4,000
- Night: 1K13-1
  - Field of View (°): INA
  - Acquisition Range (m): 850-1,300, gun rounds only

Commander Fire Main Gun: No

VARIANTS
T-62M is one of a variety of T-62 variants. **T-62A:** added a 12.7-mm MG. **T-62M** adds protection, FCS and ATGM capability. T-62 variants with a V-46 T-72-type engine add **-1** to their designation.
T-62M1: Variant with Volna FCS but no missile launch capability.
T-62D: Variant with the Drozd APS vs ERA.
T-62MK: Command variant.
T-62MV: Version with ERA in place of the bra armor. The ERA includes Kontakt ERA and Kontakt-5 2nd-Generation ERA.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
115-mm APFSDS-T, BD/36-2
- Maximum Aimed Range (m): 3,000
- Max Effective Range (m):
  - Day: 2,000+ (est)
  - Night: 850-1,300
- Armor Penetration (mm): 520 (RHA, 71° angle) at 1,000 m

115-mm APFSDS-T, BM-6 Russian
- Maximum Aimed Range(m): 3,000
- Max Effective Range (m):
  - Day: 1,500
  - Night: 850-1,300
- Armor Penetration (mm): 237 (RHA) at 1,000 m

Russian Main Battle Tank T-62M

115-mm HEAT, BK-4 Maximum Aimed Range (m): 1,500 (est) Max Effective Range (m): Day: 1,200 Night: 850-1,200 Armor Penetration (mm): 495 (RHA) 115-mm Frag-HE-T, OF-27 Maximum Aimed Range (m): 4,000 Max Effective Range (m): Day: 1,500-2,000 Night: 850-1,300 Armor Penetration (mm): INA **Other Ammunition Types:** BM-3 APFSDS, BM-4 APFSDS, BK-4M HEAT, BK-15 HEAT, OF-11 Frag-HE, OF-18 Frag-HE	**Antitank Guided Missiles** Name: AT-10/Sheksna Warhead Type: Shaped charge (HEAT) Armor Penetration (mm): 650 Range (m): 4,000 (day only, see NOTES) Name: AT-10 Improved Warhead Type: Tandem shaped charge Armor Penetration (mm): 700 behind ERA Range (m): 4,000 (day only, see NOTES)

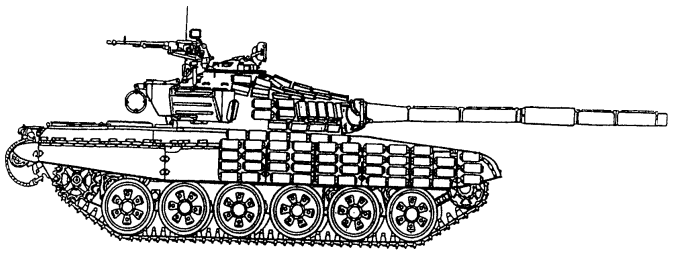
NOTES
The 1K13 sight is both night sight and ATGM launcher sight; however, it cannot be used for both functions simultaneously.

Other improvements available include a hull bottom reinforced against mines, rubber track pads, and a thermal sleeve for the gun.

Optional sights and fire control systems include the Israeli El-Op Red Tiger and Matador FCS, Swedish NobelTech T-series sight, and German Atlas MOLF. The British Marconi Digital FCS, South African Tiger, and Belgian SABCA Titan offer upgraded function. One of the best is the Slovenian EFCS-3 integrated FCS.

A variety of thermal sights is available. They include the Russian Agava, French SAGEM-produced ALIS and Namut sight from Peleng. There are thermal sights available for installation which permit night launch of ATGMs.

Russian Main Battle Tank T-72B



T-72B w/Kontakt ERA

Weapons & Ammunition Types	Typical Combat Load
125-mm smoothbore gun	**45**
APFSDS-T	(mix est) 15
HEAT	3
Frag-HE	21
ATGM	6
7.62-mm coax MG	**2,000**
12.7-mm AA MG	**300**

SYSTEM
Alternative Designations: T-72S (export), SMT M1988
Date of Introduction: 1985
Proliferation: At least 2 countries
Description:
Crew: 3
Combat Weight (mt): 44.5
Chassis Length Overall (m): 6.91
Height Overall (m): 2.19
Width Overall (m): 3.58
Ground Pressure (kg/cm^2): 0.90

Automotive Performance:
Engine Type: 840-hp Diesel
Cruising Range (km): 500/ 900 with external tanks
Speed (km/h):
- Max Road: 60
- Max Off-Road: 45
- Average Cross-Country: 35
- Max Swim: N/A

Fording Depths (m): 1.2 Unprepared/5.0 with snorkel
Radio: R-173 and R-134

Protection:
Armor, Turret Front (mm): 520/950 against HEAT
Applique Armor (mm): Side of hull over track skirt, turret top
Explosive Reactive Armor (mm): Kontakt or Kontakt-5 ERA
Active Protective System: Arena available
Mineclearing Equipment: Roller-plow set, and plows available
Self-Entrenching Blade: Yes
NBC Protection System: Yes
Smoke Equipment: Smoke grenade launchers (8x 81-mm left side of turret), and 32 grenades. Vehicle engine exhaust smoke system.

ARMAMENT
Main Armament:
Caliber, Type, Name: 125-mm smoothbore gun 2A46M/ D-81TM
Rate of Fire (rd/min): 4-6/2 in manual mode
Loader Type: Autoloader (separate loading) and manual
Ready/Stowed Rounds: 22/23
Elevation (°): -6 to +14
Fire on Move: Yes, up to 25 km/h. Depending on the road and distance to the target, most crews may halt before firing.

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 54R) Machinegun PKT
Mount Type: Turret coax
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 1,000
- Night: 800

Fire on Move: Yes
Rate of Fire (rd/min): 250 practical, 600 cyclic in 2-10 round bursts

Caliber, Type, Name: 12.7-mm (12.7x108) AA MG NSVT
Mount Type: Turret top
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 1,500/1,000 antiaircraft
- Night: N/A

Fire on Move: Yes
Rate of Fire (rd/min): 200 practical, 600 cyclic in bursts

ATGM Launcher:
Name: 2A46M
Launch Method: Gun-launched
Guidance: SACLOS, Laser beam rider
Command Link: Encoded infrared laser beam
Launcher Dismountable: No

FIRE CONTROL
FCS Name: 1A40-1
Main Gun Stabilization: 2E42-2, 2-plane
Rangefinder: TPD-K1M laser rangefinder
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: TPD-K1, 8
  - Field of View (°): 9
  - Acquisition Range (m): 3,000 with LRF, 5,000 without
- ATGM/Night: 1K13-495 5.6x (8x ATGM)
  - Field of View (°): 6, 40 min (5 ATGM)
  - Acquisition Range (m): INA

Commander Fire Main Gun: No

VARIANTS
T-72BK: Commander's variant with additional radios

T-72BM: Version with Kontakt-5 explosive reactive armor. This system is being fielded and is available for export.

T-72S/Shilden: Russian export T-72A upgraded to be comparable to the T-72BM standard. Although similar to the T-72BM, it may have less turret front protection. The early T-72S tank has Kontakt ERA, as shown above.

T-90: Successor to T-72BM. This tank has been tentatively approved for production and adoption as a standard tank, alongside the T-80U, for the Russian army. The T-90 uses the gun and 1G46 gunner sights from T-80U, a new engine, and thermal sights. Protective measures include Kontakt-5 ERA, laser warning receivers, and the SHTORA infrared ATGM jamming system.

Russian Main Battle Tank T-72B continued

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
125-mm APFSDS-T, BM-42M
Maximum Aimed Range (m): 3,000
Max Effective Range (m):
Day: 2,000-3,000
Night: 850-1,300
Armor Penetration (mm): 590-630 at 2,000 meters

125-mm Frag-HE-T, OF-26
Maximum Aimed Range (m): 5,000
Max Effective Range (m):
Day: INA
Night: 850-1,300
Armor Penetration (mm): INA

125-mm HEAT-MP, BK-29M
Maximum Aimed Range (m): 3,000
Max Effective Range (m):
Day: INA
Night: 850-1300
Armor Penetration (mm): 650-750

125-mm HEAT, BK-27
Maximum Aimed Range (m): 3,000
Max Effective Range (m):
Day: INA
Night: 850-1,300
Armor Penetration (mm): 700-800

Other Ammunition Types: Giat 125G1 APFSDS-T, Russian BM-42 and BM-32 APFSDS-T. Note: The Russians may have a version of the BM-42M with a DU penetrator.

Antitank Guided Missiles:
Name: AT-11/SVIR
Warhead Type: Shaped charge (HEAT)
Armor Penetration (mm): 700 behind ERA/800 conventional
Range (m): 4,000

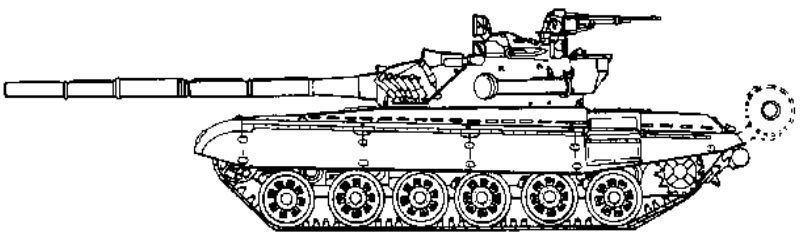
Name: AT-11B/INVAR
Warhead Type: Tandem Shaped charge (HEAT)
Armor Penetration (mm): 800 behind ERA /870 conventional
Range (m): 4,000

NOTES
The T-72B is the second main variant from the original Russian T-72 tank (after T-72A).

The 1K13-49 sight is both night sight and ATGM launch sight. However, it cannot be used for both functions simultaneously. A variety of thermal sights is available. They include the Russian Agava-2, French SAGEM-produced ALIS and Namut sight from Peleng. Thermal gunner night sights are available which permit night launch of ATGMs.

The more recent BK-27 HEAT round offers a triple-shaped charge warhead and increased penetration against conventional armors and ERA. The BK-29 round, with a hard penetrator in the nose is designed for use against reactive armor, and as an MP round has fragmentation effects. If the BK-29 HEAT-MP is used, it may substitute for Frag-HE (as with NATO countries) or complement Frag-HE. With three round natures (APFSDS-T, HEAT-MP, ATGMs) in the autoloader vs four, more antitank rounds would available for the higher rate of fire.

Polish/Czechoslovakian Main Battle Tank T-72M1



Weapons & Ammunition Types	Typical Combat Load
125-mm smoothbore gun	**44**
APFSDS-T	(mix est) 15
HEAT	7
Frag-HE	22
7.62-mm coax MG	**2,000**
12.7-mm AA MG	**300**

SYSTEM
Alternative Designations: Russian T-72A
Date of Introduction: 1975
Proliferation: At least 7 countries

Description:
Crew: 3
Combat Weight (mt): 41.5 (without ERA)
Chassis Length Overall (m): 6.91
Height Overall (m): 2.19
Width Overall (m): 3.59
Ground Pressure (kg/cm^2): 0.90

Automotive Performance:
Engine Type: 780-hp Diesel
Cruising Range (km): 460/700 with extra tanks
Speed (km/h):
- Max Road: 60
- Max Off-Road: 45
- Average Cross-Country: 35
- Max Swim: N/A

Fording Depths (m): 1.2 Unprepared/5.0 with snorkel

Radio: R-173M

Protection:
Armor, Turret Front (mm): 500/560 against HEAT
Applique Armor (mm): Side of hull over track skirt, turret top
Explosive Reactive Armor (mm): 1st or 2nd Gen ERA available
Active Protective System: Arena or Drozd available
Mineclearing Equipment: Roller-plow set, and plows available
Self-Entrenching Blade: Yes
NBC Protection System: Yes
Smoke Equipment: Smoke grenade launchers (6x 81-mm each side of turret), and 24 grenades. Vehicle engine exhaust smoke system.

ARMAMENT
Main Armaments:
Caliber, Type, Name: 125-mm smoothbore gun 2A46M/ D-81TM
Rate of Fire (rd/min): 4-6/2 in manual mode
Loader Type: Autoloader (separate loading) and manual
Ready/Stowed Rounds: 22/22 (22 in carousel)
Elevation (°): -6 to +14
Fire on Move: Yes, up to 25 km/h. Depending on the road and distance to the target, most crews may halt before firing.

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 54R) Machinegun PKT
Mount Type: Turret coax
Maximum Aimed Range (m): 1,800
Max Effective Range (m):
- Day: 1,000
- Night: 800

Fire on Move: Yes
Rate of Fire (rd/min): 250 practical, 600 cyclic in 2-10 round bursts

Caliber, Type, Name: 12.7-mm (12.7x108) AA MG NSVT
Mount Type: Turret top
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 1,500, 1,000 AA
- Night: N/A

Fire on Move: Yes
Rate of Fire (rd/min): 200 practical, 600 cyclic in bursts

ATGM Launcher: N/A

FIRE CONTROL
FCS Name: INA
Main Gun Stabilization: 2E28M, 2-plane
Rangefinder: TPD-K1 laser rangefinder
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: TPD-K1 laser rangefinder sight, 8 x
  - Field of View (°): 9
  - Acquisition Range (m): 3,000 with LRF, 5000 without
- Night: TPN-1-49, 5.5 x
  - Field of View (°): 6
  - Acquisition Range (m): 800

Commander Fire Main Gun: No

VARIANTS
T-72: Original Russian tank from which T-72 variants were derived.

T-72M: Original Polish and former-Czechoslovakian T-72-series tank from which Polish/Czechoslovakian T-72M1 was derived. T-72M differs from T-72 in replacing the right-side coincident rangefinder with a centerline-mounted TPDK-1 LRF.

T-72A: The Russian variant differs from T-72 with the TPDK-1 LRF, added sideskirts, additional armor on the turret front and top, smoke grenade launchers, internal changes, and a slight weight increase. The Russian export version and Polish/Czechoslovakian counterparts are called **T-72M1**. Versions with Kontact ERA are known as **T-72AV /T-72 M1V**. Please note that some countries have inventories of T-72, T-72M and T-72M1, with different versions of each variant. Also, many variants were upgraded or modified. Some T-72M1s do not have smoke grenade launchers or track skirts. Some T-72s/T-72Ms have smoke grenade launchers. More reliable discriminators are armor and rangefinder/FCS.

Polish/Czechoslovakian Main Battle Tank T-72M1 continued

T-72AK/7T-2M1K: Commander's variant with additional radios

T-72AM/Banan: Ukrainian T-72A upgrade with ERA, a new engine, and additional smoke grenade launchers. The **T-72AG** upgrade has a 1200-hp engine, Shtora-1 ATGM jammer, and 1G46 (T-80U) FCS with thermal night sights.

T-72M1M: T-72M1 variant upgraded to T-72B standard.

T-72M2/Moderna. Slovakian T-72M upgrade with new engine and fire control, SFIM thermal sight, laser warning receiver, ERA, and 2 x 20-mm AA guns on turret

T-72M4CZ: Czech variant with TURMS FCS with thermal sight, new engine, increased protection ERA, and 48t weight. **T72M3CZ** ia a less radical upgrade-- for instance existing engine is modified.

T-72MP: Ukrainian upgrade with a 1,000-hp engine, added armor, Shtora-1, and SAGEM FCS and thermal sights.

T-72S/Shilden: Russian export T-72A upgraded to T-72B standard.

M-84: Former Yugoslavian tank upgraded to T-72M1 standard, but with indigenous sights. With an upgraded engine, the tank is **M-84A**. A Croatian improved version of M-84 is **M84A4**/**Sniper**, with improved fire control and thermal night sights. A Slovenian upgrade uses the state-of-the-art and the well-marketed EFCS-3 FCS.

PT-91/Twardy: Polish upgrade tank with ERA, laser warning receiver, smoke grenade launchers, and Tiger fire control system. Sights include a thermal gunner night sight.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:

125-mm APFSDS-T, BM-42M
- Maximum Aimed Range (m): 3,000
- Max Effective Range (m):
  - Day: 2,000-3,000
  - Night: 850-1,300
- Armor Penetration (mm): 590-630 at 2,000 meters

125-mm Frag-HE-T, OF-26
- Maximum Aimed Range (m): 5,000
- Max Effective Range (m):
  - Day: INA
  - Night: 850-1,300
- Armor Penetration (mm): INA

125-mm HEAT-MP, BK-29M
- Maximum Aimed Range (m): 3,000
- Max Effective Range (m):
  - Day: INA
  - Night: 850-1300
- Armor Penetration (mm): 650-750

125-mm HEAT, BK-27
- Maximum Aimed Range (m): 3,000
- Max Effective Range (m):
  - Day: INA
  - Night: 850-1,300
- Armor Penetration (mm): 700-800

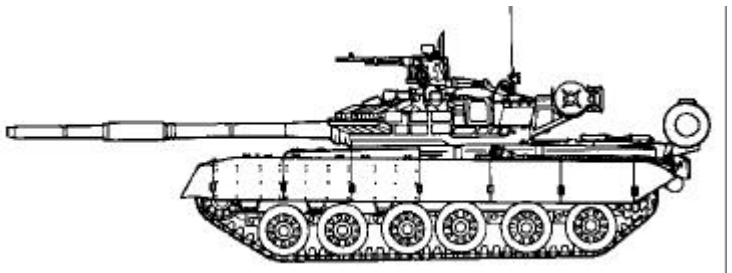
Other Ammunition Types: Giat 125G1 APFSDS-T, Russian BM-42 and BM-32 APFSDS-T. Note: The Russians may have a version of the BM-42M with a DU penetrator.

NOTES

A variety of thermal sights is available. They include the Russian Agava-2, French SAGEM-produced ALIS and Namut sight from Peleng.

The more recent BK-27 HEAT round offers a triple-shaped charge warhead and increased penetration against conventional armors and ERA. The BK-29 round, with a hard penetrator in the nose is designed for use against reactive armor, and as an MP round has fragmentation effects. If the BK-29 HEAT-MP is used, it may substitute for Frag-HE (as with NATO countries) or complement Frag-HE. With three round natures (APFSDS-T, HEAT-MP, ATGMs) in the autoloader vs four, more antitank rounds would available for the higher rate of fire.

Russian Main Battle Tank T-80B



Weapons & Ammunition Types	Typical Combat Load
125-mm smoothbore gun	**45**
APFSDS-T	(mix est) 15
HEAT	3
Frag-HE	21
ATGM	6
7.62-mm coax MG	**1,250**
12.7-mm NSVT AA MG	**500**

SYSTEM
Alternative Designations: See NOTES
Date of Introduction: 1978
Proliferation: At least 1 country
Description:
Crew: 3
Combat Weight (mt): 44.5
Chassis Length Overall (m): 6.98
Height Overall (m): 2.22
Width Overall (m): 3.58
Ground Pressure (kg/cm^2): 0.87

Automotive Performance:
Engine Type: 1,000-hp or 1,100-hpGas turbine (multifuel),
Cruising Range (km): 370/ 500 with extra tanks
Speed (km/h):
- Max Road: 70
- Max Off-Road: 48
- Average Cross-Country: 40
- Max Swim: N/A

Fording Depths (m): 1.8 Unprepared, 5.0 w/snorkel, 12.0 with BROD-M system

Radio: R-173, R-174 intercom

Protection:
Armor, Turret Front (mm): Defeat 120-mm rounds (triple layer)
Applique Armor (mm): N/A
Explosive Reactive Armor (mm): 1st Generation ERA available
Active Protective System: Available
Mineclearing Equipment: Mine rollers and plows available
Self-Entrenching Blade: Yes
NBC Protection System: Yes
Smoke Equipment: Smoke grenade launchers (4x 81-mm each side of turret), and 24 grenades. Vehicle engine exhaust smoke system

ARMAMENT
Main Armaments:
Caliber, Type, Name: 125-mm smoothbore gun 2A46-2
Rate of Fire (rd/min): 6-8 (lower in manual mode)
Loader Type: KORZINA separate-loading autoloader and manual
Ready/Stowed Rounds: 28 in carousel/17 rounds stowed but readily available for manual loading
Elevation (°): -7 to +20
Fire on Move: Yes (30 km/h gun rounds/low speed or stop ATGMs)

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 54R) Machinegun PKT
Mount Type: Turret coax
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 1,000
- Night: 850-1,300

Fire on Move: Yes
Rate of Fire (rd/min): 250 practical / 650 cyclic, 2-10 round bursts

Caliber, Type, Name: 12.7-mm (12.7x108) AA MG NSVT
Mount Type: Turret top
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 1,500 ground/1,600 for air targets (APDS)
- Night: 800-1,300

Fire on Move: Yes
Rate of Fire (rd/min): 210 practical/ 800 air targets in bursts

ATGM Launcher:
Name: 2A46-2 tank gun
Launch Method: Gun-launched
Guidance: SACLOS
Command Link: Encoded radio frequency
Launcher Dismountable: No

FIRE CONTROL
FCS Name: FCS 1A33
Main Gun Stabilization: 2E26M 2-plane
Rangefinder: Laser
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: 1G42
  - Field of View (°): INA
  - Acquisition Range (m): 5,000
- Night: 1-4A
  - Field of View (°): INA
  - Acquisition Range (m): 800-1,300 (est)

Commander Fire Main Gun: No

VARIANTS
T-80BV: Variant noted in the above line drawing has ERA mounted. This variant is more likely for encounter by US forces.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
125-mm APFSDS-T, BM-42M
- Maximum Aimed Range (m): 3,000-4,000
- Max Effective Range (m):
  - Day: 2,000-3,000
  - Night: 850-1,300
- Armor Penetration (mm): 590-630 at 2,000 meters

Russian Main Battle Tank T-80B continued

125-mm Frag-HE-T, OF-26 Maximum Aimed Range (m): 5,000 Max Effective Range (m): Day: INA Night: 850-1,300 Armor Penetration (mm): INA 125-mm HEAT-MP, BK-29M Maximum Aimed Range (m): 4,000 Max Effective Range (m): Day: 2,000-3,000 Night: 850-1300 Armor Penetration (mm): 650-750 125-mm HEAT, BK-27 Maximum Aimed Range (m): 4,000 Max Effective Range (m): Day: 2,000-3,000 Night: 850-1,300 Armor Penetration (mm): 700-800	**Other Ammunition Types:** Giat 125G1 APFSDS-T, Russian BM-42 and BM-32 APFSDS-T. Note: The Russians may have a version of the BM-42M with a DU penetrator. **Antitank Guided Missile:** Name: AT-8/SONGSTER Warhead Type: Shaped charge (HEAT) Armor Penetration (mm): 700 (RHA) conventional Range (m): 4,000

NOTES

The T-80B and -BV variants are often misidentified as T-80. They are visibly different and bear other distinctions, such as T-80B/-BV capability for launching AT-8/ Songster ATGM.

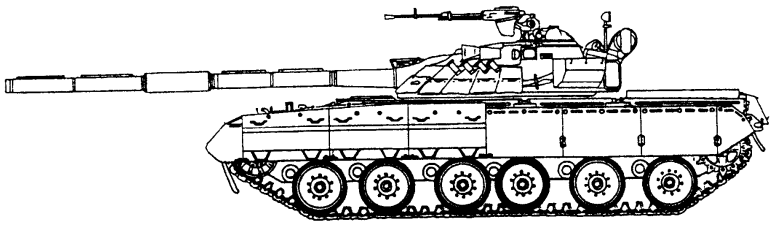
The night sight cannot be used to launch the ATGM. The daysight can be used at night for launching ATGMs if the target is illuminated.
A variety of thermal sights is available. They include the Russian Agava-2, French SAGEM-produced ALIS and Namut sight from Peleng. There are thermal sights available for installation which permit night launch of ATGMs.

The 12.7-mm MG NSVT has both remote electronically operated sight PZU-5 and gun-mounted K10-T reflex sight.

The more recent BK-27 HEAT round offers a triple-shaped charge warhead and increased penetration against conventional armors and ERA. The BK-29 round, with a hard penetrator in the nose is designed for use against reactive armor, and as an MP round has fragmentation effects. If the BK-29 HEAT-MP is used, it may substitute for Frag-HE (as with NATO countries) or complement Frag-HE. With three round natures (APFSDS-T, HEAT-MP, ATGMs) in the autoloader vs four, more antitank rounds would available for the higher rate of fire.

The ATGM may be launched while moving slowly (NFI). The AT-8 can be auto-loaded with the two halves mated during ramming; but the stub charge is manually loaded.

Russian Main Battle Tank T-80U



Weapons & Ammunition Types	Typical Combat Load
125-mm smoothbore gun	**45**
APFSDS-T	(mix est) 15
HEAT	3
Frag-HE	21
ATGM	6
7.62-mm coax MG	**1,250**
12.7-mm NSVT AA MG	**500**

SYSTEM
Alternative Designations: SMT (Soviet Medium Tank) M1989
Date of Introduction: 1987
Proliferation: At least 3 countries
Description:
Crew: 3
Combat Weight (mt): 46.0
Chassis Length Overall (m): 7.01
Height Overall (m): 2.20
Width Overall (m): 3.60
Ground Pressure (kg/cm^2): 0.92

Automotive Performance:
Engine Type: 1250-hp Gas turbine (multi-fuel), diesel on T-80UD
Cruising Range (km): 335 km/600 km with extra tanks
Speed (km/h):
- Max Road: 70
- Max Off-Road: 48
- Average Cross-Country: 40
- Max Swim: N/A

Fording Depths (m): 1.8 Unprepared, 5.0 w/snorkel, 12.0 with BROD-M system

Radio: R-173, R-174 intercom

Protection:
Armor, Turret Front (mm): Against 120-mm ammunition
Applique Armor (mm): Side of hull , over track skirt
Explosive Reactive Armor (mm): Kontakt-5 2nd Generation ERA
Active Protective System: ARENA is available
Mineclearing Equipment: Roller-plow set and plows available
Self-Entrenching Blade: Yes
NBC Protection System: Yes
Smoke Equipment: Smoke grenade launchers (4x 81-mm each side of turret), and 24 grenades. Vehicle engine exhaust smoke system.

ARMAMENT
Main Armaments:
Caliber, Type, Name: 125-mm smoothbore gun 2A46M-1
Rate of Fire (rd/min): 7-8 (lower in manual mode)
Loader Type: KORZINA separate-loading autoloader, and manual
Ready/Stowed Rounds: 28 in carousel/17 stowed (manual loaded)
Elevation (°): -4 to +18
Fire on Move: Yes (gun rounds and ATGMs)

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 54R) Machinegun PKT
Mount Type: Turret coaxial
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 800
- Night: 800

Fire on Move: Yes
Rate of Fire (rd/min): 250 practical / 650 cyclic, 2-10 round bursts

Caliber, Type, Name: 12.7-mm (12.7x108) AA MG NSVT
Mount Type: Turret top
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 1,500
- Night: 800-1,300

Fire on Move: Yes
Rate of Fire (rd/min): 210 practical/ 800 air targets in bursts

ATGM Launcher:
Name: 2A46M-1 tank gun
Launch Method: Gun-launched
Guidance: SACLOS, Laser-beam rider
Command Link: Encoded infrared laser-beam
Launcher Dismountable: No

FIRE CONTROL
FCS Name: FCS 1A42
Main Gun Stabilization: 2342, 2-plane
Rangefinder: Laser
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: 1G46/PERFECT, 3.6/12x
  - Field of View (°): INA
  - Acquisition Range (m): 5,000 (70%P-hit for ATGM)
- Night: AGAVA-2
  - Field of View (°): INA
  - Acquisition Range (m): 2,600 (gun rounds only)

Commander Fire Main Gun: Yes

VARIANTS
T-80UD: Version produced in the Ukraine with a 1000-hp diesel engine instead of the turbine engine, and 1st generation ERA.

T-80UK: Command version with R-163-50K and R-163-U radios, TNA-4 land navigation system, and an electronic fuze-setting device that permits use of Ainet Shrapnel Round. The AGAVA thermal sight provides a 2,600-meter night acquisition range.

T-84: Recent Ukrainian upgrade of T-80UD with a welded turret, a French ALIS thermal sight, a more powerful engine, optional use of ARENA active protection system (APS) and SHTORA-1 active IR ATGM jammer system. Prototypes have been demonstrated, and the tank is available for export.

Russian Main Battle Tank T-80U continued

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
125-mm APFSDS-T, BM-42M
Maximum Aimed Range (m): 3,000-4,000
Max Effective Range (m):
Day: 2,000-3,000
Night: 800-1,300
Armor Penetration (mm): 590-630 at 2,000 meters

125-mm HE-Shapnel Focused-fragmentation, Ainet
Maximum Aimed Range (m): 5,000
Max Effective Range (m):
Day: 4,000
Night: 800-1,300
Tactical AA Range: 4,000-5,000
Armor Penetration (mm): INA

125-mm Frag-HE-T, OF-26
Maximum Aimed Range (m): 5,000
Max Effective Range (m):
Day: INA
Night: 800-1,300
Armor Penetration (mm): INA

125-mm HEAT-MP, BK-29M
Maximum Aimed Range (m): 4,000
Max Effective Range (m):
Day: INA
Night: 800-1300
Armor Penetration (mm): 650-750

125-mm HEAT, BK-27
Maximum Aimed Range (m): 4,000
Max Effective Range (m):
Day: INA
Night: 800-1,300
Armor Penetration (mm): 700-800

Other Ammunition Types: Giat 125G1 APFSDS-T, Russian BM-42 and BM-32 APFSDS-T. Note: The Russians may have a version of the BM-42M with a DU penetrator.

Antitank Guided Missiles:
Name: AT-11/SVIR
Warhead Type: Shaped charge (HEAT)
Armor Penetration (mm): 700 (RHA) behind ERA/800 conventional
Range (m): 5,000

Name: AT-11B/INVAR
Warhead Type: Tandem shaped charge
Armor Penetration (mm): 800 (RHA) behind ERA /870 conventional
Range (m): 5,000

NOTES
Line drawing is a T-80UD.

GTA-18A Auxiliary Power Unit is used when the engine is off.

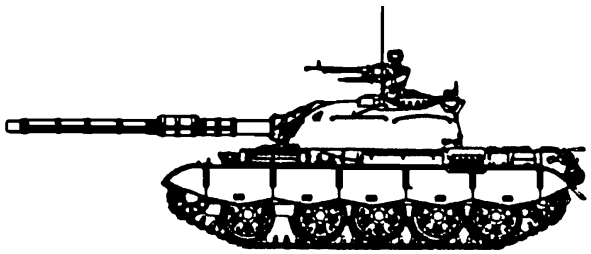
The BK-29 round, with a hard penetrator in the nose is designed for use against reactive armor, and as an MP round has fragmentation effects. The more recent BK-27 HEAT round offers a triple-shaped charge warhead and 50 mm more penetration.

The electronic round fuzing system for Ainet rounds is available for other tanks. This round uses technology similar to that for French Oerlikon's AHEAD rouns. The round is specially designed to defeat targets by firing fragmentation patterns forward and radially, based on computer calculated settings from the laser range-finder and other inputs. Targets are helicopters and dug in or defilade priority ground threats, such as ATGM positions. Rate of fire is 4 rd/min.

The 12.7-mm MG NSVT has both remote electronically operated sight PZU-5 and gun-mounted K10-T reflex sight.

The original night sight is the II Buran-PA (800-1300 meters range). The sight cannot be used to launch the ATGM. The daysight can be used at night for launching ATGMs if the target is illuminated. A variety of thermal sights is available. They include the Russian Agava-2, French SAGEM-produced ALIS and Namut sight from Peleng. There are thermal sights available for installation which permit night launch of ATGMs.

Chinese Main Battle Tank Type 59-II



Weapons & Ammunition Types	Typical Combat Load
105-mm rifled gun L7	**34**
New CH APFSDS-T	12
M456 HEAT	6
L35 HESH	16
7.62-mm coax MG	**2,000**
7.62-mm bow MG	**1,000**
12.7-mm AA MG	**500**

SYSTEM
Alternative Designations: WZ 120B
Date of Introduction: 1951
Proliferation: At least 2 countries
Description:
Crew: 4
Combat Weight (mt): 36.5-37.0
Chassis Length Overall (m): 6.04
Height Overall (m): 2.59
Width Overall (m): 3.30
Ground Pressure (kg/cm^2): 0.8

Automotive Performance:
Engine Type: 520-hp Diesel
Cruising Range (km): 440/600 with external tanks
Speed (km/h):
Max Road: 50
Max Off-Road: 25
Average Cross-Country: INA
Max Swim: N/A
Fording Depths (m): 1.4 Unprepared, 5.5 with snorkel

Radio: INA

Protection:
Armor, Turret Front (mm): 203
Applique Armor (mm): Track skirts are fitted to some tanks
Explosive Reactive Armor (mm): N/A
Active Protective System: N/A
Mineclearing Equipment: Mine plows and roller-plows available
Self-Entrenching Blade: N/A
NBC Protection System: N/A
Smoke Equipment: 8 x 81-mm smoke grenade launchers
Vehicle engine exhaust smoke system

ARMAMENT
Main Armaments:
Caliber, Type, Name: 105-mm rifled gun, similar to L7
Rate of Fire (rd/min): 6-10
Loader Type: Manual
Ready/Stowed Rounds: INA
Elevation (°): -5/+18
Fire on Move: Yes

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 54R) Machine gun Type 59T
Mount Type: Turret coax
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
Day: 1,000
Night: 800
Fire on Move: Yes
Rate of Fire (rd/min): 250 practical, 600 cyclic in 2-10 round bursts

Caliber, Type, Name: 7.62-mm (7.62x 54R) Machine gun Type 59T
Mount Type: Bow ball mount
Maximum Aimed Range (m): 1,000
Max Effective Range (m):
Day: 1,000
Night: N/A
Fire on Move: Yes
Rate of Fire (rd/min): 250 practical, 600 cyclic in 2-10 round bursts

Caliber, Type, Name: 12.7-mm (12.7x108) AA MG Type 54
Mount Type: Turret cupola
Maximum Aimed Range (m): 2.000
Max Effective Range (m):
Day: 1,500 ground/1,600 for air targets (APDS)
Night: N/A, II sights available
Fire on Move: Yes
Rate of Fire (rd/min): 80-100 practical, 600 air targets 2-10 rd bursts

FIRE CONTROL
FCS Name: UI light spot fire control system
Main Gun Stabilization: 2-plane
Rangefinder: LRF
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
Day: INA
Field of View (°): INA
Acquisition Range (m): INA
Night: Type DC 1024/00 II sights, x7
Field of View (°): 6
Acquisition Range (m): 1,000
Commander Fire Main Gun: No

VARIANTS:
Type 59: Original model is a copy of the Former Soviet T-54 MBT and has a 100-mm main gun.

T-72Z/ Safir 74: Iranian variant which constitutes state of the art for upgraded 50s-generation former Warsaw Pact tanks. This tank has a 780-hp diesel engine, track skirts, and smoke grenade launchers. An Iranian ERA package will fit T-72Z. Armament includes an M68 105-mm rifled gun, 7.62-mm Type 59T (PKT) MG, and a 12.7-mm Type 59 (DShKM) MG. The cannon can launch AT-10/ Bastion ATGMs (to 4000 meters) and fire a broad range of NATO 105-mm ammunition. Fire control includes the robust Slovenian EFCS-3-55 fire control system with stabilization, a laser rangefinder, and a ballistic computer. The FCS includes a commander's independent viewer and target designation system, and II gunner night sights.

Chinese Main Battle Tank Type 59-II continued

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:

105-mm APFSDS, H6/62
- Maximum Aimed Range (m): 3,000
- Max Effective Range (m):
  - Day: 2,000-3,000 (est)
  - Night: 800-1,300
- Armor Penetration (mm): INA

105-mm APFSDS, UI (New Chinese)
- Maximum Aimed Range (m): 3,000
- Max Effective Range (m):
  - Day: 2,000-3,000 (est)
  - Night: 800-1,300
- Armor Penetration (mm): 460 at 2,000 m

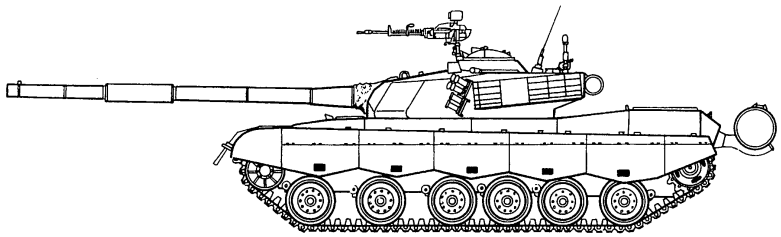
105-mm HEAT, M456 (multinational)
- Maximum Aimed Range (m): 3,000
- Max Effective Range (m):
  - Day: 1,500-2,500 (est)
  - Night: 800-1,300
- Armor Penetration (mm): 432, NATO single heavy target

105-mm HESH, L35 (UK)
- Maximum Aimed Range (m): 5,000
- Max Effective Range (m):
  - Day: 2,000-3,000 (est)
  - Night: 800-1,300
- Armor Penetration (mm): NATO single heavy target

Other Ammunition Types: Chinese Type 83/ UK L64/ US M735 APFSDS, UK L52 APDS, multinational M393 HEP-T, French OE 105-F1 HE, L39 Smoke, cannister

NOTES
GEC-Marconi Centaur fire control system is available. British Barr and Stroud thermal based FCS can be fitted.

Chinese Main Battle Tank Type 85-IIM



Weapons & Ammunition Types	Typical Combat Load
125-mm smoothbore gun	**42**
APFSDS-T	(mix est) 15
HEAT	6
Frag-HE	21
7.62-mm coax MG	**2,000**
12.7-mm cupola AAMG	**500**

SYSTEM
Alternative Designations: INA
Date of Introduction: 1991
Proliferation: At least 2 countries
Description:
Crew: 3
Combat Weight (mt): 41.0
Chassis Length Overall (m): 10.28
Height Overall (m): 2.30
Width Overall (m): 3.450
Ground Pressure (kg/cm^2): 0.771

Automotive Performance:
Engine Type: 730-hp Diesel
Cruising Range (km): 700/900 with external tanks
Speed (km/h):
- Max Road: 57
- Max Off-Road: 45
- Average Cross-Country: 35
- Max Swim: N/A

Fording Depths (m): 1.4 Unprepared, 2.4 with snorkel

Radio: INA

Protection:
Armor, Turret Front (mm): INA
Applique Armor (mm): Track skirts. Composite panels available.
Explosive Reactive Armor (mm): N/A
Active Protective System: N/A
Mineclearing Equipment: Mine plows and roller-plow set
Self-Entrenching Blade: N/A
NBC Protection System: Yes
Smoke Equipment: 12x 81-mm smoke grenade launchers
Vehicle engine exhaust smoke system

ARMAMENT
Main Armament:
Caliber, Type, Name: 125-mm smoothbore gun 2A46M/ D-81TM
Rate of Fire (rd/min): 4-6/2 in manual mode
Loader Type: Autoloader (separate loading) and manual
Ready/Stowed Rounds: 22/23 (22 in carousel)
Elevation (°): -6 to +14
Fire on Move: Yes, up to 25 km/h. Depending on the road and distance to the target, most crews may halt before firing.

Auxiliary Weapon:
Caliber, Type, Name: 7.62-mm (7.62x 54R) Machine gun Type 59
Mount Type: Turret coax
Maximum Aimed Range (m): 1,800
Max Effective Range (m):
- Day: 1,000
- Night: 800

Fire on Move: Yes
Rate of Fire (rd/min): 250 practical, 600 cyclic, 2-10 rd bursts

Caliber, Type, Name: 12.7-mm (12.7x108) AA MG Type 54
Mount Type: Cupola
Maximum Aimed Range (m): 2,000
Max Effective Range (m):
- Day: 1,500 ground/1600 for air targets (APDS)
- Night: N/A

Fire on Move: Yes
Rate of Fire (rd/min): 80-100 practical, 600 air targets, 2-10 rd bursts

FIRE CONTROL
FCS Name: ISFCS-212 (Image-Stabilized Fire Control System)
Main Gun Stabilization: 2-plane
Rangefinder: LRF
Infrared Searchlight: Yes
Sights w/Magnification:
Gunner:
- Day: UI stabilized gunner sight
  - Field of View (°): INA
  - Acquisition Range (m): INA
- Night: 2nd Generation II sights
  - Field of View (°): INA
  - Acquisition Range (m): INA

Commander Fire Main Gun: No

VARIANTS
Type 85-IIAP: Variant assembled from Type 59s and Type 69-IIs and upgrade kits, or from licensed production in Pakistan.

Type 85-III: Upgraded variant with 1,000-hp engine and composite armor panels. Variant is in prototype stage.

MAIN ARMAMENT AMMUNITION
Caliber, Type, Name:
125-mm APFSDS-T, BM-42M
- Maximum Aimed Range (m): 3,000
- Max Effective Range (m):
  - Day: 2,000-3,000
  - Night: 850-1,300
- Armor Penetration (mm): 590-630 at 2,000 meters

125-mm Frag-HE-T, OF-26
- Maximum Aimed Range (m): 5,000
- Max Effective Range (m):
  - Day: INA
  - Night: 850-1,300
- Armor Penetration (mm): INA

Chinese Main Battle Tank Type 85-IIM continued

125-mm HEAT-MP, BK-29M Maximum Aimed Range (m): 3,000 Max Effective Range (m): Day: INA Night: 850-1300 Armor Penetration (mm): 650-750 125-mm HEAT, BK-27 Maximum Aimed Range (m): 3,000 Max Effective Range (m): Day: INA Night: 850-1,300 Armor Penetration (mm): 700-800	**Other Ammunition Types:** Giat 125G1 APFSDS-T, Russian BM-42 and BM-32 APFSDS-T. Note: The Russians may have a version of the BM-42M with a DU penetrator.

NOTES
GEC-Marconi Centaur fire control system is available. British Barr and Stroud thermal based FCS can be fitted.

The more recent BK-27 HEAT round offers a triple-shaped charge warhead and increased penetration against conventional armors and ERA. The BK-29 round, with a hard penetrator in the nose is designed for use against reactive armor, and as an MP round has fragmentation effects. If the BK-29 HEAT-MP is used, it may substitute for Frag-HE (as with NATO countries) or complement Frag-HE. With three round natures (APFSDS-T, HEAT-MP, ATGMs) in the autoloader vs four, more antitank rounds would available for the higher rate of fire.