A Fistful of TOWs 3

Miniature Wargame Rules
Modern Mechanized Warfare
1915–2015

by Ty Beard and Paul Minson
A Fistful of TOWs 3

Like Tanks?
Enjoy fighting mechanized battles in miniature? How about a game that’s fun, fast playing, easy to learn, and still gives historical results? A Fistful of TOWs 3 is all that, and more. Oh, and did we mention the largest set of vehicle and gun data ever published in an individual rule set? Or the largest set of army lists ever printed in a single volume?

A Fistful of TOWs 3
A fast-playing, hard hitting set of miniatures rules for mechanized warfare. The rules are comprehensive, yet playable. And fast. Real fast. A typical game turn should average no more than 15 minutes. And it’s designed to let you play big battles if you want, and use all those miniatures you have!

Game Features

Elegant Artillery Rules. Fast to resolve and no pre-plotting required. And you’ll actually use artillery.

Simple Command Rules. Clean and simple, the command system accurately models mechanized command and control, without a bunch of leader stands cluttering up the playing surface.

Virtually Every Major Weapon System from the 1930s to present is covered, along with data for different time periods and conflicts.

Full Campaign and Scenario Generation System. Plus advice and guidance for do-it-yourself scenario designers. And a point system to help balance scenarios.

Rules to Determine Your Own Equipment Ratings. If you think the Merkava III’s ratings aren’t right, we give you the rules to fix them.

Flexibility. Designed for play with miniatures from 2mm up to 15mm in scale with no modifications. Because stands represent infantry platoons or 4-6 vehicles, the game comfortably handles battles from company/battalion-sized to brigade/regiment-sized and larger. And no specific basing requirements!

Unprecedented Historical Coverage. With a single game system and data set, you can fight engagements from diverse times and conflicts of your choosing—such as Poland in 1939, France in 1940, Kiev in 1941, Tunisia in 1942, Kursk in 1943, Bastogne in 1944, the Ruhr in 1945, the Tet Offensive in 1968, the Golan Heights in 1973, the Fulda Gap in 1984, Iraq in 1991 and 2003, and many, many more.

A Fistful of Games
A Fistful of TOWs 3
Miniature Wargame Rules
Modern Mechanized Warfare
1915–2015

By Ty Beard and Paul Minson

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Version 1.1
Dedication

With love,

to our wives Torri and Johanna-Maria,

who so gracefully put up with our obsession with this hobby.

Cover Artwork

Courtesy of Jody Harmon

Check out Jody’s fantastic military artwork at www.jodyharmon.com.

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1: Miniature Wargaming

1.1 What Is Miniature Wargaming?

The miniatures wargaming hobby is nothing more than playing with toy soldiers. Of course, there are sophisticated rules to resolve combat, to simulate certain historical periods, and to portray and resolve the dilemmas that faced real commanders. But the bottom line is that we play with toy soldiers. And it’s a lot of fun.

1.2 Periods

Most miniatures wargame rules focus on a particular period—i.e., the Napoleonic Wars, the Middle Ages, the far future, etc. FFT3 focuses on mechanized combat, from 1916 to 2015. Other games based on FFT3 are planned—FFT:2060 will cover mechanized combat in the mid to late 21st century; Railgun will cover mechanized combat in the far future.

1.3 The Miniatures

FFT3 is designed for 1/285, 1/300 or 6mm scales (often called “micro” scales), but you can play it with any scale of miniatures. There are some nice 15mm and 10mm/N-Scale lines out there; give them a look, if you can get them. We currently play with N-Scale and 15mm and the spectacle is awesome. If you want to represent platoons with multiple vehicles, 1/600 scale miniatures are now available for vehicles and aircraft. But since most wargamers play with micro scale miniatures, we’ll concentrate these notes on those scales.

The first choice you’ll need to make is “which army?” For “modern”, i.e., post-World War II wargames, the best approach is to consider what kind of army you like to play. If you like hordes of troops, try the Russians. If you like high tech armies, try the Americans. The American Stryker Brigades are equipped entirely with wheeled vehicles and look great on the table. The West German Army is a highly mobile, aggressive army. The French Army is an exotic army with lots of cool looking vehicles. If you like high quality, steady troops, take the British. Plus, with the British you get lots of cool light vehicles. The US Marines are another high quality force. They’re equipped with a variety of wheeled, tracked and amphibious vehicles. The French Foreign Legion is yet another
3: Sequence of Play

3.1 Executive Summary

There are two player turns in each game turn. Each player turn is divided into segments. In a player turn, a player (1) moves his stands; (2) conducts indirect fire; and (3) conducts direct fire (anti-vehicle fire, anti-infantry fire, and direct artillery fire).

3.2 General

Two player turns comprise each game turn. A game lasts a number of game turns as determined by the referee. A good limit is ten turns for a game that will last two and a half hours.

3.3 Sequence of Play

Each player turn is composed of a series of phases as detailed below.

General Overview of a Game Turn

Attacking Player Turn

1. Attacker places his reinforcements.
2. Attacker resolves airstrikes and area fire.
3. Attacker moves.
4. Attacker resolves direct fire.

Defending Player Turn

5. Defender places his reinforcements.
6. Defender resolves airstrikes and area fire.
7. Defender moves.
8. Defender resolves direct fire.
5: Troop Quality

5.1 Executive Summary

A quality check is rolled on 1d6 and must equal or exceed the stand's quality. If the roll fails, the stand is usually eliminated. Troop quality is the most important variable in FFT3.

5.2 Troop Quality

FFT3 assumes that troop quality is the most important variable on the battlefield. Accordingly, troop quality affects almost every major game system.

Stands in FFT3 fall into one of seven quality classes—poor, marginal, fair, average, good, excellent, or superb. Quality is a composite rating of training, combat experience and morale.

Poor troops have poor leadership and lack combat experience, though they may have minimal, low-quality military training. They are often third world militias, insurgents, poorly trained and led conscripts, or rabble. They have a quality of 7 and have a to-hit adjustment of –3. Their rate of fire (ROF) is reduced by 2 but cannot be less than 1. Multiply Poor stands’ point cost by 0.29.

Marginal troops lack combat experience though they may have limited military training. They are often trained conscripts. They have a quality of 7 and have a to-hit adjustment of –2. Their rate of fire (ROF) is reduced by 1 but cannot be less than 1. Multiply Poor stands’ point cost by 0.45.

Fair troops have some military training and may have limited combat experience, but may be lacking in skills, motivation, or leadership. Fair troops have a quality of 6, have a to-hit adjustment of –1, and no ROF adjustment. Multiply Fair stands’ point cost by 0.75.

Average troops are adequately trained, reasonably well-led, and effective, sometimes with some combat experience. Average troops have a quality number of 5, and no to-hit or ROF adjustment. Average stands cost the normal point cost.
than other sight types. The final choice of visibility limit is up to the scenario designer, but these are some guidelines.

### 10.4 Line of Sight (LOS)

Stands trace line of sight from any part of a stand to any part of a stand.

LOS may be blocked by certain types of terrain (cover, see Rule 7.3) as well as geographic features such as hills or towns. Friendly and enemy stands don’t block LOS.

Players may agree to use the Carl Rule, which provides that a stand inside the edge of cover facing outward may only spot or fire through its front arc or be spotted or fired at through its front arc if the enemy stand is outside the cover. Infantry is exempt from the Carl Rule.

---

Both hills are 2 levels high. The woods is 1 level high.

A does not have LOS to B because the intervening hill ridgeline is the same height as A. A has LOS to C (and vice versa) because the far edge of the woods is closer to A than C. A does not have LOS to D because the far edge of the woods is closer to D than to A.

To see over intervening terrain that is higher than one of the stands, the intervening terrain must be lower than the higher stand, and the intervening terrain must be closer to the high stand than the low stand. For example, to have LOS to a target at ground level (level zero) over a level one forest, a stand must be on terrain at least two levels high, such as on a level two or level three hillside, and

---

29 The Carl Rule is realistic, but painfully non-intuitive. Therefore, we made it optional. If you use the Carl Rule, you should allow players to check the angle of their stands before they finish moving, so that they can be certain that they can fire at a target.

30 Also known as the rule of halves. Yes, the real geometry is more complex than this simple rule, but to evaluate the actual height required to have LOS over the intervening terrain needs either several measurements and a calculator, or a very detailed and cumbersome LOS table, both of which drastically slow down play. This improves on the earlier edition’s rule, where dead ground was all-or-nothing.
15: Artillery and Area Fire

15.1 Executive Summary

• Area fire is mainly performed by off-table artillery support groups, and by on-table artillery support groups, battalion guns, battalion mortars, helicopter rockets, and some airstrike types. Some on-table vehicle guns may also use area fire.

• The amount of area fire provided by the firing stands is measured in fire units.

• A barrage is composed of one or more fire zone markers, which must be placed in 2” cohesion with each other.

• A fire zone marker has a fire zone radius, and is assigned one or more fire units.

• Area fire resolution procedure is:
  ◦ Roll for available fire units from off-table and on-table artillery for indirect area fire.
  ◦ Designate an observer for each barrage.
  ◦ Place fire zone markers for each barrage and allocate fire units to them.
  ◦ For each barrage:
    • If the barrage is indirect area fire, roll for accuracy, then roll on Artillery Problems Table if needed, and roll on SNAFU table if called for.
    • If the barrage is direct area fire, do not roll for accuracy.
    • Resolve barrage effects using the area fire tables (the Area Fire Zone Size, Area Fire Index, and Area Fire Resolution tables).
21: High Technology

21.1 General

Advanced technology is rapidly altering the modern battlefield. Of course, this is nothing new. Just ask the knights at Agincourt, the Israelis at the start of the Yom Kippur War or the Iraqis in Desert Storm. But what is new is how quickly the advanced technology is appearing. And armies that utilize this new technology may have a decisive edge over more primitive armies.

21.2 IVIS (Inter-Vehicular Information System)

The IVIS is a computerized communications system that links every vehicle in a unit with its headquarters, giving the commander unprecedented control over units.

Each stand that has IVIS is also treated as a separate FO. So, a company of 3 M1A2's can place 3 different artillery barrages in a turn.

Stands with IVIS also have their cohesion distance doubled.

21.3 CITV (Commander’s Independent Thermal Viewer)

Vehicles equipped with a CITV allow the vehicle commander to target a second vehicle while the gunner is firing at the first vehicle. This has the game effect of allowing a vehicle to ignore the ROF Reduction for Multiple Targets.

For example, an M1A1HC with a ROF of 3 can fire one shot each at three different targets.

21.4 SADARM (Sense And Destroy ARMor)

SADARM is a new type of anti-armor artillery munition, which while developed, was only briefly employed in the 2003 Invasion of Iraq. For post-1999 hypothetical scenarios, players can purchase SADARM ammunition for 152mm+ artillery and MRLs. SADARM barrages have the same radius as regular artillery missions, but cost 300 points per fire unit. Any vehicles in the radius are automatically hit by a Pen 10 attack. The attack hits the flank armor.
23: Chemical Warfare

23.1 Executive Summary

- There are three types of chemical agents—nerve agents, non-nerve agents and irritant agents.

- Chemical weapons are delivered by artillery, missiles, wind or air strikes in the Area Fire Phase.

- Chemical weapons create a chemical zone. Stands that contact a chemical zone suffer a chemical attack in the next Area Fire Phase.

- A stand that suffers a chemical attack must take an area fire quality check at –2.

- Protected stands ignore chemical attacks.

- Chemical zones created by contamination with nerve agents and non-nerve agents last for the entire game. Chemical zones created by contamination with irritant agents last until the start of the player’s next Area Fire Phase.

23.2 General

In our experience, most wargamers avoid chemical warfare in their games. Yet chemical weapons have been used extensively since 1914 and could well have been used far more extensively had a few things been different.

As most wargamers know, chemical weapons were used by Germany and the Allies throughout World War I, starting in August, 1914 (a French tear gas attack).

In the 1920s and 1930s, warfare theorists, including B.H. Lidell Hart, speculated that poison gas would be used in strategic bombing attacks against enemy cities. The military and popular literature of the time strongly suggests that no one seriously expected otherwise. Indeed, these theorists often

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87 For instance, the French Maginot Line, built in the 1930s, incorporated overpressure systems to protect occupants from chemical attacks.
25.4 Battle Generator Campaign

The Battle Generator Campaign is intended to provide a string of several successive battles between two forces in a pseudo-campaign format (typically 3-8 games). To setup, you pick your campaign force, and determine what portion of your force can be used in each scenario. To play, you determine the scenario and then select units to use in the scenario from your campaign force and from the attachments in the army list. Then play the scenario. After the game, you do recovery, spend command points, and assess the effects of scenario results on the campaign. Finally, check to see if the campaign end conditions are met. If not determine the next scenario and repeat. If the campaign ends then determine the campaign victory.

25.4.1 Setup

Select the timeframe and which two armies are going to be fighting. Agree on a point value target for the forces to be used. Ideally this point value target should give enough points for each side to purchase one infantry formation and at least half of one armored formation, or to purchase one entire mixed infantry/armor formation. The target points needed to do this will depend heavily on the timeframe and armies involved, so you’ll have to decide after looking at the lists. Each side selects one infantry (or mixed) formation as its core troops. It must take all the stands from this formation. Then with the remaining points select elements of a second formation, up to the entire formation. If there are still remaining points after taking the entire second formation, elements of a third formation may be selected. The total cost of the units selected by a side cannot exceed the point value target. Don’t forget to adjust the cost of units for their quality!

For example, the timeframe selected is Soviets vs Germans, mid-1943, and the force point target is 2000 points. The Soviet player selects as his first formation a “Soviet Mechanized Brigade 1943-1945” of fair quality, which totals 806 points. Next is a fair-quality “Soviet Tank Brigade Mar1943-Nov1943” equipped with T-34/76C m.1942, which costs 1431 points. This would be 2237 points, so from the tank brigade the Soviet player omits the ZiS-3 76mm FG, the 3 SMG Infantry stands, the ATR Team stand, and the Brigade Light Tank Battalion. What remains of the tank brigade totals 1195 points, for a total of 2001 points. Close enough.

Next agree on a point value target for artillery. The target should allow one or at most two artillery support groups per full formation purchased (typically 105mm guns for pre-1950 forces or 155mm for 1950-onward forces). A suggested target would be about 60 points per formation pre-1950, or about 250 points per formation from 1950 onward.

For artillery our Soviet player has a point target of 60 points. The Soviet player selects an off-table 152mm Howitzer Battalion support group, and an off-table 122mm Howitzer Battalion support group. Soviet artillery has

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101 We called it this to distinguish it from the campaign style where larger forces maneuver and fight on a large map and individual battles between elements of those forces are selected for resolution on the table.

102 The infantry formation could be mechanized or motorized infantry. The reason we mandate infantry is that some of the scenario objectives require infantry to complete successfully.
British (U.K.) Army 1939–1945

Quality
1939-1942: 40% Fair; 45% Average; 10% Good; 5% Excellent
1943-1945: 30% Fair; 55% Average; 10% Good; 5% Excellent
1946-1949: 5% Poor; 5% Marginal; 40% Fair; 45% Average; 5% Good
Artillery Accuracy & Friction Response
1939-1949: Artillery Accuracy 4+; Response 3+

Combat Formations

British Tank Regiment 1939 [in Army Tank Brigade]
- 3 Infantry Tank Companies
  - 4 Infantry Tanks
- Stand Inventory
  - 12 INFANTRY TANKS

British Tank Regiment 1940 – 1945 [in Army Tank Brigade]
- Base
  - 1 CLOSE SUPPORT INFANTRY TANK
- 3 Infantry Tank Companies
  - 4 Infantry Tanks
- Stand Inventory
  - 1 CLOSE SUPPORT INFANTRY TANK
  - 12 INFANTRY TANKS

British Armored Regiment 1939 – 1940
- 3 Tank Squadrons [pick one type]
  - ’39 Option A
    - 4 Mk VI series
  - ’39 Option B
    - 2 Mk VI series
    - 2 CRUISER TANKS
  - ’40
    - 4 CRUISER TANKS
- Stand Inventory
  - If ’39 Option A:
    - 12 Mk VI series
  - If ’39 Option B:
    - 6 Mk VI series
    - 6 CRUISER TANKS
  - If ’40:
    - 12 CRUISER TANKS

- 3 Cruiser Squadrons [pick one type]
  - ’39-’41
    - 4 CRUISER TANKS
  - ’42
    - 4 CRUISER TANKS if not M3 Grant/Lee series, or 3 M3 Grant/Lee series Tanks

British Armored Regiment [Italy] Jul1943 – 1945
- Base
  - 2 recon SCOUT VEHICLES
  - 1 ARMORED AA VEHICLE
- 3 Cruiser Squadrons [pick one type]
  - ’43
    - 4 CRUISER TANKS
  - ’44
    - 3 CRUISER TANKS
    - 1 HIGH VELOCITY GUN TANK
  - ’45
    - 2 CRUISER TANKS
    - 2 HIGH VELOCITY GUN TANKS
- Stand Inventory
  - 2 recon SCOUT VEHICLES
  - 1 ARMORED AA VEHICLE
  - If ’43:
    - 12 CRUISER TANKS
  - If ’44:
    - 9 CRUISER TANKS
    - 3 HIGH VELOCITY GUN TANK
  - If ’45:
    - 6 CRUISER TANKS
    - 6 HIGH VELOCITY GUN TANKS

British Armored Regiment [NW Europe] Jun1944 – Jul1944
- Base
  - 2 recon SCOUT VEHICLES
  - 2 ARMORED AA VEHICLES
  - If regiment is Cromwell-equipped then 1 Cromwell VI
- 3 Cruiser Squadrons
  - 3 CRUISER TANKS
  - 1 HIGH VELOCITY GUN TANK
- Stand Inventory
  - 2 recon SCOUT VEHICLES
  - 2 ARMORED AA VEHICLES
  - If regiment is Cromwell-equipped then 1 Cromwell VI
  - 9 CRUISER TANKS
  - 3 HIGH VELOCITY GUN TANKS

British Armored Regiment [NW Europe] Aug1944 – 1945
- Base
  - 2 recon SCOUT VEHICLES
  - If regiment is Cromwell-equipped then 1 Cromwell VI
- 3 Cruiser Squadrons [pick one type]
  - ’44
    - 3 CRUISER TANKS
    - 1 HIGH VELOCITY GUN TANK
  - ’45
    - 2 CRUISER TANKS
    - 2 HIGH VELOCITY GUN TANKS
- Stand Inventory
  - 2 recon SCOUT VEHICLES
  - If regiment is Cromwell-equipped then 1 Cromwell VI

1 In North Africa, squadrons were not always all the same type of tank. In particular, the Grant/Lee tanks were allocated at 1 or 2 squadrons per regiment. Some examples would be 1 Stuart squadron and 2 Grant/Lee squadrons, or 1 Grant/Lee squadron and 2 Crusader squadrons. Starting in 1943, all squadrons of a regiment were equipped with the same type of tank.
## D.1 Vehicle, Antitank Gun, and Antiaircraft Gun Data Chart, Pre-1950

See end of chart for Generic vehicles and guns, and for explanation of notations.

<table>
<thead>
<tr>
<th>Name</th>
<th>Period</th>
<th>Points</th>
<th>Move</th>
<th>Armor</th>
<th>Pen</th>
<th>ROF</th>
<th>Rng</th>
<th>AI</th>
<th>Pen</th>
<th>Rng</th>
<th>Ammo</th>
<th>Equip</th>
<th>Cap</th>
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<td>7t</td>
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<td>7t</td>
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### D.4 Infantry Data Chart, Pre-1950

See end of chart for explanation of notations.

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<th>Period</th>
<th>Points</th>
<th>Move</th>
<th>At</th>
<th>ROF</th>
<th>Rng</th>
<th>Pen</th>
<th>ROF</th>
<th>Rng</th>
<th>Equip</th>
<th>Cap</th>
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<td>4</td>
<td>+0</td>
<td>2 / 4</td>
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<td>1</td>
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<td>MG Plt</td>
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<td>4</td>
<td>+1</td>
<td>(2 / 3)</td>
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<td>18</td>
<td>8w</td>
<td>+1</td>
<td>2 / 3</td>
<td>4</td>
<td>2he</td>
<td>1</td>
<td>C</td>
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</table>
Airborne infantry battalions can be air-dropped.

Medium Trucks can be replaced by UH-1s. The Jeep w/106mm RR is either deleted or carried by 1 CH-47 or CH21B.

<table>
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<tr>
<th>Stand Inventory</th>
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<tr>
<td>3 81mm Mtr</td>
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<tr>
<td>1 Light AT Vehicle</td>
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<tr>
<td>10 Infantry Rifle stands</td>
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<tr>
<td>[optional 3 Medium Trucks]</td>
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**Stand Inventory**

**3 Armored Cavalry Troops**

<table>
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<tr>
<td>3 81mm Mtr + 46 [optional + 3 UH-1]</td>
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<tr>
<td>1 Light AT Vehicle [optional + 1 CH47 or CH21B]</td>
</tr>
<tr>
<td>1 recon Infantry Rifle stand [optional + 1 UH-1]</td>
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</tbody>
</table>

**Airmobile Infantry Battalion 1963 – 1973**

**Base**

- 3 81mm Mtr [optional + 3 UH-1]
- 1 Light AT Vehicle
- 10 Infantry Rifle stands
- [optional 16 UH-1]
- [optional 2 CH-37 or CH21B]

**Stand Inventory**

**3 Airmobile Infantry Companies**

- 3 Infantry Rifle stands [optional + 3 UH-1]

**Armored Cavalry Squadron 1948 – 1956**

**Base**

- 2 81mm Mtr + 2 Jeep w/LMG

**3 Armored Cavalry Troops**

- ’50–’54
  - 2 recon M8 Greyhound
  - 1 recon Mech Infantry stand + 1 Medium Truck or 1 APC
  - 1 recon Light Tank
- ’55–’56
  - 2 recon Jeep w/HMG
  - 1 recon Mech Infantry stand + 1 Medium Truck
  - 1 recon Light Tank

**1 Tank Company**

- 3 MBT

**1 ACR Artillery Battery [Armored Cavalry Regiments only, see the Artillery Support Groups]**

**Stand Inventory**

- 2 81mm Mtr + 2 Jeeps w/LMG
- 3 Mech Infantry stands
- 3 Light Tanks

**Armored Cavalry Squadron, Pentomic Armored Division/Armored Cavalry Regiment 1957 – 1963**

**3 Armored Cavalry Troops**

- 2 recon Jeep w/HMG
- 1 recon Mech Infantry stand + 1 M59
- 1 recon M41 Walk Bulldog
- 1 recon 107mm Mtr + 1 M59

**1 Aviation Company**

- 5 recon OH–13 Sioux
- 1 recon H-19 Chickasaw

**1 Engineer Company**

- 3 Infantry Engineer stands + 3 M59
- 1 Bulldozer

**Stand Inventory**

- 6 Jeep w/HMG
- 3 Mech Infantry stands
- 9 M59
- 3 M41
- 3 107mm Mtr
- 5 OH-13 Sioux
- 1 H-19 Chickasaw
- 3 Infantry Engineer stands
- 1 Bulldozer

**Armored Cavalry Squadron, Pentomic Infantry Division 1957 – 1963**

**3 Cavalry Squadrions**

- 2 recon Jeep w/HMG
- 1 recon Mech Infantry stand + 1 M59
- 1 recon M41 Walk Bulldog
- 1 recon 107mm Mtr + 1 M59

**Stand Inventory**

- 6 Jeep w/HMG
- 3 Mech Infantry stands
- 6 M59
- 3 M41 Walk Bulldog
- 3 107mm Mtr

**Armored Cavalry Squadron [Infantry, Mechanized and Armored Divisions] 1963 – 1973**

**Base**

- 2 M106 SP 107mm Mtr

**3 Armored Cavalry Troops**

- 2 recon SCOUT VEHICLES
- 2 LIGHT TANKS
- 1 recon Mech Infantry stand + 1 M113

**Air Cavalry Troop**

- 2 recon Observation Helos
- 2 Gunship Helos
- 1 Mech Infantry stand + 1 UH-1

[In Vietnam, the M114 was quickly replaced by M113 ACAV, and the M41 was often replaced by M113 ACAV or M551 or M48A3. Sometimes 1 M132 Zippo was added to the Base troops.]

There are 3 M106s per armored cavalry troop for a total of 2 FFT stands. We chose to represent them as part of the squadron base because (a) it provides an accurate number of stands and (b) in reality many units removed the M106s from the troops and placed them under squadron control.
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### F.3  Artillery Data Chart, 1950 Onward

See end of chart for Generic vehicles and guns, and for explanation of notations.

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### F.5 Aircraft Data Chart, 1950 Onward

See end of chart for explanation of notations.

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### A Fistful of TOWs 3

#### Scenario Data Sheet B

**Vehicles, AT Guns, AA Guns, and On-Table Artillery**

<table>
<thead>
<tr>
<th>Vehicle or Gun</th>
<th>Points</th>
<th>Move</th>
<th>Armor</th>
<th>Pen</th>
<th>ROF</th>
<th>Rng</th>
<th>AI</th>
<th>Pen</th>
<th>ROF</th>
<th>Rng</th>
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### Infantry

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<th>ROF</th>
<th>Rng</th>
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<th>SAM</th>
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### Artillery Support Groups

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<th>Ammo Types</th>
<th>Avail. Mod.</th>
<th>Accuracy Number</th>
<th>Fire Units Rolled Each Turn</th>
<th>MRL Stand</th>
<th># of Fire Units</th>
<th>Expended Fire Units</th>
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### Helicopters

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<th>Cap</th>
<th>Equip</th>
<th># Pods</th>
<th>Pen</th>
<th>ROF</th>
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<th># Pods</th>
<th>Pen</th>
<th>ROF</th>
<th>Rng</th>
<th>Notes</th>
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</thead>
</table>

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### Anti-Vehicle (AV) and Anti-Infantry (AI) Fire

**To Hit Modifiers**
- **5+** if AA Gun in range of flight path.
- **3+** if SAM in range of flight path.

**Gun Penetration Modifiers**
- **0** to **9+**

**Missiles**
- **Short Range**
- **Medium Range**
- **Long Range**

**Guns with ROF 4 or more:**
- **6+** To Hit

**Guns with ROF 3 or less:**
- **6+** To Hit, treat ROF as 1

**Guns with ROF 2 or less:**
- **6+** To Hit, treat ROF as 1

**Note:**
- **No to-hit modifiers are used; for guns, target must be within effective range.**

**Non-AA Weapons vs. Helicopters**
- **17.4**

**SAMs, AAMS, & AA Guns vs. Helicopters**
- **17.5**

**A Fistful of TOWs**
- **3**

### Spotting Chart

**Target Type**
- **Moving In**
- **Moving In Cover**
- **Stationary In Cover**
- **Stationary In Open**

**Visibility Limits:**
- **Day - Good:**
- **Day - Moderate:**
- **Day - Bad:**
- **Night:**

**Strafing Attacks (AV/AI Fire, 3+ To Hit)**
- **4+ to hit per inch traversed.**

**Minefields**
- **1st Gen TI:**
- **2nd Gen TI:**
- **3rd Gen TI:**

**Obstacle**
- **To create 1**
- **To breach 1**

**Fieldwork**
- **Personnel:**
- **Vehicle:**
- **Towed Wpn:**

**Engineering**
- **To Hit modifiers (apply once each strike):**
- **−1** if AA Gun in range of flight path.
- **−2** if SAM in range of flight path.

---

**Target Priority**
- **Must shoot at nearest enemy stand** at moment of fire except:
- **Can ignore enemy stands already shot at this phase.**
- **Can ignore infantry for vehicles or vice versa.**
- **Can ignore a target in cover or behind obstacle for one in open.**
- **Can ignore light vehicles for heavy armored vehicles (compare front armor).**
- **Helicopters prioritized as if armored vehicles with ‘0’ front armor, but AA stands can always ignore other stands to target helicopters.**

**Airstrikes**
- **Roll**
- **Result**

**Bombs/Rockets (Area Fire, 3+ To Hit)**
- **Type**
- **Fire Zone Radius**
- **Fire Index**

**Engineering Permission**
- **A Fistful of TOWs**
- **Hasty Infantry**
- **Deliberate Infantry**
- **Hasty Vehicle**
- **Deliberate Vehicle**
- **Fortification**

**Minefields**
- **Antipersonnel (AP), Anti-tank (AT), Mixed (M):**
- **4+ to hit per inch traversed.**
- **AP & M: Soft takes QC**
- **AT & M: Armored takes Pen 7**

---

*Success roll 5+ if engineer or other is suppressed.
Costs 2 movement points to occupy entrenchment if not the creator.*