



Installing track extensions on an M4, called grousers or duckbills

Duckbills



ERRATA, EXTENSIONS AND "VARIANTS"
NOT INCLUDED IN THE NEW EDITIONS†

#8 February 3, 2024

Fast Rules Play Aids & Q/A



There are two documents: additional vehicles (90 total) and air power. These PDF aids are not new but you might have overlooked them. [Click here](#) for play aids for *Fast Rules*.

Q. "I just wondered how to tackle direct HE fire against armoured vehicles as there appears to be no anti tank factor for Howitzers when using Fire. Thanks Jim"

A. In the Rules As Written (RAW), Section VI Artillery (page 11) one *can* hit and destroy a tank. For example, a roll of **4 or less to hit** and then **3 or less to destroy**. That is *Indirect Fire*.

For *Direct Fire*, there seems like there should be a difference between light & heavy howitzers To Destroy chance. And likewise a light & heavy AFV. So what do you think of this variant?

Direct Fire by Howitzers

Mortars cannot fire at below minimum range!

Limited to targets in line of sight *up to the minimum* range shown on page 3. Fire *above minimum range* uses the normal *Indirect Fire* RAW. For *Direct Fire* start with the same Hit & Destroy scores as *Indirect Fire* with the following modifiers.

To Hit: apply a **bonus of +1** if the **target is stationary**. Easier to hit when the crew has line of sight to the target *that is stationary*.

†More free *Tractics*, *Fast Rules* & *Brew Up* play aids at wargamecampaign.wordpress.com

To Destroy bonus of +2 if either:

- **Any Howitzer** hits an **Armored half-track** or light **Armored Car**. There is no bonus for *light and medium* HE versus the rest of the more heavily armored AFVs when hit (still a **3 or less** to destroy; this low chance represents a lucky hit or mobility kill that has the crew abandoning the vehicle).
- **Heavy artillery's** HE versus **all AFVs**. Large-caliber hits can cause major damage to a tank without penetrating the armor. (Indeed this is a feature in *Tractics* that one rolls for.)

Turn Sequence & Cotton Puffs Variant

One of the proofreaders wanted to improve on the RAW *Turn Sequence* in *Fast Rules* and allow *Opportunity Fire*. So, what do you think of this variant?

Use cotton puffs to mark fire and movement: grey puffs for fire and tan puffs for movement. Any with **grey puff cannot fire again** in the turn. Any with a **tan puff can fire but with a movement penalty**.

Turn Sequence

1. Roll off for which side moves first (attacker wins ties), moves* **all** units . Non-moving side's units can "opportunity-fire" (see page 2) against **movers**; results immediate. Mark firers* because cannot move or fire later in the turn.
2. Other side moves*, first side's **non-movers** can op-fire* at enemies moving.
3. Observe & detect. †
4. Fire those not fired already.
5. Melee & Morale.

*Mark with Tan puff if moved & Grey puff if fired. Tan puffs **can** fire, marked for fire penalty. **Stationary first as simultaneous. Then, movers as simultaneous.

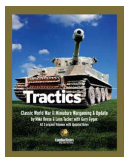
Opportunity Fire Definition

Fire at a **-1 penalty** by a **stationary** friendly unit that hasn't fired this turn at a **moving** enemy unit spotted by the firer at any time during the target's movement that it can be seen by the firing unit. If the rate of fire is more than once in a turn then fire half at any time the target unit is in sight, and the remainder where the enemy unit ends its move, **if still in sight**. Units that opportunity fire **may not have moved yet** during the turn **nor can they move later** in the same turn they opportunity fire.

†Units that haven't fired may Observe & detect. Any unit firing observes and detects before firing. If detection fails that unit may not fire OR move. Trying to detect a target to shoot at and failing means that action was expended with no fire, whether stationary or moving.



Tractics Q/A



Q. For the panzerfaust 100 Long range is 11 to 15 inches. However the medium range is 6 to 10 inches. In all other cases that I could see the starting distance of one range is the same as the ending distance of the last range so the long range should start with 10 inches not 11 inches. If a target was exactly the range that demarcates two range intervals should it be counted in the shorter or the longer interval? - Tom Trinko

A. Shorter. The blue highlighted range band should be 10-15" as normal. So to recap:
 0-6" means 6" or less
 6-10" means 10" or less, and
 10-15" means 15" or less.
 - Mike Reese & Bill Owen

Weapon Data		Blast		Range:				Updated		Infantry Rules	
Weapon	Note	Crew	Diameter	Short	Medium	Long	Extreme				
Pistol		1		0-2	2-4	4-6"	-				
Rifle, Bolt Action		1		0-6	6-16	16-28	28-40"				
Rifle, Semi-automatic		1		0-6	6-16	16-28"	-				
Rifle, Assault		1		0-4	4-10	10-16"	-				
Rifle, Automatic		1		0-16	16-32	32-48	48-80"				
Rifle, AT 12.7-16mm	See DFM for Penetration	Enc 2	16	0-6	6-16	16-28	28-72"				
Submachinegun		1		0-2	2-4	4-8"	-				
MG - Light belt-fed (magazine-fed 3 rounds)		2		0-20	20-55	55-80	80-100"				
MG - Medium & Heavy (if Hvy. vs. armor see note)	Enc 4	4		0-24	24-64	64-80	80-120"				
Flamethrower page 71	Enc 1	*4"	5	0-2	2-6"	-	-				
Grenade, Hand page 98		1	1"	2	-	0-2	2-6"				
Grenade, Rifle		1	1"	6	0-2	2-6	6-12"				
Grenade, Rifle AT		1	.5"	4	0-2	2-6	6-12"				
Grenade Launcher 40mm	M	1	2"	20	0-6	6-14	14-18	18-24"			
Panzerfaust 30		1	2"	2	0-6	-	-				
Panzerfaust 60		1	3"	2	0-6	-	6-10"				
Panzerfaust 100		1	3"	2	0-6	6-10	11-15"				

Q. The M5A1 Stuart has a *paved road* speed of 40 MPH (40") but the updated movement table shows a maximum of 30 MPH (30") for tracked vehicles on *non-paved roads* (see blue highlight). Why can wheeled vehicles move faster than tanks over firm ground? - Tom Trinko

A. Because they can. Trucks had just advanced beyond the Ford model A (except, perhaps, in the

USSR. GAZ trucks were Ford 4x4 and 6x6 trucks made in a Ford factory in the Soviet Union. There was a Ford factory in Germany, too. The USA .25, .75, 1.5 and 2.5 ton military trucks were ahead of their time, being all wheel drive. There were also 6x4 versions of the 2.5 ton trucks. Other nations had all wheel drive as well.

GMC 2.5 ton truck had a 91.5 or 104 hp engine and could carry 2.5 tons cross country or 5 tons on good roads. They weren't speed demons.

Nor are most tanks. 25 MPH on a road is fairly fast for a WW2 medium tank. Keep in mind that the 40-50 MPH for a tank is a sprint speed. 20-24 MPH or less is more the norm. Going 50 mph on a road doesn't shake your truck apart but a tracked vehicle can't keep that up. **In our games we dash our tanks down roads at full speed.*** But in a convoy that isn't done. We also ignore the necessary maintenance stops. But our games really aren't long enough for that and you can, in the scenario, account for that. - Mike Reese

TERRAIN	WHEELED										HALF-TRACK	TRACKED													
	RWD Truck		AWD Truck		Jeep		35mph		30mph			25mph		20mph		15mph		10mph		5					
	SPEED	50mph	40mph	35mph	35"	30"	25"	20"	15"	10"		5"	35"	30"	25"	20"	15"	10"	5"	35"	30"				
Road Paved or Blacktop	50"	40"	35"	35"	30"	25"	20"	15"	10"	5"	35"	30"	25"	20"	15"	10"	5"	35"	30"	25"	20"	15"	10"	5"	
" Dirt Road	25"	25"	25"	25"	20"	20"	15"	15"	10"	10"	5"	35"	30"	25"	20"	15"	10"	5"	35"	30"	25"	20"	15"	10"	5"
" Trail/Corduroy Road	5"	5"	10"	15"	10"	10"	10"	10"	10"	10"	5"	35"	30"	25"	20"	15"	10"	5"	35"	30"	25"	20"	15"	10"	5"
Ground Firm	40"	35"	35"	30"	20"	20"	15"	15"	10"	10"	5"	35"	30"	25"	20"	15"	10"	5"	35"	30"	25"	20"	15"	10"	5"
Cross Country (Default)	10"	15"	20"	15"	20"	20"	15"	15"	10"	10"	5"	35"	30"	25"	20"	15"	10"	5"	35"	30"	25"	20"	15"	10"	5"

The **dotted line** under the speeds above 30 MPH is a clue to remind you that vehicles that are "Tracked" have that higher speed on Paved Roads *only*.

HALF-TRACK	TRACKED						
	35mph	30mph	25mph	20mph	15mph	10mph	5
	35"	30"	25"	20"	15"	10"	

*Reminder of an existing **variant idea**: in addition to rolling *each turn* (from Publisher's Note, page 73†) for breakdowns, the chance would be 5% higher (than the chart below) if any were moving at top speed? But not a gun breech failure. So if the Judge rolls a **4** on the *pre-determined*, say, **1-3** chance of *something* to break-



down, he asks “any moved at top speed?” In proofing this Mike added **KISS!** (*Keep It Simple Stupid*) and indeed this is not worth it to most gamers perhaps, but may for others. In my opinion, a few moments of calculating pre-game is easier than remembering to roll every 5th and 10th turns. - *Bill Owen*

†To simulate the **greater general unreliability** of British, German, Italian, Japanese, and Russian vehicles either **check** every **five (5)** turns **or** check **twice** every **ten (10)** turns. *Note: US Vehicles just roll once every ten turns.*

Publisher’s note: In the thick of the game action, one might forget to roll every five or ten turns. An easier way to handle this is before the game to calculate the **per-turn** chance for **your whole side’s** vehicles to breakdown. For example, with **five non-US AFVs** on your side, if one rolls the number shown for **non-US** vehicles, **one** broke down (assign randomly). You can roll again—at a reduced chance, like 90% less—to see if **another** did. The actual math is challenging**, but one needn’t be precise. More important is to remember to check and it’s easier to roll each turn.

Tracked Vehicles - Chance to Breakdown roll 1D20:

1936-1940	1941-1945 AFVs		
All AFVs	0-20 ton	20-50 ton	50+ ton
1-6	1-2	1-5	1-8

Breakdown Table (roll 1D6)

1	Gun breech failure - no fire for three (3) turns!
2 - 3*	Track thrown or broken, repairable!
4	Engine breakdown, repairable by crew in (12) turns , turret rotation reduced 50% . Repairable by Lager†, “Motor Pool”, mechanics or recovery vehicle team in four (4) turns!
5 - 6	Engine breakdown, repairable in shop only!

*If vehicle is stationary consider as a 4!

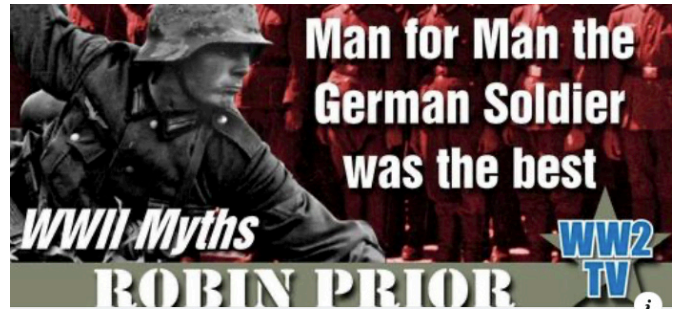
****How to calculate the per turn chance before the game:** Multiply the base chance for say (5) Shermans which is 1-5 so $5 \times 5 = 25$ and divide by 10 = 2.5. Round up or down; if attacking could round up to 1-3 or if could defending round down 1-2. So if attacking, each turn roll a D20 and see if one vehicle is affected then roll 1D6 the breakdown table.

I mentioned how one could roll for the chance that a second vehicle might breakdown but be 90% less. So,

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a chance of 10% of 2.5 or less on a D20 is .25. So, roll 3D10 and if you roll 025 or less than a second vehicle breaks down.

What’s the alternative? RAW, rules as written, one must remember to roll for *each* vehicle every 5 or 10 turns. Then on *that* turn, potentially several vehicles might breakdown. That seems strange, doesn’t it? *If you even remember.*



Q. On the *Tractics* Facebook group we had a discussion on the following. I had watched a video (YouTube channel WW2TV [click here for Man-for-Man Myth](#)) and made a comment afterward:

“The guest changes the subject to say “man for man” is an irrelevant comparison. He effectively concedes that it is not a myth. But that’s the subject of the video!

Then he says the German victory over France in 1940 is a fluke, which also concedes that German soldier superiority is not a myth—especially as the Allied equipment was better in many respects. Of course, improved Allied doctrine and arms matter. Indeed it ultimately overcame German man-for-man superiority.

Germane to the subject Trevor N Dupuy in his book *Numbers, Predictions & War* details the math painstakingly over dozens of battles* and says that what accounts for German victories was individual soldier’s measurable superiority of +20%. This is after allowing for air power, tanks, and artillery.

Dupuy was not a “Wereaboo” [Internet slang for a fan of German soldiers] but a decorated soldier who fought in Burma during WWII. His goal was to help the US Army see how it could better train and motivate its soldiers.

*The database and methodology are called the Quantified Judgment Method or QJM. His organization, The Dupuy Institute continues his mission and has a blog on current military matters as well as records of historic battles.” [I bought his updated book *Attrition*.]

It occurred to me that most WWII rulesets do not build in German soldier superiority, as Dupuy estimates. Since Dupuy already allows for both sides’ weapon counts, ground, air, and artillery, German training and doctrine account for that 20% advantage.

How would one do that in *Tractics*? I then floated the following. If one gave most German troops the +1 Quality bonus and others +2 from early on to 1942



or 1943, then an increasing proportion would have no Quality bonus or, instead, a -1 or -2 Inept penalty.

PS This is obviously a delicate subject, as some superficial folks may take this to mean one likes Nazis. But if a hard-bitten old US soldier like Dupuy could come to this conclusion for the benefit of his nation's military, I think we can explore this without being branded as fascists. Isn't wargaming about having better understanding? - *Bill Owen*

A. Tom Trinko responded with this [link](#) of a Ph D dissertation that rebuts part of Dupuy's conclusions and said, "I read Dupuy's stuff when it first came out but the problem is there are too many free parameters/assumptions involved."

There was more discussion on the Facebook group ([link](#)) which acknowledged that this is not a racial condition of Germans per se. Indeed the Luftwaffe ground troops and Kriegsmarine crews pressed into infantry apparently did not get the full training and motivation so might be considered inept. This is not a blanket issue of Allies bad, Germans good but relates to the time in the war. The US Army learned remarkably quickly in the Norman hedgerows the importance of tank and infantry coordination putting a phone on the back of their tanks hooked into tank's intercom system. The scenarios one constructs can feature historical limitations.

Q. Why is boresighting restricted to point blank range? Couldn't direct fire guns be presighted to the location of a planned ambush? Also if the exact range to a point is known, as in the case of a prepared defense, shouldn't there be a to hit bonus? - *Tom Trinko*

A. Bore sighting that way works best with flat trajectory guns and only up to a certain range. It is an emergency measure good up to the range the gun has no modifier for range.

Battle sight is similar. When moving to contact you would have the range on the gun on battle sight. Battle

sight is the range where the shell doesn't rise higher than 2 meters, roughly the height of a tank, so the gunner can aim and fire without checking range first. In WW2 this varied. A Panther around 1000m and a 88L71 1500m. M4 I don't really know. Normally the gun wouldn't be loaded in WW2 until contact. After WW2 HEAT could be loaded, or HESH if British as those shells are good vs. Infantry, light AFV, and tanks.

Gun and gun sights are normally set at a certain range depending on the gun. M551 was set for 1200 meters by firing at a target at that range and then setting the gun sight to the center of the 3 round pattern. Just like a rifle. (This was 1973.) They did the same with the M60.

In the tank plants you bore sighted the gun using a + device placed on the gun (breech I think. Two wires welded to a 105mm shell case with most of the base removed. Then the gun sight is adjusted to be on the same target which was on a large board on the wall of the tank plant. The range was set on the gun sight and the sight moved to be on target. The same for the coax using the tank sight but with the sight set for coax. The cupola sight as well and the range finder would also be set. This was one of the last stations for the turret before placing it in the hull. Hope my memory is still good.

Similar procedure for an Abrams except the laser range finder and MRS also had to be zeroed and the .50 wasn't.

Note for the MG this adjusted the MG mount. The tank's leave the factory without any machineguns mounted.

You should bore sight, an emergency measure, on defense. The best sample of that was the German use of sFH18 15cm howitzer which was emplaced covering the only approach for tanks. Loaded with concrete penetrating shells the howitzer engaged KV tanks approaching down a road at point blank range. I



suspect the howitzer may not have working direct fire sights and the range was point blank.

Print 3D troops on a stand

Have you thought about getting Microarmor scale tanks but thought the individual figures are too fiddly to model or game with? Two answers:

1. Team Fire rules which exist now for *Tractics* (in Duckbills issues 1 & 3) and *Brew Up* (in the rule set).



that they are printed *already on a stand*. [Click here to download them](#).

The bases are a bit thick for my taste but a lot of gamers feel that makes them easier to pick up. Don't have a resin printer? US gamers can go to [TK421's Brian Muñiz](#).

And for Jens Najewitz superb buildings in 3-6mm scale, I recommend [MiniTankFactory](#) on Etsy. His European buildings were redesigned for 6mm to make them easy to wash and highlight. I got MiniTankFactory to try printing them in 3mm scale and they still look great. MiniTankFactory also 3D prints tanks.

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Consolidated Errata

Now that we have multiple Duckbills (DB) issues, we are consolidating *errata* from all so you have just one document to refer to. **The two starred items were corrected in all editions.*

For Duckbills #1-6 all variants were for *Tractics* only but might be adapted to *Brew Up* & *Fast Rules*. Going forward, items specific to *Tractics* will have the abbreviation TR, *Brew Up* BU and *Fast Rules* FR. One will find links to free play aids consolidated in Duckbills.

For convenience we list Variants' *titles* but not their text.

When in a yellow highlight additional clarifications were added in *this* or previous issues of Duckbills about an *old* issue.

DB#1 Q. Where are the German 88mm guns?

A. They are classed as 90; see the discussion on pages 19-20.

*Pull-Out #11 (also on page 66) has a "3" on the 45° Slope Angle when it should be "4" like the 45° Qtr in the next column.

*The 2nd Runner on the Platoon HQ table (page 11) is blank. The same data applies as for the 1st Runner.

Examples of Play, page 160, Turn Sequence Phase 1: delete the asterisk (*) at the end of the 3rd sentence.

The modern weapon, Am, LAW, on the Infantry Weapons chart should be American LAW.

Clarification: Out of Command, pg. 27 'd' 2nd bullet It may not be clear here but a squad always has to have an order change rolled for if the order is issued by the Squad Leader. BUT, if the Platoon Leader or Plt Sgt or higher ranking leader is within 2" of the Squad leader and issues a new order to the squad then you don't have to roll to change the order.

Clarification: Orders, lower right, pg. 28: If the tanks were being run by a separate player—a "tanker" then I would not be doing his tank order arrows. He would.

Duckbills #1 Variants: Initiative, Flukes, Ammo Loads, Quick Reactions, Radio Net & Squad/Team Fire.



DB#2 *Typo:* Page 98 2nd column. “***Pinned:** goes prone. Fires with a -4 penalty for one in your next phase.”

Q. When you have an element behind a High Hedge-row **what angle in degrees can he spot out.** I would think 45 degrees total (22.5 each side).

A. Elements in or behind concealing terrain which they have moved up to, or into, observe and fire out of that terrain with the same limitations as if in a building. 45 degrees while behind the terrain, 30 degrees if positioned in it, or 180 degrees if leaning out of the terrain in order to shoot. This would apply to hedge-rows including Norman Hedgerows, bushes, or thick shrubbery. See page 45 second column. An **improved position** in or behind such terrain will allow all observation angles to be doubled. An improved position means that the unit has spent enough time to cut lanes of observation and fire in the terrain. This takes the same time as digging a 2-man foxhole. Seven turns. This does not include the time to dig in. See page 116.

The time to improve the position does not include the time to dig the position in the hedge. Instead of that sentence say that: Improving a position takes double the time to dig a 2-man foxhole position. Improving can also be carefully camouflaging the position, or applying overhead cover. Overhead cover requires material to hold the sandbags and dirt and turf over the position. To do all four—dig, improve spotting, add camouflage, add overhead cover would take 28 turns in total. This improved position is not done in a hurry but if you have the time it can be done. This type of position would be part of a prepared defense position.

Q. **Early US Bazooka** is 75mm Pen., though later variants should be 100mm, and 125mm respectively.

A. 2.36” Bazooka. 75mm North Africa and Sicily. 100mm after August 1943. (December 1943 for Pacific)

Jan 1945 for 125mm Europe and in the Pacific issued but not used. NOTE: these dates are estimated.

Q. On page 170 of the **Infantry Combat examples**—3rd paragraph—MG34 casualties—it lists 2 casualties at first (which is correct), but then mentions 3 casualties in the next sentence (which is wrong).

A. Correct. Should be 2 men were hit.

Q. Also, the number of **dice for determining who gets hit** of the five targets should be 1D5, or 1D6, ignoring the number 6 result and re-rolling, not the 2D6 mentioned in the play example.

A. Next sentence has to be changed to read: “A 1-3 would be the closest man, 4-6 the next closest.” The example rolls 1D6 for each of the two casualties. He is spreading the hits among all five men, I am spreading the hits between the two closest men to the MG.

Duckbills #2 Variants: Soviet Smoke, Auto-Search, Solo Play.

DB#3 *Informational correction* that does not affect the game process. The **Petard Mortar** is now 230mm not 290mm. *Mike found out someone actually measured the diameter and found it was 230mm. The 290 size was an error copying the wrong number in an original report passed on for 50+ years.*

Q. If I say that if my tank moves 4.1 inches, out of it’s 26 inch movement allowance, and then **stops to fire** I have to apply a movement penalty? Is that the case for the 2nd and subsequent firing in the same turn?

A. Per Page 55, **either** movement penalties can be avoided by any turreted vehicles which moves no more than half their allowed distance over the prevailing terrain and whose rate of fire is halved, fractions rounded up. **Or...** If you wanted to fire all three rounds you move your, say, 26” and fire three times. This fire would be from where you started your move, after you moved 13”, and the third time after you moved the full 26”. All three shots would be penalized as *Firing While Moving*. Note: Automatic weapon such as a 20mm Flak 38 fires bursts where the rules treat it as shots—i.e. RoF 4 is 4 bursts for an auto weapon such as on a 222 armored car, but 4 shots from a French 25mm AT gun. So for a fully automatic fire weapon the RoF of 4 could be all fired once at the same time rather than every 1/4th of the target’s move using opportunity fire. We didn’t specify which weapons were automatic—although restrict them to anti-aircraft weapons 40mm or smaller, which are the AA Machine Guns 12.7-15mm and the 20-40mm AA.

To actually answer your question yes, the second round would be from a stationary position but rate of fire is also halved. The rules are written so that if you move less than half with a turreted vehicle and halt, you can fire stationary without the “firing while moving penalty” but you can only fire at one half your normal rate rounding up.

If you fire while moving 4.1 inches and then halt to fire your rate of fire is half. If the normal rate of fire is three then you get two fires stationary. If the normal rate of fire is two then you halt and can fire one round stationary.

Instead of firing on the move during the 4.1” movement don’t fire. Then, when you halt you will get either one shot (RoF2) or two shots (RoF3) stationary with no fire while moving penalty.

Duckbills #3 Variants: Team Fire.

DB#4 Bonus & Penalty Modifiers

Clarifications: **Tractics** modifiers adjust the Base to hit. Bonuses (numbers with a plus sign) add to the Base and Penalties (numbers with a minus sign) subtract from the base. One must roll the adjusted Base or less to hit. Bonuses and



penalties are not die roll modifiers.

HE/HESH vs. Spaced Armor Clarification: In the National Vehicle Data Categories rules about Armor page 76 (top of the right-hand column) explain how the plus, “+”, in armor is Spaced Armor:

Clarification: **Armor Thickness** is shown in millimeters with any degree of “slope” in parenthesis and an **added spaced armor** plate after a plus sign. The two numbers should be added together before comparison of penetration by Armor Piercing rounds.

Addition: When Spaced Armor is hit by HESH and HE, page 68’s left column Note mentions HESH’s inability to penetrate spaced armor, it omits that the same inability to penetrate the second armor also applies to HE. Note: HESH and HE penetration blows that much earth or concrete off of any fortification it hits. HESH/HE hitting a sandbag, spare tracks, wire, or metal screen, or spaced armor on a vehicle loses its “spalling effect” (HESH) against the vehicle itself! Likewise, **HE can only penetrate the initial armor plate.**

Churchill size *Correction:* British Churchill tanks are **not LT (Large Tank)** and are just ordinary medium tanks.

Duckbills #4 Variants: Penetration Spreadsheet, Zombies.

DB#5 *No errata.*

Duckbills #5 Variants: Tom Trinko’s Penetration Spreadsheet; Scenarios; Photo Recon; Turn Record Play Aid; Sand Tables; Ground Scale Conversion.

DB#6 Where to find **Abbreviations, Symbols** and **AFV Index** and quick links within the PDF version of **Tractics**.

IFM Classic & Modified Clarification that a non-penetration on Engine Grate still has 1-10 on D20 to Knock Out (GD) the tank.

Which in this case is the engine stops working due to overpressure and shell splinters through the engine grates.

Decoding ND & ED Clarification that No Damage and Explosive Destruction require a crew casualty roll.

Two types of ED Clarification of the difference between two types of ED +1 if in a crew compartment or -1 if in the engine compartment.

Single Compartment (like Stg III). Reminder that when

hit means the modified roll is the number of casualties.

Duckbills #6 Variants: Gen Con 1971 Scenario.

DB#7 Scenario Ideas: sources for US Army Field Manuals & US Army green books. TR Q/A re large HE hits and To Hit modifiers. Errata clarification 152mm Russian artillery.

BU Additional Rules MRL, Air Support, Infrared Sights & Troop Quality.

Comparison of the three rulesets TR, BU & FR.

DB#8 *Product review:* 3D 6mm troops on stands.

Tractics Clarification about range band extent. Tracked vehicle maximum speeds on roads versus other terrain. Reminder of how to roll for breakdown every turn: *same as in the rulebook.* Bore sighting.

Commentary- Man-for-Man Myth video re German soldiers being better. Dupuy’s analysis and pushback.

Duckbills #4 Variants: *Fast Rules* HE from guns; Turn Sequence, Cotton Puffs & Op Fire.

Bill Owen: all my miniature wargaming started with

