

# A Crisis of Confidence in Armor?

by Mike Sparks

## The First Crisis: Yom Kippur War, 1973

First-generation, wire-guided Sagger antitank guided missiles (ATGMs) operated by joystick control are fired by Egyptian infantrymen at Israeli tanks operating without infantry support, taking a heavy toll on the armored forces counterattacking the Egyptian surprise attack and invasion of the Sinai across the Suez Canal. Later in the war, IDF tankers learn to turn and fire towards the firing signature of the Sagger missiles, disrupting the Egyptian infantrymen's aim. They learn also to dodge their tanks at the last second to evade the missiles. One tank came home after a mission with over a dozen Sagger wires draped over its hull.

One of the results of that war was creation of tactics, techniques, and procedures (TTP) that integrated infantry in M113 armored personnel carriers to clear out ATGM positions ahead of tanks. Another result was the development of a better protected tank, the very low silhouette Merkava I, which proved invincible against first generation ATGMs and RPGs in the later war in Lebanon in 1982.

## The Second Crisis: South Lebanon, 1997

Second-generation, Russian signatureless ATGMs like the 9K111 Fagot (AT4 Spigot in the West) are being used by Hezbollah to knock out the once-invincible Merkava IIs in mountainous and urbanized Southern Lebanon. After 28 missile hits, Hezbollah guerrillas have been reported as having learned which are the weak areas of the Merkava II and fire two missiles in rapid succession at that spot. Three Merkava II tanks have been knocked out, resulting in two dead soldiers. Without a firing signature, the Fagot (semi-automatic command line-of-sight) SACLOS ATGM can be controlled until it hits the specific spot on the tank aimed by the firer, who holds the crosshairs there and is free from the tank's counterfire. The tanker doesn't know he's under attack until the ATGM

hits his tank. The IDF is considering pulling the Merkava IIs out of Lebanon and have dispatched the legendary General Tal, creator of the Merkava MBT, to the scene to solve the problem.

We owe a great deal of debt to the Israeli Defense Forces (IDF) who, on the front lines for freedom, are encountering the latest weapons made in both the former Soviet Union and the West. What they learn the hard way, we need to heed in our future armored vehicle designs and in our own TTP.

When the tank as we know it receives some setbacks in battle, there will always be a chorus of those who proclaim that the tank is dead. This shrill message is delivered with an arrogant attitude that suggests we are somehow "above" having to use extreme physical measures to fight battles today and certainly in the future. What these people really oppose is the reality that, in war, EXTREME physical measures are needed to win. The modern battlefield is covered by fire, and to advance forward requires armor protection, or else casualties will mount, as we saw in both World Wars, Vietnam, and more recently in Somalia. These critics of the tank invariably offer us no solutions or alternatives, other than fighting on foot without tanks or from the cockpit with "wunderweapons" of the air. Their goal seems to be killing the tank as an end unto itself. What these individuals fail to realize is that, in war, there is a constant ebb and flow of weapons and countermeasures. The minute you develop an advantage, a counter weapon is created. To stay on top, you have to keep advancing new ideas. Those that want to give up the tank simply want to call it quits, and give up, which will be disastrous on the next battlefield. In war, the side that decides to stick to bows and arrows gets wiped out by the side with firearms.

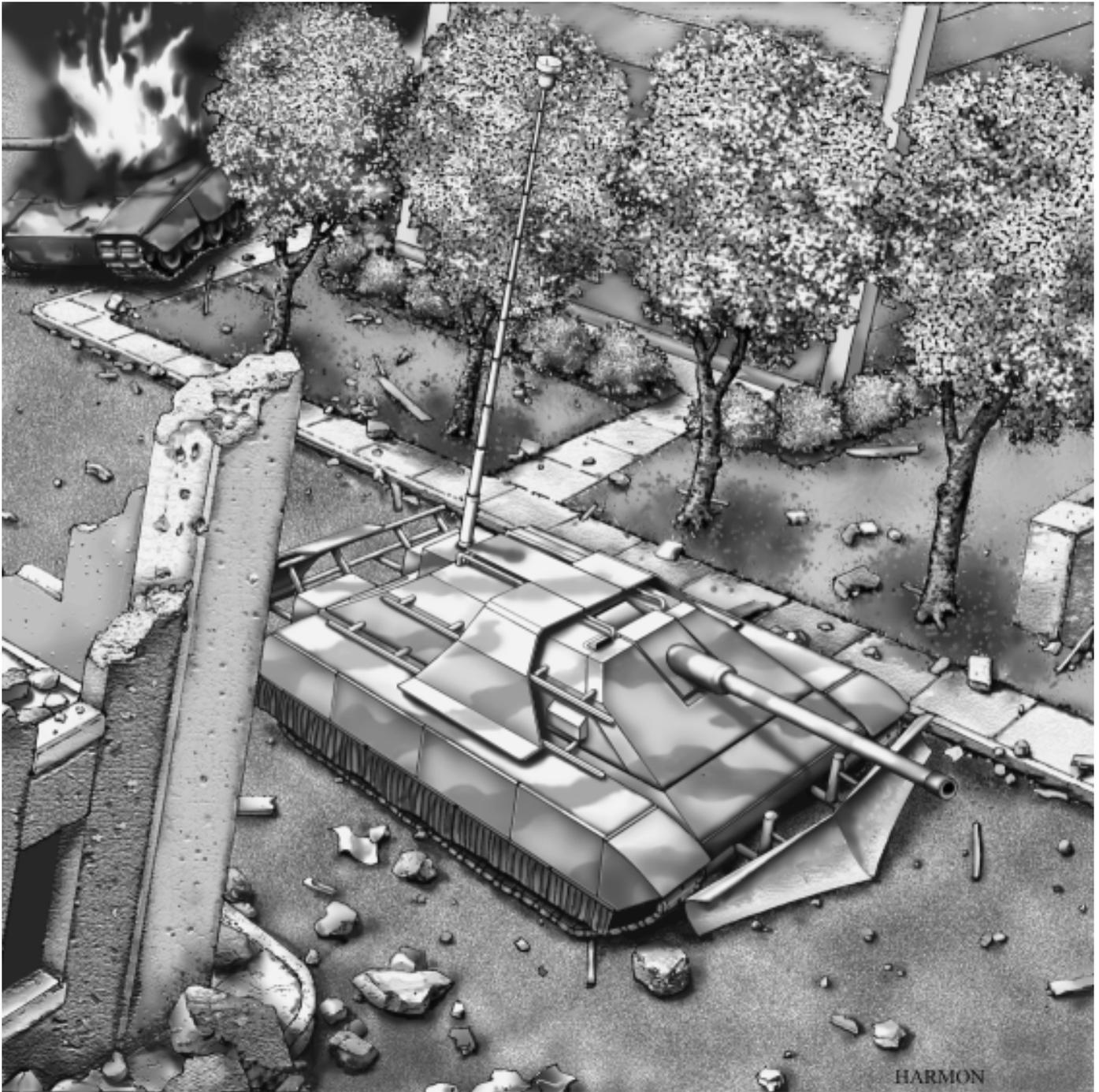
If the tank is now endangered by the antitank guided missile, firing beyond visual ranges without signatures, then the tank must adapt to regain the edge. The critics of the tank are partially right: traditional tankers who do not want to adapt to the modern battlefield are making the tank obsolete, so we must change

the tank paradigm or else it will be changed for us by our misinformed detractors.

The world is rapidly urbanizing; people cause wars, and people live in cities. Tanks will not only be required to lead stampedes in open rural desert areas, à la Desert Storm, to defeat other tank armies in third-generation maneuver wars, but they must fight in closed terrain and assist in stability operations in defensive posture situations like Bosnia and South Lebanon. Tanks must lead the way into the cities, but avoid a replay of fighting infantry-pure, as in Somalia, or tank-pure, as the Russians did in Chechnya. Tanks will be vital to withstand enemy fires and lead assaults by *shock action*. Supporting the tank will be shock infantry in their own armored personnel carriers; some with a large-caliber, fire-support cannon to blast buildings/bunkers, others with a telescoping boom ladder with a capsule to take fire teams to the rooftops or selected windows or floors by mouseholing, instead of the predictable helicopter rooftop assaults. We'll need other vehicles with fire fighting modules or trailers to put out building fires before the city we are trying to save burns down. If tanks cannot swim, at least the APCs should be capable of this without preparation in order to secure river crossings for combat engineers to bridge. However, once the area is secured, maintaining control of urban areas will require the defensive use of tanks.

Some of the best ideas to defeat precision guided munitions/missiles come from the Russians — I suggest reading the recent article in *Military Parade* magazine at the internet address: <http://www.milparade.ru/19/102-105.htm> and especially the schematic at <http://www.milparade.ru/19/105-f.gif>.

The following are descriptions of devices the future tank will need to prevail in the city fight. When the future tank ventures into the open, the fight will often be beyond visual range — missile versus missile. This tank must be air-droppable, so it can be deployed along with airborne forces from the drop zone. America is a strategic *air power*, as England was once a sea power. Our security



interests require significant forces that can move decisively within hours — not days, weeks, or months.

The future tank crew must fight laying down so the entire vehicle can be scaled down to a size no larger than a HMMWV. This is a modern equivalent of the “belly flopper” concept tried in the 1930s with the low-tech automotive technology then available. It didn’t work, but it did give birth to the incredibly successful Jeep and is on display in the National Infantry Museum at Fort Benning, Georgia. The future tank must be less than the height of a standing man

because height is the chief visual giveaway on the battlefield.

The future tank should be armed with a large-caliber cannon for direct-fire engagement of other tanks, as well as a means to reduce enemy strongpoints in the attack. The tank commander should still be able to look out from the highest spot and command his tank.

Working along with the future tank’s small size is that its power plant and tracks are silenced to evade enemy detection, as German Army M113s have been modified. The engine has its exhaust routed and cooled to preclude de-

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Conceptual drawing by *ARMOR* artist Jody Harmon illustrates some features of a future tank favored by the author.

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tection of its infrared signature. A heat-reflective tarp can be rapidly pulled over the top of the tank to hide it from view and detection. A dust skirt could prevent dust from spewing out the rear as the tank travels across dry ground. Camouflage strips are integral to the tank to break up its outline and blend into sur-

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rounding vegetation. Auxiliary power units (APUs) must be organic to the tank so it can operate its FLIR and image intensifiers, etc., without having to turn the main engine on.

Stealth must be valued within the Armor community. The days of brazenly operating in the open, based on the belief that Chobham armor makes the tank invincible, are over. It doesn't work at NTC Fort Irwin, and it certainly doesn't work anymore in Southern Lebanon, even with the superbly armored Merkava MBT. The Armor community must embrace stealth in design, tactics, and procedures, or they will by inflexibility doom the tank in the U.S. to obsolescence while other countries adapt their AFVs and make them work on the 21st century battlefield. What would Generals Abrams and Patton be advocating today?

Every tank should have a dozer blade to dig its own defilade fighting positions and clear barricades and obstacles. We should not have to wait for a separate unit to do this for us. Just as the individual soldier has an e-tool to scrape out a depression and then a fighting hole from a temporary stop position, the future tank must be able to entrench itself quickly to withstand enemy attacks.

One writer in a 1972 issue of *Infantry* magazine, reacting to the mines encountered in Vietnam, noted that the future armored personnel carrier should have its tracks outside the vehicle hull, not underneath, so mines explode away from the body. We should do this on the future tank as well as mold the hull in a V shape, as the South African Defense Forces do with their mine resistant vehicles, to create a very hard, sturdy, mine-resistant tank. Armored vehicles will be key in keeping supply and communications roads open into cities during conflict by warring sides.

Trying to stop bullets at the chest with flak jackets is too late, and so is trying to stop ATGMs at the tank hull. What is needed is a moving shield that can position itself to meet an incoming missile threat and pre-detonate the warhead a safe distance away from the tank. That front shield should be the dozer blade. A shield on the turret could prevent destruction by top-attack missiles like our own Javelin, TOW IIB, and the Swedish Bofors BILL. A shield on the rear, and on each side, covers the rest of the tank. These shields are controlled by computer to move into position and swat incoming ATGMs and RPGs, just as they impact, so their warheads do not impact the tank itself. These stand-off shields would also

protect against road-side bombs similar to those being used by Hezbollah against IDF armored vehicles keeping supply lines open to their bases in southern Lebanon.

The IDF tankers do not know they are under attack until the second-generation Russian ATGMs hit them, thus they are not able to dodge the missiles. What is needed is a very low power electronic umbrella that can warn the tank that missiles are flying towards it. The device can alert the crew to move the tank as it launches smoke grenades and decoys to foil the aim of the ATGM firer and fool the missile.

If the tank is static with the engine off, the shields should be able to move to cover the tank and swat the missiles, sacrificing themselves to save the tank and crew. The shields themselves must be easily replaceable in the field.

Like the superb Merkava, the tank must have space in its rear to carry some escort infantry, supplies, extra ammunition, or a vertical launch missile module, the latter being lowered into place by a small crane organic to the tank like the HMMWV LOSAT system has. The vertical missile tubes would be armed with fire-and-forget ATGMs like the Javelin or the Enhanced Fiber Optic Guided Missiles (EFOGM) for extended range targets.

All fuel for the tank should be outside the hull at the rear of the vehicle, like the M113A3, to prevent a fire if the vehicle is hit.

The IDF pioneered use of the Unmanned Aerial Vehicle (UAV) as a reconnaissance tool. However, it's been overused and, not unlike our use of helicopters in the Vietnam War, has become an obvious signal to the enemy that we intend to fight soon in the area where the UAV flies. The failed September 5 IDF Flotilla 13 naval commando raid, where 12 men were killed, has been directly attributed to UAVs overflying the target area and alerting the enemy to prepare an ambush. Situational awareness must not be a two-way street — we should see the enemy, and he must be in the dark.

One way we could do this is by employing a fiber-optic periscope from the tank itself, extending up to 30 feet high to spot the enemy with sensors and visual images *before* they can fire ATGMs. Tanks can kill the enemy first with their own or trailer-mounted anti-personnel EFOGMs. With a mobile observation tower that retracts like a submarine peri-

scope, the tank can stay hidden in the terrain.

The next step might be to have a helium balloon that can be inflated and unreeled aloft from the tank periscope to an even greater height than the 30-foot pole, say 100-200 feet — a tethered UAV — that stays over friendly territory so the enemy is not alerted to our reconnaissance efforts, yet can see for miles over the next hill. This would be a high-technology version of the observation balloon used so effectively in WWI to adjust artillery fire into the trenches. With such a capability built into the future tank, armored crews can call for supporting arms or use their own beyond-visual-range weapons to silence the signature-less ATGM threat.

One thing we might do to help fix the situation in South Lebanon would be to loan some M1A2 Abrams MBTs to the IDF to give them time to redress the Merkava II's armor problems. This will also give us technical feedback on how our tanks fare against the latest ATGMs.

We could also loan the IDF some HMMWV-mounted EFOGM firing units so they can use them in concert with their UAVs to suppress Hezbollah ATGM firing positions.

Ultimately, we should develop a Mobil-Trac trailer with wheels-tracks (the bed trailer being used for the U.S. Army's Explosive Stand-off Minefield Breacher-ESMB-system) with vertical launch EFOGM missiles and a telescoping periscope or tethered observation balloon with fiber optic links to the tank towing it. This would enable the IDF crews to see Hezbollah terrorists first without having to overfly a UAV.

We must also develop, as soon as possible, an anti-personnel EFOGM that uses fuel-air explosives technology to clear out enemy infantry firing signature-less ATGMs. This warhead must be able to penetrate bunkers, buildings and fighting positions with overhead cover.

We are kidding ourselves if we think we can go cheap and fight with only light forces on foot supported by aircraft. If we want to fight our enemies in an even strength, or even from numerical inferiority, we can give up on the armored vehicle and suffer the consequences. We do not have, in a 10-division Army, the option of trading casualty for casualty with a Third World country

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in a foreign war. The armored vehicle is a tool that a professional Army can have and more effectively employ than a rag-tag guerrilla force like Hezbollah can. This advantage must not be squandered due to traditional inflexibility, employing excuses that the tank is not suited for the tasks asked of it whenever it suffers setbacks, and falling back until the tank is only useful for ego-gratifying tank-on-tank duels in the open. Nor should the tank be abandoned by *avant-garde* iconoclasm and nonchalance that we are somehow “above” having to use extreme measures to fight battles today. War is often an all-out, extreme activity — a struggle — not to be taken lightly. This struggle does not just take place during the actual fighting, but before — in the debates over force structure design, training, and equipping our forces. Now

is the time to win on the next battlefield by seeing it as *clearly* as possible and preparing for it, not what we wish it to be, but what it already is and will be.

### Sources:

Ed Blanche, “Hezbollah find chink in IDF’s Merkava armour,” *Jane’s Defence Weekly*, 29 Oct 97, p. 17.

Steve Rodan, “Israelis eye more Merkava armor,” *Defense News*, 3-9 Nov 97, p. 8.

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*Mike Sparks is the director of the non-profit military reform think-tank, the 1st Tactical Studies Group (Airborne), which has two web sites at <http://www.geocities.com/Pentagon/5265/> and <http://www.geocities.com/Pentagon/7963/>. Improvements to U.S. Army*

*tactics, techniques, and procedures and equipment are given through official channels at no charge. Suggestions adopted include the wire-cutting feature on the M9 bayonet, all terrain bikes/carts, and the new tripod-carrying modification to the medium machine gun spare barrel bag. A former Marine officer and enlisted man, he is now in a Special Forces U.S. Army National Guard unit. A graduate of MC Basic/AIT, PLC OCS, Officer Basic, Infantry Officer Course, Army Airborne, Combat Life Saver, and IDF parachute school, he holds a Bachelor of Science degree in history/education from Liberty University. His works have been published in ARMOR, Infantry, Special Warfare, Army Logistician, Aviation Digest, MC Gazette, Naval Institute Proceedings, Behind the Lines, and the Fort Bragg Post and Fort Benning Bayonet.*