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Daesh/IS Armored Vehicle Borne Improvised Explosive Devices (AVBIEDs): Insurgent Use and Terrorism Potentials

This essay in the TRENDS terrorism futures series focuses on advanced threats related to vehicle borne improvised explosive devices (VBIEDs). It provides a threat typology of these devices with their evolution into the armored (AVBIED) variant that has now been fielded by Daesh/IS in both Iraq and Syria. A short overview of such insurgent use will be provided as well as a brief discussion of the terrorism potentials of such use if directed against the UAE, Europe, or the United States.

VBIED Threat Typology

Vehicle borne improvised explosive devices (VBIEDs), or simply vehicle bombs, have existed since the September 1920 deployment of ‘Buda’s Wagon’—an actual horse drawn wagon filled with explosives and scrap metal—at Wall and Broad streets in downtown Manhattan by the anarchist Mario Buda. The attack left 40 dead and over 200 injured and, at the time, prompted a national emergency in the US.[1]

This iteration of these weapons—dominated by car, van, and truck platforms—can be considered Type 1 devices in the sense that they represent both a *static* and *unarmored* form of VBIED. Not normally associated with suicide (or martyrdom) operations, because the driver does not have to remain with the vehicle upon detonation, these devices have been used extensively throughout the world, especially in the West. One concentration of such car bombings took place in both Northern Ireland and in England from the 1970s through the 1990s. They were carried out by the Irish Republican Army (IRA) in coordination with other forms of attacks utilizing thrown and emplaced bombs, improvised mortars, incendiaries, and small arms. In the United States, the first World Trade Towers Bombing in 1993 and the Oklahoma City Bombing that took place a few years later are additional examples of the use of Type 1 VBIEDs. Multiple devices (e.g., secondary devices) are

typically utilized in a time delay mode which seeks to inflict casualties to responding forces by detonating in likely command post and triage areas adjacent to the initial bombing or along expected avenues of approach for emergency vehicles.

The next iteration of vehicular bombs—their Type 2 form—is derived from the *mobile* variant of these *unarmored* devices. Their initial use by Shia militias and later Hezbollah became publicized during the 1982 Israeli invasion of Southern Lebanon and ongoing Israeli operations through 1985 as well as against US and French troops in 1983. VBIEDs were driven into the middle of Israeli military convoys and then detonated—a major concern of US and allied forces in Iraq twenty years later when the initial insurgency broke out against the Multinational Force (MNF) led by the U.S. Type 2 VBIEDs were also utilized against high value targets during the Lebanon conflict when one such device was deployed against the US Embassy in Beirut in April 1983, damaging the embassy building and killing 63 personnel, and another was utilized in the October 1983 against the Marine Barracks which leveled the building and killed 241 US servicemen.[2]

An even more sophisticated VBIED employment incident took place in Grozny, Chechnya in December 2002, utilizing two vehicles working together in tandem. In this incident, perpetrated by Riyadus-Salikhin and directed against the Chechen state Headquarters, two vehicles—one purported to be driven by a 17-year old boy and the other driven by his father and 15-year old sister—were utilized sequentially, with the first running down the perimeter fences and the second one carrying the main explosive charge. The detonating 2nd VBIED destroyed the 4-story building and caused 72 deaths and over 200 injuries.[3] This operation, masterminded by Shamil Basayev—the infamous Islamist warlord and terrorist responsible for the 2004 Beslan school massacre—may very well be considered an early firebreak TTP (Tactics, Techniques, and Procedures) that later groups would conceptually draw upon for their own VBIED attacks against heavily fortified facilities.[4]



Chechen Government Headquarters Suicide Bombing, December 2002. Frame of the Attack from a Propaganda Video. Riyadus-Salikhin Reconnaissance and Sabotage Brigade Social Media [For Public Distribution]

The newest, or Type 3, VBIED iteration represents an advancement to the Type 2 form in that the device is now not only *mobile* but also *armored* in order to increase its survival probability of reaching the intended target. Terms for this armor application includes ‘hillbilly’ and ‘Mad Max’ armor as well as the designation ‘heavy VBIED.’[5] These armored suicide bombing vehicles can be utilized individually or in groups against secure compounds and high value infrastructure and are far less vulnerable to defending fire than the earlier unarmored Type 2 variant. Rather than simply a projected evolutionary form of VBIED, these devices have now become a reality in insurgent operational environments in the Middle East.

Insurgency Use

The use of AVBIEDs—and improvised armor placed on cars, trucks, and construction equipment for armored fighting vehicle (AFV) purposes in general—in Iraq and Syria by Daesh/IS has been discussed in quite a few articles and news reports, beginning in late 2013.[6] These vehicles run the gamut from civilian vehicles and commercial trucks through bulldozers and dump trucks into actual military vehicles such as captured armored HMMWVs (High Mobility Multipurpose Wheeled Vehicles)[7] and M113 APCs (Armored Personnel Carriers).[8]



Daesh/IS AVBIED on Al Hawl Front, Northeastern Syria. Captured by Kurdish Yekîneyên Parastina Gel (YPG), December 2015 Kurdish Social Media [For Public Distribution]



Explosives in the Bed of Daesh/IS AVBIED on Al Hawl Front, Northeastern Syria. Captured by Kurdish Yekîneyên Parastina Gel (YPG), December 2015 Kurdish Social Media [For Public Distribution]

The Daesh/IS has been utilizing AVBIEDs as a substitute for a lack of heavy artillery units and has directed their use against garrisoned bases and towns in Iraq and Syria during breaching assaults into them. Over the course of the last few years, AVBIED use has evolved to the point where they have not only been used individually and in small groups but *en masse*, with thirty such vehicles utilized during the capture of the Iraqi city of Ramadi in May 2015:

In the first wave, the jihadis packed a bulldozer with explosives, which then successfully obliterated a security perimeter around an Iraqi government compound. Immediately after, about 30 vehicles flooded into the then-contested city, setting off another series of massive explosions, according to reports.

Ten of the thirty car bombs detonated resulted in such massive explosions that they packed enough comparable firepower to the 1995 Oklahoma City truck bomb, ABC News reports.[9]

This refined TTP—reminiscent of the earlier Riyadus-Salikhin attack in Grozny—utilized an adhoc collection of AVBIEDs including an armored bulldozer, at least one M113 APC, a number of armored HMMWVs, as well as vehicles retrofitted with improvised armor appliques.[10] The attack resulted in

entire blocks of Ramadi being obliterated and, ultimately, the complete route of the defending Iraqi troops from the city.



Armored HMMWV with Welded Ram/Plating and Rear Plating Used as VBIED. Utilized Against Shia Military Base in Western Iraq in October 2015 Islamic State Social Media [For Public Distribution][11]

These 'Franken-trucks,' as some have labeled them, may even be getting more potentially bizarre and high tech.[12] The capture of the recent Daesh/IS "jihadi university video," which contains information on a new driverless vehicle capability, may well represent another evolving variant of future AVBIED use. As an outcome of this new capability, a suicide (e.g. martyrdom) driver is no longer required to drive the vehicle into the intended target. Rather, a remote controlled steering, accelerating, and braking system is utilized along with a mannequin rigged with thermal output capability to mimic the heat signature given off by a human driver.[13] The intent here is to 'spoof' security service use of standoff thermal sensing equipment—that is, to make it register that a human being is driving the vehicle—at key avenues of approach and facility access control check points.

Terrorism Potentials

To date, concerns in the UAE, Europe, and the United States have focused on unarmored VBIEDs. While an ongoing and known threat capability exists concerning static car and truck bombs deployed at choke and channeling points, it is their mobile use in attacking secure governmental and other high value facilities that is of even greater concern. Various access control methods, ranging from serpentine roadways through mobile road spikes and barriers, exist that will slow down or stop a mobile VBIED attack. The follow-on response force protocol utilized in combination with such access control measures is deadly small arms fire directed at the terrorist personnel that are driving the threat vehicle as well as any supporting terrorist security forces.

The use of one or more armored VBIEDs drastically changes this defensive equation. In a minimum access control scenario, a vehicle bombing attack may be slowed down enough for friendly forces to engage the AVBIED but, given its probable ballistic protection levels, the effects of such deadly response (comprised of semi-auto pistol though light assault rifle fires) will now be negated. In such a scenario, the AVBIED has a much greater likelihood of reaching its intended detonation point than a normal VBIED would be able to achieve. In a second scenario in which high levels of access control measures exist, a singular IED carrying vehicle—even an armored one—would likely not breach the initial barrier system. In this second scenario, now, however two or more AVBIEDs can be deployed as has been witnessed in the many recent Daesh/IS AVBIED attacks in Syria and Iraq. The first AVBIED penetrates as deeply as it can into a facility's access control defense and then detonates in place in order to clear a path for the next AVBIED to reach the mission's intended detonation point.[14]

Both of the above AVBIED scenarios suggest that, at a minimum, a reevaluation of both access control protocols and responding force armaments needs to be conducted. Such a reevaluation would determine if armored vehicles—such as executive SUVs (Sport Utility Vehicles) with ballistic armor kits or more improvised systems as utilized by Daesh/IS in Iraq and Syria—should be identified as a realistic threat to a specific facility and, as a result, if environmental design and response planning considerations—including a provision for the acquisition of greater penetrative weaponry such as 7.62 mm AP (Armor Piercing) or even .50 cal M82CQ Carbine-like systems for driver compartment and engine block kill capability—should now be made.

Notes

[1] Mike Davis, *Buda's Wagon: A Brief History of the Car Bomb*. London: Verso, 2007: 1-3.

[2] For a short video chronicling this incident, see "Beirut Remembered – The Marine Barracks Terrorist Attack, 1983." *You Tube*. Posted 8 January 2014, <https://www.youtube.com/watch?v=JvFRirhbn5M>.

[3] Nick Paton Walsh, "Suicide family 'behind Grozny blast.'" *The Guardian*. 25 February 2003, <http://www.theguardian.com/world/2003/feb/26/chechnya.nickpatonwalsh>. The video of the actual attack taken by Chechen terrorists and posted online is reposted at this link: http://www.liveleak.com/view?i=669_1184182183&comments=1.

[4] Competing narratives include the fact that the terrorists were wearing uniforms, utilized military license plates, or had official passes to get into the facility. Some sort of security breakdown—including the possible bribing of gate guards—may also have taken place. See, for instance, Michael Wines, "Suicide Bombers Kill at Least 46 At Chechen Government Offices." *The New York Times*. 28 December 2002, <http://www.nytimes.com/2002/12/28/world/suicide-bombers-kill-at-least-46-at-chechen-government-offices.html> and "Moscow points to Grozny's Arab tie." *CNN*. 29 December 2002, <http://edition.cnn.com/2002/WORLD/europe/12/28/chechnya.toll/>.

[5] "'Heavy' VBIED (Vehicles w/ Armor) in Syria." *Breach Bang Clear*. 21 December 2013, <http://www.breachbangclear.com/mad-max-armor-vbied-in-syria/>.

[6] See, for instance, "Growing Jihadi Use of Improvised Armor on

VBIEDs, Technicals & Other Vehicles." *IntelCenter*. n.d., <http://intelcenter.com/reports/jihadi-improvised-armor-trend/#gs.8zITi4g> and "Weapons: Can Your Defensive Plan Counter An Armored VBIED?" *Feral Jundi*. 21 December 2013, <http://feraljundi.com/5952/weapons-can-your-defensive-plan-counter-an-armored-vbied/>.

[7] David Francis, "The Islamic State Is Using Humvees as Suicide Bombs. The U.S. Is Sending More." *Foreign Policy*. 5 June 2015, <http://foreignpolicy.com/2015/06/05/the-islamic-state-is-using-humvees-as-suicide-bombs-the-u-s-is-sending-more/>.

[8] Mike Hoffman, "ISIS Releases Photos of Militants Using U.S. M113s as VBIEDS." *DefenseTech*. 30 October 2014, <http://defensetech.org/2014/10/30/isis-releases-photos-of-militants-using-u-s-m113s-as-vbieds/>.

[9] Jordan Schactel, "ISIS Suicide Truck Bombs Took Out 'Entire City Blocks' During Ramadi Raid." *Breitbart*. 21 May 2015, <http://www.breitbart.com/national-security/2015/05/21/isis-suicide-truck-bombs-took-out-entire-city-blocks-during-ramadi-raid/>.

[10] Sean D. Naylor, "The Islamic State's Best Weapon Was Born in the USA." *Foreign Policy*. 4 June 2015, <http://foreignpolicy.com/2015/06/04/hell-on-wheels/>.

[11] For more on this incident, see Bill Gertz, "Islamic State Used Captured Humvee in Suicide Bombing." *The Washington Free Beacon*. 4 November 2015, <http://freebeacon.com/national-security/islamic-state-used-captured-humvee-in-suicide-bombing/>. The AVBIED video frame image used in this essay was independently taken from the original Islamic State social media posting and not from the Gertz article.

[12] Trent Baker, "Islamic State Suicide Bombers Unleashing 'Franken-Truck' on Kurds: 'Something Out of a Movie.'" *Breitbart*. 22 November 2015, <http://www.breitbart.com/video/2015/11/22/islamic-state-suicide-bombers-unleashing-franken-truck-on-kurds-something-out-of-a-movie/>.

[13] Stuart Ramsay, "Exclusive: Inside IS Terror Weapons Lab." *Sky News*. 6 January 2016, <http://news.sky.com/story/1617197/exclusive-inside-is-terror-weapons-lab>.

[14] Road cratering issues for second vehicle follow-on exist but can be mitigated via TTP and technology use protocols.

Tags: ABVIED counter insurgency counter-terrorism explosive devices insurgency VBIED