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Islamic State Teleoperated 73mm SPG-9 Recoilless Guns (Twin Mount)

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by David A. Kuhn, Robert J. Bunker, and Alma Keshavarz

As a follow-on to the weapons identified in the [*Terrorist and Insurgent Teleoperated Sniper Rifles and Machine Guns*](#) (Foreign Military Studies Office; FMSO, August 2016) publication, a video (in Arabic) of Islamic State teleoperated recoilless guns (twin mount) has appeared on multiple sites, including a Turkish blog site on 27 March 2017 as well as the *Ah-le Sonat-e Iran va Siasat (Sunni News in Iran and Politics)* site on 3 April 2017. The latter website reports on Sunni Muslims in Iran; specifically mentioning Baluchistan province, Turkmen province, Khuzestan province, and Kurdish regions.



Islamic State Fighter Loading PG-9 Round into one of two Recoilless Guns
(Original Video Source: Islamic State Social Media)



PG-9V HEAT-FS with Launch Cartridge Locked onto Rocket Motor



Sony PSP MP5 Game Player Interface
(Original Video Source: Islamic State Social Media)

The 1:29 minute video—with background Arabic chants—shows an Islamic state fighter loading an anti-tank rocket into a recoilless gun mounted on a tripod with a modified mount and then remotely targeting and firing upon two separate targets by means of a Sony PSP MP5 game player interface. An Iraqi casualty is evident who is being evacuated by fellow soldiers. A second round is then loaded and fired—striking a second unidentified target with the video then ending. The video can be viewed at:

<http://www.asasnews.com/categories/پیوت-اب-لمح/ویدیو.html> and
<http://www.mepanews.com/analiz/4908-musul-da-son-perde-ve-isid-in-sofistike-silahlari.html>.

An analysis of the video prepared for this note has identified the weapon fired within it as a 73mm SPG-9 Recoilless gun. The SPG-9 Kopye (Spear) is a Soviet era weapon design that, while placed into service in 1962, has been in continuous service with various forces throughout the world. It differs from the recoilless rifles in the U.S., as it is a smooth-bore weapon. It also differs in performance, in that it uses rocket propulsion to carry the warhead to target as opposed to redirected gas within the weapon. There are more than fifteen varieties of ammunition available for the SPG-9, with the most common ammunition being the PG-9 HEAT-FS (High

Explosive Anti-Tank – Fin-Stabilized). The SPG-9 using this basic round has an effective range of 800 meters and a maximum range of 1,300 meters (1,422-yds). Certain HE anti-personnel ammunition, such as the OG-9BG1 FRAG-HE (Fragmentation-High Explosive), have a maximum range of 6,500 meters (4.03-miles) when used with the SPG-9. The caliber and the ammunition of the SPG-9 is very similar to the 2A28 Recoilless Gun that was used as the primary weapon on the Russian BMP-1 and the BMD-1 IFV (Infantry Fighting Vehicle) for many years throughout the Soviet Union and all of the Warsaw Pact countries. It is currently in production with several European arms manufacturers. While the SPG-9 is still in active service in a number of countries, it has become increasingly favored by terrorists due to its light weight, range, and availability. It is also capable of delivering a substantial punch downrange. The standard PG-9V round (believed to be the round used with the dual launcher) carries a shaped charge warhead that is designed to penetrate 300mm of armor plate. The most common high-explosive warhead filling is a European composition of TNT (2,4,6-Trinitrotoluene), which appears to be evident here by the dark smoke rising from the impact site. The (launch-ready) PG-9V round shown earlier contains the launch booster cartridge that is locked onto the main rocket with warhead. This launch cartridge is sealed in a separate cardboard packing container until it is ready to be attached to the rocket. The launch cartridge will provide initial propulsion to the round out to approximately 20-meters; where, at that point, the main rocket motor ignites in a seamless sequence and accelerates the round to target.

The tripod mount supporting the two launchers is one of two available mounts for this weapon; a light wheeled mount being the other. It is important to note that the military production mount for the SPG-9 is designed for a single weapon only. The twin mount shown in the video has been custom fabricated to hold two weapons. Additionally, the breech block on the SPG-9 normally opens to the gunner's left. This is consistent with the gun mounted on the port side. The starboard gun, however, has been configured so that its breech block opens to the gunner's right. It appears that they have rigged up wired remote servos for the traverse, elevation, and trigger functions. They also have a remote camera focused in on the sight reticle of one or both of the guns. The functional down range resolution using this camera cannot be determined by the brief sight picture visible in the video. The

next logical step in a design such as this would be to move to a wireless setup. This video may be showing the potential of the current setup through a field test in an urban setting.

The SPG-9 twin gun system in this video is set up in an apartment overlooking part of the city. There is a separate zoom focused video camera located at some distance to the right of the weapon system, possibly in another apartment. The actual range from the weapon to the target area cannot be determined with the evidence currently available. The SPG-9 is a very accurate recoilless gun. However, the terrorists' targeting intentions here are not clear. The only military target downrange appears to be a RFAS BMP-1 IFV. The upper hull and sponsons of the BMP are primarily all that are visible at the recorded lens angle. This vehicle (BMP), still, seems to have significant upper turret damage and may not be operational. The aft (top deck) crew hatches are also propped in the open position.

The PG-9 ammunition that is being loaded into the weapon in the video (Photograph No. 5) is devoid of all markings. RFAS, Bulgarian, and similar ammunition of this type normally have a considerable number of data markings both on the warhead and on the rocket motor, throughout the circumference, for the full length of the round. These rounds appear to have had their markings removed by either chemical solvents or repainting. The color of the round being loaded is slightly lighter than that normally observed on standard factory finishes. During review of the individual video frames, paint overspray was detected on an area of the round being loaded into the port tube. This overspray occurs on the raised (gold color) bore band located approximately midway on the warhead (Refer to Photograph 5A). This is something that would never be present on a defense produced, factory ready round. Their reasons for obliterating the ammunitions markings here are very limited. Whether these rounds were repainted whole or in part, someone went to considerable trouble to ensure that their origin could not be determined through the video data. This raises the possibility that these individuals may be protecting their ordinance source and/ or supplier.

Weapon Firing and Downrange Impact

The first round appears to have been fired from the port mounted gun. This round was captured in flight in Photograph No. 1. The capture point of the rocket in flight compared with the estimated frame time to impact is consistent with the 435-meters/ sec. (1,427.1-ft./ sec.) speed of the PG-9 ammunition that appears to have been loaded. Photograph No. 2 shows the point of impact and detonation occurring on the first floor of a multi-story building.



SPG-9 LAUNCH, PORT TUBE – ROCKET CAPTURED IN FLIGHT, PG-9V HEAT-FS
(Original Video Source: Islamic State Social Media)



SPG-9 LAUNCH, PORT TUBE – DETONATION, IMPACT POINT No. 1
(Original Video Source: Islamic State Social Media)

The second round fired from the launch point detonated against an unknown solid object approximately 8-feet above ground level (Photograph No. 3). Photograph No. 3 shows the time and point of detonation. Analysis of the video indicates that a motor vehicle appearing to be a passenger van, copper in color, had backed in to the area an estimated ten feet ahead of the point of detonation just prior to the event. This van, however, could not have been the target, as frame rate analysis indicates that the No. 2 rocket was already in flight before the van could have been visible to the gunners. Photograph No. 4 shows the full plume of smoke following the strike.



2nd SPG-9 LAUNCH, POINT OF DETONATION – Vehicle Positions
(Original Video Source: Islamic State Social Media)



2nd SPG LAUNCH, SMOME IN AREA FOLLOWING DETONATION
(Original Video Source: Islamic State Social Media)

The unidentified object struck by the No. 2 rocket was solid and effectively shielded the vehicle from the directed blast; and it was confirmed that the vehicle pulled away immediately, appearing to be intact. The smoke covering the area in Photograph No. 4 appears to be from the warhead detonation only. It is unclear whether the gunners had specific targets in mind prior to both launches.

With respect to this weapon system, it is also important to note that certain protocols would have to have been completed by the terrorists to ensure that both weapons were correctly sighted. Those protocols will not be addressed here due to security reasons. Analysis of the downrange target area indicates that the impact point distance between the first round and second round was 29.5-feet.



SPG-9 SYSTEM – LOADING PG-9 ROUND INTO PORT TUBE
(Original Video Source: Islamic State Social Media)

It would be easy to assume that the threat from a weapon system such as this is somewhat limited, nonetheless, it is important to note that continual ammunition upgrades have not only kept this weapon on the battlefield, but also in new, current production with several manufacturers. Additionally important, there are currently two (new production) thermobaric rounds available for the 73mm SPG-9. Both of the thermobaric rounds available for this weapon, however, are notably different than the most tactical thermobaric munitions in that they have a significant fragmentation component built in by design.

The video that is the subject of this analysis has been carefully examined using a variety of tools to both conduct the analysis and to determine its authenticity. Apparently, the short video is a component of a much longer +30:00 minute video that was released by mid-March 2017. In February 2017, an Islamic State affiliate website posted two stills from a video showing an attack in Mosul. The March 2017 propaganda video used the same stills, but featured the SPG-9 as being used to attack the area. The video also showcases various forms of Islamic State technology and weaponry—including weaponized drones, armored VBIEDs, and VBIEDs being coordinated by ISR (Intelligence, Surveillance, and Reconnaissance) drones—utilized in Mosul, Iraq. The *Foundation for the Defense of Democracy (FFD's) Long War Journal* highlighted the longer video on 18 March 2017 at: <http://www.longwarjournal.org/archives/2017/03/islamic-state-uses-improvised-weapons-of-war-in-mosul-iraq.php> but did not provide a link or embed the longer video itself in that publication.