

Proving grounds: Assessing Iranian weapon performance in Syria and Yemen

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In the face of the United Nations arms embargo imposed on Iran, the country appears to be developing impressive indigenous missile capabilities. However, as *Jeremy Binnie* reports, Tehran's claimed capabilities may be somewhat different from the reality

Iran has made numerous seemingly incredible claims about the weapon systems it has developed during the past decade, including ever-lengthening missile ranges and stealthy unmanned aerial vehicles (UAVs) that can launch precision weapons. Until recently there was little open-source information to enable impartial assessment of the credibility of these claims beyond what is reported in the Iranian media, which is typically short on detail and long on hype.



The small air intake version of the Saeqeh is seen with four munitions and the panel over the top of its nose removed. The weapons may have been attached for display purposes. (Sepah News)

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That situation is now changing as some of Iran's latest weapon systems have been used, often covertly, in support of its allies in Syria and Yemen in the past two years. This has provided insights into how these weapons work and perform in operational conditions. The resulting picture is in many ways one of remarkable progress, given the Islamic Republic's international isolation and limited defence-industrial base. Nevertheless, Iranian weapons often fall short, literally and metaphorically.

Zolfaghar vengeance

The Zolfaghar tactical ballistic missile is the only missile that the Iranian military has explicitly admitted to having used in a foreign conflict. When it was unveiled in September 2016 Iranian officials claimed it had a range of 700 km. This was difficult to believe given that it looked like the newest member of the Fateh-110 family of solid-fuel missiles, the first of which was unveiled 15 years earlier and said to have a range of 200 km.

The Zolfaghar's range theoretically provides Iran with the ability to threaten targets in the Saudi capital Riyadh from launch positions in the coastal province of Bushehr or to hit strategic assets such as ballistic missile defences and airbases on the Arabian side of the Gulf if launched from deep inside Iranian territory.

The claimed range was largely proved when the Islamic Revolution Guards Corp (IRGC) said it had avenged terrorist attacks in Tehran by launching Zolfaghars from western Iran at Islamic State targets in eastern Syria on the night of 18–19 June 2017. It released footage showing six missiles being launched from locations that matched those just north of the city of Kermanshah and landing 600 km away in the Syrian city of Mayadin, the impacts being filmed by aerial surveillance platforms.

It was revealed how this range increase was at least partly achieved when the IRGC displayed a Zolfaghar at Tehran's Amirkabir University of Technology in December 2017. Close-up photographs showed that much of its body had a ribbed texture, indicating it was made using filament-wound fibre to reduce its weight compared with earlier models, which were constructed from metal.

Although the Zolfaghar's range was proved to be impressive, its reliability and accuracy were questioned. Israeli media reported that seven missiles were launched, but three came down in Iraq and only one of the four that reached Syria hit its intended target. IRGC Aerospace Force Commander Brigadier General Amir Ali Hajizadeh refuted this assertion, arguing that the Zolfaghar's rocket motor detaches about 100 km from the target and falls to the ground, leaving the warhead section to continue to the target. He said the experts behind the reports had mistaken the expended motors for failed missiles.

Despite Brig Gen Hajizadeh suggesting the footage released by the IRGC confirmed that all the missiles hit their targets, this was not the case. It showed from multiple angles just two locations in Mayadin being hit. Given that six missiles were seen being set up in Kermanshah, this suggested four failed to reach their targets: a poor performance for any weapon system.

It also appeared that the two missiles that reached Mayadin landed in open areas. Satellite imagery from 31 July 2017 shows a 10 m crater in the ground next to a partially collapsed building at one of the locations. Although it is possible the missiles hit mobile assets parked at those locations, it seems unlikely they would have been launched at targets that could have moved during their flight.

Covert Qiams

Tehran denies that it is arming the Yemeni rebel group Ansar Allah (commonly known as the Houthis), however, there is growing evidence that it has shipped significant quantities of weapons to the group in contravention of the United Nations (UN) arms embargos imposed on Iran (UN Security Resolution 2231) and Yemen (Resolution 2140). The most high profile of these weapons are extended-range liquid-fuel ballistic missiles developed from the 'Scud' family.

Ansar Allah prompted speculation that it had received Qiam missiles from Iran after it began to launch ballistic missiles that it referred to as the Burkan-2H deep into Saudi Arabia. It claimed the first such attack on 22 July 2017, when it said it had hit the Yanbu oil refinery, 880 km from the Yemeni border. Saudi Arabia belatedly confirmed that launch and has subsequently reported another 12 long-range missile attacks from Yemen.

Unveiled in 2010, the Qiam-1 is a significantly improved version of the 'Scud', the most notable visual difference being that it has no protruding stabilisation fins. It also has a separating re-entry vehicle that carries its warhead to its target. Iran has claimed it has a range of 800 km with a 750 kg warhead.

Tehran has denied the charges that it has supplied these missiles, arguing that Ansar Allah has modified the Russian- and North Korean-made 'Scuds' that Yemen acquired before the current conflict. However, UN experts monitoring Resolutions 2231 and 2140 have examined the remnants of the missiles that landed in Saudi Arabia and concluded they could not be modified 'Scuds'. They are made of aluminium, not steel like other 'Scuds', making them lighter and extending their range. The position of the larger oxidiser and fuel tanks has been reversed, extending their range further, thanks to the use of a new digitalised guidance system that takes up less space. They have nine external valves and no rear stabilisation fins, the Qiam being the only other 'Scud' derivative known to have these features. They also contain Iranian-made components.

The Resolution 2231 team described the Burkan-2H in its 12 June report as "consistent" with the Qiam-1. The Resolution 2140 team provided a more nuanced conclusion in its 26 January report, saying, "it is not a Qiam-1 short-range ballistic missile, but a derived lighter version, designed specifically by the manufacturers of the Qiam-1 to extend the range to over 1,000 km by reducing weight". It stated that a Patriot system had recorded the range of one of the missiles as 1,043 km, but noted that data from the multinational Shared Early Warning System put the estimated launch point one degree of longitude further north, making the range 937 km.

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