Reproduction of "Kandahar Beast" in Iran / 7 top features in "Simorgh" UAV | Tasnim reports on reverse engineering of America's most important hunting drone

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The air force of the Islamic Revolutionary Guard Corps (IRGC) reversed the bird shortly after hunting down the American RQ170 drone in 1990. Recently, important information about the models made of this drone has .been published, read Tasnim's report

Tasnim News Agency Defense Group During the recent bookings and on the occasion of the anniversary of the hunting of the American advanced RQ170 UAV by the Islamic Revolutionary Guard Corps, new details were published about the specifications of the samples made from this .drone in Iran, including achieving a flight range of 4400 km

.In this report, we will look at prototypes based on RQ170, known as control drones

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As mentioned, on December 4, 2011, the news of the most important UAV hunt in Iran quickly became one of the news bombs in all major media in the world. The news came as Iran announced its acquisition of one of the US Central Intelligence Agency's most secretive assets, ".the RQ-170 Sentinel advanced drone known as the "Kandahar Beast

(Pictures of the RQ-170 after landing (left) and on a cargo plane in transit (right

The drone was the product of the famous Lockheed Martin company, which is the manufacturer of most of the US super-sensitive equipment during the Cold War, including U-2 and SR-71 .reconnaissance and reconnaissance aircraft. A drone was spying for the United States

An image of one of the RQ-170 drones in the United States, about a year after it was looted by .Iran, which has been declassified and actually costs billions of dollars to develop

The drone was reportedly flown to Afghanistan and the Kandahar base around 2008 to be used .to spy on the region, especially Iran

Except for a few limited images and information that later turned out to be some of them very different from reality, no other information about this drone and its capabilities was published, .which in itself determined the high value of this drone

Armed forces fighters in the army and the IRGC were looking for a way to repel this drone by identifying this drone and informing it of the various operations of this drone inside the territory of the Islamic Republic of Iran. After 2 years of surveillance and operational intelligence work, the IRGC Air Force designed a joint reconnaissance and electronic warfare operation to capture the drone, which finally managed to land the drone safely on the ground in December 2011 at a .depth of 200 km inside Iran

An image of an RQ-170 UAV observer entering Iran about 2 years before its looting operation

The American RQ-170 drone had several important features that made it the most important Iranian drone hunt among the American and Israeli drones hunted by the armed forces before the Triton drone in 1398 and also one of the most important booty gained during the history of post-conflict conflict. The Second World was turning.

In fact, it was only after landing this bird that it became clear how much new technology had been used together.

Display the internal components of the American RQ-170 drone and some of its important equipment

Use of light advanced materials in the structure and body and special coating and paint on the body, highly advanced engine, elimination of temperature difference between engine exhaust gases and also prevention of steam cloud production, existence of highly advanced artificial or radar orifice radar that can be mapped accurately It detects human footprints and detects objects under most camouflage nets, a high-range 80-megapixel camera, an advanced multi-

spectrum camera that detects objects of different types and even tunnel vents, and a collection of telecommunications systems and sensors. Among the leaked equipment of this drone are .extremely valuable American ones

These cases, along with the use of the wing design, ie the removal of horizontal and vertical stabilizer surfaces separate from the fuselage, as well as the combination of the wing and .fuselage, made it one of the most advanced UAVs in the world

RQ-170 drone after transfer to a safe place in the country

Immediately after capturing the American aggressor drone, the force's specialists separated the wings of the drone and transported it from the landing area of the drone by a cargo plane to a .safe place

Following the announcement and denial by the United States, the IRGC released images of Sardar .Hajizadeh's visit to the drone, which left no doubt for foreign observers and analysts

Finally, the announcement of the US request from Iran to return the drone, which was announced by the then President Barack Obama in an official meeting in front of reporters, was a clear shot .at all the rumors spread by the media and their affiliated analysts

IRGC commanders, after fully reopening the UAV's data storage devices in 2012, announced that its reverse engineering project was underway, which was met with a negative response from foreign experts, meaning that Iran had the engineering capacity to build They did not know any .examples of this drone

The release of some of the drone's reconnaissance camera images a year after it was looted and some of its internal details, which had not previously been discussed by the Americans, showed .the serious determination of IRGC experts to defeat the American technology giant

One of the many images obtained from the internal memory of the American UAV RQ-170

Finally, in the exhibition of the achievements of the IRGC Air Force, which was visited by the General Command of the Armed Forces in May 2014, along with the American model was looted, pictures of different models of this drone made in Iran were published for the first time. At .various scales, the drone was developed and operated for research purposes

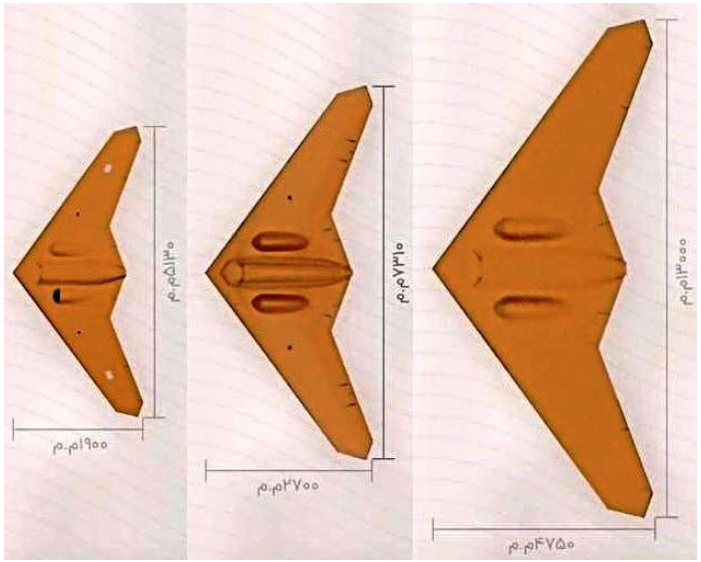
American RQ-170 drone at the 2014 exhibition

Two small-scale and full-scale samples made in Iran from the American RQ-170 drone

According to new information recently published in a short clip of the family of drones developed from RQ-170 in Iran, at least 6 types of drones have been built based on the design of RQ-170.

The first sample was made at a scale of 15% foreign sample for research and development, including construction and wiring issues and some other details.

The knowledge and experience gained from this sample led to the construction of the first combat category with a scale of 40% of the external sample of Shahnameh 141 and Shahed 161, the former with a piston internal combustion engine and the latter with a microjet engine. have been built.



Relative comparison of dimensions of different samples of control flying drones from right to left, 100%, 60% and 40%

The 40% scale means that all the dimensions of the 141 and 161 control drones are equal to 40% compared to the looted foreign sample.

Witness 161 Sample scale of 40% of jet engine in the permanent exhibition of IRGC Air Force

The IRGC first built the two drones, which were built in 2014, to complete knowledge information and master the technology in the field of flight dynamics and aircraft configuration, and then prepared them for air surveillance and reconnaissance missions as well as combat operations.

Obviously, the model is a cheap, low-cost piston engine with low flight costs, and given the advantages of the aircraft design, it actually established a new generation of drones in the IRGC Air Force.

Witness 161 with a flight duration of 2 hours at a maximum speed of 275 km / h for combat missions will be equipped with two bombs with a total mass of 50 kg.

Picture of flight tests of one of the Iranian RQ-170 models

Mass production of samples of Iranian drones based on RQ-170

An example of an Iranian RQ-170 flying drone equipped with four smart point bombs under the fuselage

Subsequently, in 2015, 60% scale drones were built based on the American RQ-170, Shahnameh 181 and 191, respectively, with piston and jet engines for the same reconnaissance, surveillance .and combat missions, respectively

Witness 191 - With a wingspan of 7.3 meters, a speed of 350 kilometers per hour and a flight .duration of 4.5 hours, it became a full-fledged operational drone for the IRGC Air Force

In combat missions, these drones can carry up to 100 kg of cargo. This model is equipped with an internal atrium that allows it to carry 2 bombs, which prevents the increase of radar reflection .by carrying a weapon outside the body

Shahed UAV 1 1191 Sample jet engine 60% scale of RQ-170s made in Iran

The most important point about the 60% scale drones of the Iranian RQ-170 family, namely witnesses 181 and 191, was the simultaneous presence of a number of them in combat .operations against ISIS in eastern Syria in October 2016

Although in the initial information of this operation, the number of drones used was mentioned as 7, but in the recently released clip about the family of flying drones, the mentioned number was mentioned as 50, which is probably related to the number of support drones, including .identification and determination of attack damage and alternative combat drones.) As well

In any case, this attack registered Iran as the holder of knowledge and technology of group drone .operations (Swarm) and the first user of this combat method in the world

Witness flight of 191 in Muharram strike operation

Release of a bomb from the inner vestibule of an Iranian flying drone during a Muharram strike operation

Of course, the combat experience of IRGC drones in the axis of resistance in the region was also helped by the design and execution of this operation, as it was announced in the TV documentary "Woman Point" in October 2016 that the Shahed-129 drone has flown more than 50,000 hours so far. An important part of it has been in operations against terrorist groups in Iraq and Syria, and according to Sardar Hajizadeh in the Soraya program after the Muharram strike operation, Shahed UAV-129 more than 800 combat operations (until the fall of 1397, when the broadcast .time This app was) had

Sadid smart bomb production line used on various drones

A few months later, in March 2016, during a specialized drone exercise called Al-Bayt al-Muqaddas-1 in the Strait of Hormuz, the IRGC Air Force again deployed 50 UAVs of various types, including 40 and 60 percent scale samples, simultaneously in a large area. Used 10 km by 10 .km

Preparation of 161 witness drones in rehearsal to Jerusalem1

Extensive use of 161 control drones in the 1397 exercise

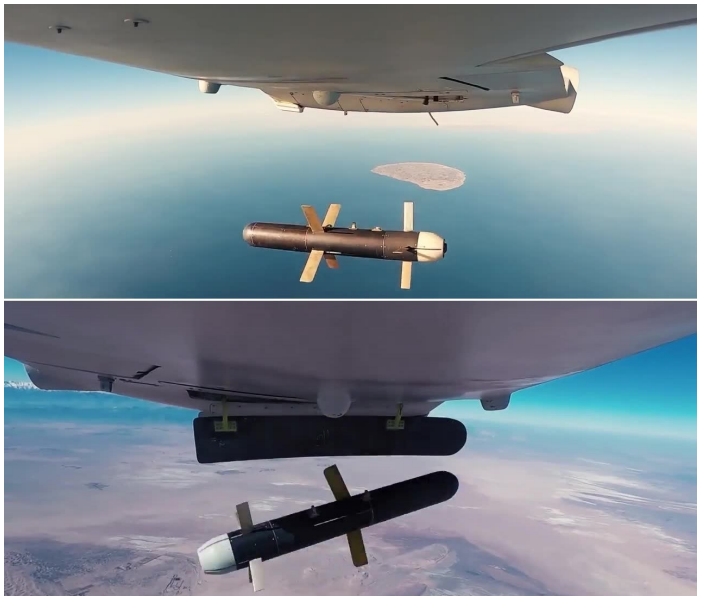
Shahed UAV flight 161 from vans; This model does not have a wheeled landing gear to save weight and reduce prices

The drones had taken off from IRGC drone bases in various provinces. This type of operation has a very high design complexity, both in terms of flight plan and timing for simultaneous presence .or the distribution of missions and targets between different drones

A picture of one of the operating rooms in a drone drill, which appears to be monitoring the flight .operations of a four-member group of control drones

Loading 2 smart bombs in the inner atrium of control drones

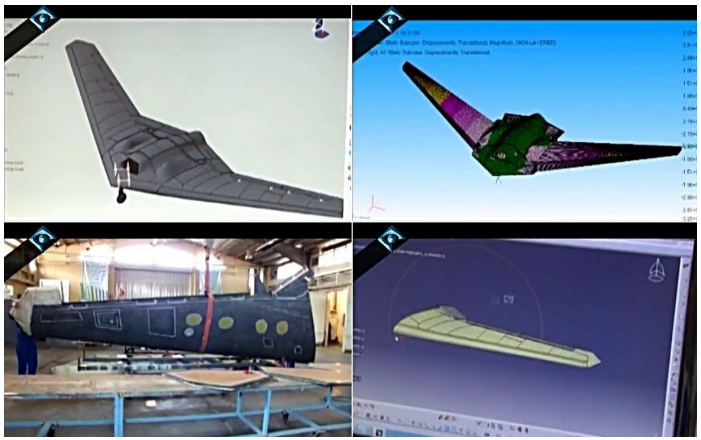
Release of smart bomb from Shahed UAV 141, which is a sample of 40% scale piston propeller engine



(Release of Smart Bomb from Control 161 (above) and Control 191 (Low

Accurate hit of a smart bomb on a specific container, which is possible due to the error of less than 2 meters of these bombs

In 1396, a full-scale sample of an Iranian flying drone called Shahed-171 or Simorgh was completed. Of course, its prototype was shown in 1393, but in the recent clip, Shahed-171 equipped with a turbofan engine with a final range of 4400 km has been introduced and the year of its completion is 1396.



Software modeling and construction of Iranian flying drone

s UAV tests with a wheeled and retractable landing gear in the fuselage'171

The mission of this drone is also to identify and monitor, and this 3070 kg drone with a flight duration of 10 hours is capable of flying up to an altitude of 36,000 feet, equivalent to nearly 11 kilometers.

.The following table shows the specifications of the three groups of US RQ-170 drones developed

مشخصات	مقیاس نسبت به RQ-170		
	40 درصد (شاهد 161)	60 درصد (شاهد 191)	100 درصد (شاهد-171)
دهانه بال (متر)	5.13	7.31	13
طول بدنه (متر)	1.9	2.7	4.75
بیشینه جرم برخاست (کیلوگرم)	170	500	3070
بیشینه سرعت (کیلومتر بر ساعت)	275	350	460
سقف پرواز (متر)	7620	7620	10970
برد نهایی (کیلومتر)	500	1500	4400
مداومت پروازی (ساعت)	2	4.5	10
میزان تسلیحات (کیلوگرم)	50 (خارج بدنه)	100 (داخل بدنه)	-
مأموریت	شناسایی، مراقبت، رزمی	شناسایی، مراقبت، رزمی	شناسایی، مراقبت

Summarizing the features of the 171 Shahed UAV, it can be considered the most significant :Iranian UAV for several reasons

First of all, in terms of range, this drone has a very long range equal to Shahed-129 and Fitras. - .The operating radius of this drone is 2200, which means that it can operate for several tens of .minutes on this range

Of course, in designing the flight path of an aircraft, some reserve fuel is usually considered for emergencies, which is the most important reason for the difference in the final range for this .drone, which is 4400 km, multiplied by the flight continuity at its speed of 4600 km

Secondly, Shahed-171 is probably the heaviest drone made in Iran. In fact, it is the only option that can compete with that fitras, which still seems unlikely to reach its maximum take-off weight of 3 tons. As a result, Shahed-171 has the potential to be used as a platform for the development .of a combat drone, especially given its appropriate body size

The third point is that Shahed UAV-171 is the first Iranian UAV with a turbofan engine. Of - course, considering that the Turbofen Leap-700 has been achieved this year, ie 1399, but the year of construction of Shahed-171 was three years ago, the IRGC has probably used another turbofan .engine in it

The fourth point is the flight ceiling above this drone, which is currently more than most Iranian - drones. In fact, except for the Karar drone, which has a flight ceiling of 4,000 feet, which is about 11 percent more than the Shahed-171, other Iranian drones are capable of flying at a lower final .altitude than it

The fifth point is the flight duration above Shahed-171, which by far has the highest flight - .duration among Iranian jet engine drones

The sixth point about this UAV is that in terms of flight speed, after Karar and Kian, Shahed-171 - .or Simorgh is a third place with a short distance from Kian

The seventh point is that Shahed-171 has very little radar reflection, both due to the material used in the fuselage and due to the appearance of the fuselage, which, like the American B-2 Sprite bomber, has no surfaces with right angles. It is officially part of the Radar Stealth UAV Club. This feature enables Shahed-171 to be successful in reconnaissance missions deep in .enemy territory

Shahed UAV-171 Full-scale sample of Iranian RQ-170s

Five types of control drones introduced in this report have been built by young IRGC specialists on one of the most advanced military and espionage drones in the world and have reached mass .production and are operationally available to the IRGC Air Force

Today, these drones have even helped the country in civilian missions such as cloud seeding, .making Iran the second largest manufacturer and operator of flying drones in the world

/ End of message