



**COUNTER IMPROVISED EXPLOSIVE DEVICES
CENTRE OF EXCELLENCE (C-IED CoE)**
CTRA. M-618 COLMENAR VIEJO - TORRELODONES, KM 14
28240 – HOYO DE MANZANARES
MADRID (SPAIN)
info@ciedcoe.org



C-IED COE Reference: S144-2020

SUBJECT: (REPORT) Threat Analysis Weaponized drone in Baghdad IRQ 23 July 2020

1. BACKGROUND

Iraqi officials online showed images of a seized unmanned aircraft system (UAS) in Baghdad IRAQ on July 23rd 2020; it was fitted with an improvised munition, and found on a building's rooftop in Jadriyah neighborhood (not far from the Green Zone & the U.S. Embassy).



2. TECHNICAL & INTELLIGENCE ANALYSIS

2.a DRONE COMPONENTS

The referred drone/UAS seems as composed by a mixture of industrial & commercial-on-the-shell parts, with resemblance to old-fashioned parts & modern components.

2.a.1 Frame

The main airframe & landing gear look like made of aluminium alloy, but it could not get identified as any kind of COTS one available for online acquisition; the folding system with locking pin looks some old-fashioned, and maybe from military design (due to the higher resistance of aluminium alloy compared with carbon fibre/glass fibre/composite).

At the same time, the arms seem to be made of carbon fibre.



2.a.2 Batteries

The battery pack is composed by several 18650-model rechargeable batteries (providing 3.7V & 1800-3600mAh each) connected in parallel & serial combination (the whole rotor system needs 12V at least to work & about 22000mAh are normally required for average functioning); that power system is embedded into an aluminum-alloy protective frame along with the radio frequency receiver, autopilot, navigation system, and so on...



2.a.3 Global Navigation Satellite System (GNSS)

The referred drone is using a Radiolink SE100 M8N GNSS module, which is capable of simultaneously receive GPS / QZSS L1 C / A, GLONASS L10F, BeiDou B1, SBAS L1 C / A: WAAS, EGNOS, MSAS positioning signals. That device uses to get combined with APM Pixhawk PX4 2.4.8 flight controller (not visible in currently available pictures of the UAS).



The lack of cameras suggests that the drone could have been designed to operate through GNSS-guidance, just dropping the munition over a pre-determined geolocation.

2.a.4 Engines & associated components

The four rotor engines of the quadcopter are identifiable as T-MOTOR P80 III 100KV (maybe 120KV version), which is attached to T-MOTOR FA folding propellers, and usually associated to a T-MOTOR Flame80A High Velocity (HV) Electronic Speed Controller (ESC).



The motor minimum specifications (for 100KV version) indicate a maximum payload of 10 Kg at least for a quadcopter design.

The homemade-written indications (white arrows) on the rotor engine are showing the direction in which the propellers must be folded.

2.b WEAPONS

2.b.1 Munition

The improvised munition is reported as 2 Kg-weighted by Iraqi officials, although it is not quite clear if the weight refers to the munition as a whole or just to the explosive charge inside it.

It consists of a composite/resin case (just shaped like a small aerial bomb) with three different portions (head, main body & tail) plus a tail fuze.



The three-fin design is quite strange, and not identifiable as any already known conventional aerial bomb. No fragmentation enhancement is reported (the low weight of the munition is not pointing at any fragmentation effect too).

The tail fuze is quite similar to an AN-M112A1 (even to AN-M100A2 or AN-M123A1 models), but not exactly identifiable as that specific model... the attachment of the fuze to the bomb body is quite rude (fixed with a single screw which is longer than necessary).

The exact model of the bomb could not get established too, so there is a possibility of being an improvised model, a training bomb or even a scaled reproduction of any historic munition...

2.b.2 Release system

The release system of the munition is not clearly visible, but an insertion pin ending in a ball-shape is attached with silicone-based adhesive to the bomb body along with a connector close to the bomb tail.



2.c RELATED CASES

2.c.1 AL-SHAYKH MOUNTAIN IN QUNEITRA SYRIA 20 SEPTEMBER 2019



FOR OFFICIAL USE ONLY

Another drone (almost identical model to the one object of this analysis) was downed in Erneh, a town of Hermon region in Northern Quneitra, near AlShaykh mountains sited southwest of Damascus, quite close to Golan Heights.

The drone is painted in Air Force Grey colour, and it is fitted with a couple of pipes containing improvised devices able to get dropped through a simple release system.

Apart from the droppable improvised munitions, the drone was reported as equipping a potential self-destruction/anti-handling charge.

The use of the UAS was attributed to pro-Iranian actors.

A similar design to that one was identified in a double BL-755 sub-munition release system was attached to a DJI Matrice octocopter, as shown during Iraqi Armed Forces training activities in February 2017. The referred weapon system was attributed to paramilitary Basiji Resistance Force (under the authority/control of Iranian Islamic Revolutionary Guard Corps IRGC), and it was based.



3. **ASSESSMENT**

- The found UAS is showing a mixture of known (commercial-off-the-shelf) & unknown (industrial factory made, even with military flavor) components.
- The estimated origin of the drone found in Baghdad is Iranian.
- The find was not made far away from U.S. Embassy inside Green Zone (less than a kilometer), and the drone is fitted with a munition evidencing an excessively threatening aspect (e.g. aerial bomb) but with a little explosive charge/potential damage → it could reinforce a hypothesis potentially pointing to some actors intending to highlight the growing threat against American interests in Iraq.
- The event is fully consistent with the increasing pressure over Iraqi authorities by Popular Mobilization Forces (PMF) aiming to end with the presence of U.S. forces in the country.

Approved on the 28th of July 2020

Jose Antonio Cruz Moro
Colonel, ESP Army
C-IED CoE Director

DISCLAIMER: *The information in this document/presentation only represents the point of view of NATO C-IED CoE about the subject according to our knowledge and expertise, and do not reflect the official policy or position of any other organization or National postures.*

REFERENCES (Open Sources)

- <https://twitter.com/SecMedCell> <https://www.facebook.com/SecMedCell>
- www.iraq-alghad.com/
- TWITTER
- SANA NEWS
- <https://www.youtube.com/watch?v=35xBCgMnfj4&feature=youtu.be>