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A Guide to Illicit Iranian Weapon Transfers

THE BAHRAIN FILE

By Tim Michetti

DECEMBER 2020



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List of Abbreviations

BFSL	Bahrain Forensic Science Laboratory
C-4	Composition 4
CAR	Conflict Armament Research
DIO	Defense Industries Organization (Iran)
DTMF	Dual-Tone Multifrequency
GPS	Global Positioning System
ICAO	International Civil Aviation Organization
IED	Improvised Explosive Device
IRGC	Islamic Revolutionary Guard Corps (Iran)
MAIED	Magnetically Attached Improvised Explosive Device
MA-RCIED	Magnetically Attached, Remote-Controlled Improvised Explosive Device
PCB	Printed Circuit Board
PIR	Passive Infrared
PKM	Pulemyot Kalashnikova Modernized
PSF	Public Security Forces (Bahrain)
PSSM	Physical Security and Stockpile Management
QC	Quality Control
RCIED	Remote-Controlled Improvised Explosive Device
SALW	Small Arms and Light Weapons

Introduction

The contents of this report are a result of field research that began in 2016—while the author was leading regional operations at Conflict Armament Research (CAR), a European Union-mandated arms monitoring organization—with the aim to identify the provenance of illicit military materiel circulating in Yemen. In 2017, the geographic scope of this inquiry broadened to encompass the Arabian Peninsula—including periphery field work in the Horn of Africa and the Levant—and culminated in late 2019 with an independent assessment, conducted by the author for the Kingdom of Bahrain, of the materiel procurement network of militants operating in Bahrain.¹

Illicit materiel documented circulating in these regions constituted distinct ecosystems whose provenance broadly reflected unique historical and geopolitical realities, including factors such as state collapse, foreign military expeditions, domestic manufacture, covert supply, or diversion from licit transfers, among others. However, patterns often emerged relating materiel *across* regional ecosystems, indicating a shared provenance. The most noticeable pattern featured in materiel recovered from non-state armed groups known to have received covert military support from Iran.

This report—structured on an investigation into the materiel procurement of militant networks operating inside Bahrain—has three key objectives.

First, it seeks to **quantify the scope and scale of materiel support from Iran to militants in Bahrain**. In order to do so, all of the conventional and unconventional materiel recovered in Bahrain from 2013 to 2018—including from interdicted maritime and overland smuggling operations—was physically inspected and subjected to a thorough weapon technical intelligence analysis.²

Second, it seeks to **serve as a guide to identify illicit conventional and unconventional materiel attributable to Iran**. The analysis and imagery featured in this report, while not exhaustive in order to maintain focus on Bahrain, form the most comprehensive resource publicly available and should serve as a useful reference.³

Lastly, it seeks to **inform and enable evidence-based analysis** on the modalities of Iran's illicit materiel transfers in the region. While the findings in this report demonstrate that Iran is one of the more active proliferators of illicit materiel, these insights also serve as a valuable tool in scrutinizing accusations of Iranian materiel support to proxies and aligned groups.

Key Findings

- Materiel recovered from militants in Bahrain is identical to materiel documented from the *Jihan 1* interdiction, a maritime smuggling operation determined by a United Nations Security Council Panel of Experts to have originated in Iran [see page 5].
- Nearly half of the assault rifles recovered in Bahrain—including a majority of Chinese-manufactured Type 56-1 rifles—featured obliterated serial numbers and factory markings, a characteristic of covertly supplied materiel [pg 6].
- A majority of Type 56-1 rifles recovered in Bahrain entered the country as a result of a maritime smuggling operation and were recovered comingled with C-4 explosive, Iranian-manufactured ammunition, and commercial electric detonators [pg 8].
- Russian-manufactured Makarov pistols—featuring obliterated markings and custom modifications—were recovered along with sanitized AK-variant assault rifles, Iranian-manufactured ammunition, and suppressors. The suppressors are visually identical to suppressors documented from the *Jihan 1* interdiction and suppressors recovered after a foiled assassination operation in Azerbaijan linked to Iran [pg 15].
- The large majority of small caliber ammunition recovered in Bahrain is manufactured by only three countries, with Iranian-manufactured ammunition representing the majority. Furthermore, 18 percent of the total sample corresponds with a unique profile of ammunition circulating in the Kingdom of Saudi Arabia, suggesting that ammunition recovered in Bahrain is either the result of illicit state transfers or accessible sources in the region [pg 21].
- All of the fragmentation grenades recovered in Bahrain are visually identical to grenades manufactured by Iran's Defense Industries Organization (DIO) and some were imprinted with an acronym representing the DIO [pg 23].
- Chemical analysis of all 275 kilograms of C-4 explosive recovered from militants in Bahrain—in original packaging, repackaged, or extracted from improvised explosive devices (IEDs)—revealed the complete absence of a physical or chemical taggant [pg 27].
- C-4 explosive in original packaging recovered in Bahrain is visually identical to Iranian-manufactured M112 C-4 and featured markings that correspond with C-4 recovered from the *Jihan 1* interdiction [pg 28].
- Remote-controlled improvised explosive devices (RCIEDs) recovered in Bahrain are either identical, or feature identical components and characteristics, to RCIEDs and unmanned aerial vehicles (UAVs) recovered from the Houthis in Yemen, as well as an Iranian-manufactured UAV intercepted over Israel [pg 36].
- RCIEDs recovered from militants in Bahrain and the Houthis in Yemen featured quality-control stickers, suggesting that they were manufactured at scale and subjected to a quality-control process [pg 48].
- Materiel recovered from militants in Bahrain and Saudi Arabia is identical, indicating that they share a common source of supply.
- Materiel recovered by Bahraini security forces from interdicted maritime and overland smuggling operations is identical to materiel recovered from militants in Bahrain, indicating that multiple smuggling operations have occurred from the same originating source.

The Physical Evidence

The foundation of this report is a technical analysis of materiel—conventional weapons, ammunition, and explosives and related materiel, as well as unconventional materiel such as RCIEDs and their constituent components—recovered from militants and terrorist organizations across the Middle East and Africa.

The core of the evidence profiled in the following pages is the result of materiel recovered by the Bahraini Public Security Forces (PSF) in the course of security operations conducted from 2013 to 2018, a period of time that witnessed the highest level of materiel recovered.⁴ When relevant, materiel documented in other regions is introduced if it corresponds with materiel in Bahrain or helps determine likely provenance.

For the purpose of analytical coherence and structure, the conventional materiel in this report is categorized as associated with either **the Iran network** or **the regional network**.⁵ While specific criteria for association with the Iran network will be established in later sections, materiel in this category can be demonstrated, to a high likelihood, to have been supplied by entities within Iran. Materiel associated with the regional network, on the other hand, corresponds with unique ecosystems of materiel circulating in the Arabian Peninsula, the Horn of Africa, or the Levant. However, materiel in this latter category cannot be demonstrated to be the result of an illicit state-backed transfer and may simply represent instances of black market procurement.

A detailed profile of the January 2013 maritime interdiction of the *Jihan 1*, a traditional maritime vessel known as a dhow, is featured at the end of this report. The materiel seized from the *Jihan 1*, and the resulting investigation by a UN Panel of Experts (hereafter referred to as a UN Panel), together represent one of the richest sources of evidence linking illicit weapons in the region to direct state transfers from Iran. While materiel recovered from the *Jihan 1* interdiction is featured throughout the body of the report, reviewing the ***Jihan 1* Case** would provide useful context.

CONVENTIONAL MATERIEL

This section provides an overview of conventional weapons, ammunition, and explosives and related materiel recovered from militants and smugglers in Bahrain or on its borders, as well as materiel documented elsewhere that corresponds with materiel recovered in Bahrain.

Small Arms and Light Weapons

Between July 2013 and February 2018, the Bahraini PSF recovered ninety small arms and light weapons (SALW)—including fifty-two pistols, thirty-seven assault rifles, and one PKM light machine gun—that are associated with either the Iran network or regional network.⁶

THE IRAN NETWORK

The Bahraini PSF recovered twenty assault rifles, five pistols, and one PKM light machine gun from militants and smugglers between 2013 and 2018 that are associated with the Iran network. This determination was made based on the *combination* of a number of criteria including:

- the mode of entry into Bahrain;
- the method of storage or treatment (e.g., the application of an anticorrosive agent);
- the purposeful removal (obliteration) of unique identifiable markings (e.g., serial numbers or factory markings);
- the serial-number sequence or marking method;
- the materiel comingled with an item at the time of recovery; and,
- correspondence with materiel recovered from the *Jihan 1* interdiction.

Obliterated Markings

Twenty-three of the ninety SALW recovered in Bahrain were sanitized (26 percent of the total), meaning that unique identifiable characteristics—such as serial numbers or factory markings—were physically removed or obscured sometime after the point of manufacture. Obliterated markings—intended to frustrate the ability to trace an item back to its point of origin—is a common feature of assault rifles, pistols, and RCIED components recovered in Bahrain that are associated with the Iran network (see Figures 1-3; also see Common Components and Characteristics section).

To provide perspective, SALW documented in South Sudan—a country fraught with conflict and external meddling—featured an obliteration rate of 36 percent (see Table 1).⁷ The presence of sanitized SALW in South Sudan, consisting primarily of Chinese-manufactured CQ rifles, was determined to be the result of covert supply from Sudan.⁸

The Bahraini PSF recovered sanitized SALW across seven cases between 2013 and 2018. In every case, sanitized SALW were recovered along with materiel associated with the Iran network, including Iranian-manufactured ammunition, C-4 explosive, modified pistols, suppressors, commercial electric detonators, and fragmentation grenades (see following sections).⁹

In one case, eight sanitized rifles were recovered—along with C-4 explosive, commercial electric detonators, and Iranian-manufactured ammunition—after the interdiction of a skiff that had received the materiel during a maritime transshipment occurring in Iran’s exclusive economic zone (**2015 Boat Case**).¹⁰ The suspects involved in this case confessed to having received training at an Islamic Revolutionary Guards Corps (IRGC) base in Iran in 2013.¹¹

Table 1: Countries with the highest proportion of documented weapons featuring obliterated markings

Country	Total number of weapons	Number with obliterated markings	Percentage
South Sudan	218	79	36
Bahrain	90	23	26
Ghana	21	3	14
Nigeria	165	18	11



Figures 1-3: Iranian-manufactured KLF assault rifle (top and bottom left) and a Bulgarian-manufactured AKK (bottom right) featuring obliterated markings, documented in Bahrain.¹²

Sequential Serial Numbers

Chinese-manufactured Type 56-1 assault rifles represent more than half of the assault rifles recovered in Bahrain (nineteen of thirty-seven) as well as the majority of sanitized rifles (thirteen of eighteen).¹³ The Bahrain Forensic Science Lab (BFSL) recovered all of the obliterated serial numbers from the Type 56-1 rifles by applying a chemical reagent to slowly remove layers of metal to reveal the underlying markings, a technique known as acid etching.¹⁴ This process revealed that the rifles were manufactured in the same Chinese factory (Factory Sixty-Six) and featured serial numbers clustered in four sequences, with the prefixes 14-, 15-, 18-, and 26- (see Table 2, Figures 4-23).¹⁵

SALW featuring sequential serial numbers is an indicator of materiel that originated recently from a state stockpile, as opposed to black market procurement. States commonly procure large consignments of SALW from a single manufacturer, resulting in identical items featuring serial numbers in sequence.¹⁶ Materiel obtained on the black market typically presents a relatively larger identifier variance as the originating source is varied, resulting in materiel inconsistent in quality, age, origin of manufacture, and serialization.

While there are significant gaps in the serial number sequences of the Type 56-1 rifles recovered in Bahrain, the fact that they were recovered over multiple cases (including the **2015 Boat Case**), featured semisequential serial numbers, and bore obliterated markings suggests that they originated from a national stockpile as opposed to black market acquisition.¹⁷ There are multiple recorded instances of illicit Iranian weapon transfers that contained Type 56-1 assault rifles, including several recent maritime interdictions in the Arabian Sea that recovered thousands of Type 56-1 rifles featuring serial numbers in semisequential order (see Box 1: Maritime Interdiction of Illicit Weapon Supplies into Yemen).¹⁸

Apart from Type 56-1 rifles, the Bahraini PSF recovered two Iranian-manufactured KLF assault rifles featuring serial numbers in close sequence after an interrupted smuggling operation at the port of Nabih Saleh in December 2016 (**Nabih Saleh Case**; Figures 24-27). The rifles were recovered along with two fragmentation grenades, Iranian-manufactured ammunition, a Garmin-branded GPS device, and Thuraya-branded satellite phone. Exploitation of the GPS device indicated that the skiff originated in Iran and one of the suspects detained in the case testified that he had received training on smuggling techniques in Iran.¹⁹

Table 2: Sanitized Type 56-1s with recovered markings

Serial Number	Difference from Serial # Above	Factory	Case/Location	Sequence
14067873	N/A	66	2015 Boat Case	1
14079784	11,911	66	2015 Boat Case	1
14095934	16,150	66	2015 Boat Case	1
14165162	69,228	66	Jid al-Haj	1
14197034	31,872	66	Dar Kulaib	1
15041479	N/A	66	2015 Boat Case	2
15066207	24,728	66	2015 Boat Case	2
15073371	7,164	66	2015 Boat Case	2
15075848	2,477	66	2015 Boat Case	2
18210072	N/A	66	Unknown ²¹⁶	3
18227023	16,951	66	2015 Boat Case	3
26152069	N/A	Sanitized	Saar	4
26154377	2,308	Sanitized	2017 Prison Break	4



4-13

Figures 4-13: Sanitized Type 56-1 assault rifles from the 2015 Boat Case, documented in Bahrain.²⁰



14-23

Figures 14-23: Sanitized Type 56-1 assault rifles recovered in five separate cases from 2017 to 2018, documented in Bahrain.²¹



24-27

Figures 24-27: Iranian-manufactured KLF rifles recovered from the Nabih Saleh Case, documented in Bahrain.²²

Box 1: Maritime Interdiction of Illicit Weapon Supplies into Yemen

On August 28, 2018, a warship, the USS *Jason Dunham*, interdicted a skiff off of the coast of Yemen that was found to be carrying 2,522 Type 56-1 rifles, manufactured by Factory Twenty-Six, and featuring serial numbers in semisequential order (Figures 28-30; the sequence ranged from 63000005 to 63090647).²³ In a reply to a tracing request from a UN Panel, China stated that “the weapons were not exported to Yemen.”²⁴ The rifles bore the marking 17-CN or 18-CN, indicating that they were manufactured in either 2017 or 2018, respectively.²⁵ This represents a very short chain of custody between the point of manufacture and the point of recovery and indicates that the rifles were retransferred almost immediately from the original recipient to Yemen. Meanwhile, Type 56-1 rifles documented in Yemen and Somalia featured serial numbers that fall *within* the same sequence of rifles recovered from the USS *Jason Dunham* interdiction (Figures 31-34).²⁶ These findings suggest that all of the rifles within this serial number sequence likely originated from the same source.

On June 26, 2020, the Saudi-led coalition in Yemen displayed materiel recovered from two maritime interdictions in the Gulf of Aden that occurred on April 17 and June 24.²⁷ The recovered materiel included over 3,000 Chinese-manufactured Type 56-1 assault rifles, Iranian-manufactured military equipment and weapons, PKM light machine guns, and new-condition RCIED transmitters and receivers in metal junction boxes that are nearly identical to RCIED devices documented in Bahrain, Yemen, and recovered from the *Jihan 1* interdiction (see RCIED Transmitter and Receivers section and the *Jihan 1 Case*).²⁸



28-30

Figures 28-30: Type 56-1 assault rifles recovered from the USS *Jason Dunham* interdiction, featuring the markings ‘Factory 26,’ ‘17-CN,’ and ‘18-CN.’ Documented onboard the USS *Jason Dunham*, October 2018.²⁹



31-34

Figures 31-34: Type 56-1 assault rifles recovered by the Saudi-led coalition on December 10, 2018, in Aden, Yemen, and documented in the United Arab Emirates (UAE).³⁰ The rifles featured serial numbers that fall within the serial-number sequence of identical materiel from the USS *Jason Dunham* interdiction.

Serial Number Formats

In December 2013, the Bahraini coast guard interdicted a skiff found to be carrying a range of materiel associated with the Iran network, including a Russian-manufactured PKM light machine gun, Iranian-manufactured 7.62 x 39 and 7.62 x 54R millimeter ammunition, improvised directional mines, magnetically attached IEDs (MAIEDs), C-4 explosive, commercial electric detonators, detonating cord, fragmentation grenades, and RCIED electronics kits (**2013 Boat Case**; see following sections).³¹

The PKM light machine gun featured original markings that were overmarked with a new serial number in a format that is consistent with Iranian-manufactured materiel (Figures 35 and 36).³² For example, in March 2016, an interdiction in the Arabian Sea by the French warship *Provence* recovered 2,000 Iranian-manufactured KLS assault rifles featuring serial numbers in a format identical to the PKM seized in Bahrain (Figure 37).³³ These findings suggest that the PKM light machine gun passed through Iranian state stockpiles at some point in time.

PKM light machine guns, comingled with Iranian-manufactured materiel, were recovered in several maritime interdictions attributed to Iran, including the April 17 and June 24, 2020, interdictions off the coast of Yemen, as well as an interdiction in the Arabian Sea by the Australian warship *Darwin* in February 2016 (Figure 38).³⁴



35-36

Figures 35 and 36: PKM light machine gun featuring original markings overmarked with a serial number in a format consistent with Iranian-manufactured materiel (15PNB00115), documented in Bahrain.³⁵



37

Figure 37: Iranian-manufactured KLS assault rifle featuring a serial number in a format identical to the overmarked PKM in Bahrain (15RAC00932), recovered during the FS *Provence* interdiction and documented onboard the FS *Provence*.³⁶



38

Figure 38: Russian-manufactured PKM light machine gun recovered during the HMAS *Darwin* interdiction and documented onboard the HMAS *Darwin*.³⁷

Modification and Suppressors

In July 2013, the Bahraini PSF recovered five sanitized AK-variant assault rifles, five sanitized Russian-manufactured Makarov pistols, 3,050 rounds of Iranian-manufactured ammunition, and ten suppressors of an unknown manufacture from an arms cache in Tubli village (**Tubli Case**).³⁸ The Makarov pistols were modified to be compatible with the suppressors and featured engraved notch markings that corresponded with notch markings on a suppressor (Figures 39-43).

The Bahraini PSF recovered fourteen suppressors across three cases between 2013 and 2018.³⁹ The suppressors can be categorized into two models (“Model A” and “Model B”) with a large and/or small variant of each model. The large Model A variant is visually identical to suppressors recovered from the *Jihan 1* interdiction (Figures 44-46; see the **Jihan 1 Case** section). The Model B variant is visually identical to suppressors recovered by Azeri security forces after an Iranian-linked assassination plot was foiled in October 2011 (**Azerbaijan Case**; Figures 47 and 48).⁴⁰ Materiel recovered in the **Azerbaijan Case** included Makarov pistols and Iranian-manufactured M112 C-4 explosives, which is visually identical to C-4 explosive recovered in Bahrain (see Explosives and Related Materiel section).



39-40



41

Figures 39 and 40: Russian-manufactured Makarov pistols with engraved notch markings and obliterated serial numbers, documented in Bahrain.⁴¹

Figure 41: Sanitized Makarov pistol with engraved notch markings and modified with a threaded tip to receive a suppressor, documented in Bahrain.⁴²

Figures 42 and 43: Modified Makarov pistol and suppressor featuring four engraved notch marks, documented in Bahrain.⁴³



42-43



44-46

Figures 44-46: 'Model A' suppressors recovered in the Tubli Case and documented in Bahrain (left and top right) and suppressors recovered from the *Jihan 1* interdiction and documented in Yemen (bottom right).⁴⁴



47-48

Figures 47 and 48: ‘Model B’ suppressors from the Tubli Case and documented in Bahrain (left), and suppressors and Makarov pistols recovered in the Azerbaijan Case (right).⁴⁵

Preparation and Storage

Bahraini PSF recovered at least sixteen AK-variant assault rifles that were treated with Cosmoline, a petroleum-based, wax-like substance applied to heavy machinery and equipment to prevent corrosion, especially during overseas transport or long-term storage (Figures 49 and 50).⁴⁶ All of the rifles treated with Cosmoline also bore obliterated markings. The presence of Cosmoline suggests knowledge of the proper maintenance of SALW and may indicate the likely mode of transport into Bahrain.



49-50

Figures 49 and 50: Type 56-1 assault rifle with Cosmoline residue, documented in Bahrain.⁴⁷

Summary

As demonstrated by the materiel profiled in this section, the *combination* of several criteria suggests that the materiel is the result of state supply, most likely from Iran, including:

- the presence and frequency of obliterated markings are indicative of covert supply;
- the semisequential serial numbers of Type 56-1 rifles, which indicate derivation from a state stockpile;
- the mode of transport, in many instances by a skiff, and the application of Cosmoline, suggest origination from a littoral state in close proximity to Bahrain;
- the overmarking of the PKM light machine gun with a serial-number format consistent with Iranian-manufactured materiel indicates that the PKM was likely processed through Iranian state stockpiles at some point in time;
- the presence of suppressors that are visually identical to materiel recovered from the **Jihan 1 Case** and the **Azerbaijan Case**, two definitive instances attributed to Iran; and,
- in every instance, SALW in this section were recovered comingled, almost exclusively, with materiel associated with the Iran network (see following sections).

THE REGIONAL NETWORK

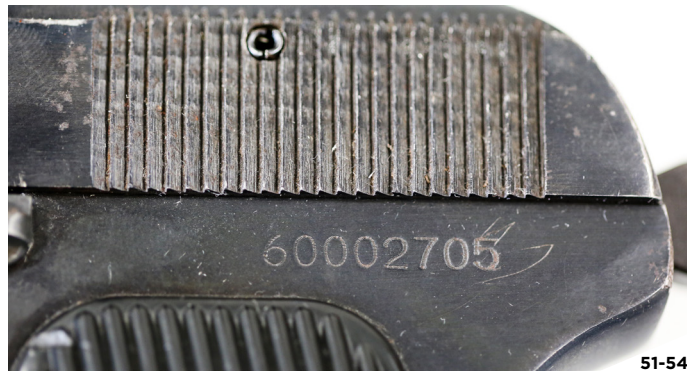
The Bahraini PSF recovered sixty-four SALW between 2013 and 2018, consisting of seventeen assault rifles and forty-seven pistols, that do not meet the criteria for association with the Iran network.⁴⁸ Nonetheless, they provide interesting correlations with illicit weapons circulating in the broader region and may highlight alternative procurement sources or smuggling pipelines.

Connections to Yemen

The Bahraini PSF recovered two Chinese-manufactured Type 54 pistols—alongside a sanitized Type 56-1 rifle—from a militant cell after they attempted to escape Bahrain on a speedboat headed toward Iran.⁴⁹ The militant cell was responsible for a prison break a week earlier at the Jau Reformation and Rehabilitation Center, an operation that was preceded by reconnaissance with a DJI Phantom drone that was programmed in Ahvaz, Iran.⁵⁰ Identical Type 54 pistols, smuggled out of Yemen and documented in the region, fall within a tight serial number sequence as the Type 54 pistols recovered in Bahrain, indicating that the pistols almost certainly originated from the same source (Figures 51-54).⁵¹ Although the pistols' characteristics and circumstance of recovery are notable, they do not meet the criteria to be associated with the Iran network.

Connections to Saudi Arabia

The Bahraini PSF recovered twenty-seven TACTICAL HULK pistols consisting of two models, PT-11 PRO and PT-12 PRO (Figure 55).⁵² TACTICAL HULK pistols recovered in Bahrain are believed to have originated in Saudi Arabia, where they are known to be commercially available.⁵³ Furthermore, TACTICAL HULK pistols were recovered solely with ammunition unique to the Bahraini-Saudi ecosystem, supporting the assessment that the pistols originated in Saudi Arabia (see Ammunition-Regional Network section).



51-54

Figures 51-54: Type 54 pistols recovered after the 2017 prison break operation, documented in Bahrain.⁵⁴



55

Figure 55: TACTICAL HULK PT-11 PRO pistol recovered and documented in Bahrain.⁵⁵

Connections to Iraq, Saudi Arabia, and Syria

Two nonsanitized Type 56-1 assault rifles recovered in Bahrain, manufactured by Factory Twenty-Six, fall within the serial number sequence of similar rifles documented in Iraq, Saudi Arabia, and Syria (see Table 3).⁵⁶ While the originating source of these rifles cannot be determined with available information, they may indicate an active smuggling pipeline between the Arabian Peninsula and the Levant.

Summary

While it is difficult to develop much insight from a small set of data, there are indications that militants in Bahrain are benefiting, in part, from unsecured stocks of weapons circulating in the region. These findings, if developed further, could inform mitigation strategies from physical security and stockpile management (PSSM) programming to end-use monitoring of materiel transfers. Such prudent steps could mitigate some of the illicit procurement sources in the region.

Table 3: Type 56-1 assault rifles documented in Bahrain, Iraq, Saudi Arabia, and Syria

Serial Number	Difference from Serial # Above	Factory	Case/Location
27101732	N/A	26	Bahrain
27107135	5,403	26	al-Hasakah, Syria ²¹⁷
27111509	4,374	26	Bahrain
27138062	26,553	26	Awamiyah, Saudi Arabia ²¹⁸
27144983	6,921	26	Iraq ²¹⁹
27151877	6,894	26	Iraq ²²⁰

Ammunition

The Bahraini PSF recovered 7,974 rounds of ammunition and eighty-five fragmentation grenades across forty-one cases between 2013 and 2018.⁵⁷ This section provides an analysis of ammunition recovered in Bahrain and draws comparisons with profiles of ammunition circulating in the broader region.

THE IRAN NETWORK

The Bahraini PSF recovered 5,851 rounds of ammunition and eighty-five fragmentation grenades from militants and smugglers that are associated with the Iran network (74 percent of the total ammunition sample).⁵⁸ This determination was made based on a number of criteria including:

- the mode of entry into Bahrain;
- the method of packaging (e.g., water-tight containers);
- the purposeful removal of unique identifiable markings (e.g., factory markings);
- the materiel comingled with an item at the time of recovery; and,
- correspondence with materiel recovered from the *Jihan 1* interdiction.

Small Caliber Ammunition

The ammunition profile in Bahrain is dominated by 7.62 x 39 and 7.62 x 54R mm calibers, which are primarily used with assault rifles or light machine guns (90 percent of the total sample).⁵⁹ Although ten countries of manufacture are represented in the ammunition sample, the top three comprise more than 95 percent of the total (see Table 4). Iranian-manufactured ammunition constituted the majority of the ammunition profile (73 percent) and ranged in date of manufacture from 1995 to 2014, with 85 percent of the total manufactured between 2007 and 2011 (see Table 5).

A narrow range of manufacturers or manufacturing dates is indicative of procurement from a state stockpile, as opposed to black market acquisition, which would reflect a wider blend of countries and dates of manufacture, as well as quality. For instance, in the July 2013 **Tubli Case**, 3,050 rounds of Iranian ammunition—recovered along with sanitized AK-variant assault rifles, sanitized Makarov pistols, and suppressors—were manufactured in 2011.⁶⁰ The relatively short period of time between the point of manufacture and the point of recovery suggests that its presence in Bahrain was the result of a direct state transfer.

The majority of Iranian-manufactured ammunition recovered in Bahrain comes from two production runs, lot 444, manufactured in 2009, and lot eleven, manufactured in 2011. The only other public documentation of Iranian ammunition bearing the headstamp for these production runs is from the *Jihan 1* interdiction (Figures 56-61; see the ***Jihan 1 Case*** section).⁶¹ In most cases, Iranian ammunition was recovered along with materiel associated with the Iran network, including sanitized AK-variant assault rifles, Iranian-manufactured KLF rifles, fragmentation grenades, RCIED electronics kits, commercial electric detonators, detonating cord, improvised directional mines, C-4 explosive, modified pistols, suppressors, and PIR sensors.⁶²

Table 4: 7.62 x 39 and 7.62 x 54R mm ammunition recovered in Bahrain

Country of Manufacture	Total Quantity	Percentage of Sample (n = 7,187)
Iran	5,651	78.6
Bulgaria	718	10
China	468	6.5
Russia	142	2
Bosnia and Herzegovina	98	1.4
Romania	42	0.6
Hungary	41	0.6
Serbia	25	0.3
Former East Germany (GDR)	1	nil
Ukraine	1	nil

Table 5: Iranian ammunition by year of manufacture (includes 9 x 19 mm ammunition)

Year of Manufacture	Quantity	Percentage of Sample (n = 5,851)
1995	399	6.8
2000	70	1.2
2004	2	0.03
2005	4	0.07
2006	273	4.7
2007	1,489	25.4
2009	444	7.6
2011	3,050	52.1
2014	120	2.1



Figures 56-58: Iranian-manufactured ammunition recovered in Bahrain from production lot eleven, dated 2011 (left) and lot 444, dated 2009, with a corresponding packing slip (center and right), documented in Bahrain.⁶³



Figures 59-61: Iranian-manufactured ammunition from production lot eleven, dated 2011 (left) and lot 444, dated 2009, with a corresponding packing slip (center and right), recovered from the *Jihan 1* interdiction and documented in Yemen.⁶⁴

Grenades

The Bahraini PSF recovered eighty-five fragmentation grenades across seven cases from 2013 to 2018.⁶⁵ Eighty-two of the grenades were of the same type, cast-iron fragmentation grenades, and the remaining three were steel-shot fragmentation grenades. Both types are visually identical to fragmentation grenades manufactured by the DIO in Iran (Figures 62-66).⁶⁶ Two of the steel-shot fragmentation grenades were stamped with an acronym representing the DIO, while the third grenade bore an attempt to obliterate the marking (Figures 67 and 68).



In the **2013 Boat Case** and **Nabih Saleh Case** a total of fifty-two cast-iron grenades were recovered individually housed in waterproof containers, along with a moisture absorbent silica pouch, and fuse handles stamped with the lot number '82-2006' (Figures 69-71).⁶⁹ In every case, fragmentation grenades were recovered along with materiel associated with the Iran network, including sanitized Type 56-1 rifles, Iranian-manufactured ammunition, KLF-variant assault rifles, C-4 explosive, commercial electric detonators, detonating cord, RCIED electronics kits, improvised directional mines, suppressors, and PIR sensors.⁷⁰



69-71

Figures 69-71: Cast-iron grenade (top left) and fuse handle stamped with '82-2006' (bottom), recovered in a watertight storage container along with a silica pouch (top right), documented in Bahrain.⁷¹

Summary

The small caliber ammunition profile in Bahrain—dominated by three countries of manufacture and concentrated in tight date ranges—is consistent with procurement from a state stockpile, and in most instances, identical to the ammunition profile of verified covert transfers from Iran. Likewise, all of the fragmentation grenades recovered in Bahrain are visually identical to DIO-manufactured materiel, and in one instance, featured sanitized markings suggesting an attempt to obscure provenance. Furthermore, grenades recovered after attempted maritime smuggling operations are identical to grenades recovered in Bahrain, suggesting that multiple smuggling operations have occurred from the same originating source.

THE REGIONAL NETWORK

Connections to Saudi Arabia

The Bahraini PSF recovered 949 rounds of small caliber ammunition (12 percent of the total sample)—represented by five countries of manufacture—that correspond with ammunition recovered in Awamiyah, Saudi Arabia (see Table 6; Figures 72-77).⁷² The ammunition recovered from militants in Bahrain and Saudi Arabia constitutes a unique ecosystem and may suggest a shared procurement source. While it is unknown if the ammunition flowed from Saudi Arabia to Bahrain or vice versa, the fact that the sample in Saudi Arabia did not contain any Iranian-manufactured ammunition (comprising the large majority of the sample in Bahrain) indicates that ammunition unique to the Bahraini-Saudi ecosystem likely originated in Saudi Arabia.

The case of TACTICAL HULK pistols recovered in Bahrain lends credence to this hypothesis. The pistols, which likely originated in Saudi Arabia, were recovered along with only four types of ammunition, three of which are unique to the Bahraini-Saudi ecosystem.⁷³ The fourth, manufactured by Sellier & Bellot (S&B) in the Czech Republic, was recovered across twenty-one cases between 2013 and 2018 (Figure 77).⁷⁴ In twenty cases, S&B ammunition was recovered along with materiel solely associated with the Bahraini-Saudi ecosystem.⁷⁵ This suggests that S&B ammunition recovered in Bahrain likely originated in Saudi Arabia as well, increasing the proportion of ammunition associated with the Bahraini-Saudi ecosystem to 18 percent.

Table 6: Corresponding ammunition samples in Bahrain and Saudi Arabia

Headstamp	Date of Manufacture	Country of Manufacture	Quantity in Bahrain	Quantity in Saudi Arabia
10_98	1998	Bulgaria	466	25
NNY_32Auto	Unknown	Serbia	295	1,500
31_70	1970	China	176	60
323_88	1988	Romania	10	1
21_80	1990	Hungary	2	70



72-77

Figures 72-77: Headstamps of ammunition from the Bahraini-Saudi ecosystem, documented in Bahrain.⁷⁶

Connections to Iraq and Syria

The Bahraini PSF recovered 436 rounds of ammunition (6 percent of the total sample)—represented by seven countries of manufacture, fourteen manufacturers, and twenty different dates of manufacture—that correspond with ammunition documented in Iraq and Syria.⁷⁷ Of this, 186 rounds (2 percent of the total sample) have only ever been publicly documented in Bahrain, Iraq, and Syria.⁷⁸ The spread of manufacturers and manufacturing dates likely indicates that the ammunition is the result of black market procurement from sources proliferating in the region.

Summary

The unique profile of ammunition in the Bahraini-Saudi ecosystem—constituting 18 percent of the ammunition recovered in Bahrain—may indicate that militants in Bahrain are benefiting from loosely controlled ammunition in Saudi Arabia, or possibly diversion from state stockpiles. If confirmed through additional research, it could bolster the argument for enhanced PSSM programming.

Explosives and Related Materiel

Between 2013 and 2018, the Bahraini PSF recovered significant quantities of C-4 explosive, commercial electric detonators, and commercial detonating cord.⁷⁹ Identical materiel—including commercial electric detonators and detonating cord—was recovered by Saudi security forces from militants in Awamiyah, Saudi Arabia.⁸⁰ All of the materiel profiled in this section is associated with the Iran network. This determination was made based on a number of criteria including:

- the mode of entry into Bahrain;
- the chemical analysis of C-4 explosive;
- the type of packaging (e.g., original, black polyurethane bags, tape);
- the materiel comingled with an item at the time of recovery; and,
- correspondence with materiel recovered from the *Jihan 1* interdiction.

C-4 Explosive and Packaging

The Bahraini PSF recovered 275 kilograms of C-4 explosive across thirty cases between 2013 and 2018.⁸¹ The C-4 was recovered in either original packaging, repackaged (e.g., black polyurethane bags, tape), or extracted from IEDs. In every instance, C-4 was recovered comingled with materiel associated with the Iran network, including sanitized Type 56-1 assault rifles, fragmentation grenades, Iranian-manufactured ammunition, suppressors, improvised directional mines, commercial electric detonators, detonating cord, RCIED electronics kits, and PIR sensors.⁸²

The BFSF subjected all viable samples of C-4 to a range of chemical tests in order to isolate and identify the type(s) of explosive, binder, plasticizer, oil, and presence of a physical or chemical taggant.⁸³ All of the samples were determined to be chemically similar and devoid of a physical or chemical taggant, which is mandated under the International Civil Aviation Organization (ICAO) Convention on the Marking of Plastic Explosives for the Purpose of Detection.⁸⁴ There are 156 signatories to the ICAO treaty, and Iran is not among them.⁸⁵



Figures 78-80: Tan-colored polyurethane bag containing Iranian-manufactured M112 C-4 explosive from lot two, dated 2010, documented in Bahrain (top left and right) and identical C-4 recovered from the *Jihan 1* interdiction and documented in

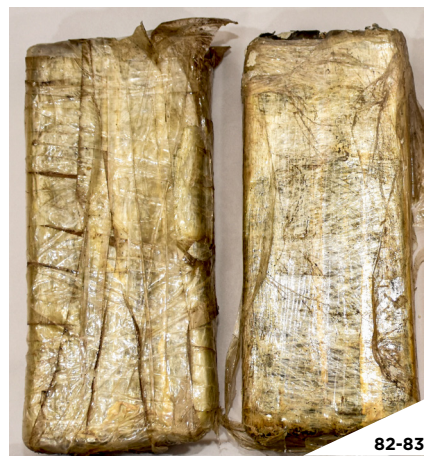
78-80 Yemen (bottom).⁸⁷

Twenty-five blocks of C-4 were recovered in original packaging that is visually identical to the packaging of Iranian-manufactured M112 C-4.⁸⁶ Six of the blocks, printed with the marking Lot: 2 Date: 2010, were recovered inside a tan-colored polyurethane bag with a corresponding marking. C-4 explosive from the same production lot and date was recovered from the *Jihan 1* interdiction (Figures 78-80; see the *Jihan 1 Case* section). The remaining nineteen blocks of C-4 recovered in Bahrain featured the printed marking Lot: 17 Date: 2006 (Figure 81).

The Bahraini PSF recovered C-4 repackaged in two methods: vacuum-sealed in black polyurethane bags and wrapped in tape (Figures 82 and 83). C-4 repackaged in vacuum-sealed black polyurethane bags was recovered across four cases, including the **2015 Boat Case**, suggesting that all of the C-4 repacked in this method entered into the country as a result of maritime smuggling operations.



Figure 81: Iranian M112 C-4 manufactured in 2006 from production lot seventeen, documented in Bahrain.⁸⁸



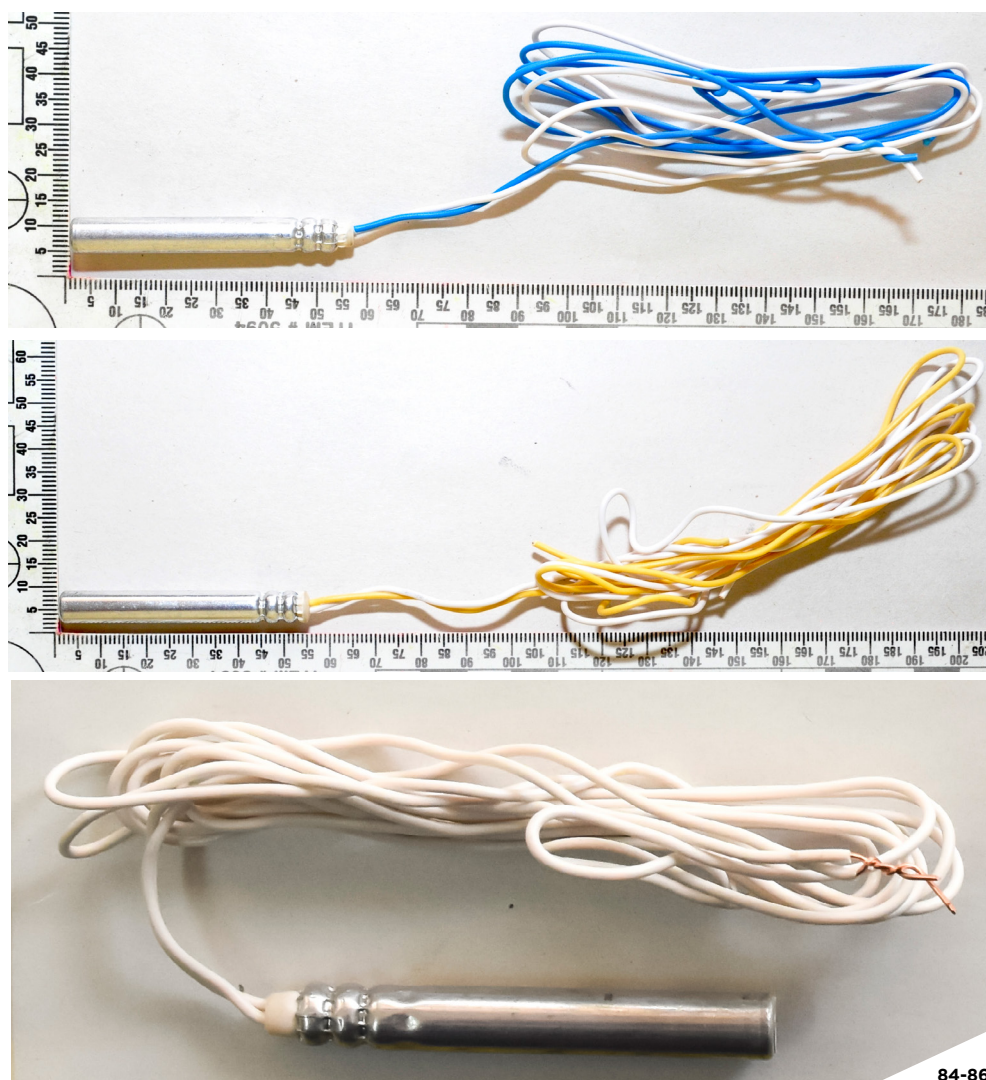
Figures 82 and 83: C-4 explosive repackaged in vacuum-sealed black polyurethane (left) and wrapped in tape (right), documented in Bahrain.⁸⁹

Commercial Electric Detonators

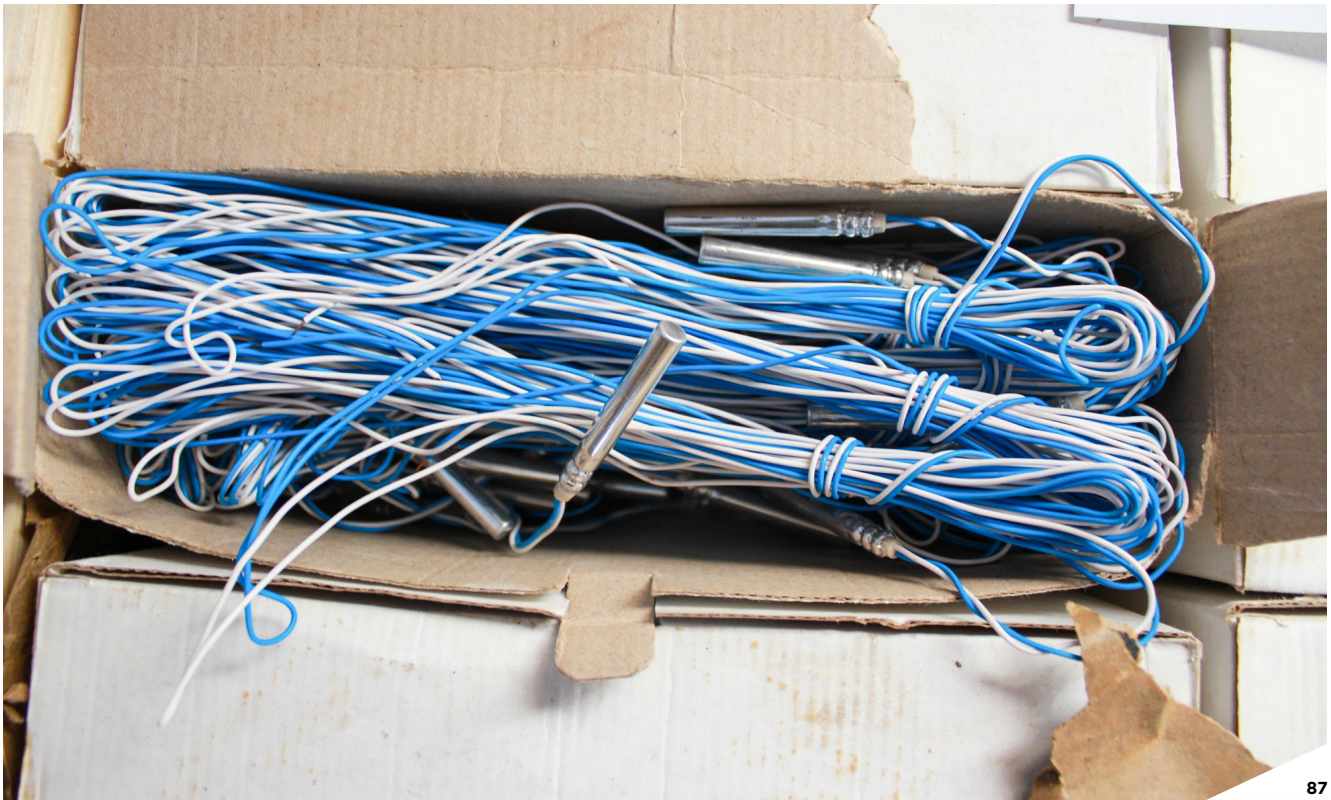
The Bahraini PSF recovered 903 commercial electric detonators across thirteen cases from 2013 to 2018.⁹⁰ Commercial detonators were first documented in the **2013 Boat Case** and subsequently recovered in significant quantities in five cases, including the **2015 Boat Case** and during the inspection of a bus while it transited the King Fahd Causeway toward Bahrain from Saudi Arabia (the **Bus Case**).⁹¹

The commercial detonators recovered in Bahrain are of three types, distinguished by the color of their lead wires: blue and white, yellow and white, and beige (Figures 84-86). The detonators with blue and white lead wires are visually identical to detonators recovered from the *Jihan 1* interdiction (Figure 87; see the **Jihan 1 Case** section), while detonators with yellow and white lead wires were also recovered from militants in Awamiyah, Saudi Arabia (Figure 88).⁹²

All three types of commercial detonators were recovered along with materiel associated with the Iran network, including sanitized Type 56-1 assault rifles, PKM light machine gun, fragmentation grenades, Iranian-manufactured ammunition, C-4 explosive, detonating cord, improvised directional mines, MAIEDs, RCIEDs, and PIR sensors.⁹³



Figures 84-86: Commercial electric detonators with blue and white (top), yellow and white (middle), and beige lead wires (bottom), documented in Bahrain.⁹⁴



87

Figure 87: Commercial electric detonators with blue and white lead wires recovered from the *Jihan 1* interdiction and documented in Yemen.⁹⁵



88

Figure 88: Commercial electric detonators with yellow and white lead wires, documented in Saudi Arabia.⁹⁶

Detonating Cord

The Bahraini PSF recovered bright green-colored detonating cord in four cases between 2013 and 2018. Rolls of detonating cord first appeared in Bahrain in the **2013 Boat Case** and were recovered packaged in plastic, watertight containers wrapped in cellophane (Figures 89 and 90).⁹⁷ Visually identical detonating cord was recovered by Saudi security forces from militants in Awamiyah, Saudi Arabia (Figure 91). While the detonating cord lacked identifiable markings that could help determine where it was manufactured, it is visually similar to PT 165 detonating cord manufactured by the DIO in Iran (Figures 92-94).



89-91

Figures 89-91: Detonating cord recovered from the **2013 Boat Case** and documented in Bahrain (top and bottom left) and recovered from militants and documented in Saudi Arabia (bottom right).⁹⁸



MINISTRY OF DEFENSE AND ARMED FORCES LOGISTICS OF I.R. OF IRAN

Defense Industries Organization

DIO

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DETONATING CORD PT 165 (HMX CHARGE)

Discription:

High temperature and pressure resistant pc cord PT 165. The detonating cord PT 165 is specifically developed to cover both encapsulated perforating systems and high shot density perforating systems. This product utilizes HMX optimized to a maximum detonation velocity. It is covered in a pressure and temperature resistant PVDF jacket. It can be used in the presence of caustic fluids at high temperature and pressure. The users must satisfy themselves if the product is suitable for their application.

Application:

Detonating cord PT 165 used principally in jet perforating oil Wells and exploration oil field.

Shelf life: 5 years

Specification:

	Content of HMX (g/m)	Outer diameter (mm)	Velocity of detonation (m/s)	Tensile strength (kg)	Colour	Temperature resistance (°C)	Pressure resistance (bar/hr)	Max. shrinkage (%)	Gasket material
Pc Cord PT 165	16-18	5 ± 0.2	>7000	>150	White*	165	>1000	2	PVDF

* As request of customer

Packing:

Detonating cord pt 165 is wound on reels and packed in fiberboard cases.

	Pc Cord pt 165
Packing (MT)	1000
MT/Reel	250
No. of reels packing	4

Cardboard dimension: 51x 36x 28 cm

92-94

Figures 92-94: PT 165 detonating cord, from section six of the DIO catalog.⁹⁹

UNCONVENTIONAL MATERIEL

The Bahraini PSF recovered hundreds of IEDs, RCIEDs, and related components across twelve cases from 2013 to 2018 that are associated with the Iran network.¹⁰⁰ Association with the Iran network was determined based on a number of criteria including:

- the mode of entry into Bahrain;
- the design of an item or type of materials used in its construction;
- the purposeful removal of unique identifiable markings;
- the materiel comingled with an item at the time of recovery;
- correspondence with materiel recovered from the *Jihan 1* interdiction; and,
- correspondence with materiel recovered from the Houthis in Yemen.

Improvised Directional Mines

The Bahraini PSF recovered thirty-eight improvised directional mines across four cases from 2013 to 2018.¹⁰¹ The directional mines—initially recovered in the **2013 Boat Case**—were housed in a medium-density cardboard body, featured cast TNT as a primary charge, C-4 as a secondary charge, a knotted bright green-colored detonating cord, and steel ball bearings for fragmentation (Figures 95 and 96).



95-96

Figures 95 and 96: Improvised directional mine documented in Bahrain (left and right).¹⁰²

Magnetically Attached IEDs

The Bahraini PSF recovered thirteen MAIEDs across four cases from 2013 to 2018.¹⁰³ Like the improvised directional mines, MAIEDs were initially recovered in the **2013 Boat Case**. The MAIEDs were housed in a plastic junction box, featured a C-4 main charge, knotted detonating cord of either bright green or beige color, small-diameter ball bearings, and either a single large format or two small round magnets (Figures 97-100).



97-100

Figures 97-100: MAIEDs documented in Bahrain.¹⁰⁴

RCIED Transmitters and Receivers

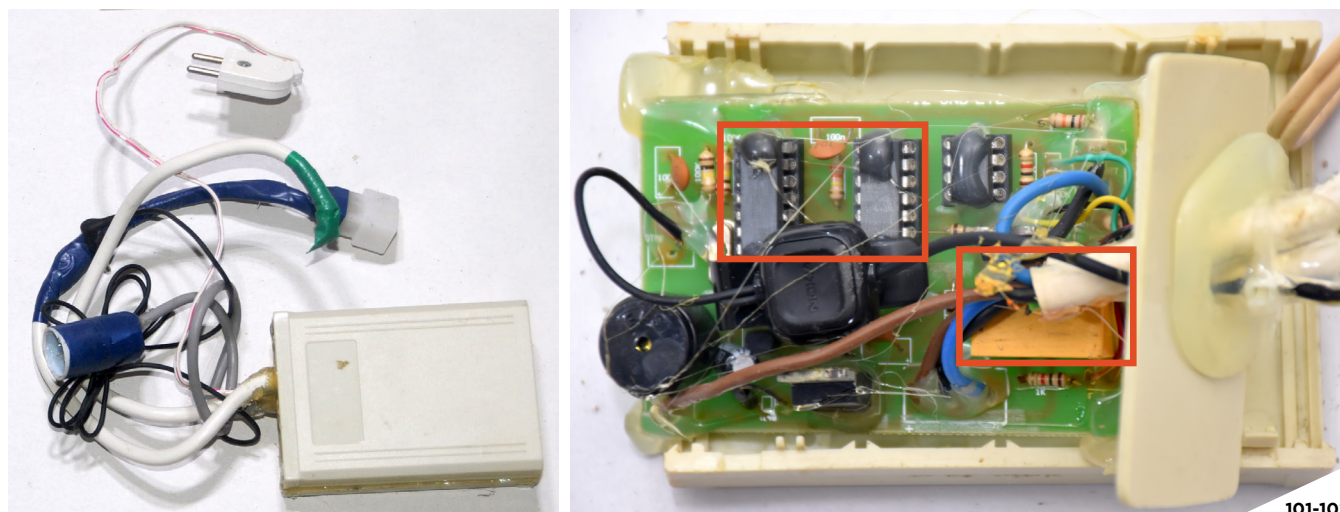
The Bahraini PSF recovered 113 RCIED electronics kits across ten cases between 2013 and 2018, including the **2013 Boat Case** and the **Bus Case**.¹⁰⁵ The majority of the RCIED electronics kits—recovered from interdicted maritime and overland smuggling operations—featured components with obliterated markings, indicating that they were manufactured by an entity outside of Bahrain that wanted to prevent the tracing of the RCIEDs' internal components.

Four types of RCIED electronics kits recovered in Bahrain were either identical in design and construction to RCIEDs that originated in Iran, or featured common components that are present across a range of Iranian-supplied materiel, including: dual-tone multifrequency (DTMF) 20B receiver board (Figures 101-112); Bahar-branded junction box (Figures 113-117); metal junction box (Figures 118-122); and magnetically attached RCIED (Figures 123-133).

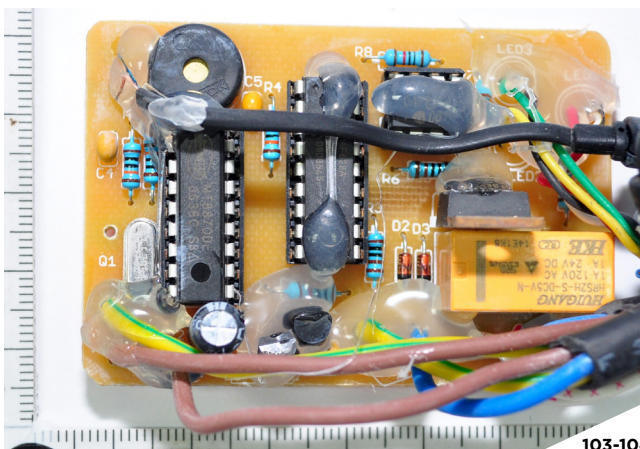
Dual-Tone Multifrequency 20B Receiver Board

The Bahraini PSF recovered eighty-three DTMF 20B receiver boards across six cases between 2013 and 2018, including the **2013 Boat Case** and the **Bus Case**.¹⁰⁶ The DTMF receivers were contained in either a junction box or sealed within colored heat-shrink wrap. Although the DTMF receivers featured five external cosmetic variants, their internal components—affixed to either a brown or green-colored printed circuit board (PCB)—were identical.¹⁰⁷ The varying external cosmetic appearance may represent different production runs from the same workshop (Figures 101-108).

In several instances, DTMF receiver boards featured components with obliterated markings, a feature that is consistent with Iranian-supplied RCIEDs recovered from the Houthis in Yemen (Figure 102).¹⁰⁸ The receivers also featured WOER-branded heat-shrink material—a common characteristic of Iranian-supplied materiel—and were recovered along with PIR sensors identical to those recovered from the Houthis and from the *Jihan 1* interdiction (Figures 109 and 110; see the **Jihan 1 Case**, PIR Sensors, and Common Components and Characteristics sections).¹⁰⁹ In every instance, DTMF receiver boards were recovered along with commercial electric detonators with blue and white, yellow and white, or beige-colored lead wires (Figures 111 and 112).¹¹⁰

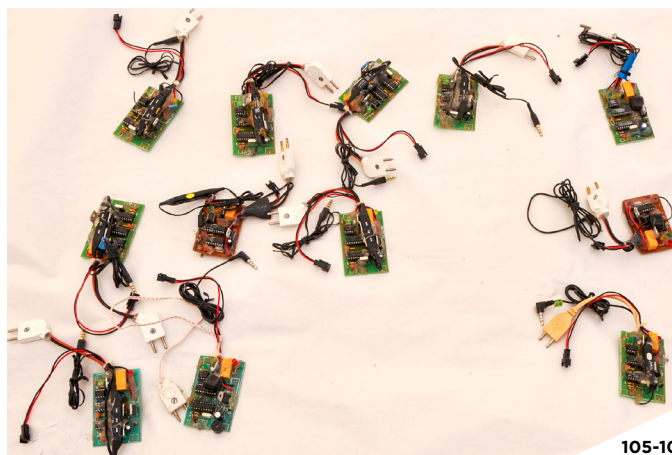


Figures 101 and 102: DTMF receiver board contained within a junction box recovered in the **2013 Boat Case** (left) and during an operation in January 2018 featuring a green-colored PCB and microcontrollers with obliterated markings (right), documented in Bahrain.¹¹¹



103-104

Figures 103 and 104: DTMF receiver board sealed in a blue heat-shrink wrap from the Bus Case featuring a brown-colored PCB, documented in Bahrain.¹¹²



105-106

Figures 105 and 106: DTMF receiver boards sealed in an orange heat-shrink wrap and featuring brown and green-colored PCBs, documented in Bahrain.¹¹³



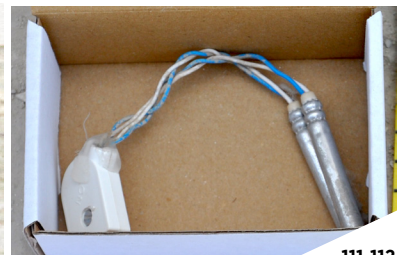
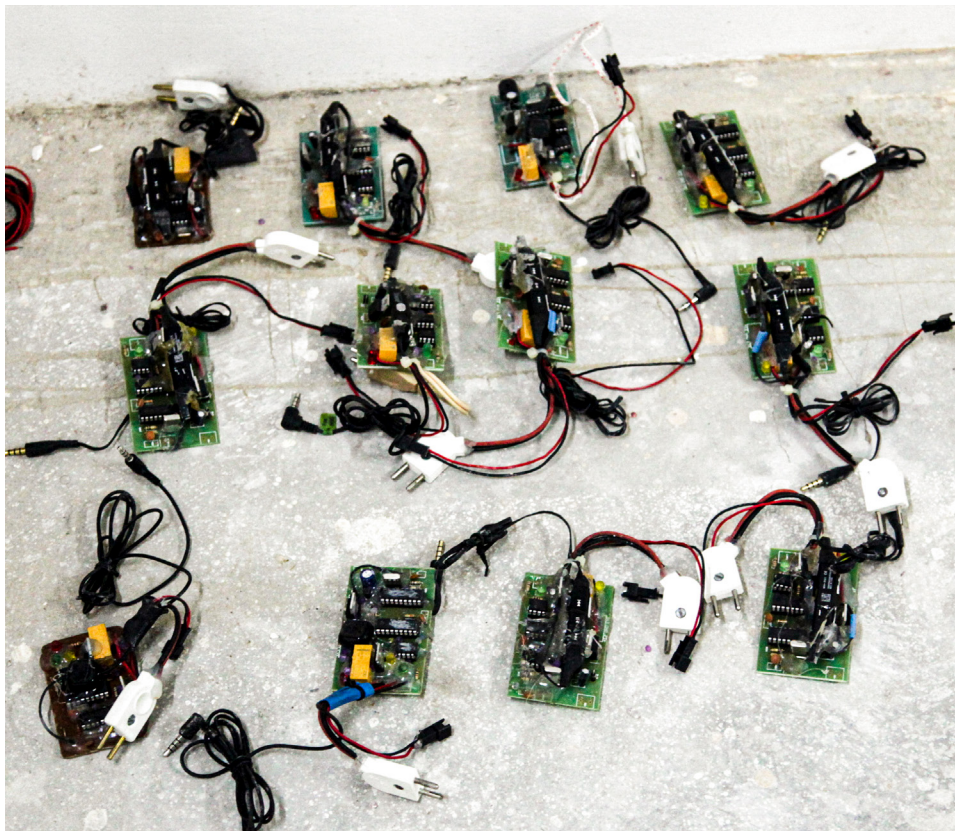
107-108

Figures 107 and 108: DTMF receiver boards featuring a brown PCB and sealed in a yellow heat-shrink wrap (left) and black heat-shrink wrap (right), documented in Bahrain.¹¹⁴



109-110

Figures 109 and 110: WOER-branded heat-shrink material on an indicator lamp connected to a DTMF receiver board (right) and DTMF receiver boards taped together with PIR sensors (left), documented in Bahrain.¹¹⁵



111-112

Figures 111 and 112: DTMF receiver boards with Nour-branded phone connectors (left) attached to commercial detonators with blue and white lead wires (right), documented in Bahrain.¹¹⁶

Bahar-Branded Junction Box

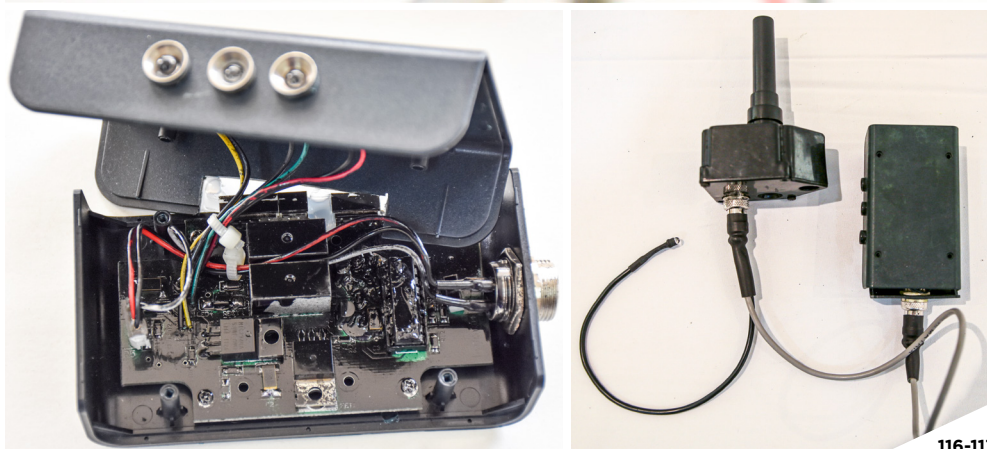
The Bahraini PSF recovered seven RCIED receiver boards contained within Bahar-branded junction boxes in two cases in 2017 (Figure 113).¹¹⁷ The junction boxes featured WOER-branded heat-shrink wire covering and contained RCIED receiver boards with obliterated markings (Figures 115 and 116). Five of the junction boxes were recovered along with PIR sensors that are identical to PIR sensors recovered from the *Jihan 1* interdiction (Figure 117; see PIR Sensors and *Jihan 1 Case* sections). Bahar-branded junction boxes have also been documented in UAVs deployed by the Houthis in Yemen.¹¹⁸ The junction boxes recovered from the UAVs featured WOER-branded heat-shrink wire covering and contained MINMAX-branded voltage converters that a UN Panel traced to a distributor in Iran (Figure 114; see Box 2: Common Components in Iranian-Manufactured UAVs).¹¹⁹



Figures 113 and 114: Bahar-branded junction boxes containing an RCIED receiver board documented in Bahrain (left), and inside an Iranian-supplied UAV recovered in Yemen, documented in the UAE (right).¹²⁰



Figure 115: WOER-branded heat-shrink wiring covering inside a Bahar-branded junction box, documented in Bahrain.¹²¹



Figures 116 and 117: RCIED receiver board with overpainted components—a method of mark obliteration—contained within a Bahar-branded junction box (left) and connected to a PIR sensor (right), documented in Bahrain.¹²²

Metal Junction Box

The Bahraini PSF recovered five RCIED transmitters and one programming device contained in metal junction boxes across three cases between 2015 and 2018.¹²³ The transmitters and programming device featured WOER-branded heat-shrink wire covering and are visually identical to devices recovered from the *Jihan 1* interdiction, from the Houthis, and from the June 2020 interdiction off the coast of Mokha, Yemen (Figures 118-123; see Box 1 and the ***Jihan 1* Case** section).¹²⁴ RCIED transmitters and receivers recovered from the June 2020 interdiction were affixed with barcodes and labeled TX (transmitter) and RX (receiver), respectively, likely denoting their purpose (Figure 124).¹²⁵ Furthermore, the presence of a barcode indicates that the items were likely manufactured by an entity with a controlled supply chain.



Figures 118 and 119: RCIED programming device documented in Bahrain (left) and an identical device recovered from the *Jihan 1* interdiction and documented in Yemen (right).¹²⁶



Figures 120-123: RCIED transmitters documented in Bahrain (far left), recovered in Yemen and documented in the UAE (center left), recovered from the *Jihan 1* interdiction and documented in Yemen (center right), and recovered from the June 2020 interdiction off the coast of Mokha, Yemen (far right).¹²⁷

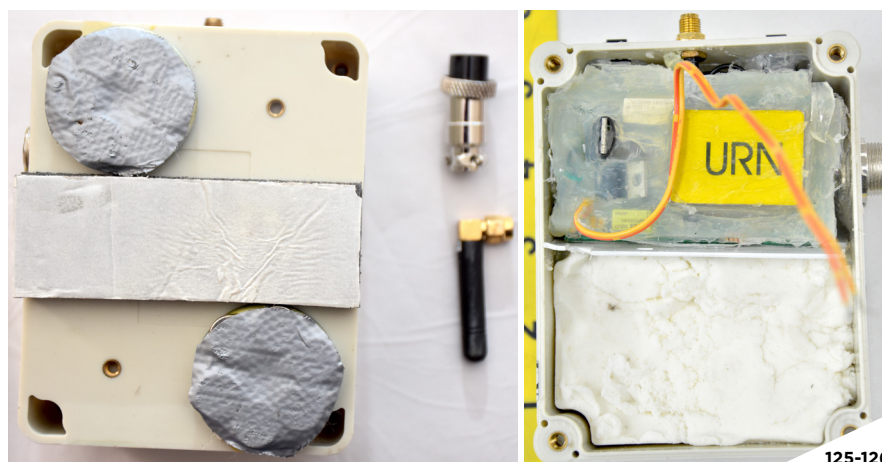


Figure 124: RCIED transmitters and receivers recovered from the June 2020 interdiction. The devices were affixed with barcodes and labeled TX and RX, likely denoting their purpose.¹²⁸

Magnetically Attached RCIED

The Bahraini PSF recovered eighteen magnetically attached RCIED (MA-RCIED) receivers contained in beige-colored junction boxes across three cases between 2017 and 2018.¹²⁹ The junction boxes contained C-4 explosive and a receiver board (Figures 125 and 126). In one case, an MA-RCIED receiver and RCIED transmitter in a metal junction box were recovered together.¹³⁰ The devices featured corresponding handwritten serialization, suggesting the items were paired together and manufactured in the same location (Figures 127 and 128).

The MA-RCIEDs featured WOER-branded heat-shrink wire covering and internal components occasionally bore attempts at obliteration (Figures 129-131). The MA-RCIEDs' receiver boards are identical in design, construction, and contain components identical to RCIEDs recovered from the Houthis and the *Jihan 1* interdiction (Figures 132-135; see the **Jihan 1 Case** and Common Components and Characteristics sections).¹³¹



Figures 125 and 126: MA-RCIED housed in a beige junction box containing a receiver board and C-4 explosive, documented in Bahrain.¹³²



Figures 127 and 128: RCIED transmitter and MA-RCIED receiver with corresponding handwritten serial markings, documented in Bahrain.¹³³

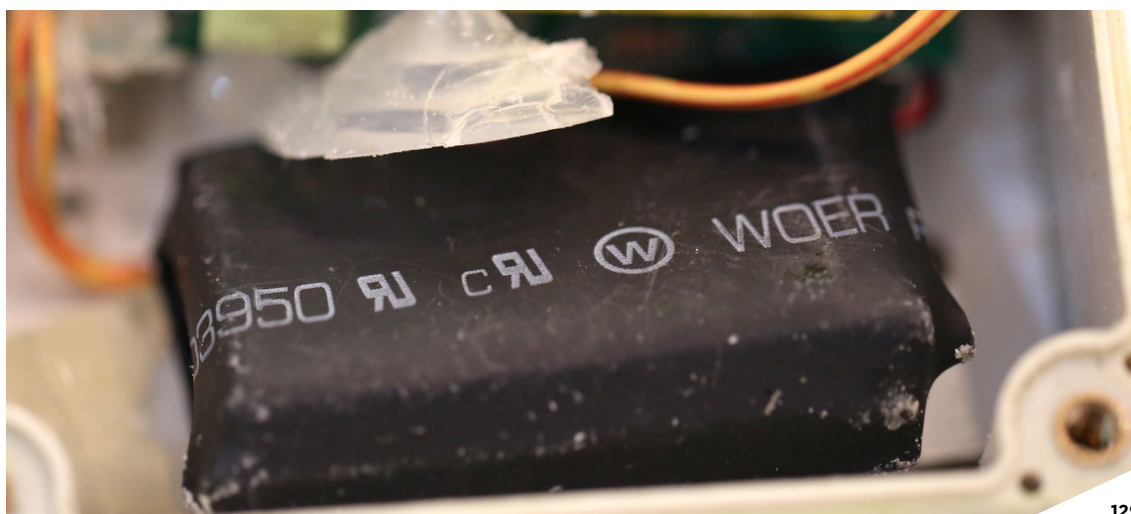
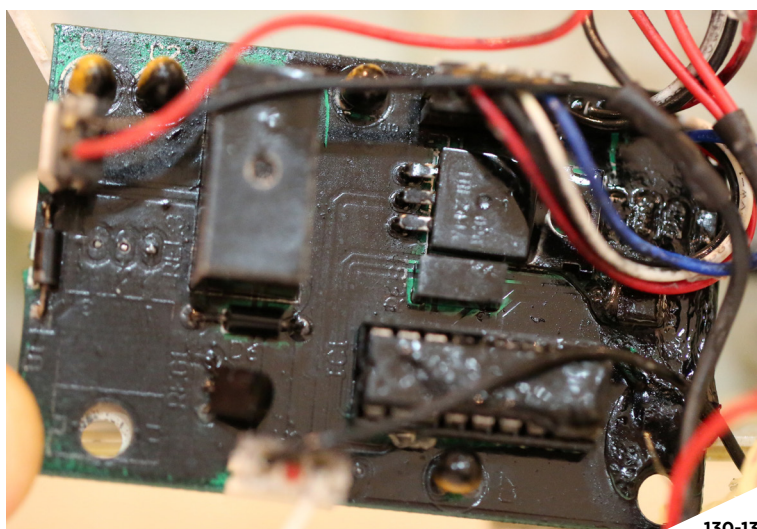
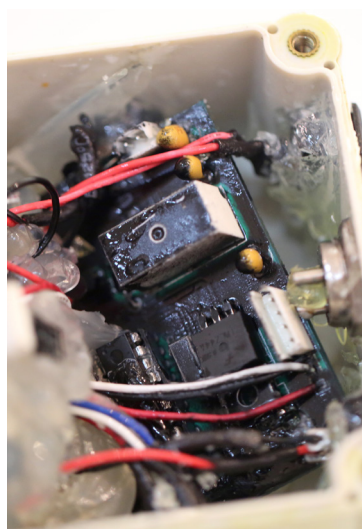


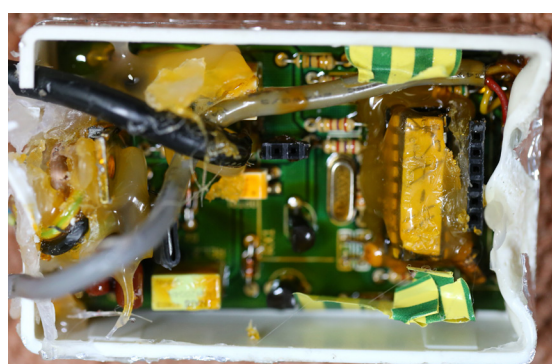
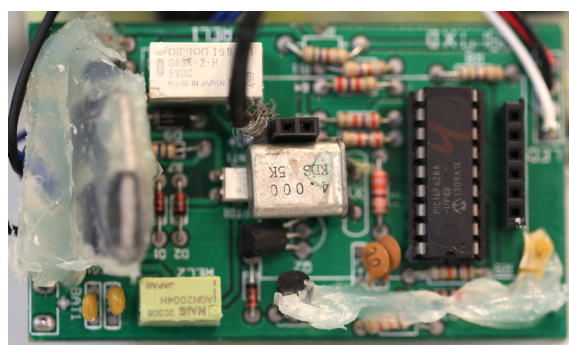
Figure 129: MA-RCIED battery sealed in WOER-branded heat-shrink covering, documented in Bahrain.¹³⁴

129

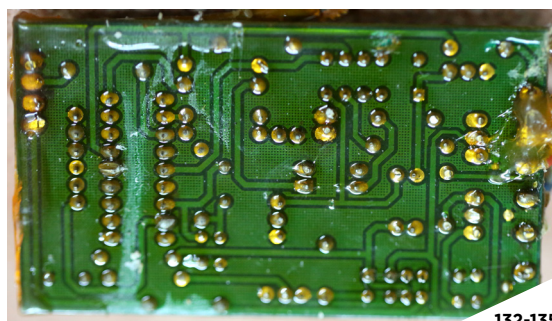
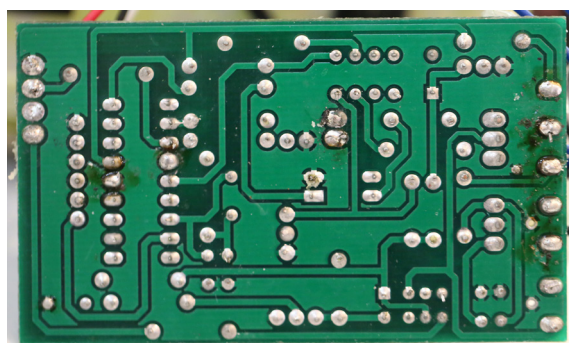


Figures 130 and 131: MA-RCIED receiver boards coated in black paint—a method of marking obliteration—documented in Bahrain.¹³⁵

130-131



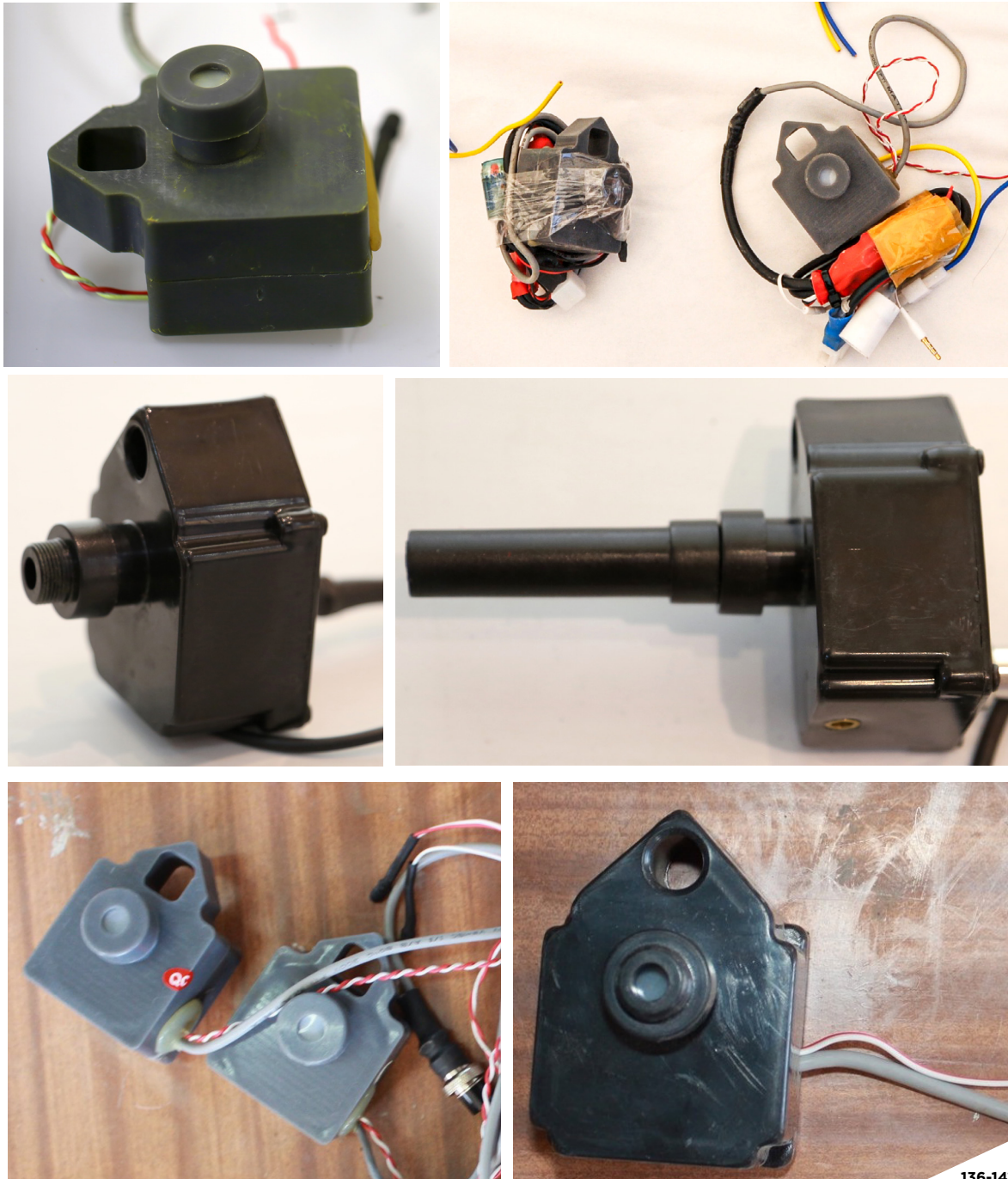
Figures 132-135: MA-RCIED receiver board documented in Bahrain (left, top and bottom) and an RCIED recovered from the Houthis and documented in Yemen (right, top and bottom).¹³⁶



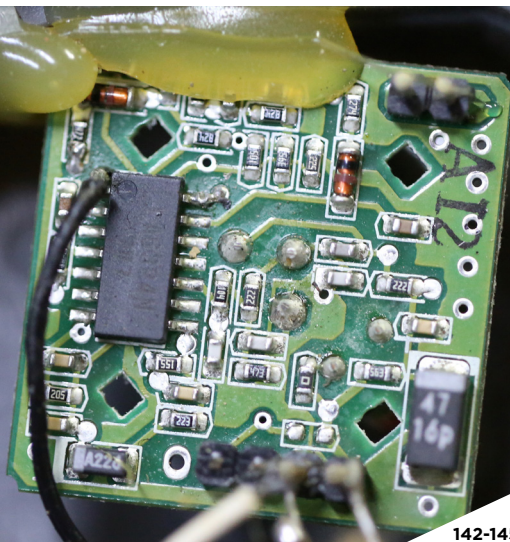
132-135

PIR Sensors

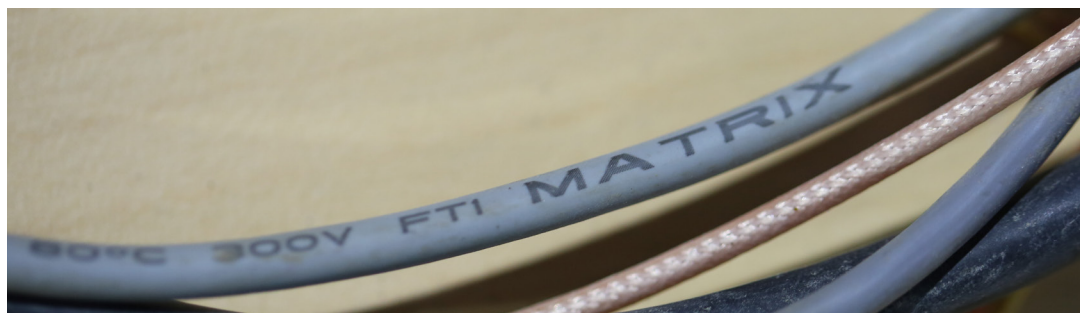
The Bahraini PSF recovered eighty-seven PIR sensors across three cases between 2015 and 2017.¹³⁷ The PIR sensors come in two variations (“Model A” and “Model B”), both models featured WOER-branded heat-shrink wiring covering, Matrix-branded wires, and braided red and white-colored wires and are identical to PIR sensors recovered from the *Jihan 1* interdiction and from the Houthis in Yemen (Figures 136-148; see the ***Jihan 1 Case*** section).¹³⁸ In all instances, PIR sensors were recovered along with either DTMF 20B receiver boards or receiver boards contained in Bahar-branded junction boxes.¹³⁹



Figures 136-141: ‘Model A’ (top, left and right) and ‘Model B’ (middle, left and right) PIR sensors documented in Bahrain and ‘Model A’ and ‘Model B’ PIR sensors recovered from the *Jihan 1* interdiction and documented in Yemen (bottom, left and right).¹⁴⁰



Figures 142-145: 'Model A' PIR sensor documented in Bahrain (top, left and right) and a corresponding PIR sensor recovered from the Houthis and documented in Yemen (bottom, left and right).¹⁴¹



Figures 146-148: Matrix-branded wires featured on PIR sensors recovered in Bahrain (top), recovered from the Houthis in Yemen (middle), and recovered from the *Jihan 1* interdiction and documented by in Yemen (bottom).¹⁴²

Common Components and Characteristics of Iranian-supplied RCIEDs

WOER-Branded Heat-Shrink Wire Covering

WOER is a China-based manufacturer of heat-shrink material.¹⁴³ Although WOER products are commercially available, they are a consistent feature of unconventional materiel solely linked to Iran.¹⁴⁴ A range of items attributed to Iran featured WOER heat-shrink material, including RCIEDs recovered in Bahrain and Yemen (Figures 148 and 149); UAVs recovered from the Houthis in Yemen (Figure 151; see Box 2: Common Components in Iranian-Manufactured UAVs); PIR sensors (Figure 152); and, industrial equipment recovered in Yemen—used in the manufacture of rocket propellant—which contained several components that a UN Panel traced to distributors in Iran (Figure 153).¹⁴⁵



149-150

Figures 149 and 150: WOER-branded heat-shrink wire covering on RCIED receivers documented in Yemen (left) and Bahrain (right).¹⁴⁶



151



152

Figure 151: WOER-branded heat-shrink wire covering in an Iranian-supplied Qasf-1 UAV recovered from the Houthis in Yemen and documented in the UAE.¹⁴⁷

Figure 152: WOER-branded heat-shrink wire covering on a PIR sensor recovered from the *Jihan 1* interdiction and documented in Yemen.¹⁴⁸

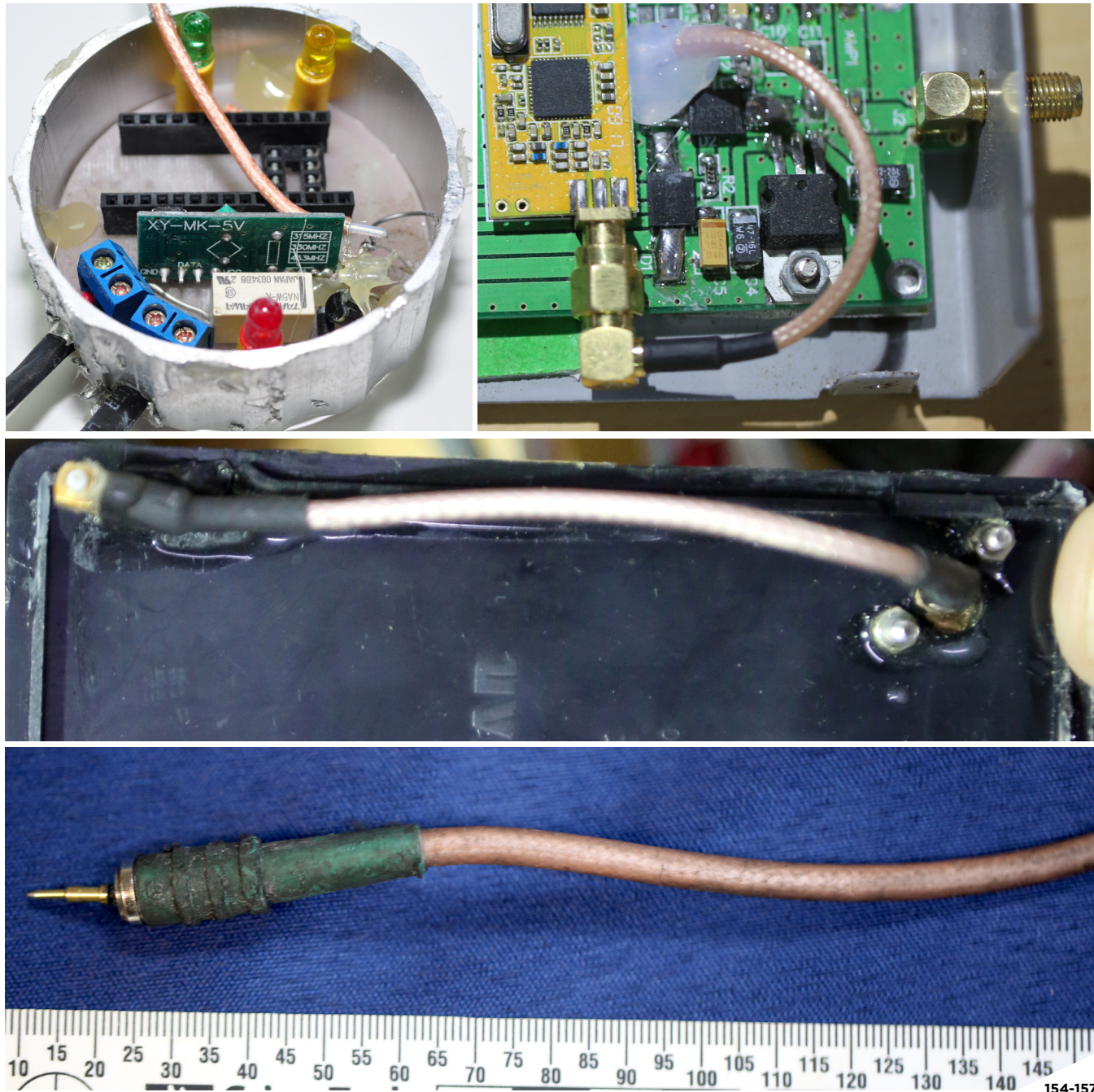


153

Figure 153: WOER-branded heat-shrink wire covering documented on industrial equipment used to make rocket propellant and containing multiple components that were traced to distributors in Iran, recovered from the Houthis in Yemen and documented in the UAE.¹⁴⁹

Pink Threaded Electrical Cord

Pink-colored threaded electrical cord is a common component documented in Iranian-manufactured materiel, including RCIEDs recovered in Bahrain and Yemen, Bahar-branded junction boxes recovered from Qasef-1 UAVs, and from an Iranian-manufactured UAV intercepted over Israeli airspace in February 2018 (Figures 154-157; see Box 2: Common Components in Iranian-Manufactured UAVs).¹⁵⁰

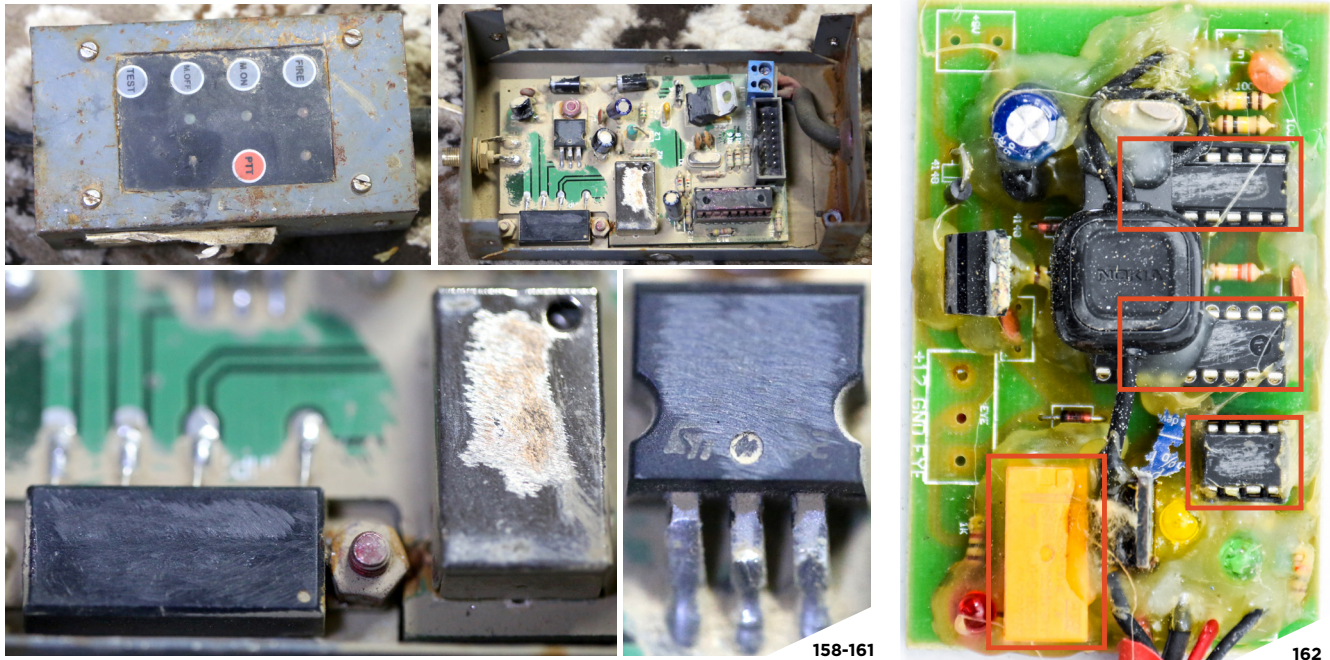


154-157

Figures 154-157: Pink-colored threaded electrical cord from RCIEDs recovered in Bahrain and Yemen and documented in Bahrain and the UAE (top left and right, respectively), in a Bahar-branded junction box recovered from a Qasef-1 UAV in Yemen and documented in the UAE (middle), and from an Iranian UAV intercepted over Israel, documented in Israel (bottom).¹⁵¹

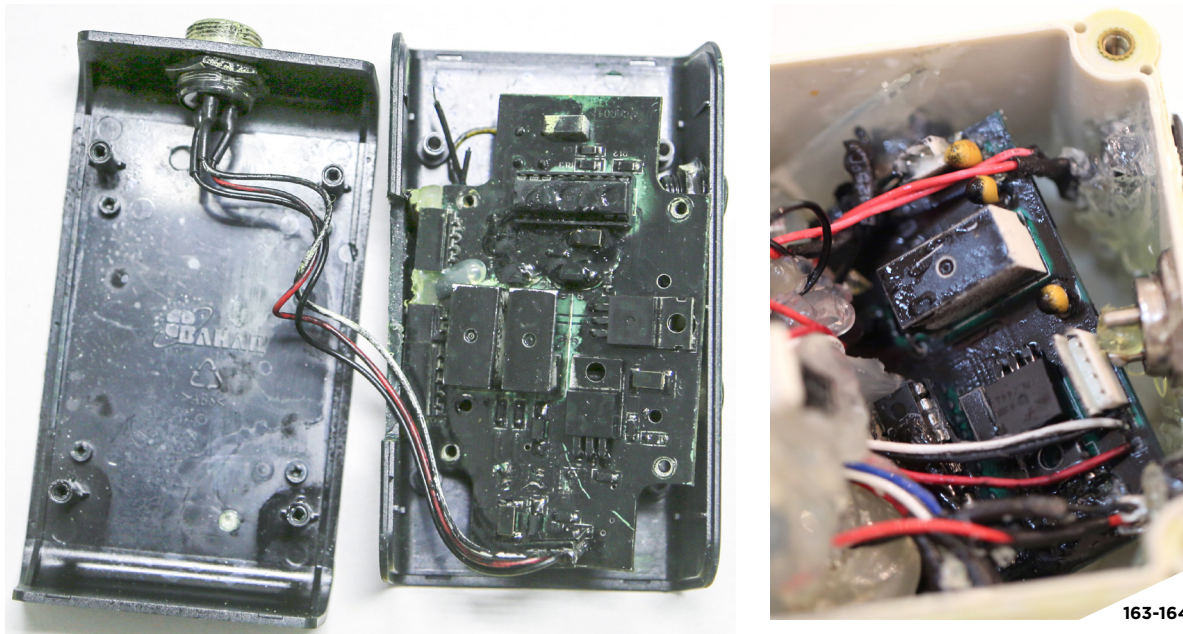
Obliterated Markings

The purposeful obliteration of unique identifiable markings on internal components is a common feature of RCIEDs recovered from Iranian-aligned groups (Figures 158-161).¹⁵² RCIEDs recovered from militants in Bahrain contain components with obliterated markings—either through abrasion or overpainting—including DTMF 20B receiver boards (Figure 162), receiver boards contained within Bahar-branded junction boxes (Figure 163), and receiver boards from MA-RCIEDs (Figure 164).



Figures 158-161: RCIED transmitter containing components with obliterated markings, recovered from the Houthis and documented in Yemen.¹⁵³

Figure 162: DTMF 20B receiver board featuring components with obliterated markings, documented in Bahrain.¹⁵⁴

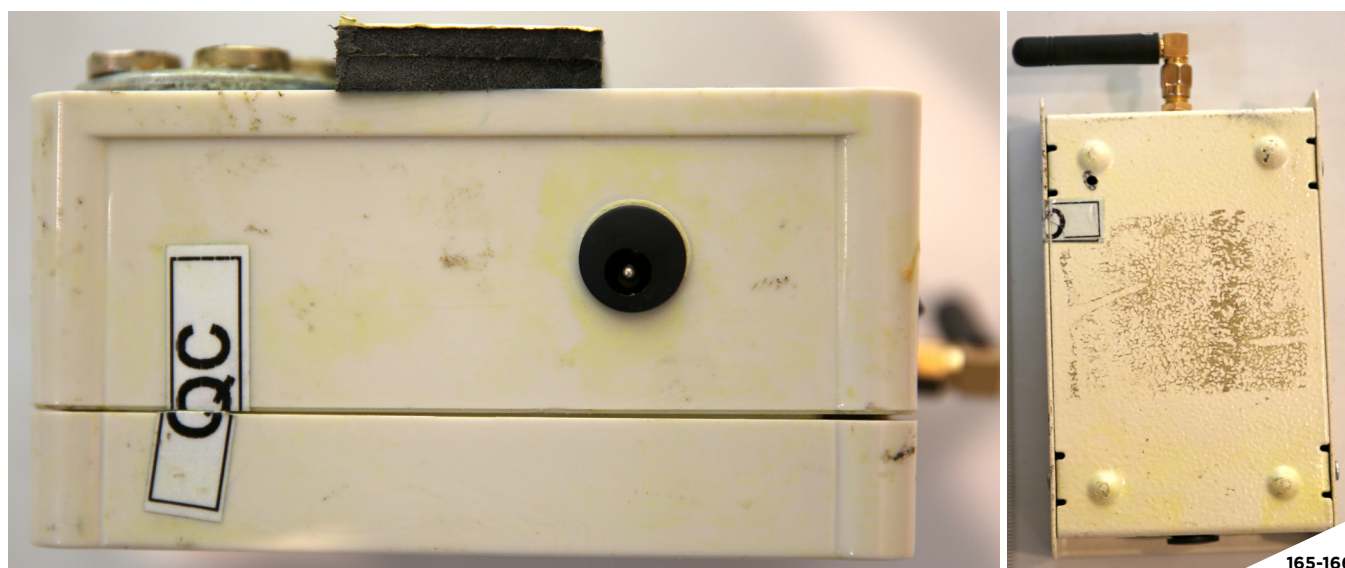


Figures 163 and 164: RCIED receiver board contained in a Bahar-branded junction box (left) and an MA-RCIED (right) featuring overpainted components, documented in Bahrain.¹⁵⁵

Quality Control Stickers

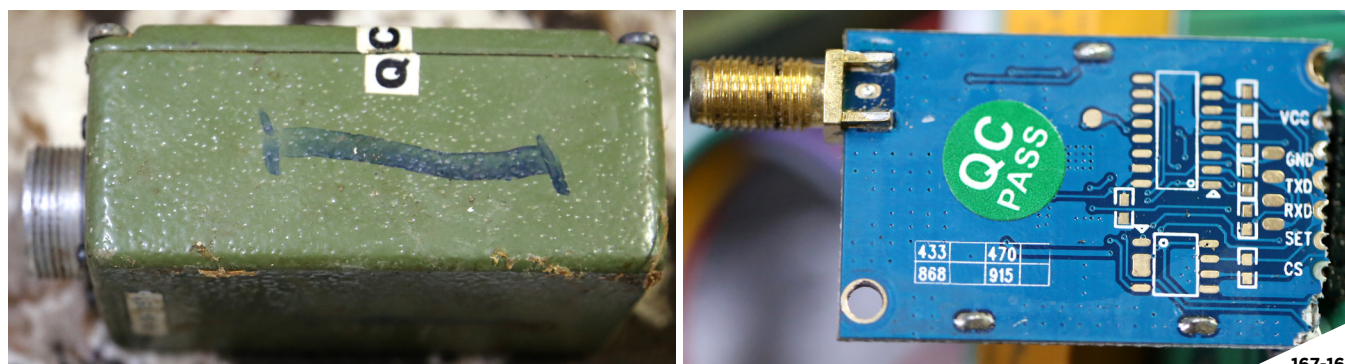
The presence of quality control (QC) stickers is a feature of materiel recovered from Iranian-aligned groups.¹⁵⁶ Several RCIED components recovered in Bahrain featured QC stickers, indicating that they were subjected to a quality-control process and likely manufactured at scale by a state with an industrial base, as opposed to a non-state group. While varying in font, style, and color, QC stickers featured on a range of recovered materiel including:

- RCIED transmitters and receivers recovered in Bahrain (Figures 165 and 166);
- RCIED receivers recovered from the Houthis in Yemen (Figures 167 and 168);
- Qasef-1 UAV components recovered from the Houthis in Yemen, including a Bahar-branded junction box and V10 vertical gyroscope (Figures 169-172; see Box 2: Common Components in Iranian-Supplied UAVs);
- RCIEDs and components recovered from the *Jihan 1* interdiction (Figures 173-175); and,
- Components recovered from an Iranian-manufactured UAV intercepted over Israel (Figure 176; see Box 2: Common Components in Iranian-Manufactured UAVs).



165-166

Figures 165 and 166: QC stickers applied to an MA-RCIED receiver (left) and transmitter (right), documented in Bahrain.¹⁵⁷



167-168

Figures 167 and 168: QC stickers applied on the outside (left) and inside (right) of an RCIED receiver recovered from the Houthis and documented in Yemen.¹⁵⁸



169-172

Figures 169-172: QC stickers on internal components from a Qasef-1 UAV (top, left and right), including a Bahar-branded junction box (bottom left) and V10 vertical gyroscope (bottom right), recovered from the Houthis in Yemen and documented in the UAE.¹⁵⁹



173-175

Figures 173-175: QC stickers on a control unit (top left), PIR sensor (right), and an RCIED receiver (bottom left) recovered from the *Jihan 1* interdiction and documented in Yemen.¹⁶⁰

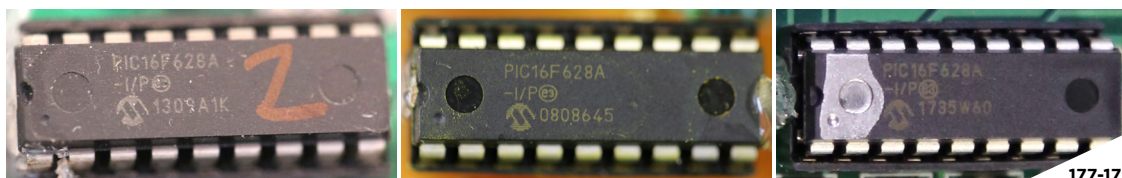


176

Figure 176: QC sticker on a servomotor recovered from an Iranian-manufactured UAV intercepted over Israeli airspace, documented in Israel.¹⁶¹

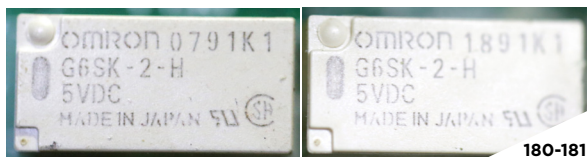
Electronic Components

Several branded electronic components—including microcontrollers, power relays, and voltage regulators—are consistent across RCIEDs recovered in Bahrain and RCIEDs and UAVs recovered from the Houthis in Yemen (Figures 177-205).¹⁶²



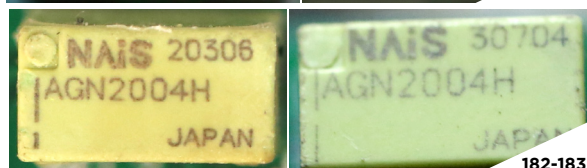
177-179

Figures 177-179: Microchip-branded PIC16F628A microcontrollers on a DTMF receiver board and MA-RCIED receiver documented in Bahrain (left and center) and on an RCIED receiver recovered from the Houthis and documented in Yemen (right).¹⁶³



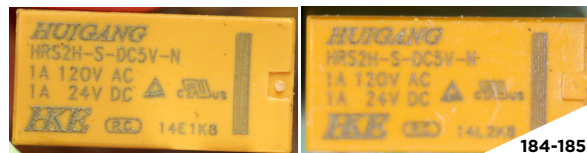
180-181

Figures 180 and 181: Omron-branded GS6K-2-H PCB power relays on an MA-RCIED receiver board documented in Bahrain (left) and on an RCIED receiver board recovered from the Houthis and documented in Yemen (right).¹⁶⁴



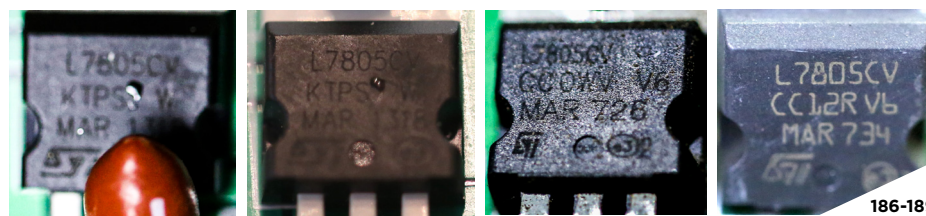
182-183

Figures 182 and 183: NAI S-branded AGN2004G power relays on an RCIED receiver board documented in Bahrain (left) and on an RCIED receiver board recovered from the Houthis and documented in Yemen (right).¹⁶⁵



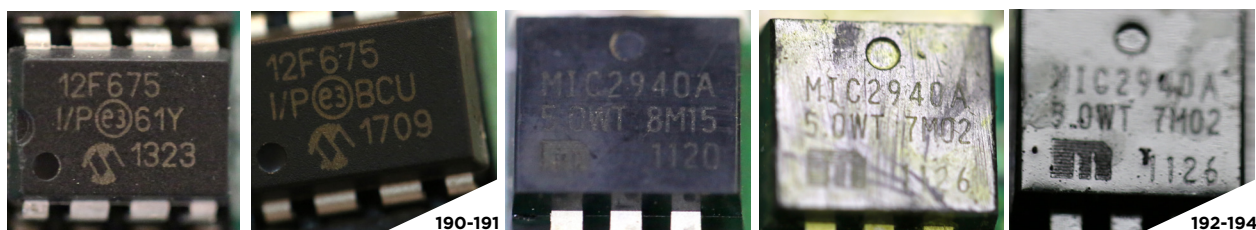
184-185

Figures 184 and 185: HKE-branded HRS2H-S-DC5V-N power relays on a DTMF 20B receiver board documented in Bahrain (left) and on an RCIED receiver board recovered from the Houthis and documented in Yemen (right).¹⁶⁶



186-189

Figures 186-189: STM-branded L7805CV voltage regulators on RCIED transmitter and receiver boards documented in Bahrain (far left and center left) and on RCIED transmitter and receiver boards recovered from the Houthis and documented in Yemen (center right and far right).¹⁶⁷

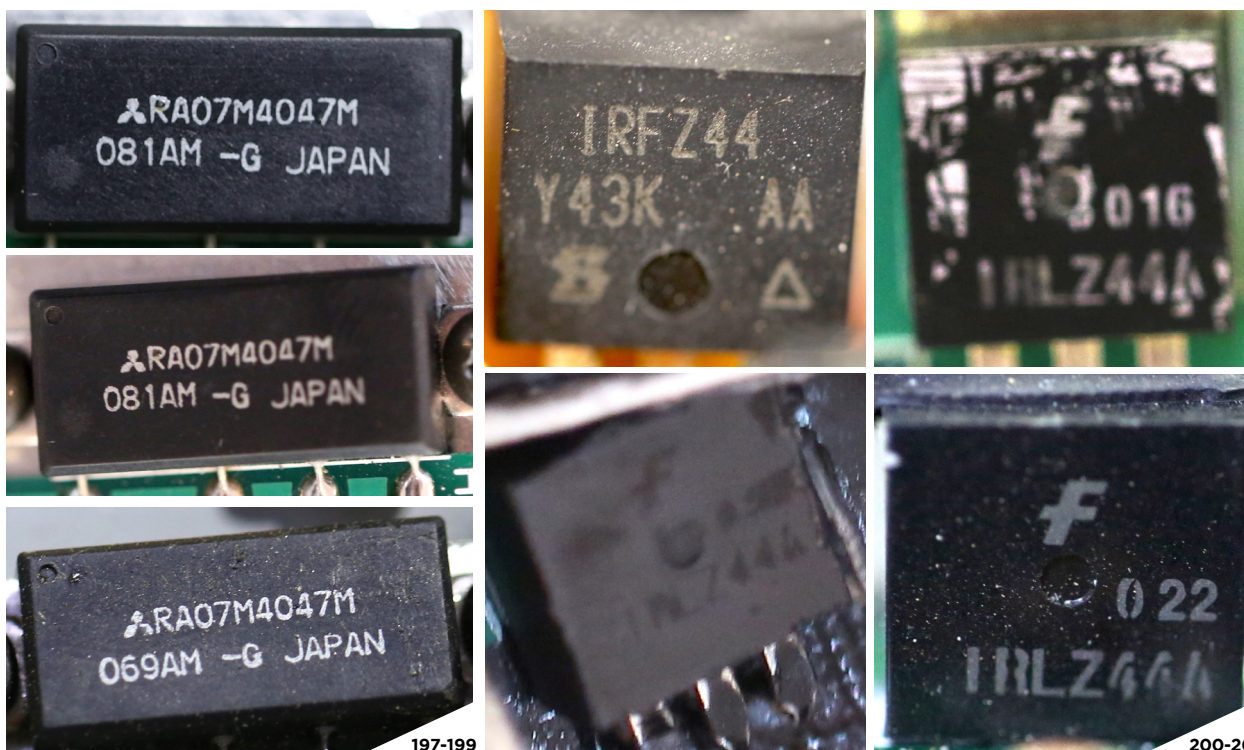


Figures 190 and 191: Microchip-branded 12F675 voltage regulators on an RCIED receiver board (left) and in a PIR sensor (right), documented in Bahrain.¹⁶⁸

Figures 192-194: Microchip-branded MIC2940A voltage regulators on an RCIED receiver board recovered from the Houthis and documented in Yemen (left) and on RCIED receiver boards contained within Bahar-branded junction boxes and documented in Bahrain (center and right).¹⁶⁹

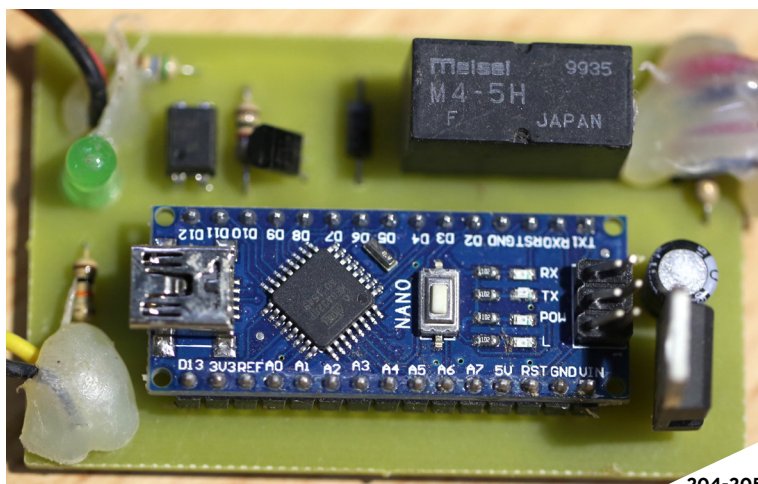


Figures 195 and 196: AXICOM-branded V23105-A50001 power relays on an RCIED receiver board contained inside a Bahar-branded junction box (left) and on an MA-RCIED receiver board (right), documented in Bahrain.¹⁷⁰



Figures 197-199: Mitsubishi-branded RA07M4047M microcontrollers on RCIED transmitter and receiver boards documented in Bahrain (top and middle) and on an RCIED transmitter recovered from the Houthis and documented in Yemen (bottom).¹⁷¹

Figures 200-203: IRFZ44 and IRL444A MOSFET transistors on a DTMF receiver board (top left), on an RCIED receiver board contained within a Bahar-branded junction box (top right), and an MA-RCIED (bottom left) documented in Bahrain and on an RCIED receiver board recovered from the Houthis and documented in Yemen (bottom right).¹⁷²



Figures 204 and 205: An RCIED from the 2015 Bus Case containing an Arduino-branded circuit board, documented in Bahrain (top) and an Arduino-branded circuit board from a Qasef-1 UAV recovered in Yemen (bottom).¹⁷³

Summary

The commonality of components across RCIEDs recovered in Bahrain and RCIEDs and UAVs recovered in Yemen suggests that all of the items were either manufactured in a centralized location or in locations with a shared supply chain. Likewise, the presence of QC stickers on many of the RCIED and UAV components—including fully constructed RCIEDs—suggests that they were manufactured at scale and subjected to a quality-control process, a characteristic generally inconsistent with materiel manufactured by non-state armed groups.

The fact that many of the RCIEDs' internal components featured obliterated markings—or attempts at obliteration—indicates that the entity complicit in their supply had intended to frustrate the ability to trace the components and, therefore, prevent attribution. As shown, RCIEDs and related materiel recovered from militants in Bahrain are either identical to, or share several identical components and construction characteristics with, Iranian-manufactured materiel recovered in Iraq, Israel, Yemen, and from the *Jihan 1* interdiction (see the ***Jihan 1 Case*** section), and thereby implicate Iran as the originator of the RCIEDs recovered in Bahrain.

Box 2: Common Components in Iranian-Manufactured UAVs

UAVs recovered from Iranian-aligned groups across the Levant and Arabian Peninsula featured internal components that correspond with components documented in Iranian military materiel, in RCIEDs recovered in Bahrain and Yemen, and in debris recovered from the September 2019 missile and drone strike on an Aramco oil facility in Abqaiq, Saudi Arabia.¹⁷⁴ This common web of components is one of the best indicators available in attributing the illicit supply of unconventional materiel back to Iran.

Qasef-1 and Samad-variant UAVs in Yemen

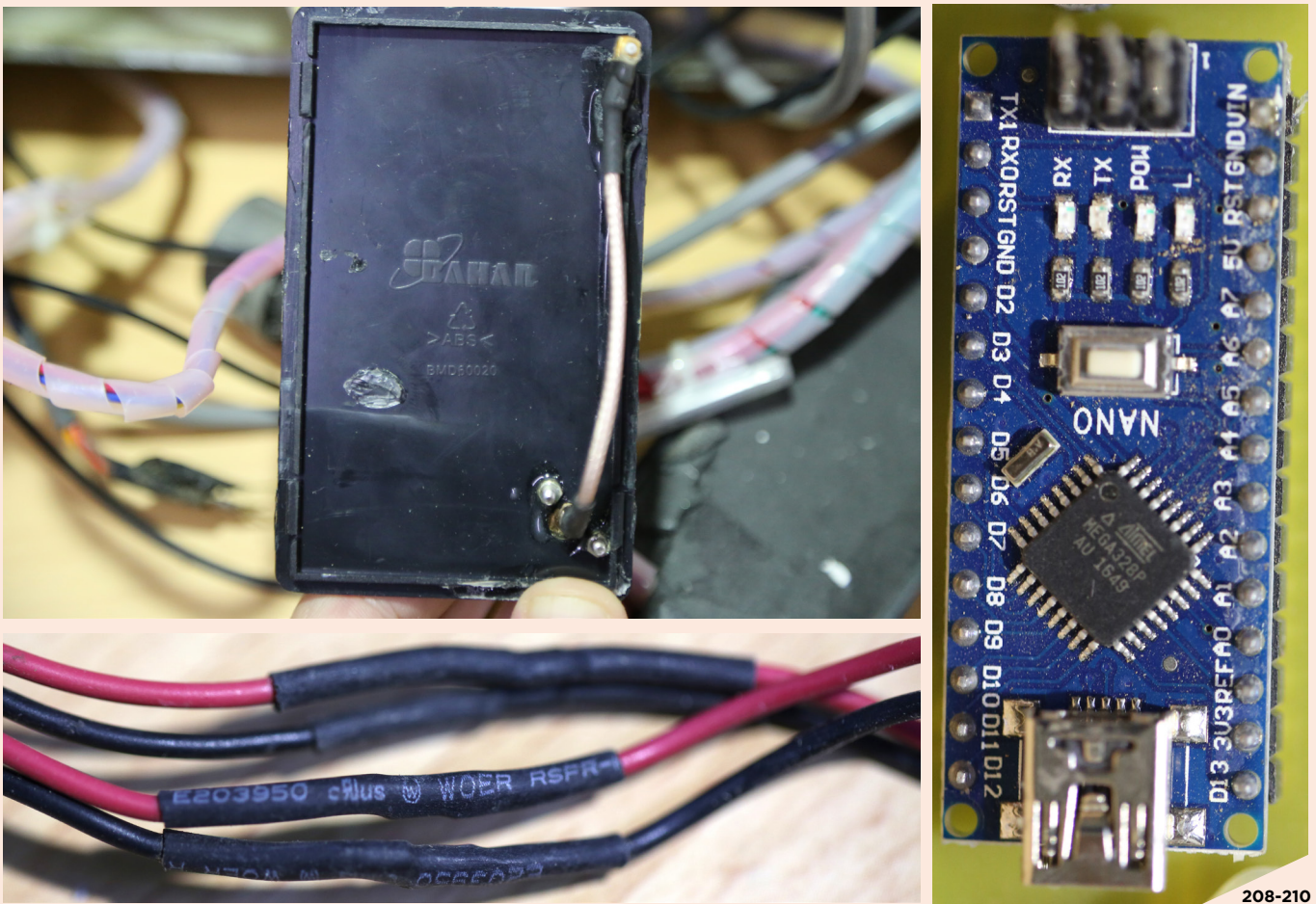
Houthi forces in Yemen employed a range of UAVs—including the Qasef-1 and Samad-variant—that a UN Panel determined are “virtually identical in design, dimensions, and capability” to Iranian-manufactured UAVs (Figures 206 and 207).¹⁷⁵ Qasef-1 UAVs featured several components traced by a UN Panel to distributors in Iran, as well as components that correspond with construction materials used in RCIEDs recovered in Bahrain, including Bahar-branded junction boxes, pink-colored threaded electrical wire, WOER-branded heat-shrink wire covering, and Arduino-branded circuit boards (Figures 208-210).¹⁷⁶

The Qasef-1 and Samad-variant UAVs also featured components that correspond with components documented in Iranian-manufactured UAVs, missiles, and debris recovered after the attack on Aramco facilities in Saudi Arabia including:

- **Hitec-branded servomotors** documented in Qasef-1 and Samad-variant UAVs, in debris from the Aramco attack, and recovered from an Iranian-manufactured Shahed 191 UAV intercepted over Israel in February 2018 (Figures 211-214);¹⁷⁷
- **Tillotson-branded carburetors** documented in a Samad-variant UAV, in debris from the Aramco attack, and in an Iranian-manufactured Ababil-3 UAV recovered in Sudan (Figures 215 and 216);¹⁷⁸ and,
- **Vertical gyroscopes** of an unknown origin documented in Qasef-1 UAVs, in an Ababil-3 UAV in Iraq, in debris from the Aramco attack, and in a Iranian-manufactured 358 surface-to-air missiles (SAM) recovered after maritime interdictions by the USS *Forest Sherman* on November 25, 2019 and the USS *Normandy* on February 9, 2020 (Figures 217-221).¹⁷⁹



Figures 206 and 207: Qasef-1 (top) and Samad-variant UAVs (bottom) recovered from the Houthis in Yemen and documented in the UAE.¹⁸⁰



208-210

Figures 208-210: Bahar-branded junction box featuring a pink-colored threaded electrical cord (top left), WOER-branded heat-shrink wire covering (bottom left), and an Arduino-branded circuit board (right) from a Qasef-1 UAV recovered from the Houthis in Yemen, documented in the UAE.¹⁸¹



211-214

Figures 211-214: Hitec-branded servomotors documented in Qasef-1 and Samad-variant UAVs recovered from the Houthis (left and center left), recovered from debris after the Aramco attack (center right), and from a Shahed 191 UAV intercepted over Israel.¹⁸²



215-216

Figures 215 and 216: Tillotson-branded carburetor from a Samad-variant UAV recovered in Yemen (left) and from debris after the Aramco attack (right).¹⁸³



217-221

Figures 217-221: Vertical gyroscopes recovered from a Qasef-1 UAV in Yemen (top left), an Ababil-3 UAV in Iraq (top center), debris after the Aramco attack (top right), displayed at the Iranian Military Display in Washington, DC (bottom left), and documented in a SAM recovered from the *Forest Sherman* interdiction (bottom right).¹⁸⁴

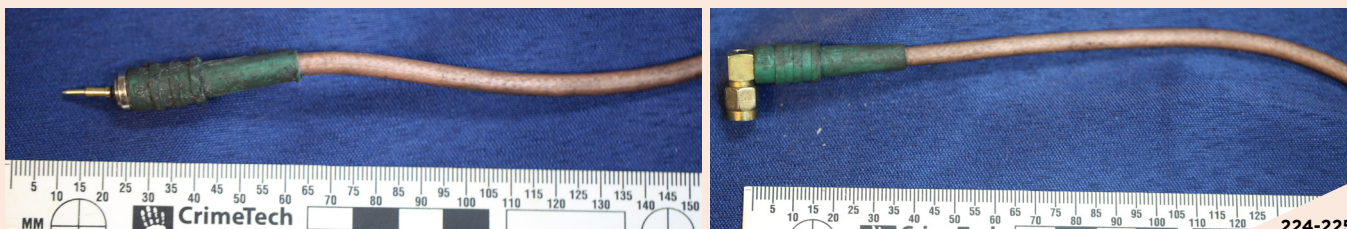
Shahed 191 UAV

In February 2018, the Israeli Defense Forces intercepted an Iranian-manufactured UAV that had entered Israeli airspace from Syria.¹⁸⁵ The UAV—designated “Shahed 191” and claimed to be reverse engineered from a US RQ-170 Sentinel UAV—was shot down with a low-yield missile to preserve its internal components (Figures 222 and 223).¹⁸⁶ The Shahed 191 featured a number of components that correspond with material recovered in RCIEDs in Bahrain, UAVs in Yemen, and debris from the Aramco attack, including: Hitec-branded servomotors (Figures 224-227); pink-colored threaded electrical cord (Figures 224 and 225); Petrol King-branded fuel pressure regulator manufactured by Officina Meccanica Malpassi (Figures 226-228); and, a wooden propeller printed with a serial-number pattern that is visually similar to that of a wooden propeller recovered from debris after of the Aramco attack (Figures 229-231).¹⁸⁷



222-223

Figures 222 and 223: Debris from a ‘Shahed 191’ UAV intercepted over Israeli airspace (left and right), documented in Israel.¹⁸⁸



224-225

Figures 224 and 225: Pink-colored threaded electrical cord recovered from a ‘Shahed 191’ UAV intercepted over Israel (left and right), documented in Israel.¹⁸⁹



Figures 226-228: Wooden propeller recovered from a 'Shahed 191 UAV' intercepted over Israeli airspace (top) and imprinted with a serial-number pattern (in black and red ink) that is visually similar to the serial-number patterning on a wooden propeller recovered after the Aramco attack (middle and bottom).¹⁹⁰

Figures 229-231: Petrol King-branded fuel pressure regulator recovered from a 'Shahed 191' UAV intercepted over Israel (left, top and bottom) and from debris after the Aramco attack (right).¹⁹¹

THE JIHAN 1 CASE

The Background

On January 23, 2013, the Yemeni coast guard, assisted by the US Navy, interdicted a dhow called the *Jihan 1* that was found to be smuggling a significant quantity of conventional and unconventional military materiel.¹⁹² After a thorough investigation by a UN Panel—including the physical inspection of materiel at a warehouse in Aden, Yemen, interviews with the crew, and review of onboard GPS data—five of the eight experts on the UN Panel determined that “all available information placed the Islamic Republic of Iran at the centre of the *Jihan* operation.”¹⁹³ Following the Houthi takeover of Sana’a in September 2014, all of the suspects related to the *Jihan 1* operation, including Lebanese Hezbollah and IRGC personnel, were released from prison.¹⁹⁴ In December 2017 the disruption of an Islamic State in Yemen cell in the al-Mansoura district of Aden recovered remnants of materiel recovered from the *Jihan 1* interdiction, including Iranian M112 C-4, RDX in blue jerry cans, Roquette-branded sorbitol, and RCIED components.¹⁹⁵

The Contents

The *Jihan 1* contained an impressive range of materiel that included 16,723 blocks of C-4 explosive, 316,000 rounds of 7.62 x 39 mm ammunition, 1,615 boxes of RCIED components, sixty-six suppressors, and eight hundred commercial electric detonators, among much else.¹⁹⁶ This materiel provided valuable insight and served as a useful point of reference when trying to determine Iranian culpability in the illicit supply of military materiel to proxy and aligned groups in the region, including to militants in Bahrain.

Partially Sanitized Labels

Hundreds of wooden ammunition boxes recovered from the *Jihan 1* featured crudely sanitized labels. One label that remained intact read “Ministry of Sepah,” the Farsi name of the Ministry of the Guards Corps between 1982 and 1989, before it merged into the Ministry of Defense and Armed Forces Logistics (Figures 232-234).¹⁹⁷ Visually identical wooden ammunition boxes featuring crudely sanitized labels have been documented by a UN Panel in other cases of arms smuggling linked back to Iran (Figure 235).¹⁹⁸

7.62 x 39 mm Ammunition

The *Jihan 1* contained 316,000 rounds of 7.62 x 39 mm ammunition, including significant quantities of Iranian-manufactured ammunition from lot eleven manufactured in 2011 and lot 444 manufactured in 2009 (Figures 236-243). Identical Iranian-manufactured ammunition from these lots and dates of manufacture, including identical packaging, were recovered from militants in Bahrain (see Ammunition section).

Suppressors

The *Jihan 1* contained sixty-six pistol and assault rifle suppressors of unknown manufacture (Figures 244 and 245), which are visually identical to Model A suppressors recovered during the **2013 Tubli Case** in Bahrain (see Modification and Suppressors section).



Figures 232-234: Wooden ammunition boxes recovered from the *Jihan 1* interdiction that featured crudely sanitized labels (top left and bottom) and one label left intact that read 'Ministry of Sepah' (top right), documented in Yemen.¹⁹⁹

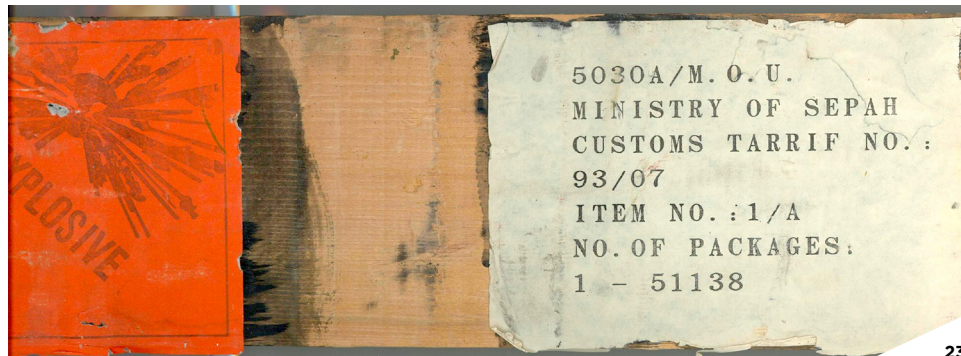


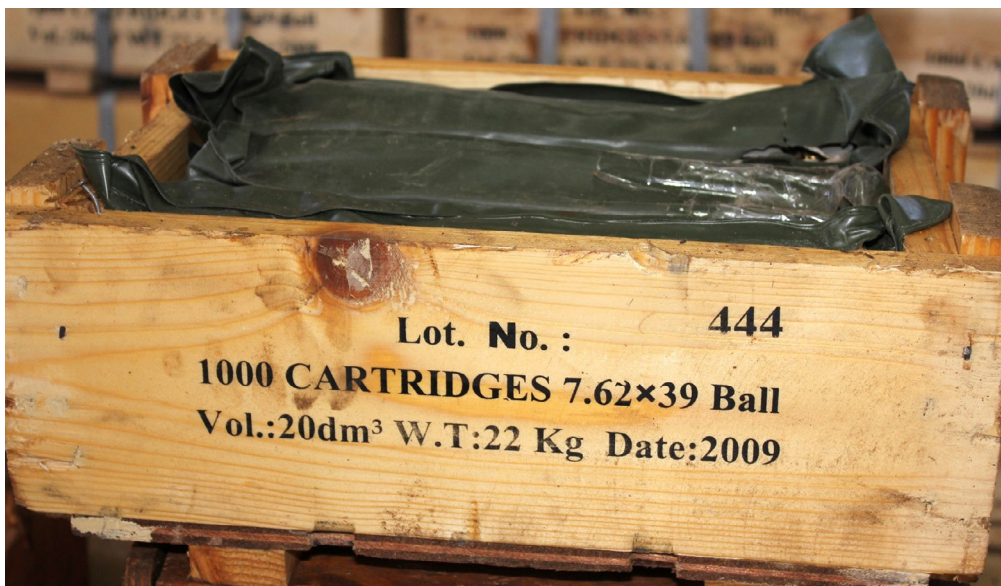
Figure 235: Wooden ammunition box recovered from the MV Francop interdiction with a label that reads 'Ministry of Sepah,' documented in Israel.²⁰⁰



Figure 236: Wooden crates containing Iranian-manufactured ammunition, recovered from the *Jihan 1* interdiction, documented in Yemen.²⁰¹



Figures 237-240: Iranian-manufactured 7.62 x 39 mm ammunition from lot eleven manufactured in 2011, recovered from the *Jihan 1* interdiction, documented in Yemen.²⁰²



Figures 241-243: Iranian-manufactured 7.62 x 39 mm ammunition from production lot 444 manufactured in 2009, recovered from the *Jihan 1* interdiction, documented in Yemen.²⁰³

M112 C-4 Explosive

The *Jihan 1* contained 16,723 blocks of Iranian-manufactured C-4 explosive from five production runs, including: Lot five, date 2008; lot one, date 2009; lot two, date 2009; lot two, date 2010; and lot three, date 2010 (Figures 245-252). C-4 in identical packaging and featuring the markings for lot two, date 2010, was recovered from militants in Bahrain (see C-4 Explosive and Packaging section).



244-245



246-247

Figures 244 and 245: Suppressors recovered from the *Jihan 1* interdiction, documented in Yemen.²⁰⁴

Figures 246 and 247: Iranian-manufactured C-4 explosive recovered from the *Jihan 1* interdiction, documented in Yemen.²⁰⁵



248



249-250



251-252

Figure 248: Iranian-manufactured M112 C-4 explosive from production run lot five, dated 2008, recovered from the *Jihan 1* interdiction, documented in Yemen.²⁰⁶

Figures 249 and 250: Iranian-manufactured M112 C-4 explosive from production runs lot one, date 2009 (top), and lot two, date 2009 (bottom), recovered from the *Jihan 1* interdiction, documented in Yemen.²⁰⁷

Figures 251 and 252: Iranian-manufactured M112 C-4 explosive from production runs lot two, dated 2010 (left), and lot three, dated 2010 (right), recovered from the *Jihan 1* interdiction, documented in Yemen.²⁰⁸

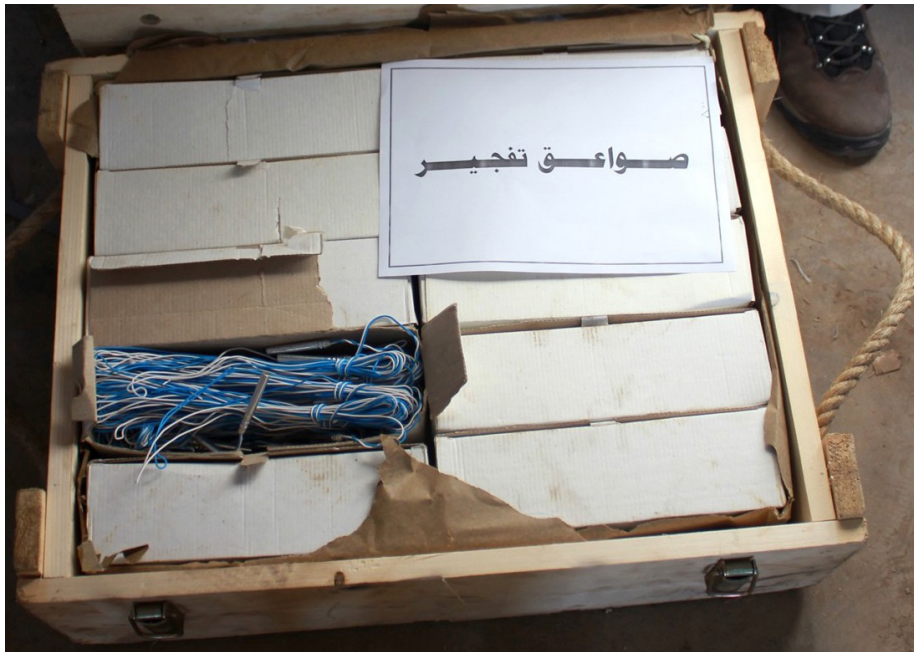
Commercial Electric Detonators

The *Jihan 1* contained eight hundred commercial electric detonators featuring blue and white lead wires, which are visually identical to one of the three types of commercial detonators recovered from militants in Bahrain (Figures 253 and 254; see Commercial Electric Detonators section).

RCIED Components

The *Jihan 1* contained 1,615 boxes of RCIED electronics kits and related components, which are visually identical to RCIEDs recovered from militants in Bahrain, the Houthis in Yemen, and the June 2020 interdiction off the coast of Mohka, Yemen (Figures 255-267; see RCIED Transmitters and Receivers, PIR Sensor, and Common Components and Characteristics sections), including:²⁰⁹

- PIR sensors—both Model A and Model B variants—with red and white braided wires and Matrix-branded wires (Figures 261 and 262);
- RCIED transmitter, receiver, and programming devices contained in metal junction boxes (Figures 263-265); and,
- RCIED receivers sealed in WOER-branded heat-shrink material and featuring a QC sticker (Figures 266 and 267).



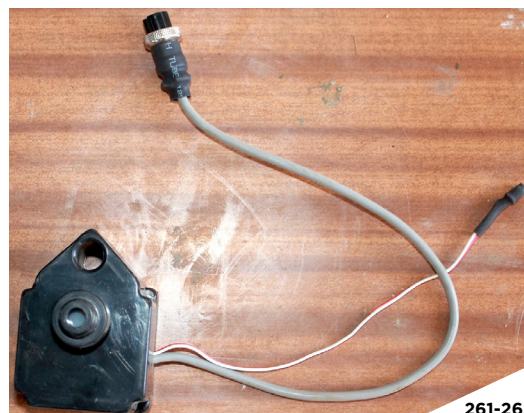
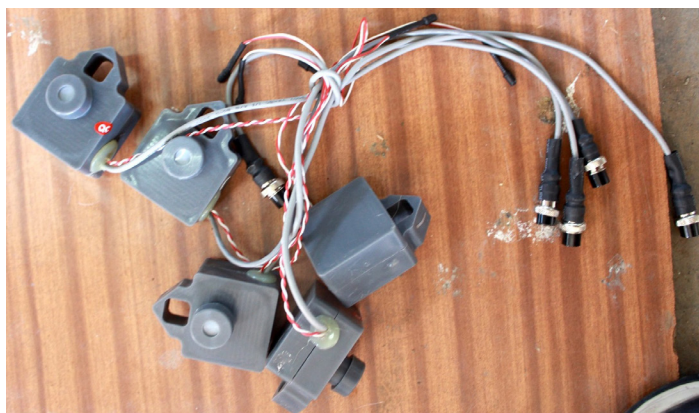
253-254

Figures 253 and 254: Commercial electric detonators with blue and white lead wires, recovered from the *Jihan 1* interdiction, documented in Yemen.²¹⁰



255-260

Figures 255-260: Boxes containing RCIED electronics kits and related components, recovered from the *Jihan 1* interdiction, documented in Yemen.²¹¹



261-262

Figures 261 and 262: 'Model A' and 'Model B' variant PIR sensors (left and right, respectively), recovered from the *Jihan 1* interdiction, documented in Yemen.²¹²



262-265



266

Figures 262-265: RCIED transmitter comingled with other RCIED components (top, left and right) and an RCIED programming unit (bottom), recovered from the *Jihan 1* interdiction, documented in Yemen.²¹³



Figures 266 and 267: RCIED receivers featuring WOER-branded heat-shrink material recovered from the *Jihan 1* interdiction, documented in Yemen.²¹⁴

Conclusion

The body of evidence presented in this report demonstrates that materiel recovered from militants in Bahrain is—in many instances—identical to materiel recovered from Iranian-aligned groups in the region. Moreover, the quantity of the recovered material in these cases comprises the majority of material recovered in several categories. Therefore, it is almost certain that a majority of illicit materiel recovered in Bahrain originated in Iran.

The development of these findings was the result of combined efforts from UN panels, private weapon investigation organizations, and independent researchers and journalists, along with the occasional release of information from national governments. While the public availability of these findings is important, it also is reasonable to believe that Iran may adapt and evolve its techniques, tactics, and procedures in response in order to regain plausible deniability.

The international community should take steps to increase transparency and strengthen monitoring systems to deter illicit weapon transfers—from any actor—and encourage coordination in order to expedite the development and release of future findings, including:

1. Pressure Iran to accede and adhere to international instruments designed to mitigate the illicit proliferation and misuse of conventional materiel and dual-use components, such as the ICAO Convention on the Marking of Plastic Explosives, the Wassenaar Arrangement, and the UN Arms Trade Treaty.²¹⁵
2. Ensure the UN Panel system is properly funded, with specialized technical assistance made available upon request, and dedicate a portion of foreign aid budgets toward supporting independent weapon investigation and arms control research organizations.
3. Standardize third-party verification of illicit materiel recovered from non-state armed actors by facilitating access for UN Panels and independent weapon investigation organizations.
4. Establish regional and international mechanisms to promote the equitable exchange of information among interested governments with access to different aspects of the illicit arms trade.

About the Author

Tim Michetti spent several years documenting the flow of illicit weapons across Africa, Asia, and the Middle East as head of regional operations for Conflict Armament Research, where he established and ran field operations in Bahrain, Israel, Lebanon, Libya, Saudi Arabia, the United Arab Emirates, and Yemen, and supported field operations in Algeria, Egypt, Iraq, Somalia, Syria, and Thailand.

Mr. Michetti currently works with a range of clients on strategic engagement and resource mobilization, including the Bill and Melinda Gates Foundation and the Global Fund, and operates a private advisory firm focused on arms control and supply chain security. He holds an MA in international policy studies with a focus on human security and development from the Middlebury Institute of International Studies at Monterey and currently resides in Washington, DC.

Endnotes

- 1 This report is an unclassified version of that independent assessment.
- 2 A thorough review of supplemental evidence collected from thirty-six key cases from 2013 to 2018, including biometric and electronic data, customs records, and thousands of pages of suspect testimonials, complemented the physical analysis of materiel.
- 3 Images featured in this report come from a variety of sources including publicly available reports from the United Nations, Conflict Armament Research (CAR), news media, or social media posts. Other images were either produced by Bahrain or obtained through collaboration with others and are maintained in that governments's files; on file is the sourcing for these images.
- 4 Bahrain Forensic Science Lab (BFSL), "List of Cases 2013-2018." Note: The list is unpublished, as are BFSL forensic reports and other BFSL material cited in this report.
- 5 Explosives and unconventional materiel profiled in this report are solely associated with the Iran network; accordingly, those sections will not list a distinction between the two networks.
- 6 BFSL, "Firearms Details 2013-2018."
- 7 "Bahrain Weapon Analysis Note," CAR, November 18, 2018, 8-9, using BFSL data. Note: The numbers in Table 1 have been updated to accurately reflect the number of pistols and assault rifles recovered by Bahraini PSF and are not reflected in the original analysis conducted by CAR.
- 8 *Weapon Supplies into South Sudan's Civil War: Regional Re-transfer and International Intermediaries*, CAR, November 2018, 32, <https://www.conflictarm.com/reports/weapon-supplies-into-south-sudans-civil-war/>.
- 9 BFSL, "List of Cases 2013-2018."
- 10 BFSL, Forensic Report of July 21, 2015.
- 11 Michael Knights, "Iranian EFPs in the Gulf: An Emerging Strategic Risk," Washington Institute for Near East Policy, February 23, 2016, <https://www.washingtoninstitute.org/policy-analysis/view/iranian-efps-in-the-gulf-an-emerging-strategic-risk>.
- 12 BFSL, Forensic Report of July 7, 2013.
- 13 BFSL, "Firearms Details 2013-2018."
- 14 Conversation with the head of the BFSL firearms section, September 26, 2019.
- 15 BFSL, "Firearms Details 2013-2018." Note: The BFSL was able to recover the serial number but unable to recover the factory marking on two of the Type 56-1 rifles.
- 16 National militaries typically order and receive large consignments of SALW. For example, in singular orders, France purchased one hundred thousand assault rifles, India purchased 72,400, and Poland purchased 53,000. See, respectively, <https://nationalinterest.org/blog/buzz/why-france-loves-heckler-koch-hk416-rifle-45492>; <https://www.shephardmedia.com/news/landwarfareintl/india-orders-sig-716-rifles/>; and <https://www.shephardmedia.com/news/landwarfareintl/mspo-2017-polish-army-inks-half-billion-dollar-rif/>.
- 17 *Maritime Interdictions of Weapon Supplies to Somalia and Yemen: Deciphering a Link to Iran*, CAR, November 2016, 5, <https://www.conflictarm.com/dispatches/maritime-interdictions-of-weapon-supplies-to-somalia-and-yemen/>.
- 18 Jay Bahadur, "Snapping Back Against Iran: The case of the Al Bari 2 and the UN arms embargo," Global Initiative Against Transnational Organized Crime, November 30, 2020, <https://globalinitiative.net/analysis/iran-pb/>.
- 19 BFSL, Forensic Report of December 1, 2016; "Court Verdicts Upheld in Terror Case," Bahrain News Agency, May 6, 2019, <https://www.bna.bh/en/Courtverdict-supheldinterrorcase.aspx?cms=q8FmFJgiscL2fwlZ-ON1%2BDr9Jcl%2BJ%2BEut9yqHe6c5iJk%3D>.
- 20 BFSL, Forensic Report of July 21, 2015. Note: Figures 8-11 featured a unique identifier used by the BFSL that was digitally obscured to preserve confidentiality of the lab's catalog system.
- 21 BFSL, Forensic Reports of February 13, May 23, and June 26, 2017, and of February 4, 2018. Note: Figures 14 and 20 featured a unique identifier used by the BFSL that was digitally obscured to preserve confidentiality of the lab's catalog system.
- 22 BFSL, Forensic Report of December 1, 2016.
- 23 UN Panel report, S/2019/83 (January 2019): 35-36 and 106-108, <https://undocs.org/en/S/2019/83>.
- 24 UN Panel report, S/2019/83, 108.
- 25 UN Panel report, S/2019/83, 108.
- 26 UN Panel report, S/2020/326 (2020): 115-116, <https://www.undocs.org/s/2020/326>; a conversation with a weapon investigator, June 29, 2020.
- 27 "Shipment of Iranian Weapons, Farsi Material Intercepted en Route to Yemen," *Al Arabiya*, June 29, 2020, <https://english.alarabiya.net/en/News/middle-east/2020/06/29/Exclusive-Shipment-of-Iranian-weapons-Farsi-material-intercepted-en-route-to-Yemen>. Note: The Saudi-led coalition was formed in March 2015 to support the Yemeni government after the Houthi takeover of Sana'a, Yemen's capital.
- 28 "Civil Society Observatory of Illicit Economies in Eastern and Southern Africa," Global Initiative Against Transnational Organized Crime, Risk Bulletin no. 10 (July-August 2020): 2-7, <https://globalinitiative.net/wp-content/uploads/2020/08/Civil-Society-Observatory-of-Illicit-Economies-in-Eastern-and-Southern-Africa-Risk-Bulletin-10.pdf>; Twitter posts of self-described independent arms researcher dubbed Calibre Obscura on June 29, 2020, <https://twitter.com/CalibreObscura/status/1277696008428929027>, and June 30, 2020, <https://twitter.com/CalibreObscura/status/127800006305116545>.
- 29 UN Panel report, S/2019/83, 35-36 and 106-108.
- 30 UN Panel report, S/2020/326, 115-116.
- 31 BFSL, Forensic Report of December 28, 2013; "Bahrain Foils Weapon Smuggling Attempt," *Gulf News*, December 30, 2013, <https://gulfnews.com/world/gulf/bahrain/bahrain-foils-weapon-smuggling-attempt-1.1272184>.
- 32 Note: The serial-number format on some Iranian-manufactured materiel consists of a two-number prefix, followed by three letters and a five-number affix (e.g. ##XXX#####).
- 33 Thomas Gibbons-Neff, "How Iranian Weapons Are Ending Up in Yemen," *Washington Post*, November 30, 2016, <https://www.washingtonpost.com/news/checkpoint/wp/2016/11/30/how-iranian-weapons-are-ending-up-in-yemen/>.
- 34 *Maritime Interdictions*, 10; Calibre Obscura post of June 30, 2020; and "HMAS Darwin Seizes Large Weapons Cache," the Royal Australian military's Navy Daily, March 7, 2016, <https://news.navy.gov.au/en/Mar2016/Operations/2744/HMAS-Darwin-seizes-large-weapons-cache.htm#.XvrDv2pKi3I>.
- 35 BFSL, Forensic Report of December 28, 2013.
- 36 *Maritime Interdictions*, CAR, 11.
- 37 *Maritime Interdictions*, CAR, 10.
- 38 BFSL, Forensic Report of July 7, 2013; "Terror Cell 11 Jailed Over Arms Cache in Bahrain," *Trade Arabia*, March 29, 2014, http://www.tradearabia.com/news/LAW_254295.html.
- 39 BFSL, "List of Cases 2013-2018."
- 40 "Azerbaijan as an Arena for Iranian Terrorism and Subversion," Meir Amit Intelligence and Terrorism Information Center, November 4, 2012, 9, <https://www.terrorism-info.org>.

- il/Data/articles/Art_20416/E_199_12_932157709.pdf.
- 41 BFSL, Forensic Report of July 7, 2013.
 - 42 BFSL, Forensic Report of July 7, 2013.
 - 43 BFSL, Forensic Report, July 7, 2013.
 - 44 BFSL, Forensic Report, July 7, 2013; UN Panel; on file.
 - 45 BFSL, Forensic Report of July 7, 2013; "Azerbaijan as an Arena for Iranian Terrorism and Subversion," 9.
 - 46 "The More You Know: Cosmoline Chemistry," the Firearms Blog, January 11, 2017, <https://www.thefirearm-blog.com/blog/2017/01/11/cosmoline-chemistry/>.
 - 47 BFSL, Forensic Report of August 5, 2017. Note: Figure 49 featured a unique identifier used by the BFSL that was digitally obscured to preserve confidentiality of the lab's catalog system.
 - 48 BFSL, "Firearms Details 2013-2018."
 - 49 "Bahrain Prison-Breakers Captured after Boat Escape Bid," *Middle East Eye*, February 9, 2017, <https://www.middleeasteye.net/news/bahrain-prison-breakers-captured-after-boat-escape-bid>.
 - 50 BFSL, Forensic Report of February 9, 2017; *Matthew Levitt* and *Michael Knights*, "Iranian-Backed Terrorism in Bahrain: Finding a Sustainable Solution," Washington Institute for Middle East Policy, January 11, 2017, accessed October 2019, <https://www.washingtoninstitute.org/policy-analysis/view/iranian-backed-terrorism-in-bahrain-finding-a-sustainable-solution>. Note: The BFSL exploited the drone's memory card, revealing that it was programmed in Ahvaz, Iran.
 - 51 BFSL, Forensic Report of February 9, 2017; conversation with a weapons investigator, November 15, 2018.
 - 52 BFSL, "Firearms Details 2013-2018."
 - 53 Conversation with the head of the BFSL physics section, October 8, 2019. Note: TACTICAL HULK pistols are not commercially available in Bahrain, and therefore must have originated outside of the country.
 - 54 BFSL, Forensic Report of February 9, 2017.
 - 55 BFSL, Forensic Report of December 28, 2013..
 - 56 BFSL, Forensic Reports of April 23, 2014, and September 28, 2015.
 - 57 BFSL, "List of Cases 2013-2018."
 - 58 BFSL, "List of Cases 2013-2018."
 - 59 BFSL, "Ammunition Details 2011-2018."
 - 60 BFSL, Forensic Report of July 7, 2013; "Weapons and Ammunition Confiscated in Tubli," Police Media Center website, July 4, 2013, accessed October 2019, <https://www.policemc.gov.bh/en/videos/tv-news/38795>.
 - 61 "Bahrain Ammunition Analysis Note," CAR, 6-7.
 - 62 BFSL, "List of Cases 2013-2018."
 - 63 BFSL, Forensic Reports of July 7, 2013, and July 21, 2015.
 - 64 UN Panel image on file.
 - 65 BFSL, "List of Cases 2013-2018."
 - 66 BFSL, Forensic Reports of December 28, 2013, and September 28, 2015.
 - 67 BFSL, Forensic Reports of December 28, 2013, and August 5, 2017; DIO catalog (no longer available online), section two, 71, Ammunition and Metallurgy Industries Group, fragmentation grenade (with cast iron) and fragmentation grenade (steel shot).
 - 68 BFSL, Forensic Reports of September 28, 2015, and August 5, 2017.
 - 69 BFSL, "List of Cases 2013-2018."
 - 70 BFSL, "List of Cases 2013-2018."
 - 71 BFSL, Forensic Report of December 28, 2013.
 - 72 BFSL, "Ammunition Details 2011-2018"; and "Bahrain Ammunition Analysis Note," CAR, 7-10. Note: The numbers in Table 7 have been updated to accurately reflect the quantity of ammunition recovered by Bahraini PSF and are not reflected in the original analysis conducted by CAR.
 - 73 BFSL, "Firearms Details 2013-2018." Note: TACTICAL HULK pistols were recovered with a mixture of four types of ammunition featuring the headstamps NNY .32 Auto, S&B, LC 52, and HP 7.65.
 - 74 BFSL, "Ammunition Details 2011-2018."
 - 75 BFSL, "List of Cases 2013-2018."
 - 76 BFSL, "Ammunition Details 2011-2018."
 - 77 "Bahrain Ammunition Analysis Note," CAR, 7-10.
 - 78 "Bahrain Ammunition Analysis Note," CAR, 7-10.
 - 79 BFSL, "List of Cases 2013-2018."
 - 80 *The IED Threat in Bahrain: A Comparative Analysis of Components Documented in the Gulf Region*, CAR, December 2019, 20 and 44, <https://www.conflictarm.com/reports/the-ied-threat-in-bahrain/>.
 - 81 BFSL, "List of Cases 2013-2018."
 - 82 BFSL, "List of Cases 2013-2018."
 - 83 BFSL, "Forensic Analysis of C-4 Explosive 2011-2018."
 - 84 Convention on the Marking of Plastic Explosives for the Purpose of Detection, <https://www.un.org/ruleoflaw/files/3dd90f0c7.pdf>. Note: Signatories to the ICAO Convention agreed to include a physical or chemical taggant during the manufacture of C-4 in order to enable its detection or identify its source of manufacture.
 - 85 List of signatories, Convention on the Marking of Plastic Explosives for the Purpose of Detection, https://www.icao.int/secretariat/legal/List%20of%20Parties/MEX_EN.pdf.
 - 86 John Ismay wrote in the *New York Times* "At War" blog titled "The Most Lethal Weapon Americans Faced in Iraq," and dated October 18, 2013, that Iranian-manufactured C-4 is "packaged nearly identically to the original [American] M112 blocks. (Of note, the American M112 blocks changed their markings slightly in 1996 ... Iranian M112 block markings mimic the pre-1996 markings.)" <https://atwar.blogs.nytimes.com/2013/10/18/the-most-lethal-weapon-americans-faced-in-iraq/?searchResultPosition=1>.
 - 87 BFSL, Forensic Report of December 29, 2013; UN Panel image on file, respectively.
 - 88 BFSL, Forensic Report of January 23, 2018.
 - 89 BFSL, Forensic Reports of July 21, 2015, and January 23, 2018.
 - 90 BFSL, "List of Cases 2013-2018."
 - 91 BFSL, "List of Cases 2013-2018"; Habib Toumi, "Suspects Arrested in Explosive Smuggling Case," *Gulf News*, April 1, 2015, <https://gulfnews.com/world/gulf/bahrain/suspects-arrested-in-explosive-smuggling-case-1.1483760>. Note: The bus originated in Iraq and transited Saudi Arabia on its way to Bahrain; the suspects involved claimed to have received the package containing the commercial electric detonators (and RCIED electronic kits) from a man in Iraq.
 - 92 Twitter post from the Presidency of State Security of Saudi Arabia on September 28, 2019, https://twitter.com/pss_en/status/1310702460907016192.
 - 93 BFSL, "List of Cases 2013-2018."
 - 94 BFSL, Forensic Reports of December 28, 2013, and March 15, 2015.
 - 95 *The IED Threat in Bahrain*, CAR, 43.
 - 96 *The IED Threat in Bahrain*, CAR, 44.
 - 97 BFSL, "List of Cases 2013-2018."
 - 98 BFSL, Forensic Reports of December 28, 2013, and September 28, 2015; *The IED Threat in Bahrain*, CAR, 20, respectively."
 - 99 DIO catalog (no longer available online), section six, Chemical Industries Group, detonating cord PT 165 (HMX charge).
 - 100 BFSL, "List of Cases 2013-2018."
 - 101 BFSL, "List of Cases 2013-2018."

- 102 BFSL, Forensic Report of December 28, 2013.
- 103 BFSL, "List of Cases 2013-2018."
- 104 BFSL, Forensic Report of December 28, 2013.
- 105 BFSL, "List of Cases 2013-2018."
- 106 BFSL, "List of Cases 2013-2018."
- 107 Note: DTMF receiver boards contained within a white junction box were recovered in three cases: sealed in an orange heat-shrink wrap in one case, sealed in blue heat-shrink wrap in one case, and sealed in either orange, blue, or black colored heat-shrink wrap in one case.
- 108 *Mines and IEDs Employed by Houthi Forces on Yemen's West Coast*, CAR, September 2018, 23, <https://www.conflictarm.com/dispatches/mines-and-ieds-employed-by-houthi-forces-on-yemens-west-coast/>.
- 109 *Mines and IEDs Employed by Houthi Forces*, CAR, 19-20 and 25.
- 110 BFSL, "List of Cases 2013-2018."
- 111 BFSL, Forensic Reports of December 28, 2013, and January 23, 2018.
- 112 BFSL, Forensic Report of March 15, 2015.
- 113 BFSL, Forensic Report of June 6, 2015.
- 114 BFSL, Forensic Report of September 28, 2015.
- 115 BFSL, Forensic Report of June 6, 2015.
- 116 BFSL, Forensic Report of June 6, 2015.
- 117 BFSL, "List of Cases 2013-2018."
- 118 *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, February 2020, 22, <https://www.conflictarm.com/dispatches/evolution-of-uavs-employed-by-houthi-forces-in-yemen/>.
- 119 Report of UN Panel of Experts on Yemen, S/2018/594, 156, <https://www.undocs.org/en/S/2018/594>.
- 120 *The IED Threat in Bahrain*, CAR, 48; *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 10, respectively.
- 121 BFSL, Forensic Report of June 23, 2017.
- 122 BFSL, Forensic Report of March 13, 2017.
- 123 BFSL, "List of Cases 2013-2018."
- 124 *Mines and IEDs Employed by Houthi Forces*, CAR, 23.
- 125 Calibre Obscura Twitter post of June 29, 2020, <https://twitter.com/CalibreObscura/status/1277696010337255430>.
- 126 BFSL, Forensic Report of January 23, 2018; UN Panel image on file, respectively.
- 127 *The IED Threat in Bahrain*, CAR, 36; *Mines and IEDs Employed by Houthi Forces*, CAR, 23; UN Panel image on file; Calibre Obscura, June 29, 2020, respectively.
- 128 Calibre Obscura Twitter post of June 29, 2020.
- 129 BFSL, "List of Cases 2013-2018."
- 130 BFSL, Forensic Report of June 23, 2017.
- 131 *Radio-Controlled, Passive Infrared-Initiated IEDs: Iran's Latest Technological Contributions to the War in Yemen*, CAR, March 2018, 8-9.
- 132 BFSL, Forensic Report of June 23, 2017.
- 133 BFSL, Forensic Report of June 23, 2017.
- 134 BFSL, Forensic Report of June 23, 2017.
- 135 BFSL, Forensic Report of January 23, 2018.
- 136 BFSL, Forensic Report of January 23, 2018; *Mines and IEDs Employed by Houthi Forces*, CAR, 8, respectively.
- 137 BFSL, "List of Cases 2013-2018."
- 138 *Mines and IEDs Employed by Houthi Forces*, CAR, 19-20.
- 139 BFSL, "List of Cases 2013-2018."
- 140 *The IED Threat in Bahrain*, CAR, 37; BFSL, Forensic Report of June 6, 2015; UN Panel images on file, respectively.
- 141 *Mines and IEDs Employed by Houthi Forces*, CAR, 20.
- 142 BFSL, Forensic Report of June 6, 2015; UAE image on file, documented by CAR; UN Panel image on file, respectively.
- 143 Shenzhen WOER Heat-Shrinkable Material Co. Ltd. website, <https://en.woer.com/index.html>. Note: WOER also trades under the name WOLIDA, which also is present on materiel recovered in Bahrain, Yemen, and from the *Jihan 1* interdiction.
- 144 *Radio-Controlled, Passive Infrared-Initiated IEDs*, CAR, 10-11.
- 145 Report of UN Panel, S/2018/594, 31.
- 146 UAE image on file, documented by CAR; *Radio-Controlled, Passive Infrared-Initiated IEDs*, CAR, 10, respectively.
- 147 UAE image on file, documented by CAR.
- 148 UN Panel image on file.
- 149 UAE image on file, documented by CAR.
- 150 Loveday Morris and Ruth Eglash, "The Drone Shot Down by Israel Was an Iranian Copy of a US Craft, Israel Says," Washington Post, February 11, 2018, https://www.washingtonpost.com/world/israel-confirms-downed-jet-was-hit-by-syrian-anti-aircraft-fire/2018/02/11/bd42a0b2-0f13-11e8-8ea1-c1d91fcec3fe_story.html.
- 151 BFSL, Forensic Report of March 15, 2015; UAE images on file, documented by CAR; *Radio-Controlled, Passive Infrared-Initiated IEDs*, CAR, 11; Israel image on file, documented by CAR, respectively.
- 152 *Mines and IEDs Employed by Houthi Forces*, CAR, 23.
- 153 *Mines and IEDs Employed by Houthi Forces*, CAR, 23.
- 154 BFSL, Forensic Report of January 23, 2018.
- 155 *The IED Threat in Bahrain*, CAR, 49; BFSL, Forensic Report of June 23, 2017, respectively.
- 156 *The IED Threat in Bahrain*, CAR, 46-48.
- 157 *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 23; BFSL, Forensic Report of June 23, 2017.
- 158 *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 23; UAE images on file, documented by CAR, respectively.
- 159 *The IED Threat in Bahrain*, CAR, 47; UAE images on file, documented by CAR, respectively.
- 160 *The IED Threat in Bahrain*, CAR, 40 and 48; UN Panel images on file, respectively.
- 161 *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 24.
- 162 *The IED Threat in Bahrain*, CAR, 49-51.
- 163 BFSL, Forensic Report of June 23, 2017; UAE image on file, documented by CAR, respectively.
- 164 BFSL, Forensic Report of June 23, 2017; UAE image on file, documented by CAR, respectively.
- 165 BFSL, Forensic Report of June 23, 2017; UAE image on file, documented by CAR, respectively.
- 166 BFSL, Forensic Report of June 23, 2017; UAE image on file, documented by CAR, respectively.
- 167 BFSL, Forensic Report of January 23, 2018; UAE images on file, documented by CAR, respectively.
- 168 BFSL, Forensic Report of January 23, 2018.
- 169 UAE image on file, documented by CAR; BFSL, Forensic Report of March 13, 2017, respectively.
- 170 BFSL, Forensic Reports of March 13, 2017, and January 23, 2018.
- 171 BFSL, Forensic Report of January 23, 2018; UAE images on file, documented by CAR, respectively.
- 172 BFSL, Forensic Reports of March 13, 2017, and January 23, 2018; UAE image on file, documented by CAR, respectively.
- 173 BFSL, Forensic Report of March 15, 2015; UAE image on file, documented by CAR, respectively.
- 174 *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 10.
- 175 UN Panel report, S/2018/594, 32; UN Panel report, S/2020/326, 21.
- 176 Tim Michetti, "Expediting Evidence of Iranian Attacks: The Aramco Case," Washington Institute for Near East Policy, January 21, 2020, <https://www.washingtoninstitute.org/policy-analysis/view/expediting-evidence-of-iranian-attacks-the-aramco-case>; UN Panel report, S/2018/594, 156.

- 177 UN Panel report, S/2020/326, 95; *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 21.
- 178 UN Panel report, S/2020/326, 95; *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 21; Jonah Leff and Emilie LeBrun, "Following the Thread: Arms and Ammunition Tracing in Sudan and South Sudan," Smalls Arms Survey series, no. 32 (May 2014): 64, accessed October 2019, <https://www.files.ethz.ch/isn/186158/HSBA-WP32-Arms-Tracing.pdf>.
- 179 UN Panel report, S/2020/326, 93 and 122; "U.S. Dhow Interdictions," US Central Command website, February 19, 2020, <https://www.centcom.mil/MEDIA/NEWS-ARTICLES/News-Article-View/Article/2087998/us-dhow-interdic-tions/>; "Technical Commentary on a Captured Iranian UAV," Iran Intel, February 13, 2017, <https://inteloniran.blogspot.com/2017/02/technical-commentary-on-captured.html>.
- 180 *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 15 and 30.
- 181 *The IED Threat in Bahrain*, CAR, 49; UAE images on file, documented by CAR, respectively.
- 182 *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 21; UN Panel report, S/2020/326, 95, respectively.
- 183 UAE image on file, documented by CAR; UN Panel report, S/2020/326, 95, respectively.
- 184 *Evolution of UAVs Employed by Houthi Forces in Yemen*, CAR, 19; "Technical Commentary on a Captured Iranian UAV"; UN Panel report, S/2020/326, 93 and 122, respectively.
- 185 Isabel Kershner, "Iranian Drone Launched from Syria Was Armed, Israel Says," *New York Times*, April 14, 2018, <https://www.nytimes.com/2018/04/14/world/middleeast/syria-iran-israel-drone.html>.
- 186 Conversation with an Israel Defense Forces exploitation team member (May 30, 2018); "The Drone Shot Down by Israel Was an Iranian Copy of a US Craft, Israel Says"; Seth J. Frantzman, "Inside Iran's Massive Drone Army," *Jerusalem Post*, June 8, 2020, <https://www.jpost.com/middle-east/inside-irans-massive-drone-army-630623>.
- 187 UN Panel report, S/2020/326, 94; Humeyra Pamuk, "US Probe of Saudi Oil Attack Shows It Came from North," Reuters, December 19, 2019, <https://www.reuters.com/article/us-saudi-aram-co-attacks-iran-exclusive/exclusive-u-s-probe-of-saudi-oil-attack-shows-it-came-from-north-report-idUSKBN1YN299>.
- 188 Israel images on file, documented by CAR.
- 189 Israel images on file, documented by CAR.
- 190 Israel image on file, documented by CAR; "US Probe of Saudi Oil Attack," Reuters, respectively.
- 191 Israel images on file, documented by CAR; UN Panel report, S/2020/326, 94, respectively.
- 192 UN Panel report, S/2013/331, 14-15, http://www.security-councilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/s_2013_331.pdf; Louis Charbonneau and Michelle Nichols, "Arms Ship Seized by Yemen May Have Been Somalia-Bound," Reuters, July 1, 2013, <https://www.reuters.com/article/us-somalia-arms-un/exclusive-arms-ship-seized-by-yemen-may-have-been-somalia-bound-u-n-idUSBRE9610IE20130702>.
- 193 UN Panel report, S/2013/331, 14-15.
- 194 UN Panel of Experts on Yemen report, S/2015/125, 38. "According to a senior Yemeni official, despite official accusations about the involvement of the Islamic Republic of Iran in this case, and the subsequent denials of both the Islamic Republic of Iran and the Houthis of any involvement, upon the Houthi takeover of Sana'a on 21 September 2014, all the detainees reportedly related to the incident, including eight Yemeni crew members, two Hezbollah members and three IRGC personnel, were released on 25 September from a prison in Sana'a." https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/s_2015_125.pdf.
- 195 Conversation with a member of the Saudi-led coalition in Aden, Yemen, December 7, 2017. The material was documented by the author in Aden, Yemen, between December 2017 and January 2018.
- 196 UN Panel report, S/2015/125, 38.
- 197 Frederic Wehrey et al., *The Rise of the Parsadan: Assessing the Domestic Roles of Iran's Islamic Revolutionary Guards Corps*, RAND Corporation (2009): 9, <https://www.rand.org/pubs/monographs/MG821.html>.
- 198 UN Panel report pursuant to resolution 1929 (2010), S/2012/395, 28. Note: The UN identified connections linking current and previous interdictions, noting that labels on wooden boxes containing mortar shells found in the Francop (Israel) case appeared identical to those found in the Yas Air (Turkey) interdiction. In both cases, the labels read "Ministry of Sepah," while in the Yas Air case, a crude attempt had been made to cross off the word Sepah.
- 199 *The IED Threat in Bahrain*, CAR, 11; UN Panel images on file, respectively.
- 200 "Documented Proof of Iranian Complicity in Arms Smuggling to Terrorists," Israel Ministry of Foreign Affairs website, November 10, 2009, accessed October 2019, https://mfa.gov.il/MFA/ForeignPolicy/Iran/SupportTerror/Pages/Proof_Iranian_arms_smuggling_to_terrorists_Nov%202009.aspx.
- 201 UN Panel image on file.
- 202 UN Panel images on file.
- 203 UN Panel images on file.
- 204 UN Panel images on file.
- 205 *The IED Threat in Bahrain*, CAR, 10 and 15.
- 206 UN Panel image on file.
- 207 UN Panel images on file.
- 208 UN Panel images on file.
- 209 *Radio-Controlled, Passive Infrared-Initiated IEDs*, CAR, 8-9.
- 210 *The IED Threat in Bahrain*, CAR, 43.
- 211 UN Panel images on file; *The IED Threat in Bahrain*, CAR, 38, respectively.
- 212 *The IED Threat in Bahrain*, CAR, 38; UN Panel image on file, respectively.
- 213 *The IED Threat in Bahrain*, CAR, 13; UN Panel images on file, respectively.
- 214 "UN Panel image on file; *The IED Threat in Bahrain*, CAR, 40, respectively."
- 215 Note: More than forty states participate in the Vienna-based Wassenaar Arrangement, which promotes transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies. The aims are to prevent destabilizing accumulations and the acquisition of these items by terrorists.
- 216 BFSL, Forensic Report of May 24, 2017. Note: The rifle was recovered during a vehicle search, however, the exact location of the vehicle at the time of recovery is unclear.
- 217 See iTrace unique reference number (URN) 165E21F1FOOCEE97, documented on May 23, 2015, and accessed October 2019; iTrace is a project funded by the European Union and the German government that is intended to provide policy makers with information to understand weapon transfers.
- 218 "Bahrain Weapon Analysis Note," CAR, 5-6.
- 219 "Bahrain Weapon Analysis Note," CAR, 5-6.
- 220 "Bahrain Weapon Analysis Note," CAR, 5-6.



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