



## COUNTER IMPROVISED EXPLOSIVE DEVICES CENTRE OF EXCELLENCE

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**TITLE:** RFT-2 Proliferation

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### 1. BACKGROUND

Regardless of ideologies or political motivations, terrorist organizations across the globe regularly share their knowledge and experience of technologies, designs and best practices on how to have the greatest impact for the least amount of resources. To put it another way, they share lessons learned on how to get the biggest bang for your buck. While this involves a wide array of nefarious items, it can also include some seemingly innocuous technologies that are easily adapted to serve as an initiator for an improvised explosive device (IED). One area where military and law enforcement personnel need to work especially close on is the proliferation of a Remote Control Firing Device (RCFD) used by terrorists to initiate IEDs. The following examples highlight the transference of a specific RCFD employed across various countries as a clear example of threat networks sharing knowledge and experience among multiple seemingly disparate groups.

The Remote FOB (finger operated button) Trigger-Type 2 (RFT-2) is the designation given to the most prolific RCFD used in Afghanistan and Pakistan since 2009. Since then, its use has extended to multiple other countries across several continents.

This RCFD is a commercial off the shelf (COTS) device comprised of an electronically paired transmitter and a receiver with printed circuit boards (PCB). When the user depresses a button on the transmitter, it sends a signal to the receiver. The signal is received, decoded, and verified by the RFT-2 device, which then sends an electrical current to the detonator.

Sometimes the receiver has a purpose built safe to arm PCB that enables a terrorist to safely attach the COTS wireless receiver PCB to the detonator with less risk of an accidental detonation.

The most common RFT-2 transmitter has 4 buttons, each with different codes, so it can activate 4 different receivers. Other compatible transmitters have 12, 8, 2 or just 1 button, with the ability to pair with an equal number of receivers. The typical RFT-2 transmitters are the YK-3000 and CB-4, made by several different companies based in Shenzhen, China.

These COTS transmitters and receivers are easily found on the market as appliance controllers, suitable to be used for remote keyless entry systems, remote control toys, remote control garage openers, etc...

RFT-2 systems usually work on frequency 315MHz, but also can be found operating at 433MHz on demand, depending on the manufacturer's specifications.

Most transmitters use a 9V battery and have an effective range of well over 1,000 meters depending on terrain, obstructions, and other factors.

The pictures below were obtained from open sources. They depict RFT-2 type transmitters and receivers that were recovered from IED incidents in several countries (Afghanistan, Pakistan, Lebanon, Syria, India, Dagestan, Canada and Saudi Arabia).

It is highly likely that these kinds of RCFDs will appear in new threat scenarios due to their low cost, availability, ease of use, and long effective range.

#### **RFT-2 examples in the NATO C-IED Centre of Excellence IED laboratory**



Figure1: Most common RFT-2 transmitters

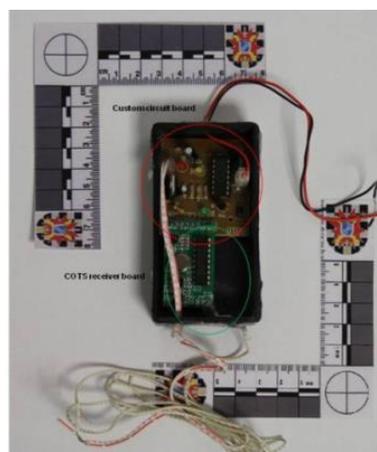


Figure 2: RFT-2 Receiver with purpose built PCB attached

## AFGHANISTAN



Figure 3: Initiation devices for improvised explosive devices found during an operation by the UK 1st Mechanized Brigade Reconnaissance Force in the Nad 'Ali region of Helmand, Afghanistan. May 2013.<sup>1</sup>



Figure 4: Afghan National Security Forces show the ammunition of captured Taliban militants displayed in Shurabak district of Helmand, Afghanistan. April 2015<sup>2</sup>

<sup>1</sup> <https://www.gov.uk/government/news/british-and-afghan-troops-destroy-insurgent-explosives-cache>

<sup>2</sup> [http://news.xinhuanet.com/english/photo/2015-04/09/c\\_134136591\\_2.htm](http://news.xinhuanet.com/english/photo/2015-04/09/c_134136591_2.htm)

## PAKISTAN



Figure 5: The Pakistan's Frontier Corps conducted a raid at Quetta, Balochistan, arresting ten people and recovering a large cache of explosives and IED components. August 2013.<sup>3</sup>



Figure 6: Police stopped a suspicious car and a search revealed that it was carrying several explosives in Parmoli, Pakistan. August 2014.<sup>4</sup>

<sup>3</sup> <http://www.bbc.com/news/world-asia-23775565>  
<http://cnbcpakistan.com/FC-Recover-Huge-Cache-of-Arms-Ammo-Explosives-In-Chaman-news-19068.html>

<sup>4</sup> <http://tribune.com.pk/story/744732/police-seize-massive-quantities-of-explosives/>

## LEBANON



Figure 7: Lebanese Army defused a VBIED containing 240 Kg of explosives in Ham-Baalbeck. February 2014.<sup>5</sup>



Figure 8: IED found near the offices of the Baath Party in Jalala, Bekaa Region, on June 23, 2013.<sup>6</sup>

The receiver is similar to an RFT-2 like RCFD made in Saudi Arabia (more details of this receiver can be found later in the Saudi Arabia page)

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<sup>5</sup><http://nna-leb.gov.lb/en/show-news/21560/Army-240-kilos-of-high-explosives-found-in-car-bomb>

<sup>6</sup><http://www.dailystar.com.lb/Article.aspx?id=221296>

## SYRIA



Figure 9: The **Islamic State's** (IS) Homs division published 24 scenes from its “booby-trapping” workshop in Homs on its Twitter account. July 2014.<sup>7</sup>



Figure 10: Caption taken from a video from the **Ahram al-Sham** group in Syria showing IED training with RFT-2 remote control firing devices. June 2012.

<sup>7</sup><https://monitorys.wordpress.com/2014/07/09/taller-de-municiones-y-explosivos-del-is-en-homs/>

## INDIA



Figure 11: IED found outside the Political Party BJP Manipur Pradesh in Manipur, India. February 2015.<sup>8</sup>



Figure 12: IED components reportedly hidden by a member of the Kanglei Yawol Kanna Lup (KYKL, meaning "the Organisation to save the revolutionary movement in Manipur) who was slain in an encounter with Imphal West commandos in Imphal, capital of Manipur Province, India. October 2012.<sup>9</sup>

<sup>8</sup> <http://www.thesangaiexpress.com/page/items/48346/ied-found-chaoba-blames-state-govt>

<http://e-pao.net/GP.asp?src=23..080215.feb15>

<sup>9</sup> <http://e-pao.net/GP.asp?src=27..071012.oct12>

## CANADA



Figure 13: Radio controlled bomb making materials recovered by the Royal Canadian Mounted Police (RCMP) during their investigation into an Iranian born Canadian citizen with links to Al Qaeda<sup>10</sup>. September 2009.

## DAGESTAN



Figure 14: Security forces found a cache containing several IED components in Vremenny (Dagestan). The cache included several RC components to include receivers and transmitters. As seen in the video caption there are several RFT-2 like transmitters with 2-buttons.<sup>11</sup> October 10, 2009.

<sup>10</sup> <http://www.rcinet.ca/en/2015/07/02/canada-initiates-action-to-revoke-citizenship/>

## LIBYA

On October 26, 2015, a video was posted on Facebook allegedly exposing militant Weesam Bin Hamed<sup>12</sup> (former Commander of the Libya Shield militia, and now aligned with the jihadist group Ansar al Sharia), ordering the assassination of Colonel Mahdi Barghatee, head of the 204 Brigade of the Libyan Army.



Figure 15: Around minute 10 of the video, an EOD operator is shown carrying what appears to be a backpack jammer examining a bag containing several assembled RCIEDs and other components. Among the components found there is a RFT-2 remote control transmitter<sup>13</sup>. October 26, 2015.

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<sup>11</sup> <http://kavkazpress.ru/archives/64200>

<sup>12</sup> <http://en.libyaschannel.com/2015/11/01/failed-assassination-plot-sheds-light-on-extremist-networks-in-benghazi/>

<sup>13</sup> <https://www.facebook.com/1426822227582112/videos/1633567716907561/>

## SAUDI ARABIA

Since 2012, an Electric Company in Saudi Arabia called Safwan-Electric builds and provides RCFDs to Syrian armed groups to be used against the Al-Assad regime. Some of the RCFDs use RFT-2 type components. This company advertised its products on its Facebook page<sup>14</sup> and also posted tutorial videos on YouTube<sup>15</sup>.



Figure 16



Figure 17

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<sup>14</sup> [https://www.facebook.com/pages/%D8%A7%D9%84%D8%A7%D8%AD%D8%B1%D8%A7%D8%B1-%D8%B5%D9%86%D8%A7%D8%B9-%D8%A3%D9%86%D8%B8%D9%85%D8%A9-%D8%A7%D9%84%D9%82%D9%8A%D8%A7%D8%AF%D8%A9-%D9%88%D8%A7%D9%84%D8%AA%D8%AD%D9%83%D9%85-%D8%A7%D9%84%D8%B9%D8%B3%D9%83%D8%B1%D9%8A%D8%A9-%D8%B9%D9%86-%D8%A8%D8%B9%D8%AF-safwan\\_electric/367868433268992](https://www.facebook.com/pages/%D8%A7%D9%84%D8%A7%D8%AD%D8%B1%D8%A7%D8%B1-%D8%B5%D9%86%D8%A7%D8%B9-%D8%A3%D9%86%D8%B8%D9%85%D8%A9-%D8%A7%D9%84%D9%82%D9%8A%D8%A7%D8%AF%D8%A9-%D9%88%D8%A7%D9%84%D8%AA%D8%AD%D9%83%D9%85-%D8%A7%D9%84%D8%B9%D8%B3%D9%83%D8%B1%D9%8A%D8%A9-%D8%B9%D9%86-%D8%A8%D8%B9%D8%AF-safwan_electric/367868433268992)

<sup>15</sup> <https://www.youtube.com/watch?v=cm78sScayV4>

As commented under figure 8, a RCFD receiver board similar to the Safwan-Electric was found in Lebanon in 2013 and they probably were made by the same manufacturer. The similarities can be found in the following picture:

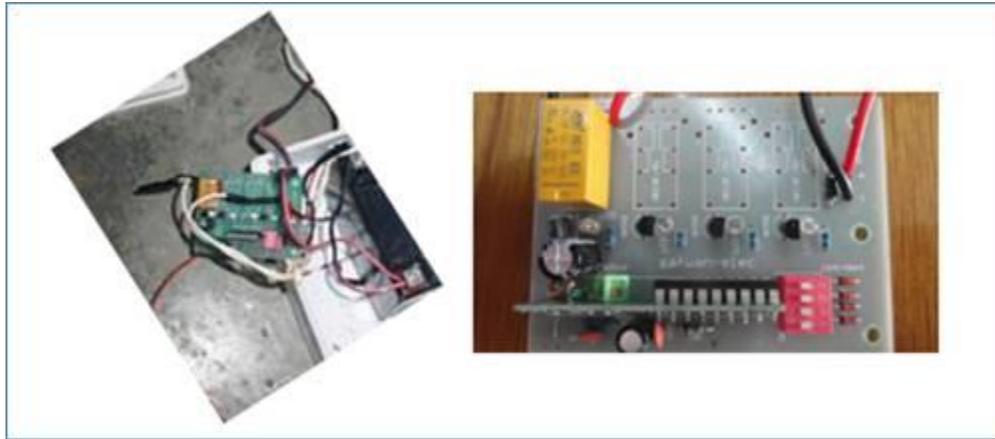


Figure 18: Left, receiver found in Lebanon in 2013. Right receiver made in Saudi Arabia in 2012

Given the widespread proliferation of this RCFD and its profound impact on expeditionary military operations as well as domestic law enforcement efforts, additional steps are necessary. As a starter, further research should be conducted on counter-measures. Additionally, an analytical effort should explore the linkages between the various transnational groups that use the RFT-2 and the manufacturers that may be provisioning the violent extremist groups. It would be interesting to ascertain whether the manufacturers and their sponsors share ideological belief systems, such as the Safwan-Electric company, or it is strictly a business relationship. Regardless, national and international security organizations need to identify which elements of multinational power they can leverage to inhibit terrorist organizations' access to these inexpensive and highly effective firing devices.