

ARMS INVESTIGATION:

Russian YAK-130 aircraft in Myanmar

REPORT BY MYANMAR WITNESS, 21 June 2022 (Updated: 18 July 2022)

Key Details

- Key Locations:
 - Hmawbi (မော်ဘီ) airbase, 17.120503, 96.082530
 - Mandalay (မန္တလေး) airbase 21.682378, 95.985175
 - Meiktila (မိတ္ထီလာမြို့) airbase 20.945721, 95.915953
- Date/Time of Incident:
 - May 2020 – June 2022
- Alleged Supplier(s) and/or Involvement:
 - JSC Rosoboronexport (RU)
 - Aviacon Zitotrans (RU)
- Myanmar Witness Conclusions:
 - The Myanmar military has employed multiple Yak-130 aircraft in civilian-populated areas. The aircraft have been used to fire both unguided rockets and 23mm cannon.
 - At least 12 Yak-130 aircraft were supplied by Russia prior to January 2021, and at least six more following the February 2021 coup.
 - Prior to any potential losses or damages, this investigation reveals that the Myanmar military has around 20 Yak-130s in their inventory.
 - Footage of Yak-130s carrying out ground attacks in civilian areas has been geolocated to an area known to be a source of Internally Displaced Persons (IDPs).
 - Further investigation is needed regarding the supply of Serbian-manufactured ammunition.
 - As relations between Russia and Myanmar continue to strengthen, Myanmar Witness will continue to monitor the supply of aircraft to the Myanmar military.

Executive Summary

The Yak-130 is a sophisticated, Russian-manufactured, two-seat jet trainer with a documented ground attack capability, and is known to employ a number of weapon types (with a maximum payload of 3,000kg).

Myanmar Witness has reviewed imagery and footage coming out of Myanmar over the past two years which has shown that the Myanmar military have acquired and later employed Yak-130 aircraft in a number of military operations to attack targets on the ground. Verified footage shows the Myanmar military using Yak-130 jets to fire unguided rockets and 23mm cannon fire in and around civilian-populated areas.

Between 2015 and 2019, 12 aircraft were delivered following purchase agreements between Myanmar and Russia. Following the coup in 2021, Russia expressed an intent to continue to support the Myanmar military and to supply further Yak-130 jets. On 15 December 2021, six additional jets were unveiled at Meiktila (မိတ္ထီလာမြို့) airbase, Myanmar, as part of the 74th anniversary ceremony of Myanmar's Air Force (MAF).

It should be noted that Russia also expressed an intent to supply the more advanced export variant of the Su-30 (a supersonic 2-seater jet with a maximum payload of 8,000kg). Myanmar Witness is not aware of this jet being delivered to, nor employed by, the Myanmar military at this time.

Following analysis of aircraft tail numbers, Myanmar Witness believes that there are likely to be 20 Yak-130 within the MAFs inventory (prior to any losses).

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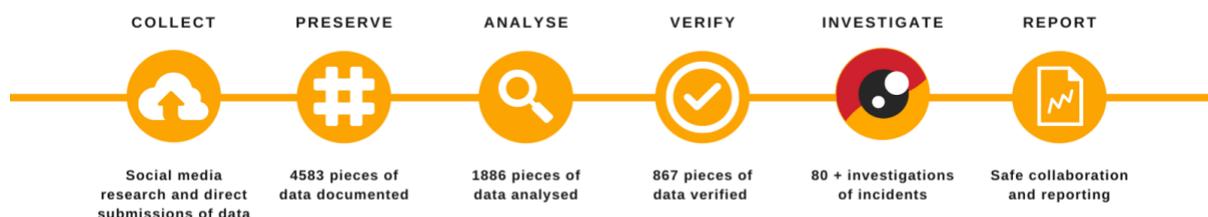
Background and Context

The Arms Unit is a sub-team of the Open-Source Investigation Unit of Myanmar Witness focused on the identification and investigation of the use and provenance of distinctive weapons and military equipment within the conflict. Myanmar Witness has previously published a number of reports on specific incidents and patterns of activity in Myanmar, with a select few focused on the employment and provenance of specific weapons.

The indiscriminate employment of sophisticated attack aircraft, particularly when employed in coordination with other military aircraft, is in stark contrast to the means and methods employed by those groups who are viewed as insurgents by the Myanmar military. This report provides a snapshot of the provenance and use of the Yak-130 jet within ground attacks between May 2020 and June 2022.

Methodology

Myanmar Witness follows a methodology of digital preservation and rigorous, replicable analysis. Digital evidence is collected and archived in a secure database and preserved with hashing to confirm the authenticity and prevent tampering.



Geolocation is conducted using a varied array of open-source online tools such as Google Earth to match satellite imagery with visual features identified in the footage or images. A high burden of proof is required to match imagery and geolocations are required to be cross-checked and peer-reviewed before they are credited as verified and included in Myanmar Witness reporting.

Chronolocation is typically conducted by analysing User Generated Content (UGC) timestamps to determine hard end limits for the possible time frame. This can then be followed with contextual analysis, for example comparing against known indicators such as events or clocks visible, weather, and shadows. Shadow angle is determined after geolocation and its orientation is used to determine the position of the sun and thus time. This is not always incredibly specific but chronolocation is included as specifically as possible without incorrectly attributing time in order to account for possible issues.

If dealing with unverified information, such as witness testimony or the inclusion of outside reporting, Myanmar Witness has made known that these inclusions are claims and have not been independently verified by Myanmar Witness, but their inclusion may still be relevant to include as context around the investigation. Following ethical standards, Myanmar Witness has obscured identifying information about individuals involved, censored private information and images where appropriate, removed links to private individuals and archived said information securely. Where appropriate, Myanmar Witness has also censored or removed graphic imagery in our reporting.

In addition to standard Open Source Intelligence (OSINT) methodologies, Myanmar Witness has built a database of all known aircraft serial numbers of this type in Myanmar Air Force's (MAF) inventory. This has allowed us to deduce that it is highly likely that MAF operates more Yak-130s than were previously accounted for.

Limitations

The information obtained by Myanmar Witness comes from an area of ongoing conflict so it is assumed that there is a selection bias. This is due to several factors including fear of repercussions for uploading, unavailability of information from official sources, and availability (or lack) of the internet. Myanmar Witness strives to eliminate as much of this bias as possible by using both focussed and broad search terms in multiple languages across open sources as well as identifying media from multiple sources. Where possible, we include social media and both pro and anti-regime news media to reduce the effects of this bias and ensure as much information from a range of sources is collected.

Findings

The [Yak-130](#) is one of the key military jets of interest in the Myanmar conflict due to its increasingly frequent deployments and unprecedented recent combat missions within populated areas. Myanmar Witness has been the first organisation to positively identify the Yak-130 in action in Myanmar.

Initially designed as an advanced jet trainer, the Yak-130 has since been marketed as a light attack aircraft with a combat load of 3,000kg. It is manufactured by the [Irkut Corporation](#), at the Irkutsk Aviation Plant, Irkutsk, Russia. Myanmar Witness has seen evidence that Myanmar [signed](#) a [purchase agreement](#) with [JSC Rosoboron](#) export on 22 June 2015 for Yak-130s. The Myanmar military regime received six aircraft between 2015 and 2016 and [another six](#) between 2018 and 2019.



Figure 1: 1st and 3rd images show a Yak-130 in flight over Loikaw area, Kayah State, on 21 February, 2022, in confidential footage shared by The Free Burma Rangers and analysed by Myanmar Witness. The central picture is for reference purposes. Source: [Aviation News Youtube](#).



Figure 2: six Yak-130 aircraft were reportedly commissioned into MAF service in December 2019. Source: [Senior General Min Aung Hlaing](#)

In the same time frame, an Il-76TD cargo plane (registration number RA-78765) of Russian airline Aviacon Zitotrans was used to deliver Yak-130 aircraft to Laos. Myanmar Witness suspects that this airline may also be responsible for the delivery of the Yak-130 to Myanmar.

The Yak-130 was technically designed for training, but it has been successfully employed in operations “[against ground and air targets in simple and difficult weather conditions](#)”. The airframe is designed with nine hardpoints which can be equipped with an array of weapons. Myanmar Witness has seen footage which indicates that the Yak-130 has been used to deploy unguided rockets several times against populated areas in Myanmar.

The Yak-130 can employ three types of rocket: the S-13B 122mm Rocket (Penetrator), the S-24B 240mm Rocket (Blast Fragmentation), and the [S-8KO 80mm Rocket \(HEAT\)](#). Of particular interest is the S-8KO: Myanmar Witness has verified that at least one batch was transported to Myanmar from Serbia, after the military coup of 1 February 2022, using a Belarussian airline. This event occurred in spite of Serbia's EU candidate status. In addition to the United Nations (UN), the European Union (EU) has issued its own arms embargo on Myanmar, which is legally binding for all Member States, following the February 2021 coup. Myanmar Witness has seen no indication that there has been indigenous production of S-8 rockets, making it likely that all S-8 rockets employed have been imported. Additional investigation would be required to assess whether these were legally supplied.

[The Yak-130 is also equipped with a 23mm cannon](#), which also uses ammunition with possible supply links to Serbia. While Myanmar Witness is currently investigating this connection, spent cartridges of the same calibre manufactured in Serbia in the late 1980s (shown further down) have been found on the ground in Lay Kay Kaw Myothit (လေးကျောက်မြို့သစ်) in April 2022, following an aerial attack which registered civilian casualties and damaged civilian housing.

Following the February 2021 coup, Russia [voiced an intent](#) to continue to supply Myanmar with the Yak-130, as well as the more advanced export variant of the Su-30. This intent was confirmed by the provision of a [further six](#) Yak-130s which were unveiled on 15 December 2021 at Meiktila (မိတ္ထီလာမြို့) Airbase, Myanmar, as part of the MAF's 74th anniversary ceremony.



Figure 3: image capture from a video posted to Twitter and originally captured from a state-run tv broadcast featuring new aircraft commissioned into the MAF. Source: [MRTV Broadcast](#)



Figure 4: screen capture from the same video showing four Yak-130s. Note the number below the canopy on each aircraft. Source: [MRTV Broadcast](#)

Myanmar Witness has conducted open-source analysis of imagery and footage of the Yak-130s operated by the MAF and identified a trend in tail-numbering. The Yak-130's tail numbers contain four numbers led by "18". It is highly likely that "18XX" is the current naming scheme for all Yak-130s currently in Myanmar's inventory. Previous reporting by [FlightGlobal](#), a specialist source on Air Forces, has suggested that the total number of Yak-130s in MAF inventory amounts to 18. Whilst not all serial numbers have been observed, given that tail numbers 1801, 1802, 1819, and 1820 have been, it is likely that the true number of Yak-130s in MAF's inventory is 20.

Open-source content of interest regarding the Yak-130 in Myanmar

- **Unknown date before 28 May 2020** – The first available [footage](#) which allegedly shows the Yak-130 in combat. This footage is currently unverified by Myanmar Witness but is allegedly an attack filmed in Rakhine State against insurgents. Multiple unguided rockets – possibly S-8KOs – are seen being fired.
- **10 February 2022** – High-resolution satellite imagery obtained from Maxar by Japan Broadcasting Corporation (NHK) and exclusively analysed by Myanmar Witness shows a Yak-130 on the northern runway ([17.120503, 96.082530](#)) at Hmawbi (မော်ဘီ) airbase (ICAO: VYHB), Yangon. The jet appears to be carrying additional external fuel tanks mounted on its underwing pylons: this suggests the Yak-130 was photographed immediately before or after a sortie. These fuel tanks are likely to be two PTB-450 which could extend the Yak-130's range [from 1600 kilometres to 2100 kilometres](#).

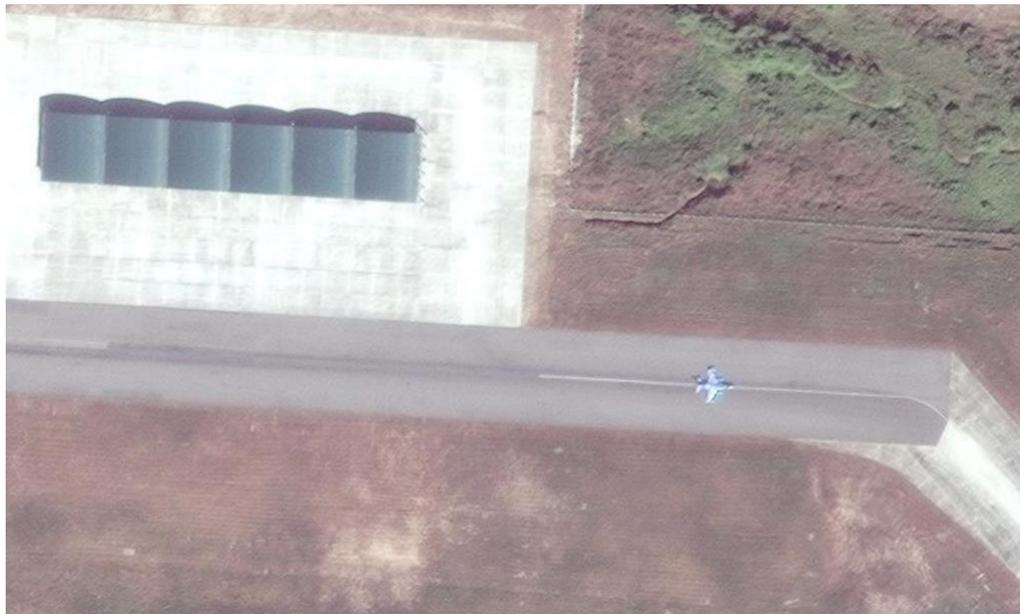


Figure 5: high resolution Maxar imagery of a Yak-130 at Hmawbi airbase



Performance (ISA)

Maximum takeoff weight with payload	10,290 kg	22,686 lb
Fuel capacity:		
- internal tanks	1,700 kg	3,748 lb
- external tanks	2 x 450 kg	2 x 992 lb
Maximum combat payload	3,000 kg	6,614 lb
Max range	1,600 km	864 nm
Max range (with 2 external tanks), 12,000 m (39,400 ft)	2,100 km	1,130 nm

Figure 6: performance data for the Yak-130. Source: [Yak-130 marketing pack](#)

- The six hangars close to where the Yak-130 is spotted ([20.166575, 94.967130](#); Figure 7, left image) were built in November 2021 - less than one month prior to the delivery of six Yak-130s on 15 December 2021. This conclusion was drawn through an analysis of Google Earth imagery. These hangars appear to be of the same design and dimensions as those in the Mandalay (မန္တလေး) airbase ([21.682378, 95.985175](#); Figure 7, right image), where the Yak-130s are known to be stationed.



Figure 7: Google Earth Imagery showing hangars at Hmawbi Airbase (left) and Mandalay Airbase (right)

- **18 February 2022** – Two Yak-130 aircraft (believed to be tail numbers [1802 and 1803](#)) were damaged when a [bomb was detonated](#) nearby at Hmawbi (မော်ဘီ) Air Force Headquarters. It is believed that the attack was carried out by the People's Defence Force (PDF - Yangon), with potential assistance from Air Force personnel.
- **21 February 2022** – Confidential footage obtained from Free Burma Rangers and exclusively analysed by Myanmar Witness shows at least one Yak-130 allegedly participating in an operation in the Nam Mae Kon area (နန်းမယ်ခုံ), west of Loikaw, in Kayah State.

- 27 March 2022** – During the 77th Armed Forces Day military parade in Naypyitaw (နေပြည်တော်), Myanmar, five Yak-130s were spotted flying overhead together, as well as an additional two Yak-130s (outlined in red) with three Chinese-made K-8s (outlined in blue). The parade has historically been used by the Tatmadaw to showcase their best and most-prized weapons to the world.



Figure 8: still image from the 77th Arms Forces Day parade in Maypyitaw showing Yak-130s and K-8s. Stills from the MAF parade's live feed on the left, compared with footage from the Dubai Airshow (right). Source: [Aviation International News](#)

- 10 April 2022** – Facebook footage uploaded by a Karen National Liberation Army (KNLA) group called Cobra Column and analysed by Myanmar Witness shows a Yak-130 flying overhead during a combat mission over Lay Kay Kaw Myothit (လေးကျောက်မြို့သစ်). It is important to note that news reports misidentified the aircraft as a Mig-29. Audio depicts explosions and gunfire, while the early seconds of the video show a trail of black smoke behind the Yak-130's wings. This is typical of unguided rockets fired from underwing pods.

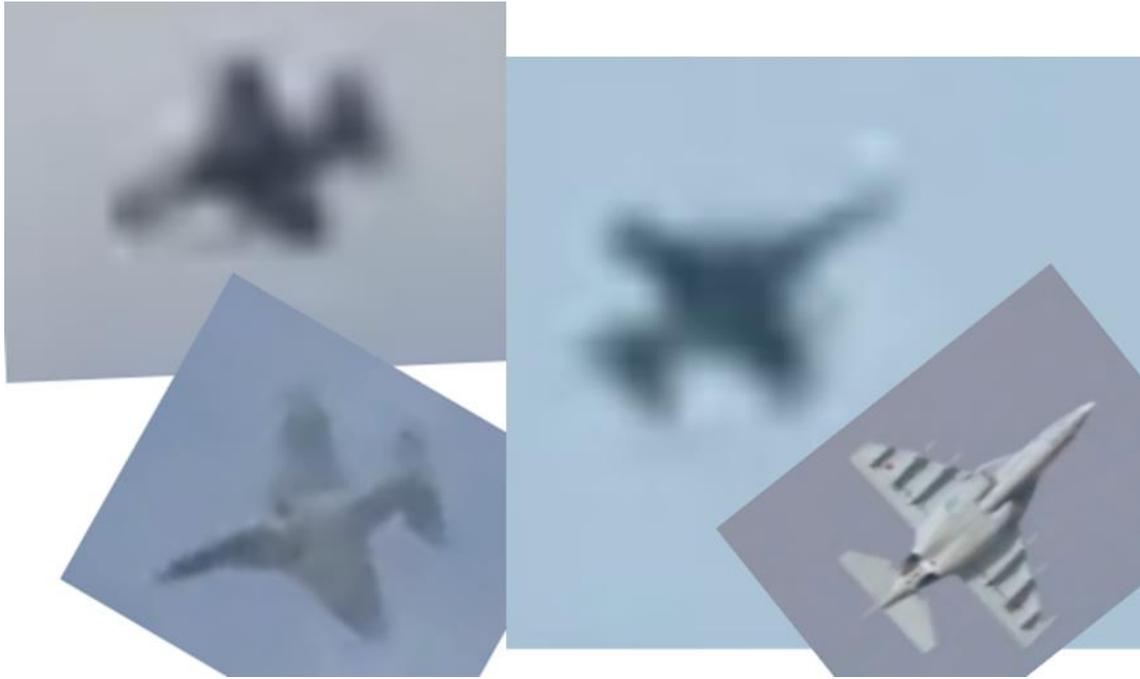


Figure 9: stills from Facebook footage assessed to show a Yak-130 overhead during a combat mission over Lay Kay Kaw. Stills from this video have been compared to stills from this reference video of the Yak-130. Source: [Aviation International News](#)

- **11 April 2022** – The Cobra Column also shared a high-resolution image which Myanmar Witness has identified as a Yak-130. The image is alleged to depict the aircraft participating in a military operation in the early hours of 11 April 2022.



Figure 10: image taken by The Cobra Column, a KNLA (Karen National Liberation Army) group, alleged to document a Yak-130 participating in a military operation on 11 April, 2022. Source: [The Cobra Column Facebook](#)

- **12 April 2022** – Images from the following day posted by the same KNLA group show spent 23mm ammunition casings collected on the ground. Myanmar Witness suspects that these rounds may have been manufactured in Serbia in 1989 based on the cartridge stamps – which indicate the manufacturing company’s initials, year of production and calibre (however further verification is required to confirm this information). It is important to note that the Yak-130 is not the only aircraft in MAF inventory equipped with a 23mm cannon.



Figure 11: Image posted by The Cobra Column showing spent 23mm casings. Source: [The Cobra Column Facebook](#)

- **18 May 2022** – [Footage](#) submitted of a Yak-130 firing its 23mm cannon and unguided rockets¹ near Thay Baw Boe (သေ့ဘောဘိုးကျေးရွာ), south of Myawaddy (မြဝတီ). Myanmar Witness is currently in the process of collecting more information about this attack, but it is believed to be in response to KNLA forces attacking the Thae Baw Boe (သေ့ဘောဘိုးကျေးရွာ) army base. This is the most comprehensive footage of the Yak-130’s attack capabilities that Myanmar Witness has encountered. It shows a coordinated air-to-ground strike operation involving several different aircraft platforms. During the attack, the military deployed an ATR-42² (verified; believed to be operating in a reconnaissance capacity), two K-8s³ (verified; likely conducting airstrikes), at least one Mi-35 attack helicopter (verified; conducting airstrikes), a MiG-29 (unverified; possibly conducting airstrikes), and there were claims that a CH-3 RPAS⁴ was also used (unverified; possibly for reconnaissance).

¹ Additional footage of this attack can be found [here](#).

² An ATR-42 is a French-Italian twin-engine turboprop aircraft which, when configured to carry passengers, has a seating capacity of 52.

³ The K-8 is a Chinese manufactured 2-seat light attack jet aircraft

⁴ The CH-3 is a Chinese designed MALE (medium altitude long endurance) UCAV (unmanned combat air vehicle), capable of delivering ordnance or carrying out reconnaissance with an endurance of up to 12 hours. It is possible that this aircraft was produced in Myanmar under licence.



Figure 12: Yak-130 seen during ground attack. Source: [The Cobra Column Facebook](#)

- The two Yak-130s are believed to have [deployed from Hmawbi \(မော်ဘီ\) airbase](#) based on information shared in unverified aircraft monitoring channels.
- **27-28 June 2022** – Two videos were uploaded to Facebook by KNLA group, Cobra Column, on 4 July and allegedly filmed on the 27 and 28 of June. The first video, which was shared by Khit Thit Media, shows at least one Yak-130 performing two passes and launching several salvos of unguided rockets towards the ground (Figure 13). The second video shows at least one Yak-130 performing at least five passes and firing around 18 salvos of unguided rockets. The aerial attack was allegedly carried out in the area south of Myawaddy Township (မြဝတီမြို့နယ်) in Karen State.

Myanmar Witness has been able to geolocate the two videos, which were filmed from the same location ([16.291986, 98.664069](#)), just 200m from the Thailand-Myanmar border. Myanmar Witness has previously seen a number of reports of fighting, as well as evidence of a number of IDPs originating from this area.

- As of 8 July 2022, this is the most recent event involving the active deployment of a Yak-130 by Myanmar's military.

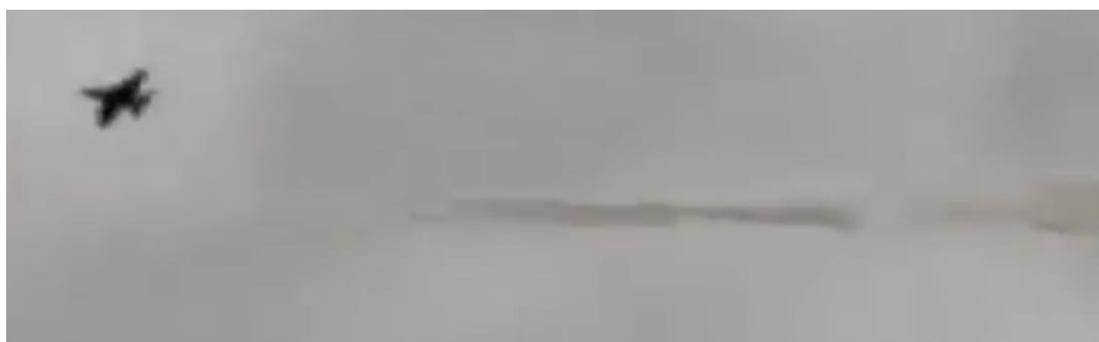




Figure 13: two stills from the first video discussed above, of a Yak-130 after launching salvos of unguided rockets towards the ground. Source: [The Cobra Column Facebook](#)



Figure 14: stills from the video of a Yak-130 launching salvos of unguided rockets towards the ground. Video Geolocated to [16.291986, 98.664069](#). Source: [The Cobra Column Facebook](#)



Figure 15: stills from video of a Yak-130 launching salvos of unguided rockets towards the ground. Video Geolocated to [16.291986, 98.664069](#) ([Source](#)).

Conclusion

Myanmar Witness has verified the repeated deployment of the Yak-130 – a sophisticated, Russian manufactured, two-seat jet trainer with a documented ground attack capability – in Myanmar. During this investigation, credible reports and geolocation have revealed the use of the Yak-130 within populated, civilian areas. Between the February 2021 coup and the end of June 2022, Myanmar Witness monitored the situation and identified the delivery of six additional Yak-130 jets. This is a worrying development which Myanmar Witness will continue to monitor. As the violence continues and relations between Myanmar and Russia continue to strengthen – as seen by Myanmar’s Military commander Min Aung Hlaing’s [latest visit](#) to

Moscow from the 10 July 2022 – the use of the Russian-made Yak-130 in civilian areas in Myanmar must continue to be investigated.

List of Abbreviations

- European Union EU
- Internally Displaced Persons IDPs
- Karen National Liberation Army KNLA
- Myanmar Air Force MAF
- Open Source Intelligence OSINT
- People's Defence Force PDF
- United Nations UN
- User Generated Content UGC