

Ukraine's Helicopter Set



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The bloody and protracted internal conflict in Ukraine has led to the losses of Ukrainian Army Aviation (UkAA) helicopters, after the organisation failed to modernise its Soviet-era airpower with new modern day/night sensors, self-protection aids and precision-guided munitions.

That lack of modern equipment, combined with poor tactics, has contributed to the loss of five UkAA Mi-24s *Hinds* and five Mi-8s *Hips*. At least three other Mi-24s and four Mi-8s required repair after sustaining combat damage and another Mi-8MT was written off in an accident caused by pilot error.

All Ukrainian military attack aircraft and helicopters in operation against pro-Russian separatists in the easternmost provinces of Ukraine have proved susceptible to ground-to-air threats, be they small arms, anti-aircraft artillery (AAA) or man-portable air defence systems (MANPADS).

Ukraine's military forces also lack an adequate night operating capability, enabling the separatists to move and

regroup after dark virtually unobstructed. No helicopter crews were trained to use night-vision goggles (NVGs) nor was there a capability to infiltrate and extract special operations teams in insurgent-controlled areas to interrupt communications and supply channels. The lack of NVG-capable helicopters has also made it impossible for the Ukrainian forces to conduct casualty evacuation and resupply operations at night.

During almost five months of asymmetrical warfare between April and September 2014, the old-fashioned and cumbersome Ukrainian military machine reportedly failed to suppress the separatists, who became powerful enough to repulse the offensive and encircle troops, inflicting heavy losses.

By early September the warring parties agreed a truce, the separatists managing to retain control over their self-proclaimed Donetsk and Lugansk 'people's republics' in the east of the country.

Helicopter Operations

At the onset of hostilities in April the UkAA had about 60 Mi-24s, but no more than 20 were in serviceable condition. It also operated between 30 and 35 airworthy Mi-8MTs (but only 19 have been noted in

use inside the combat zone) along with two National Guard of Ukraine (NGU) aviation service and six Ukrainian Air Force (UKAF) examples.

Major General Valentin Pistruga, the UkAA's commanding officer, told the Ukrainian aviation magazine *Aviatsia i Vremya* that the service's Mi-8MT tactical transport helicopters were extensively involved in medical evacuation (medevac) and resupplying besieged troops in areas inaccessible to ground transport – including right on the forward line and sometimes in enemy areas. They also undertook assault party delivery and recovery missions. The Mi-24 force was meanwhile involved in close air support missions to support the ground forces' offensive and escort the Mi-8s.

Referring to aircrew training, Maj Gen Pistruga said all UkAA pilots tasked to fly combat missions in eastern Ukraine had in excess of 1,000 flight hours under their belts and were regarded as fit for combat.

Hips and Hinds in Action

All UkAA, UKAF and NGU helicopters used in the operations in the Donetsk and Lugansk regions had received ID markings in the form of two wide, white vertical

Alexander Mladenov and Krassmir Grozev analyse the 2014 operations of Ukraine's army aviation force

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1 White ID stripes were added to the UkAA's helicopters, as seen here on this Mi-24P and Mi-8MT. *Ukrainian MoD via authors* **2** Two Mi-8MTs in eastern Ukraine in May 2014, when all UkAA helicopters still operated without exhaust duct mixers for anti-missile protection but were armed with 80mm rocket packs. *Ukrainian MoD via authors*

stripes on the tail boom. The stripes were applied for the first time in March during the height of the Crimea crisis.

The UkAA used its helicopters in anger against the separatists for the first time on April 15, supporting the ground forces' offensive with an airborne assault – using Mi-8MT tactical transport helicopters escorted by Mi-24s – in a bid to take control of Kramatorsk airfield in the Donetsk Oblast region in a zone largely controlled by militants.

The initial air assault was a success but separatists soon began to try to block helicopter resupply operations to the combat zone. Ground clashes, with exchanges of fire around Slavyansk and Kramatorsk, took place between April 17 and 20.

The first massed, large-scale ground assault by the Ukrainian military against the separatists' positions around Slavyansk began on April 24, but the forces failed to wipe out insurgent checkpoints and lost equipment, taken as war trophies by the separatists.

The first UkAA aircraft loss was reported on April 25 when an Mi-8MT laden with munitions took a hit from sniper fire just before taking off from Kramatorsk. There

are different accounts of the cause: some claim it was hit by an anti-tank guided missile and others that it was an unguided rocket-propelled grenade. The three crewmembers managed to escape from the burning aircraft before it was destroyed by fire.

The next combat losses came during the second massed ground assault, launched against separatists in the city of Slavyansk in the early morning of May 2 when Ukrainian forces encountered diehard pockets of resistance at hardened checkpoints.

Mi-8MT helicopters were used once again, delivering an airborne assault on the strategically important Saur-Mogila height overlooking the city, with top cover provided by pairs of Mi-24s.

In the battle the separatists used 9K38 Igla (SA-18 *Grouse*) MANPADS for the first time, shooting down two UkAA Mi-24P *Hind-F*s performing a 'show of force' over the city. Five crew were killed, only the weapon system operator (WSO) in one of the Mi-24Ps managing to bale out. Both *Hind-F*s belonged to the 16th Aviation Brigade (AvB) at Brody and the personnel lost were among the unit's most experienced.

Meanwhile a Mi-8MT *Hip-H* flying near Slavyansk was seriously damaged by small arms fire while returning to the base after delivering an assault party to the combat zone. It took 20 hits flying over a highway manned by separatist checkpoints before making a forced landing in a field. It was later dismantled and transported by truck to a repair facility at Konotop where it was restored to airworthiness.

Another Mi-24P from the 11th AvB at Tchernobaevka sustained serious damage from heavy-calibre machine gunfire three days later around Slavyansk while trying to destroy separatist checkpoints just outside the city. The *Hind-F* lost both hydraulic systems.

The pilot had to crash-land on swampy ground in a separatist-held area in Raygorodok near Slavyansk. The three crew were recovered by an Mi-8MT and the *Hind-F* was destroyed soon after by a Su-25 *Frogfoot* firing 80mm rockets to prevent its capture by separatists.

UkAA Mi-8MTs and Mi-24s were called into action again on May 13, the transport helicopters conducting a medevac mission at the site of an ambush by insurgents near the village of Oktybarskoe, 12 miles (20km) south of Kramatorsk.



Two *Hinds* were seen providing top cover to the medevac Mi-8MT. One was an Mi-24R that had been used by the UkAA in a United Nations peacekeeping mission in Sierra Leone. It still wore the white UN paint scheme and titles on fuselage sides but also had dark-blue tail boom stripes for visual ID in the combat zone.

The appearance of a helicopter with UN titles on the battlefield caused confusion when it was seen in video footage. So all white UkAA Mi-24s and Mi-8s were given green and brown camouflage and light blue undersides – and the serials of all

helicopters were painted over and replaced by ‘fake’ substitutes on paper sheets placed over the cabin windows.

Donetsk Airport Battle

One of the few occasions when the UkAA helicopters were effective was the battle for Donetsk Airport on May 26, which saw an airborne assault party delivered by four Mi-8MTs. Meanwhile at least two pairs of Mi-24s mounted attacks (supported by UKAF attack jets), launching rockets and cannon rounds against the recently-built terminal building occupied by militants from the so-

called Vostok battalion.

All the aircraft dropped flares to avoid heat-seeking MANPADS – at least one of which was unsuccessfully fired at the attacking Su-25s and Mi-24P/VPs – and destroyed a ZU-23-2 twin-barrel 23mm anti-aircraft gun emplacement defending the terminal.

The attack helicopters were seen operating at 500ft to 650ft (150m to 200m), flying long, shallow firing passes which made them easy targets for small arms, MANPADS and AAA – so their success was probably down to the Vostok battalion’s relatively weak air defences rather than their tactics and crew skills.

Mounting Losses

UkAA helicopters continued to be heavily used in May and June for resupply of forces entrenched on the strategic Saur-Mogila height, from where Ukrainian spotters directed artillery fire against separatist positions in and around Slavyansk.

1 An NGU Mi-8MT was shot down by an Iгла MANPAD at midday on May 29. It had delivered supplies to the forward line at Saur-Mogila and on the return flight was carrying a special operations team headed by Maj Gen Sergey Kulchitskiy, head of the NGU’s combat training department. The helicopter took the Iгла hit soon after take-off and all ten passengers and two crew perished; the co-pilot was injured.

During another massed and ultimately unsuccessful ground offensive against Slavyansk on June 4, an Mi-24P was destroyed and three more were badly damaged. One crash-landed after hits from ground fire and was rapidly consumed by fire, its pilot and WSO, though badly wounded, both escaping. Three others crash-landed after being but were successfully recovered and sent for repair to Konotop.

2 The Ukrainian authorities initially announced that only two Mi-24s sustained heavy damage during the battle, their crews surviving the forced landings. One of the three recovered helicopters took hits from 23mm AAA and the other two are believed to have been knocked out by MANPADS.

Amateur video footage shot from several miles away on June 4 shows a Mi-24 being hit and subsequently crash-landing. It was flying a racetrack pattern with another *Hind* and took a missile hit from behind while flying straight and level at slow speed and at about 500ft (150m). The stricken helicopter began releasing flares only after the detonation of the Iгла missile warhead next to the engine area and continued doing so even after touching down.

3 Another UkAA Mi-8MT was ambushed on June 24 in exactly in the same area where Gen Kulchitskiy’s helicopter had been gunned down nearly a month before. The *Hip-H* took an Iгла hit just after take-off from Krachun-Mogila and nine people on board, including three crew, two special operations troops and four security service operatives, were killed.

Outdated Defences

UkAA *Hinds* and *Hips* used in the conflict were equipped with 1980s-era defensive aids – four to six ASO-2V 32-round flare





dispensers, an L-166V-1A Lipa infrared jammer and EVU exhaust mixer boxes over exhaust ducts (which suppress infrared emissions and so shorten MANPADS' lock-on range). This obsolete kit proved inadequate against new-generation MANPADS such as the Iglu deployed by the separatists.

At the start of the conflict, all Mi-24s and Mi-8MTs flew in combat without EVU exhaust mixers. Only after the first losses in May and June did most of the rotorcraft in the combat zone have them fitted. The Mi-8MTs had additional makeshift protection for their glazed cockpit with armoured protection covering all downwards and sideways-facing windows to prevent hits from small-arms projectiles.

Maj Gen Pistruga said the lack of a clearly-defined front line in the troubled region was among the factors that made it impossible for the UkAA to deploy suitable threat evasion tactics. The helicopters flew their attack and combat missions over both Ukrainian military and separatist-held territory, meaning they were exposed to ground fire most of the time on their missions.

Furthermore, separatists also put their own anti-aircraft teams into Ukrainian territory. This tactic was used on June 24 when MANPADS brought down a UkAA Mi-8MT near Slavyansk while flying over territory supposedly controlled by Ukrainian forces.

Pistruga acknowledged the lack of effective self-protection aids to counter MANPADS was among the main issues facing the UkAA. Despite the promise by the Chief of the Ukrainian Armed Forces General Staff for an urgent delivery of effective IR jammers – made after the first helicopter loses in early May – deliveries were slow. Only five sets of the combat-proven Adros KT-01AV omnidirectional infrared jammer, manufactured by Andron in Kiev, were eventually taken on by the UkAA for installation onto Mi-24s, replacing the Lipa.

The KT-01AV systems – promoted as being effective against man-portable heat-

1 The remains of the 7th Independent Regiment (Army Aviation) Mi-8MT at Kalinov, gunned down at Kramatorsk airfield near Slavyansk on May 25, 2014. *Via authors* **2** Mi-24P *Hind-F* (serial '15') armed with two Shturm-V anti-tank missiles is pictured at a forward operating site at the start of the battle for Slavyansk. It made an emergency landing on June 4 after sustaining combat damage. *Via authors* **3** A still from TV video footage showing a UkAA Mi-24 wearing a United Nations logo left over from its previous work operating peacekeeping missions in Africa. The logo violated UN rules referring to the use of its symbol and was later removed. *Via authors* **4** An Mi-8MT operating in eastern Ukraine at the beginning of the conflict. The helicopter still has the white colour scheme it wore for supporting UN operations in Africa. *Via authors* **5** A UkAA Mi-8MT damaged by small arms during operations over separatist checkpoints near Slavyansk on May 2. The helicopter made an emergency landing and was sent for repair. *Via authors* **6** A UkAA Mi-8MT pictured at a forward operating site between sorties. This *Hip-H* is armed with two 20-round rocket packs, but lacks EVU engine exhaust mixers. *Via authors*



seeking missiles when used with flares and engine exhaust mixers – were donated to the UkAA by Ukrainskiye Vertolety, a commercial helicopter operator which uses leased UkAA and Ministry of Interior helicopters in support of UN humanitarian and peacekeeping missions in Africa.

But according to Maj Gen Pistruga, the KT-01AV alone cannot be regarded as a 100%-effective solution for ensuring protection from modern MANPADS. He revealed, however, there were two occasions when the system successfully jammed separatist-fired missiles, which were reported to have missed their intended targets.

Weaponry

The Mi-24 force used S-8 80mm rockets and 23mm and 30mm cannon rounds. Meanwhile Shturm-V (AT-6 *Spiral*) anti-tank guided missiles (ATGMs) were employed when point targets had to be hit, including an attack on May 5 against a makeshift armoured train used by separatists in the Donetsk region.

In July and August, UkAA Mi-8MTs used for tactical transport and medevac began operations with forward-firing weapons for self-defence, such as B8M1 80mm rocket packs or GUV gun-pods – containing a four-barrel YaKB-12.7 machine gun and two four-barrel 7.62mm GShG machine guns. Most Mi-8MTs were also armed with cockpit-mounted and rear-mounted 7.62mm machine guns for self-defence.

Further Losses

More intense combat operations during a counter-offensive by the separatists led to another peak in helicopter losses between August 7 and 20, when three Mi-8MTs and a Mi-24VP were lost.

The first Mi-8MT fell victim to small arms fire on August 7 near Manuilovka in the Donetsk region during a casualty evacuation mission. It crash-landed in separatist-held territory and was abandoned.

A second *Hip-H* was damaged by small arms fire two days later, suffering hits in one engine, the cockpit and cabin area – which badly wounded the co-pilot who later died. With one engine inoperative the helicopter landed in territory controlled by its own forces. Three days later the aircraft was recovered and sent for repair to Konotop.

After another Mi-8MT was damaged by small arms fire on August 18 near the village of Georgievka, the crew made an emergency landing and escaped. Resuming missions the next day in another helicopter, they were again gunned down in the same area, this time sustaining serious injuries in the crash-landing.

Tactics

After the losses of May 3 to 5 and early June, UkAA aircrews adopted new tactics. The Mi-24s began flying at tree-top level, firing rockets and cannons at enemy targets whenever possible outside the



range of the separatists' MANPADS and 23mm anti-aircraft artillery (AAA).

The tactics did not prove as effective but the survivability rate improved. During the most intense battles in July and August, only one Mi-24, a 'VP model, was lost flying in a zone saturated with modern air defence weapons. It was brought down on August 20 near Georgievka village in the Lugansk region while attempting to attack separatist positions. The pilot and WSO were killed. A second *Hind* in the pair managed to escape the incoming missiles by dropping to roof-top level.

On August 27, an Mi-8MT heavy laden with troops and munitions crashed on landing, due to pilot error, near the village of Alanovka in the Donetsk region. It hit the ground and was damaged beyond repair.

OUTSET OF A CONFLICT

The pro-Russian separatist movement in Ukraine's easternmost provinces began in March 2014, just after the annexation of Crimea by Russia and the inauguration of an interim government in Kiev. In early April anti-government activists, eager for their regions to follow the example set by breakaway Crimea, occupied important government and security services headquarters in the industrial cities of Donetsk and Lugansk.

The self-proclaimed Lugansk and Donetsk people's republics (which later formed a loose federation known as Novorossia) voted for independence from Ukraine and started to establish their own self-defence forces staffed by volunteers from Russia and locals of Russian descent. The military aim of the anti-Kiev forces in the breakaway 'republics' was to draw Russia more overtly into the conflict (as in Crimea) through wide-ranging military assistance, including direct armed intervention or some sort of peacekeeping mission directed and managed by Moscow.

The situation came to a head after a group of lightly-armed Russian volunteers led by Col (Ret) Igor Gyrkin-Strelkov (a former Federal Security Service officer with a combat experience managed to establish control over the city of Slavyansk, 95km (59 miles) north of Donetsk, on April 12. Two days later, members of the same separatist group, reinforced by local volunteers, seized control of the nearby city of Kramatorsk.

The Ukrainian Government declared the beginning of what it called an 'anti-terrorist operation' on April 14. Its main aim was to retake urban centres in the easternmost provinces controlled by the separatists.

UKAA OPERATIONS

According to Maj Gen Pistruga, the UkAA amassed more than 8,000 combat sorties between April 15 and September 5 and total combat flight time amounted to around 8,000 flight hours. During the most intense period of operations, in June, July and August, including the battles of Slavyansk and Saur-Mogila, the Mi-8MT delivered assault parties directly to the forward line and provided ammunition resupply. The type also saw extensive use in the medevac role, transporting wounded troops from forward positions to field hospitals. On the busiest days, Mi-8MT aircrews flew up to six combat missions, mostly in daylight.

Among the most effective UkAA operations in the conflict, said Pistruga, were those delivering assault parties to the front line at Saur-Mogila; and an assault party delivery and air attack on separatists occupying the terminal at Donetsk Airport on May 26.



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1 This Brody-based 16th Army Aviation Brigade Mi-24P (serial '15'), armed with two 20-round B-8V-20 rocket packs was heavy damaged during the battle for Slavyansk on June 4, 2014. *Via authors* 2 The white-painted Mi-8MT delivering an assault party in the Slavyansk area. *Via authors* 3 This National Guard of Ukraine Mi-8MTV-1, equipped with a forward-looking infrared system in the nose turret, is used for medical evacuation. It was recalled from its lease to commercial operator Ukrainiyskiye Vertolety. *Via authors* 4 An Mi-24R assigned to the 7th Independent Regiment (Army Aviation) pictured during the battle for Donetsk Airport on May 26. *Via authors* 5 Major General Valentin Pistruga, the UkAA's commander since 2008, is a seasoned helicopter pilot and veteran of the Soviet war in Afghanistan in the 1980s. *Via authors* 6 A 7th Independent Regiment (Army Aviation) Mi-24VP, serial '10', releases flares during the battle for Donetsk Airport on May 26. This was one of three Hinds that sustained heavy damage during the offensive against Slavyansk on June 3-4. *Via authors* 7 An Mi-8MT being taken for repair following an emergency landing on May 2 after it sustained damage from small arms fire near Slavyansk. *Ukrainian MoD via authors*

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Two more Mi-8MTs were reportedly destroyed or damaged on the ground by insurgents' artillery fire on September 1 at their forward operating base at Litugino in the Lugansk region, although this has yet to be confirmed. By the end of the conflict, said Maj Gen Pistruga, the UkAA had received an as yet undisclosed number of upgraded Mi-24PU-1 helicopters with improved targeting and self-protection suites (believed to be between one and three).

The service also had six aircrews trained to fly the Mi-24PU-1 in night missions on NVGs and others qualified for NVG operations on suitably modified Mi-8MTs. These new capabilities, however, have not been used in anger in the combat zone since the conflict officially ended on September 5.



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