RUSSIAN AIRPOWER

Almanac • 2015

By Piotr Butowski

ABOUT THE RUSSIAN AIRPOWER ALMANAC

On the following pages, we present a variety of information about the modern Russian air force, including its organization, leadership, aircraft, weapons, deployment, and other capabilities. It has been compiled from open sources inside and outside of Russia.

When the Soviet Union collapsed in 1991, Russia's air force entered a long decline, as budgets and flying time plummeted and new developments languished. In recent years, though, Russia has begun reinvesting in its airpower. Old systems have been upgraded and new systems are entering service. The Sukhoi T-50 fighter—advertised to be a fifth generation, stealthy analogy to the USAF F-22—is well along in flight test, and first deliveries are a year away. Russia also promises a modern stealth bomber in the early 2020s. In the meantime, it has ordered several squadrons' worth of the Su-35S, considered the apex of the Flanker series, and has pledged to put the huge Tu-160 Blackjack bomber back into production.

Russia has also ratcheted up its readiness with greater attention to flying time and exercises. Those exercises—along with wars against Georgia and Ukraine and aggressive actions near NATO and US airspace, ships, and bases—are to signal that Russia means to aggressively reverse its long military decline.

Here, we present a time line of the Russian air force rebuild and some of the key milestones on its path toward reasserting its airpower.

1991

When the USSR disintegrated, 15 Soviet republics became 15 independent states, organizing into a new Russian Federation on Christmas 1991. Declaring itself the heir of the defunct USSR—and of most of its military assets—Russia claimed a place as a permanent member of UN Security Council.

While each of the Soviet Union successor states organized its own armed forces, Russia's were the largest, and it pulled back within its new borders the bulk of what had been the Soviet air forces. Under the old regime, only 40 percent of combat aircraft were based in Russian territory, and they were usually the oldest ones. After the consolidation, two-thirds of the former Soviet air forces resided in the new Russia.

1998

Soviet air assets had been distributed among the air force, air defense forces, navy, and ground forces. In 1998, they were reorganized, and the majority of air defense components—surface-to-air missile units, interceptor fighter forces, and the radar airspace observation network—were transferred to the air force. The remainder of air defense—i.e., the ballistic missile warning system, Moscow missile defense corps, and space control network—were transferred to strategic rocket forces and, in March 2001, to the newly created space forces (known since 2011 as the air and space defense forces). The cost-cutting reorganization reduced personnel by 20 percent. Afterward, just 70 air regiments remained from the previous 100 (and 37 anti-aircraft missile regiments).

In early 2003, Russian army combat and transport helicopters were put under control of the air force; since then, the army has not owned any aviation assets. Eight armies were put under the air force, as well as some direct reporting units (including test and evaluation centers, pilot schools, scientific institutes, repair plants, and storage bases).

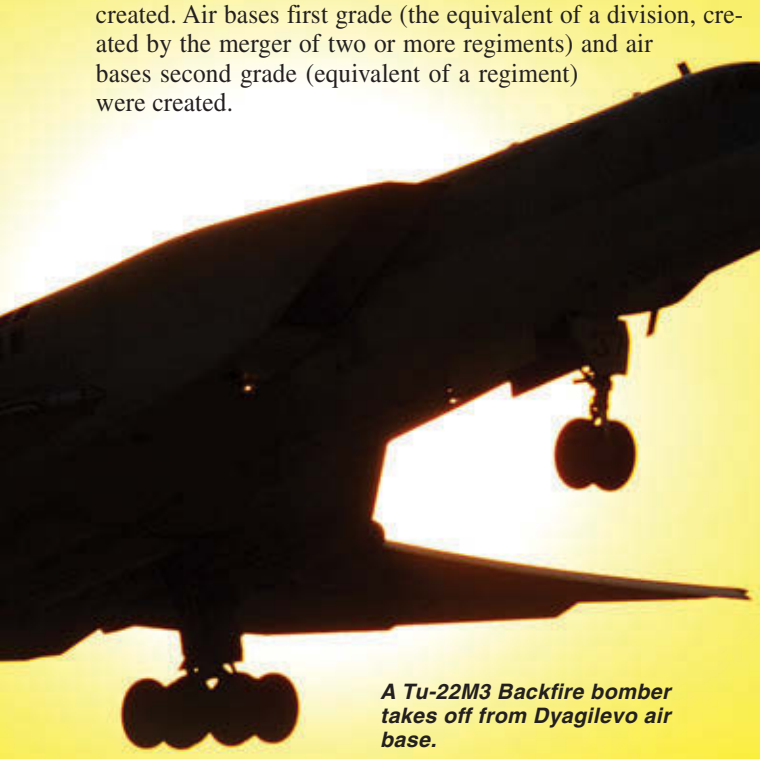
Two air armies were created: one for long-range bombers and tankers and another for strategic transport aircraft. Six other air and air defense armies were created for regional commands. The structure was further refined during the next four years, and more units were disbanded.

2008

Despite having air superiority during the short war with Georgia in 2008, the Russian air force lost six aircraft in five days of combat, including a Tu-22M3 bomber. Radical changes followed.

Defense Minister Anatoly Serdyukov in late 2008 ordered a broad reorganization. The air force's 160,000 personnel would be cut by 36,000, and air armies would be transformed into operational commands. Bombers and transports were put under the control of Long-Range Air Command and Military Transport Air Command, respectively. The six territorial air force and air defense armies were reorganized into four AF and AD commands tied to new military districts.

At lower levels, air bases—roughly analogous to a US Air Force air base wing, including aircraft and facilities both—were created. Air bases first grade (the equivalent of a division, created by the merger of two or more regiments) and air bases second grade (equivalent of a regiment) were created.



A Tu-22M3 Backfire bomber takes off from Dyagilevo air base.

The air force and navy played tug-of-war with some aircraft, notably some Su-27s and MiG-31 interceptors, but these aircraft ended up with the navy. However, in 2011, the Russian navy's Tu-22M3 medium bombers—previously the main aerial counter to American aircraft carriers—were transferred to the air force permanently.

Rising oil income allowed Russia to begin an earnest modernization of its air forces in 2008. Most of its equipment dated back to before 1991, but modest (and slow) upgrades had been in motion since 2004 on a variety of aircraft. One of the few new pieces of gear acquired during the lean times was the Kh-555 strategic cruise missile—the non-nuclear version of the Kh-55.

In late 2008, however, the Defense Ministry announced orders for some 248 new tactical aircraft (exercising an option for 32 further strike airplanes four years later) as well as 89 new jet trainers. Naval aviation is receiving 24 MiG-29K carrier-based fighters, ordered in 2012. A total of 693 attack, transport, and utility helicopters were also ordered.

The banner year was 2014, when the Russian air arms took delivery of 142 combat, trainer, and special duty aircraft (including about 30 midlife upgrades) and 135 combat, transport, and trainer helicopters.

During this period, flying hours expanded, thanks to more funding for fuel, overhauls, and service life extensions. Pilots in tactical aviation, who in the lean years could only expect 20 to 25 flying hours per year, now got 60 to 100 hours, while transport pilots got about 120 hours.

Air bases also got long-deferred maintenance and improvements, starting with those hosting flight test, the central command, and strategic bombers. Tactical bases are next in line.

2012

Serdyukov was fired in the wake of a bribery scandal, and his successor, Sergey Shoygu, ordered a reversal of some of Serdyukov's changes. Air regiments with combined but geographically separated equipment were consolidated. The old-style regiments, divisions, and other unit designations were restored, as were the air armies, which replace the operational commands. While the number of regiments dropped 50 to 60 percent, the number of aircraft per unit increased, and these also have more modern gear.

Tactical squadrons now have about 12 aircraft (plus one or two combat trainers), and long-range bomber squadrons have about 10 aircraft. Helicopter squadrons generally have 20 aircraft.

After the Crimea annexation in 2014, Russia quickly deployed military forces—including air forces—to the peninsula. A naval aviation unit in Crimea—there with Ukraine's consent before the invasion—was beefed up with new Su-30SM fighters.

2015 AND BEYOND

Russia is establishing a greater presence in the Arctic, given both the discovery of large oil and mineral reserves there and increased sea traffic as the waterways become increasingly ice-free. Headquartered at Tiksi, a new Joint Strategic Command has been formed, with linkages to the Northern Fleet, which will have its own air and air defense units. These will have both interceptors and attack jets. Some 13 airfields in the Arctic are to be repaired and restored to front-line service.

Russian military spending has increased substantially. It was 15.5 percent of the national budget (or 3.2 percent of the gross domestic product) in 2013, growing to 19.2 percent (3.7 percent of GDP) for 2014 and was planned to be 23 percent of the state budget (4.6 percent of GDP) in 2015.

Russia's economy has suffered a double hit in recent years, though. Oil prices have declined steeply, and Western economic sanctions—imposed after the Crimea annexation and also because of Russian-supported attacks in Ukraine—have taken a toll. The ruble has been severely devalued, but it remains to be seen whether President Vladimir Putin will allow the situation to drive cuts in military growth. The nation's military resurgence is popular with the Russian public and backstops Putin's aggressive posture toward Europe.

THE ORDER OF BATTLE

2015 Russian Air Force Almanac

Note: All data as of May 2015

AIR FORCE

The Russian air force has 148,000 people, about 2,000 aircraft (including 1,200 combat-capable ones) and 900 helicopters (including 300 combat-capable ones).

Main Command of the Air Force

HQ: Balashikha
Commander in Chief: Colonel General Viktor Bondarev, since May 6, 2012

Direct reporting units

Unit	Location	Inventory
800th Air Base	Chkalovsky	Special transports
929th National Flight Test Center	Akhtubinsk	
4th National Air Personnel Preparation and Military Evaluation Center	Lipetsk	
Unknown regiment	Lipetsk	Tactical combat aircraft
Unknown squadron	Savasleyka	MiG-31
237th Air Technology Demonstration Center	Kubinka	Su-27, MiG-29, An-30
344th Combat Training and Flight Crew Training Center of Army Aviation	Torzhok	Helicopters
924th National Unmanned Aircraft Center	Kolomna	Pilotless vehicles

Training air bases

Unit	Location	Inventory
116th Training Center of Combat Application	Privolzhsky (Astrakhan)	MiG-29
192nd Training Air Base	Tikhoretsk	L-39C
195th Training Air Base	Kushchevskaya	L-39C , Su-27, MiG-29, Su-25
200th Training Air Base	Armavir	MiG-29, L-39C, Yak-130
205th Training Air Base	Balashov	An-26
209th Training Air Base	Borisoglebsk	Yak-130, Su-25
213th Training Air Base	Kotelnikovo	L-39C
217th Training Air Base	Rtishchevo	L-410
219th Training Air Base	Michurinsk	L-39C
221st Training Air Base	Shagol (Chelyabinsk)	Tu-134, An-26
272nd Training Air Base	Maykop	L-39C
339th Training Air Base	Sokol (Saratov)	Mi-8, Ansat, Ka-226, Mi-2
	Syzran	Mi-24, Mi-8

Many Russian bases are designed with revetments to protect aircraft, such as these Tu-22M3s, in case of an attack.

Long-Range Air Command

37th Air Army of High Supreme Command (Strategic Purpose)
as of Aug. 1, 2015

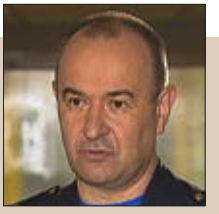
HQ: Moscow
Commanding Officer: Lieutenant General Anatoly Zhikharev, since Aug. 5, 2009

Unit	Location	Inventory/Notes
6950th Air Base	Engels	
	Engels	Two squadrons Tu-160, two squadrons Tu-95MS
Air Group A	Shaykovka	Three squadrons Tu-22M3
Air Group E	Olenyegorsk	Two squadrons Tu-22M3
6952nd Air Base	Ukrainka (Seryshevo)	
	Ukrainka (Seryshevo)	Four squadrons Tu-95MS
Air Group V	Belaya (near Irkutsk)	Four squadrons Tu-22M3, two Tu-22MR reconnaissance aircraft, An-30
43rd Combat Training and Flight Crew Training Center	Ryazan (Dyagilevo)	Tu-22M3, Tu-95MS
27th Composite Air Regiment	Tambov	Tu-134UBL, An-26
203rd Independent Tanker Air Regiment	Ryazan (Dyagilevo)	Two squadrons Il-78

An Engels-based Tu-95MS strategic bomber takes on fuel from an Il-78 Midas tanker.

The Il-78M crew of Bort 51 blue putting the aircraft through its paces at Ryazan (Dyagilevo) air base.

Tu-160 Blackjack maintainers servicing the giant bomber at Engels air base.



Military Transport Air Command

61st Air Army of High Supreme Command (Military Transport Aviation)
as of Aug. 1, 2015

HQ: Moscow
Commanding Officer: Lieutenant General Vladimir Benediktov, since January 2013

Unit	Location	Inventory/Notes
12th Military Transport Air Division	Migalovo (Tver)	
196th Military Transport Air Regiment	Migalovo (Tver)	Il-76, An-22
334th Military Transport Air Regiment	Kresty (Pskov)	Il-76
566th Military Transport Air Regiment	Seshcha (Bryansk)	An-124, Il-76
708th Military Transport Air Regiment	Taganrog	Il-76
610th Combat Training and Flight Crew Training Center	Ivanovo	Il-76, other transports
144th Independent Air Regiment of Long-Range Radar Surveillance	Ivanovo	A-50
117th Independent Military Transport Air Regiment	Orenburg	Il-76, An-12PPS

1st Air Force and Air Defense Command

6th Air Force and Air Defense Army

as of Aug. 1, 2015

HQ: Voronezh
Commanding Officer: Major General Aleksandr Duplinsky, since Jan. 14, 2014

Unit	Location	Inventory/Notes
105th Composite Air Division	Voronezh	
47th Composite Air Regiment	Voronezh	Two squadrons Su-34, one squadron Su-24MR, An-30 In 2013-17, due to major repairs on the base, aircraft from Voronezh temporarily relocated to Buturlinovka.
899th Attack Air Regiment (Starting 2017)	Buturlinovka	Su-25 to be based here.
790 Fighter Air Regiment	Khotilovo	Two squadrons MiG-31, one squadron Su-27
14th Fighter Air Regiment	Khalino (Kursk)	Three squadrons MiG-29
159th Fighter Air Regiment	Besovets	Three squadrons Su-27
98th Independent Composite Air Regiment	Monchegorsk	Two squadrons Su-24M/MR, one squadron MiG-31, Mi-8, Su-34 starting from 2015
33rd Independent Composite Transport Air Regiment	Levashovo	Special transports
Helicopter assets		
15th Army Aviation Brigade	Ostrov	Ka-52, Mi-28N, Mi-35M, Mi-8, Mi-26
549th Air Base of Army Aviation	Levashovo	Mi-24, Mi-8
2nd Air Group	Pribylovo	Mi-24/Mi-35M, Mi-8
378th Air Base of Army Aviation	Vyazma	Mi-24, Mi-8, Mi-28N

The command also operates a flight of four Su-27 fighters deployed to Baranovichi air base in Belarus.

Su-34 Bort 23 red approaching a tanker. Note the extended refueling probe over the aircraft's nose.

2nd Air Force and Air Defense Command

14th Air Force and Air Defense Army

as of Aug. 1, 2015

HQ: Yekaterinburg
Commanding Officer: Lieutenant General Viktor Sevostyanov

Unit	Location	Inventory/Notes
6980th Air Base	Chelyabinsk	
	Shagol (Chelyabinsk)	Two squadrons Su-24M, one squadron Su-24MR
2nd Air Group	Bolshoye Savino (Perm)	Two squadrons MiG-31
3rd Air Group	Kansk	Two squadrons MiG-31
390th Independent Composite Transport Air Regiment	Koltsovo (Yekaterinburg)	Special transports
999th Air Base	Kant, Kyrgyzstan	Su-25, Su-27, transports
Helicopter assets		
48th Air Base of Army Aviation	Kamensk Uralsky	Mi-8, Mi-24
2nd Air Group	Uprun (Yuzhnouralsk)	Mi-8, Mi-24, Mi-26
562nd Air Base of Army Aviation	Tolmachevo (Novosibirsk)	Mi-8, Mi-24

3rd Air Force and Air Defense Command

11th Air Force and Air Defense Army

as of Aug. 1, 2015

HQ: Khabarovsk
Commanding Officer: Major General Aleksandr Tatarenko, since August 2013

Unit	Location	Inventory/Notes
303rd Composite Air Division		Khurba (Komsomolsk)
22nd Fighter Air Regiment	Tsentralnaya Uglovaya (Vladivostok)	Two squadrons Su-27SM, one squadron MiG-31, Su-30M2
23rd Fighter Air Regiment	Dzemgi (Komsomolsk)	Two squadrons Su-27SM, one squadron Su-35, Su-30M2
277th Bomber Air Regiment	Khurba (Komsomolsk)	Su-24M/M2
187th Attack Air Regiment	Chernigovka	Two squadrons Su-25SM
799th Independent Reconnaissance Air Regiment	Varfolomeevka	Su-24MR
120th Independent Composite Air Regiment	Domna	Su-30SM, Su-25
257th Independent Composite Transport Air Regiment	Khabarovsk	Special transports
Helicopter assets		
439th Air Base of Army Aviation	Chita-Cheremushki	Mi-8, Mi-24
573rd Air Base of Army Aviation	Khabarovsk	Mi-24, Mi-8, Ka-52, Mi-26
2nd Air Group	Garovka	Mi-8, Mi-26
575th Air Base of Army Aviation	Chernigovka	Ka-52, Mi-24, Mi-8, Mi-26

The Mi-26 Halo is the world's largest and heaviest helicopter. Roughly 40 remain in Russian military service.

The Soviet response to the F-111—the Su-24 (Su-24M shown here)—is gradually being replaced by the new Su-34.

4th Air Force and Air Defense Command

4th Air Force and Air Defense Army

as of Aug. 1, 2015

HQ: Rostov-on-Don
Commanding Officer: Major General Andrey Yudin, since May 2012

Unit	Location	Inventory/Notes
559th Independent Bomber Air Regiment	Morozovsk	Su-34, Su-24M
11th Independent Reconnaissance Air Regiment	Marinovka (Volgograd)	Su-24MR
535th Independent Composite Transport Air Regiment	Rostov-on-Don	Special transports
3624th Air Base	Erebuni, Armenia	MiG-29
1st Composite Air Division	Krymsk	
31st Fighter Air Regiment	Millerovo	Three squadrons MiG-29
3rd Composite Air Regiment	Krymsk	Su-27, Su-30, Ka-27
960th Attack Air Regiment	Primorsko-Akhtarsk	Su-25
368th Attack Air Regiment	Budyonnovsk	Two squadrons Su-25
27th Composite Air Division	Belbek (Crimea)	
37th Composite Air Regiment	Gvardeyskoye	One squadron Su-24M, one squadron Su-25SM
38th Fighter Air Regiment	Belbek	Two squadrons Su-27SM, Su-30M2
39th Helicopter Regiment	Dzhankoy	Mi-8, one squadron Ka-52, one squadron Mi-28N, Mi-35M
Helicopter assets		
393rd Air Base of Army Aviation	Korenovsk	Ka-52, Mi-28, Mi-24/Mi-35M, Mi-8
546th Air Base of Army Aviation	Rostov-on-Don	Mi-24, Mi-28, Mi-8, Mi-26
387th Air Base of Army Aviation	Budyonnovsk	Mi-28, Mi-35M, Mi-8, Mi-26

NAVAL AVIATION

The Russian naval aviation service has 28,000 people, about 140 combat-capable aircraft, 50 transport aircraft, and 90 helicopters.

Naval Aviation

HQ: Moscow
Commanding Officer: Major General Igor Kozhin, since August 2010

Unit		Location	Inventory/Notes
859th Combat Training and Flight Crew Training Center of Naval Aviation		Yeysk	
Northern Fleet, HQ: Severomorsk			
279th Independent Shipborne Fighter Air Regiment		Severomorsk-3	Su-33, Su-27, Su-25UTG
7050th Air Base		Severomorsk-1	
		Severomorsk-1	Il-38, Ka-27, transports
	2nd Air Group	Kipelovo	Tu-142MK, Tu-142MR
	3rd Air Group	Ostafyevo	Transports
Pacific Fleet, HQ: Vladivostok			
7060th Air Base		Yelizovo (Petropavlovsk Kamchatsky)	
	ASW squadron	Yelizovo	Il-38
	ASW helicopter squadron	Yelizovo	Ka-27
	Fighter squadron	Yelizovo	MiG-31
7062nd Air Base		Nikolayevka	
	ASW squadron	Nikolayevka	Il-38
	ASW helicopter squadron	Nikolayevka	Ka-27
	2nd Air Group	Knevichi	Transports
	4th Air Group	Mongokhto	Tu-142MZ, Tu-142MR
Baltic Fleet, HQ: Kaliningrad			
72nd Air Base		Chkalovsk	
	Fighter squadron	Chkalovsk	Su-27
Attack squadron		Chernyakhovsk	Su-24M
Helicopter squadron		Chkalovsk	Mi-24, Mi-8
ASW helicopter squadron		Donskoye	Ka-27
Transport squadron		Khrabrovo	
Black Sea Fleet, HQ: Sevastopol (Crimea)			
318th Mixed Air Regiment		Kacha	Ka-27, Be-12, transports
43rd Independent Naval Attack Air Regiment		Novofyodorovka (Saki)	One squadron Su-24, one squadron Su-24MR, Su-30SM
Caspian Flotilla, HQ: Astrakhan			
Air Group		Kaspiysk	Transports

Above: This Tu-142MK Bear-F, Mod 3, is named for the city of Cherepovets and is based at Kipelovo. Right: An Il-20RT, based at Severomorsk-1. The aircraft originally tracked space launches but now serves as a regular transport.

GRADES AND INSIGNIA

2015 Russian Airpower Almanac

UNITED STATES AIR FORCE

Officer

Second Lieutenant
(O-1)

First Lieutenant
(O-2)

Captain
(O-3)

Major
(O-4)

Lieutenant Colonel
(O-5)

Colonel
(O-6)

Brigadier General
(O-7)

Major General
(O-8)

Lieutenant General
(O-9)

General
(O-10)

Enlisted

Airman Basic
(E-1)
No insignia

Airman
(E-2)

Airman First Class
(E-3)

Senior Airman
(E-4)

Staff Sergeant
(E-5)

Technical Sergeant
(E-6)

Master Sergeant
(E-7)

Senior Master Sergeant
(E-8)

Chief Master Sergeant
(E-9)

Chief Master Sergeant of the Air Force
(E-10)

RUSSIAN AIR FORCE

Officer

Junior Lieutenant

Lieutenant

Senior Lieutenant

Captain

Major

Lieutenant Colonel

Colonel

Major General

Lieutenant General

Colonel General

General of the Army

Enlisted

Private

Corporal

Junior Sergeant

Sergeant

Senior Sergeant

Master Sergeant

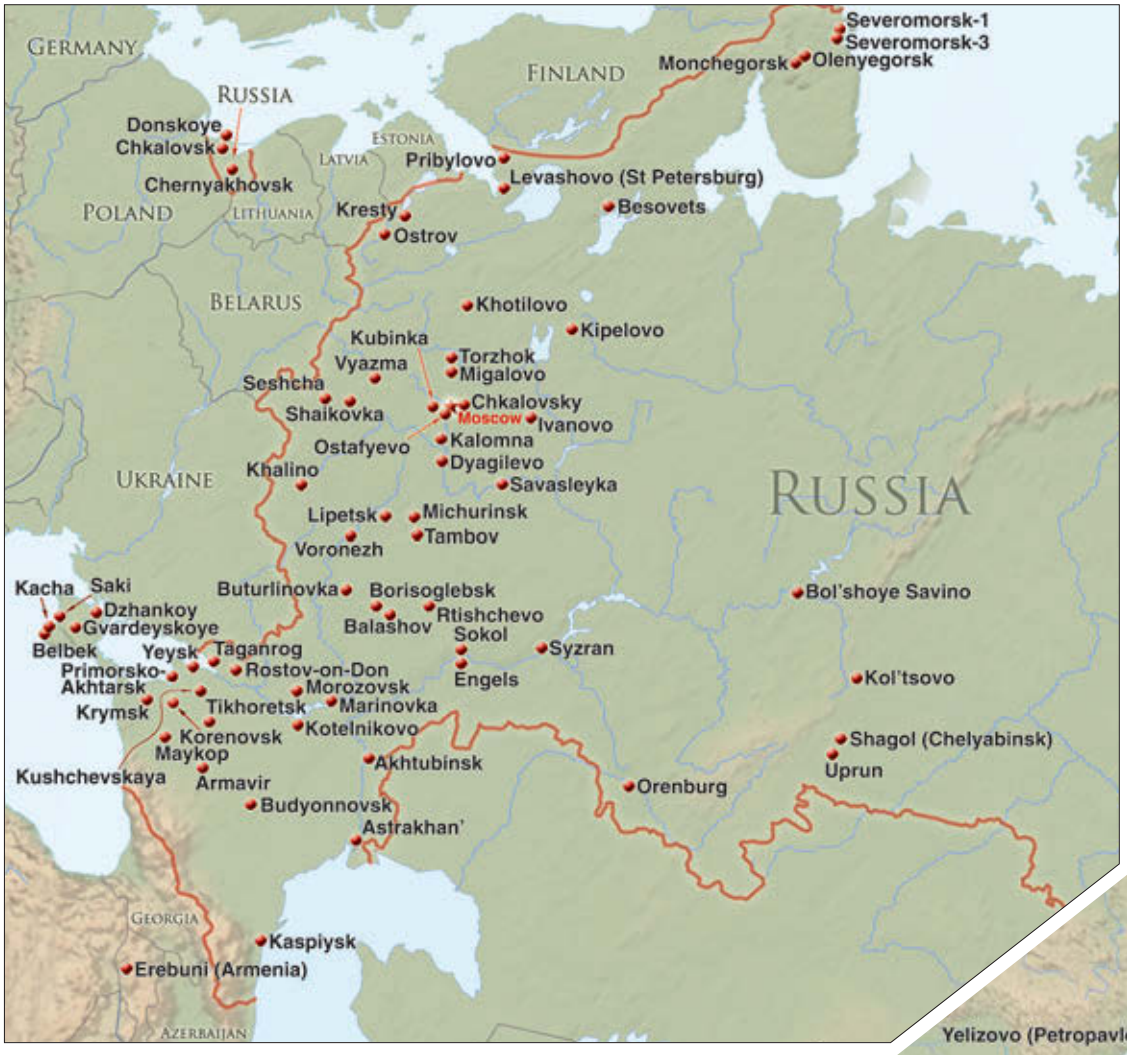
The Russian Air Force grades and insignia are presented alongside their US counterparts for comparison purposes.

2015 Russian Airpower Almanac

Note: All data as of May 2015

Left: western Russia.

Below: eastern Russia.



Maps by Zaur Eylanbekov

A Tu-95MS Bear-H and Il-78 tanker imitate aerial refueling, escorted by MiG-29s during a Victory Day parade.

Su-27SM Bort 06 based at Lipetsk is a multirole fighter upgrade of the standard Flanker-B and first appeared in 2002.

Above: The MiG-29SMT based at Lipetsk is an upgraded version of the early fighter, with new radar, avionics, inflight refueling, and increased fuel capacity (evidenced by the enlarged spine).

All Tu-160s are named for famous Soviet or Russian pilots, aviation designers, and engineers. Here, personnel at Engels air base christen Blackjack Valentin Bliznyuk, in honor of the aircraft's chief designer.

An-22 departing Migalovo air base near Tver.

A Tu-22M3 Backfire forming up off the right wing of a Tu-95MS Bear.

A Lipetsk-based MiG-29. The ball in front of the canopy is the MiG's infrared search and track and laser rangefinder.

An electronic warfare version of An-12 seen at Akhtubinsk.

A Su-35 flying a display routine at Ramenskoye, near Moscow.

An upgraded A-50U Mainstay, stationed at Ivanovo. The AWACS platform based on the Ilyushin Il-76 airlifter was modified by Beriev and first flew in December 1978.

The largest military airlifter in the world completed its maiden flight in December 1982. Fifty-five examples of the An-124 have been built, and 26 remain in Russian air force service.

A pair of Su-24Ms on a training mission.

A Bear crew at the controls of a Tu-95MS during a training mission from Dyagilevo air base.

GALLERY OF AIRCRAFT

2015 Russian Airpower Almanac

Note: All data as of May 2015

By Piotr Butowski

LONG-RANGE BOMBER AIRCRAFT

Tu-22M3 Backfire-C

Tu-22M3 • NATO reporting name: Backfire-C

Brief: Intercontinental strategic bomber with variable-geometry wing, designed for supersonic missile delivery. Despite rumors it was offered to China and India, it was never exported outside the Soviet Union. Backfire was a subject disagreement between the US and Soviet Union during Strategic Arms Limitation Talks (SALT II). The US demanded it be included in limits on strategic aircraft, while the Russians argued it should not be included because, due to the fleet's location and capabilities, it was incapable of directly attacking the continental US. The eventual treaty signed on June 18, 1979, excluded Backfire from the strategic arms limits, provided its in-flight refueling capability was removed and production was not increased. Tu-22M's priority Cold War targets were US aircraft carriers and cruise-missile armed cruisers in the Mediterranean and Atlantic Ocean (in the maritime role). Its primary aim in a major move against NATO was to have been cutting US supply lines to Europe by destroying strategic harbors and airfields. Backfires saw limited action in regional wars, employing free-fall bombs rather than strategic weapons. Tu-22M2s struck targets in Afghanistan in 1984, and again between October 1988 and January 1989, covering the Soviet withdrawal. The aircraft flew some 100 sorties over Chechnya from November 1994 to January 1996, dropping conventional bombs and providing battlefield illumination. The bomber most recently flew strikes during the 2008 invasion of Georgia, where it suffered its first combat loss to a Georgian anti-aircraft missile. The latest Tu-22M3M variant resulted from an MLU that added new radar, improved navigation and communications systems, self-defensive suite, and digital flight controls.

Extant Variants:
- Tu-22M3. Missile carrier version.
- Tu-22MR. Reconnaissance version; two in service at Belaya air base.
- Tu-22M3M. Upgraded version.

Function: Supersonic long-range bomber, missile carrier, reconnaissance.
Delivered: 1969-93.
Inventory: 100+.
Accommodation: four.
Dimensions: span 76 ft 5 in swept to 112 ft 6 in spread, length 139 ft 4 in, height 36 ft 3 in.
Weight: max T-O 273,373 lb.
Ceiling: 45,932 ft.
Performance: dash speed 1,429 mph, 621 mph at S-L, operational radius 1,367 miles.
Armament: standard one, max three Raduga Kh-22/Kh-32 supersonic 310-mile-range missiles. Up to 42 x 1,100-lb, or eight 3,300-lb, or two 6,600-lb general-purpose bombs. Nuclear bombs; sea mines.

Tu-95MS Bear-H

Tu-95MS • NATO reporting name: Bear-H

Brief: A Russian counterpart to the US B-52. The world's fastest turboprop aircraft. Initial Tu-95 production at the Kuibyshev (Samara) plant from 1955 to 1969 covered several versions including the Tu-95M bomber, Tu-95K missile carrier, and Tu-95RTs maritime reconnaissance version, the last of which was retired in the early 1990s. Production of the Tu-142 maritime patrol aircraft was based on a highly upgraded Tu-95 design. With the advent of long-range ALCMs in the 1970s, Tu-95 production was relaunched after a 13-year hiatus. The resulting Tu-95 MS was based on a converted Tu-142 ASW airframe, to carry the Kh-55 missile. An MLU ordered in 2009 is adding new radar, a five-panel glass cockpit, and modern flight controls and navigation systems. The first three aircraft, designated Tu-95MSM, were redelivered to the VVS in late 2014 and early 2015 still without the full scope of the MLU, e.g., radar. Plans call for the upgrade of 20 additional airframes by 2016. The fleet was adapted in the early 2000s to carry the conventional Kh-555 ALCM, and approximately half of the fleet is modified to carry 10 additional missiles externally. Aircraft are undergoing mods to enable external carriage of eight Kh-102 extended-range nuclear ALCM (reducing aircraft range to 4,350 miles in this configuration).

Extant Variants:
- Tu-95MS. Latest production version, capable of cruise missile delivery.
- Tu-95MSM. Upgraded aircraft.

Function: Long-range heavy bomber, missile carrier.
Delivered: December 1982–92 (Tu-95MS).
Inventory: 61.
Accommodation: seven.
Dimensions: span 164 ft 2 in, length 161 ft 2 in, height 43 ft 8 in.
Weight: max T-O 407,885 lb.
Ceiling: 34,450 ft.
Performance: speed 516 mph, range 6,524 miles.
Armament: six long-range nuclear Kh-55, or conventional KH-555 ALCMs on internal rotary launcher. Future weapons incl eight nuclear Kh-102 ALCMs.

Tu-160 Blackjack

Tu-160 • NATO reporting name: Blackjack

Brief: Russia's most powerful and modern strategic bomber, externally resembling the B-1B Lancer. The Tu-160's blended fuselage/wing center section maximizes radar deflection for low observability. Its widely spaced engines allow for two tandem weapon bays. The variable-geometry wing is manually selected between 20° for T-O and landing, 35° for Mach 0.77 speed, and 65° for supersonic flight. The first 19 Tu-160s were initially deployed to Pryluky AB, Ukraine, where they remained after the collapse of the USSR. Russia bought eight aircraft back from Ukraine in 1999 and restored them; the remaining were scrapped, with one placed on display. Tu-160s routinely participate in long-range patrols that have intensified around Europe and in the Pacific. Upgrades initiated in 2011 added the new Kh-102 missile. MLU aircraft are designated Tu-160M, incorporating new radar, navigation and communications systems, and ECM. The initial phase, excluding radar replacement, was delivered to the Russian air force in 2014. Five additional airframes are slated for upgrade in 2015. The Russian government recently announced the intent to restart Tu-160M2 production with a potential order for up to 50 airframes to bridge the gap to the planned next generation PAK-DA bomber.

Extant Variants:
- Tu-160. Basic production variant.
- Tu-160M. Upgraded aircraft.

Function: Supersonic long-range heavy bomber.

Delivered: April 1987–April 2008.
Inventory: 16.
Accommodation: four.
Dimensions: span 116 ft 10 in swept to 182 ft 9 in spread, length 177 ft 6 in, height 44 ft.
Weight: max T-O 606,270 lb.
Ceiling: 51,181 ft.
Performance: max speed 1,243 mph or 640 mph at S-L, cruise Mach 0.77, range 7,643 miles with six missiles dropped midrange.
Armament: standard six (max 12) conventional Kh-555 and nuclear Kh-55SM, or modern nuclear Kh-102 cruise missiles internally. Reportedly adapted to carry the standoff 3,300-lb UPAB-1500 bomb.

TACTICAL COMBAT AIRCRAFT

MiG-29 Fulcrum

MiG-29 • NATO reporting name: Fulcrum

Brief: Lightweight fighter aircraft. The MiG-29 was the first Soviet fighter exhibited to the Western public at the Farnborough air show in 1988, as part of Gorbachev's rapprochement with the West. The initial 1971 heavy fighter design was split between what became the lightweight MiG-29 and Sukhoi's heavier Su-27. The MiG-29 was produced in high numbers for the Soviet air force and export customers, with production peaking in 1988, when 228 single-seat and 50 two-seat examples rolled off the line. Due to its limited range, the Russian air force elected to forgo an MLU program, in favor of the Sukhoi Flanker. The VVS received 28 new-build MiG-29SMTs (plus six two-seat trainers) in 2009, after they were rejected by Algeria. The multirole SMT variant incorporates increased fuel capacity and modern digital fire-control, as well as upgraded IRST and HMS and new air-to-ground weapons. A second batch of 16 new-build fighters was ordered in 2014, for delivery by 2016. The navalized MiG-29K was developed as a carrier-capable variant for the Indian navy, with the SMT's fire-control systems, and was first delivered in 2009. The VMF ordered 24 in 2012, designating the single-seat variant MiG-29KR and two-seat variant MiG-29KUBR, for operations aboard the carrier *Admiral Kuznetsov*. Russia is testing two land-based types derived from the MiG-29K, dubbed MiG-29M and MiG-35. The MiG-35 incorporates AESA radar and uprated RD-33MKR turbofans.
Extant Variants:
• MiG-29. Standard version delivered through 1991.
• MiG-29UB. Non-radar-equipped, two-seat combat trainer.
• MiG-29SMT. Modernized multirole version.
• MiG-29KR. Single-seat, carrier-capable fighter.
• MiG-29KUBR. Two-seat training version of the MiG-29KR.
• MiG-29M. Shore-based fighter lacking carrier-specific equipment.
• MiG-35. Developmental variant with AESA radar and improved engines.
Function: Multirole fighter.
Delivered: from July 1983.
Inventory: approx 150 (VVS), 14 (VMF).
Accommodation: pilot.
Dimensions: span 37.3 ft, length 56.9 ft, height 15.5 ft.
Weight: T-O clean 33,731 lb (MiG-29SMT: 37,479 lb), max T-O 43,431 lb (MiG-29SMT: 48,502 lb).
Ceiling: 57,400 ft.
Performance: speed 1,491 mph, 932 mph at S-L, range 932 miles (MiG-29SMT: 1,118 miles), ferry range 1,305 miles (MiG-29SMT: 1,864 miles).
Armament: one internal 30 mm cannon (150 rd), two medium-range R-27 (AA-10 Alamo), and four short-range R-73 (AA-11 Archer) air-to-air missiles (air-to-air loadout) or combat mix of general-purpose bombs, CBUs, and unguided rockets (air-to-ground loadout). MiG-29SMT: six RVV-AE air-to-air missiles (air-to-air loadout) or four Kh-25M, or two Kh-29T/L, or two Kh-31A/P, or four KAB-500 missiles (air-to-ground loadout).

MiG-31• NATO reporting name: Foxhound

Brief: Long-range, supercruise-capable interceptor. The MiG-31 was the world's first PESA-equipped fighter, designed in 1968 to replace the MiG-25. The aircraft is designed for autonomous intercept without GCI support, mainly employed in Russia's northern regions against cruise missile attack. The aircraft retains its predecessors' Mach 2.35 cruise performance, adding the all-altitude multitarget capability of the Zaslon PESA and longer endurance. Despite design capabilities, speed is reportedly limited to Mach 1.5 due to canopy material limitations. Aircraft data links allow networking between aircraft and to AOCs. The upgraded MiG-31BM that has been ordered adds improved PESA radar and new weapons, and more than 50 have been upgraded to date. The upgraded Zaslon-AM radar reputedly doubles the aircraft's detection range to 149 miles, and mods replaced the systems operator's dated displays with LCD screens in the aft cockpit. New weaponry include four 124-mile-range R-37M air-to-air missiles and four close air combat R-73 missiles.
Extant Variants:
• MiG-31B. Standard late production variant with Zaslon-A radar.
• MiG-31BS. Upgraded MiG-31B.
• MiG-31BM. Current upgraded aircraft with Zaslon-AM radar and new missiles.
Function: Long-range interceptor.
Delivered: February 1981–94.
Inventory: about 120.
Accommodation: pilot (front) and WSO (rear).
Dimensions: span 44.2 ft, length 74.4 ft, height 20.1 ft.
Weight: max T-O 101,853 lb.
Ceiling: 67,585 ft.
Performance: max speed Mach 2.83; speed Mach 2.35 for new aircraft (currently limited to Mach 1.5). Range 2,050 miles with two external tanks.
Armament: one internal six-barrel 23 mm cannon (260 rd), four R-33 or nuclear R-33S air-to-air missiles, two medium-range R-40TD, or four self-defense R-60M air-to-air missiles on the wing pylons.

MiG-31 Foxhound

Su-24M • NATO reporting name: Fencer-D

Brief: Variable-geometry nuclear and conventional strike aircraft designed for low-level penetration. The Su-24 was designed in the 1960s as a counterpart to the Air Force's F-111. The basic Su-24M is equipped with a large dual-band FCR, laser/TV targeting, and terrain-following radar. The fleet is undergoing low-cost upgrades through 2020. Upgraded aircraft are designated Su-24M SVP-24 and incorporate more accurate navigation and fire-control systems. Roughly 50 aircraft have undergone mods to date. The Su-24M2 is an MLU version with a new manufacturer-supplied navigation and fire-control system, improved radar, modern INS and satnav systems, and reportedly, the new podded KS-418 jammer. Thirty airframes were upgraded between 2007 and 2009. The Su-24 is due to be replaced by the Su-34.
Extant Variants:
• Su-24M. Standard bomber version.
• Su-24M (SVP-24). Low-cost contractor upgraded airframe.
• Su-24M2. Manufacturer-upgraded airframe.
• Su-24MR. All-weather, multisensor reconnaissance aircraft.
Function: SEAD, air interdiction.
Delivered: 1973-92.
Inventory: about 260 (incl 30 VMF).
Accommodation: pilot and WSO side-by-side (pilot to port).
Dimensions: span 34 ft swept to 57.9 ft spread, length 80.5 ft, height 20.3 ft.
Weight: max T-O 87,523 lb.
Ceiling: 37,730 ft.
Performance: speed 901 mph max or 746 mph at S-L with weapons, operational radius at S-L 242 miles without or 354 miles with external tanks, ferry range 1,585 miles.
Armament: one six barrel 23 mm cannon (500 rd), two R-60 air-to-air missiles for self-protection, tactical nuclear weapons or various types of free-fall bombs, GBUs, or rockets. AGMs incl two 80-mile range Kh-59M and Kh-58U, or Kh-31P anti-radiation missiles.

Su-25UB Frogfoot-B

Su-25 • NATO reporting name: Frogfoot

Brief: Heavily armored subsonic close air support aircraft. The Su-25 was designed in 1968 as a highly survivable and maneuverable, subsonic CAS platform, analogous to the A-10. The Su-25UTG is a navalized, carrier-capable training aircraft, complete with arresting gear. The standard variant was heavily employed in Afghanistan from 1979 to 1989 and was extensively modified based on lessons learned during the conflict. Su-25s were used in combat in Chechnya and in the invasion of Georgia in 2008. The Su-25SM is an MLU variant with modernized targeting and navigation systems, and approximately 85 airframes have been delivered since 2006. The latest Su-25SM3 adds modernized self-defense and communications equipment.

Extant Variants:

- Su-25. Standard single-seat CAS platform (NATO Frogfoot-A).
- Su-25UB. Two-seat combat trainer (NATO Frogfoot-B).
- Su-25UTG. Shipborne trainer with weapons system removed.
- Su-25SM. Upgraded Frogfoot-A.
- Su-25SM3. Upgraded Frogfoot-A with new self-defense and comm suites.

Function: Attack.
Delivered: 1979-92.
Inventory: approx 200.
Accommodation: pilot.
Dimensions: span 47.1 ft, length 50.9 ft, height 15.8 ft.
Weight: max T-O 38,800 lb (Su-25), 41,890 lb (Su-25SM).
Ceiling: 22,950 ft.
Performance: speed 590 mph, range without external tanks at S-L 317 miles, ferry 1,450 miles.
Armament: one double-barrel 30 mm cannon (250 rd). Combat mix incl various types of free-fall or guided weapons, laser guided or standard rockets, and gunpods on eight underwing pylons, and two R-60 air-to-air missiles on wingtip pylons. Russian air force Su-25 are adapted to carry two tactical nuclear free-fall bombs.

Su-27 • NATO reporting name: Flanker

Brief: Originally designed in 1969 as an air superiority fighter and later adapted as a multirole aircraft, as a counterpart to the US F-15. The Su-27 forms the backbone of Russia's fighter force and is still in limited production for Russian and export customers. The current multirole Su-27SM was developed as a derivative of the Su-30MK2 exported to China. The aircraft incorporates only basic improvements, retaining the legacy Cassegrain radar.

Extant Variants:

- Su-27. Standard operational model (NATO Flanker-B).
- Su-27UB. Two-seat combat-capable trainer (NATO Flanker-C).
- Su-27SM. Upgraded aircraft with air-to ground capability (50+ modified).
- Su-27SM(3). New-build and upgraded aircraft with improved avionics.

Function: Air superiority, multirole fighter.
Delivered: from 1982.
Inventory: approx 200 (approx 70 multirole Su-27SM).
Accommodation: pilot.
Dimensions: span 48.2 ft, length without probe 72 ft, height 19.5 ft.
Weight: empty 36,112 lb, standard T-O 51,654 lb, max T-O 62,391 lb.
Ceiling: 60,700 ft.
Performance: max speed 1,491 mph, 870 mph at S-L, max operational range 2,193 miles, 833 miles at S-L.
Armament: one internal 30 mm cannon (150 rd); up to 10 air-to-air missiles incl medium-/extended-range R-27/R-27E and short-range R-73, or RVV-AE and R-77-1 (air-to-air loadout); mix of guided AGM incl Kh-31A/P anti-ship/anti-radiation missiles (up to four), Kh-29L missiles (up to four), S-25LD missiles (two), and KAB-500Kr (four), and KAB-1500Kr (one) GBU (air-to-ground loadout).

Su-27 Flanker

Su-30 • NATO reporting name: Flanker

Brief: "Russified" version of export, two-seat multirole designs. Aircraft based on the Su-30MKK exported to China are less advanced, incorporating an upgraded Su-27 fire-control system. The airframe is a considerably strengthened derivative of the two-seat Su-27, to permit higher T-O weights required to carry weapons and a full fuel load. Advanced models derived from the Su-30MKI sold to India add PESA, thrust-vectoring and canard flight controls, and a modern, open-architecture fire-control system. In the Russian air force, the Su-30M2 also serves as the combat trainer for upgraded Su-27SM fighters.

Extant Variants:

- Su-30M2. VVS airframes based on Chinese-export version.
- Su-30SM. VVS and VMF airframes based on Indian-export version.

Function: Two-seat multirole fighter.
Delivered: from 2010.
Inventory: 53 (92 ordered).
Accommodation: two pilots in tandem.
Dimensions: span 48.2 ft, length 72 ft without probe, height 21 ft.
Weight: max T-O 76,060 lb, max allowable T-O 83,776 lb.
Ceiling: 56,759 ft.
Performance: speed Mach 2.0, speed 839 mph at S-L, range 1,864 miles.
Armament: one 30 mm cannon (150 rd), up to 17,640 lb on 12 pylons incl R-27, RVV-AE and R-73 air-to-air missiles (air-to-air loadout); Kh-59M, Kh-31P/A, and Kh-29 missiles (air-to-ground loadout).

Su-33 • NATO reporting name: Flanker-D

Brief: Carrier-based air superiority and fleet-defense fighter deployed aboard the Russian navy's sole large-deck carrier, *Admiral Kuznetsov*. Developed under the designation Su-27K, the Su-33 is equipped with canards and large flaperons to decrease its angle of attack during carrier T-Os and landings. The aircraft is also fitted with reinforced landing gear and an arresting hook for deck operations. The Su-33 uses the Su-27's fire-control system with slight modifications for overwater operations and has an optional manual/automatic landing approach system.

Function: Carrier-borne air superiority, fleet defense.
Delivered: 1993-96.
Inventory: 21.
Accommodation: pilot.
Dimensions: span 48.2 ft, span at stowage (wings and tailplane folded) 24.3 ft, length 69.5 ft without probe, height 18.8 ft.
Weight: max T-O 55,116 lb, max allowable T-O 72,752 lb.
Ceiling: 55,775 ft.
Performance: max speed Mach 2.17, speed 808 mph at S-L, range 1,864 miles.
Armament: one single-barrel 30 mm GSh-30-1 cannon, up to 14,330 lb on 12 pylons incl R-27/R-27E and R-73 air-to-air missiles.

Su-34 Fullback

Su-34 • NATO reporting name: Fullback

Brief: Tactical bomber derived from the Su-27 fighter, as a replacement for the Su-24M. The aircraft boasts a 30 to 50 percent range improvement over the Su-24 and is equipped with modern targeting and navigations systems that are compatible with the latest generation of weapons. The Su-34 is primarily tasked with tactical interdiction/penetrating strike and is capable of hitting targets with 8,800 lb of weapons at up to a 500-mile range. It incorporates a low-signature X-band PESA radar capable of engaging four simultaneous surface targets. Two development aircraft saw combat during the 2008 invasion of Georgia, destroying an air defense radar site with an anti-radiation missile. It carries podded SLAR, TV camera, linear IR, and Sigint payloads in the reconnaissance role, and data are transmittable to ground stations via real-time wideband data link. The aircraft is fitted with the powerful L175/L265 Khibiny/-M ECM suite, complemented by external ECM pods.

Function: Strike, SEAD, reconnaissance, EW.
Delivered: since December 2006.

Production: 61 (129 ordered), plus eight prototypes.
Inventory: 61.
Accommodation: one pilot, one WSO side-by-side.
Dimensions: span 48.2 ft, length without probe 76.6 ft, height 20 ft.
Weight: max T-O 99,430 lb.
Ceiling: 51,510 ft.
Performance: max speed Mach 1.6, speed at S-L 808 mph, range at S-L with weapons 1,087 miles, ferry range 2,485 miles.
Armament: one 30 mm cannon (150 rd), full range of Russian tactical nuclear and conventional air-to-ground munitions. Air-to-air weapons incl beyond visual range R-27 and close air combat R-73 missiles. Typical configurations incl six Kh-31s, two Kh-59Ms, five Kh-59MKs, three 3,300-lb bombs, or 32 x 550-lb bombs.

Su-35 • NATO reporting name: Flanker

Brief: The most modern development of the Flanker, the Su-35 is intended as a lower-cost complement to Russia's fifth generation T-50 PAK-FA, along with the upgraded Su-30SM/M2 fleets. Though externally similar to the Su-27, the aircraft has shorter vertical stabilizers and tail "stinger" and lacks its predecessor's airbrake, deflecting its rudders instead for aerodynamic braking. The Su-35's revised structure incorporates new materials. Its fully integrated targeting and navigation system links its advanced PESA radar and IRST, ECM suite, and HMS through a central computer. The Su-35's powerful Irbis (Snow Leopard) radar is reputedly capable of fixing and tracking air targets at up to 249 miles at peak power. The aircraft is the first Russian fighter to employ an ultraviolet missile-warning system.
Extant Variant:
• Su-35S. Standard production version for VVS.
Function: Heavy long-range multirole fighter.
Delivered: since February 2014.
Inventory: 34.
Accommodation: pilot.
Dimensions: span 48.2 ft, length 71.9 ft, height: 19.4 ft.
Weight: max T-O 76,059 lb.
Ceiling: 59,055 ft.
Performance: max Mach 2.25, speed at S-L 870 mph, range 2,237 miles clean, 2,976 miles with external tanks.
Armament: full spectrum of current and developmental Russian tactical missiles.


T-50

T-50

Brief: Fifth generation, multirole aircraft designed to replace the Su-27 as the Russian air force's dominant fighter. The T-50 is being developed under the PAK-FA (Future Air Complex of Tactical Aviation program) begun in the late 1990s. The T-50 features low observable characteristics, supercruise, advanced sensor fusion, and high maneuverability, making it a nominal counterpart to the F-22. The manufacturer claims the T-50's radar cross section is equal to three or four square feet, compared to the Su-27's 160-square-foot radar signature, owing mostly to internal weapons carriage. The aircraft's Byelka (Squirrel) AESA radar, ECM, and Atoll EO suite, in addition to its navigation, communications, and data links, are tied to a central computer. IOC and full rate production are currently, and unrealistically, slated for the end of 2016. Since the prototype's first flight in 2010, the type has logged only 600 test flights. Russia is cooperating with India to develop a two-seat export version for the Indian Air Force, under India's Fifth Generation Fighter Aircraft (FGFA) program.
Function: Fifth generation multirole fighter.
Delivered: none.
Inventory: none operational.
Accommodation: pilot.
Dimensions, estimated: span 46 ft, length 65 ft, height 15 ft.
Weight, estimated: nominal T-O 55,000 lb; max T-O 75,000 lb.
Ceiling, estimated: 60 000 ft.
Performance, estimated: max Mach 2.0, cruise Mach 1.3, supersonic range 950 miles; max range 2,200 miles.
Armament: one single-barrel 30 mm cannon; up to four medium-range K-77M or long-range "810" air-to-air missiles, Kh-58UShK or Kh-36 anti-radiation missiles, and Kh-38M or KAB-250 EO air-to-ground munitions in two internal fuselage weapons bays. Two K-74M2 close air combat air-to-air missiles in underwing bays. Underwing stores can be fitted for nonstealthy missions.

RECONNAISSANCE AND SURVEILLANCE AIRCRAFT


A-50U Mainstay

A-50 • NATO reporting name: Mainstay

Brief: Russia's sole airborne early warning aircraft, converted from Ilyushin Il-76MD Candid airlifter, with a radar housed in a rotodome above the fuselage. Its Shmel (Bumblebee) radar is reputedly capable of detecting and tracking targets at up to 143 miles in look-down mode, or up to 217 miles operating from high altitude. Mainstay can track up to 45 targets and vector 12 fighters simultaneously to intercept. The first MLU aircraft was redelivered to the Russian air force in 2011 and redesignated A-50U. Three operational and one prototype aircraft were upgraded; upgrade of next batch was ordered in 2014. MLU airframes received new computers with more reliable, digital signal processing and modern LCD operator stations, as well as new navigation and comms. The only external difference between A-50 and A-50U is the absence of fins that shielded the legacy platform from signal reflections. Contractor Beriev is developing a next generation AWACS based on the more modern Il-76MD-90A version of the airlifter. The prototype A-100 entered conversion in late 2014. The type is slated for IOC by late 2017.
Extant Variants:
• A-50. Standard operational version.
• A-50U. Upgraded airframe with improved radar.
Function: Early warning, C2.
Delivered: 1985-93.
Inventory: 15+.
Accommodation: flight crew: five; mission crew: 10.
Dimensions: span 165.7 ft, length 158.4 ft incl refueling probe, height 48.4 ft.
Weight: max T-O 418,878 lb.
Ceiling: 40,000 ft.
Performance: max speed 503 mph, patrol speed 373 mph, range 3,170 miles, patrol duration four hours at 621 miles from base.

An-30 • NATO reporting name: Clank

Brief: Surveillance aircraft derived from the turboprop Antonov An-24 commuter airliner and used for arms control treaty verification and imagery collection permitted under the 1992 Open Skies treaty. The type's forward fuselage is modified with a raised cockpit and glazed nose for observation purposes. The An-30B primarily conducts Open Skies flights over European signatory countries, using the AFA-41/10 (100 mm) and AFA-41/20 (200 mm) photo cameras. Aircraft used within Russia have a wider camera selection.
Extant Variant:
• An-30B. Civilian An-30A with gyro-stabilized camera platform.
Function: Observation.
Delivered: 1971-80.
Inventory: 15+.
Accommodation: aircrew: five; two camera operators.
Dimensions: span 95.8 ft, length 79.6 ft, height 27.3 ft.
Weight: max T-O 50,706 lb.
Ceiling: 27,230 ft.
Performance: speed 336 mph, cruising speed 267 to 295 mph, max range 1,634 miles.

Il-20 • NATO reporting name: Coot-A

Brief: Radar reconnaissance and Elint aircraft based on Ilyushin Il-18D airliner. The primary sensor is the Igla (Needle) Ku-band SLAR, housed in a 21-foot cigar-shaped fairing under the fuselage, housing the high-resolution radar antenna. An upgraded Il-20MS version is under development, after which, plans call for the majority, if not the entire fleet, to be upgraded. Il-20MS aircraft retain the Igla SLAR, paired with a more modern computer, a new Elint payload, and new self-defensive suite including UV missile warning, and decoy systems. The separate Il-20RT version is used by Russia's strategic RVSN as a tracking and signal relay/translator platform for national security space and ICBM launches. The SLAR pod is removed and replaced with a longer canoe fairing atop the fuselage. A single aircraft designated Il-20M Anagramma was modified in 2004 with a large box-shaped antenna, housing an unknown electronic sensor. Another aircraft dubbed Monitor was modified in 2009 with large cylindrical antennas, an underslung radar, and a forward EO/IR turret.

Extant Variants:
• Il-20M. Standard SLAR/Elint equipped variant.
• Il-20RT. Missile tracking and relay variant.
• Il-20M. Anagramma airframe, payload unknown.
• Il-20M. Monitor airframe, payload unknown.
• Il-20MS. Upgraded Il-20M, in development.
Function: Electronic reconnaissance.
Delivered: 1969-76.
Inventory: approx 12.
Accommodation: flight crew: five; tactical crew: six.
Dimensions: span 122.8 ft, length 117.8 ft, height 33.4 ft.
Weight: max T-O 141,056 lb.
Ceiling: 32,800 ft.
Performance: speed 373 mph, range 3,728 miles.

Il-20 Coot-A

Ka-31, Ka-35 • NATO reporting name: Helix

Brief: Airborne early warning and battlefield surveillance helicopters. The Ka-31 serves the navy, acting as an airborne picket, detecting air and sea-surface threats, while the Ka-35 is used by the army, designed for battlefield surveillance. Both helicopters are based on the Ka-27 ASW helicopter, with fuselage modifications to house their specialized mission equipment. The Ka-31 is equipped with the Oko (Eye) pulse-Doppler L-band radar, which utilizes a large, rotating, rectangular antenna. The radar employs passive electronic scanning, for establishing elevation, and mechanical scanning to track a target's azimuth. The army Ka-35 version is in development and is optimized for land-based surveillance, including a potent self-defensive suite. Both helicopters deploy a stowable antenna that folds flush with the underfuselage during transit. The helicopter's quad landing gear are hydraulically raised when the antenna is in operation, to avoid electromagnetic interference. Signals are relayed to ship or shore-based command posts for processing.
Extant Variants:
• Ka-31. Production version delivered for export.
• Ka-31R. Naval derivative for the VMF.
• Ka-35. Battlefield surveillance derivative.
Function: Radar picket helicopter.
Delivered: 2003-12 for India and China; since 2012 to the VMF.
Inventory: two of 12 expected by 2020 (Ka-31R, VMF).
Accommodation: two, one pilot, one navigator/systems operator.
Dimensions: rotor diameter 52.2 ft each, fuselage length 37.1 ft, height 18.5 ft.
Weight: max T-O 27,558 lb.
Ceiling: operational, up to 11,500 ft.
Performance: max speed 155 mph, operating speed 62-68 mph, range 373 miles.

Ka-31 Helix

Photo by Piotr Butowski

Su-24MR • NATO reporting name: Fencer-E. (See Su-24M.)

Tu-154M-LK1 • NATO reporting name: Careless. (See Tu-154.)

Tu-214-ON

Brief: Surveillance version of Tu-214 airliner used for longer-range arms control verification flights permitted under the 1992 Open Skies treaty. The aircraft is equipped with synthetic aperture Ronsar SLAR, dual-band Raduga IR scanner, and a photographic suite including vertical, panoramic, and oblique cameras, in addition to one vertical and two oblique video cameras. The SLAR operates at 8.6 GHz frequencies giving it a 30-mile range and 10-foot resolution over land, and 125-mile range and 20- to 25-foot resolution at sea. Russia operates the most advanced Open Skies treaty surveillance platform of the 34 states, including the US, that are party to the treaty. The Tu-214ON is the only Open Skies verification aircraft equipped with the full capabilities permitted under the treaty.
Function: Observation.
Delivered: 2014.
Inventory: two.
Accommodation: aircrew: three; multiple mission crew.
Dimensions: span 137.1 ft, length 151.4 ft, height 45.6 ft.
Weight: max T-O 244,162 lb.
Ceiling: 40,000 ft.
Performance: speed 528 mph, range 4,000 miles.

Tu-214R

Brief: Multisensor reconnaissance platform based on the Tu-214 twin-jet airliner by Russia's military intelligence (GRU) to supplement the smaller Il-20 Coot-A. The aircraft's primary sensor is the MRK-411 radar. The full array consists of flat SLAR antennas on the forward fuselage and an omnidirectional surveillance radar in a radome under the aft fuselage. The system operates in X, L, and VHF wave bands. A cigar-shaped fairing under the forward fuselage houses a high-definition EO turret. The aircraft is also equipped with a Sigint payload and self-defensive suite.
Function: Electronic reconnaissance.
Delivered: 2015.
Inventory: two are still in tests and are to be delivered in 2015.
Dimensions: span 137.1 ft, length 151.4 ft, height 45.6 ft.
Weight: max T-O 244,162 lb.
Ceiling: 40,000 ft.
Performance: approx speed 500 mph, range 5,000 miles.

SPECIAL MISSION AIRCRAFT


A-60

Beriev photo

A-60

Brief: Airborne laser intended to jam enemy EO reconnaissance systems, mounted on a modified Il-76MD airlifter. The A-60 project was initially devised for downing NATO high-altitude balloons, which Soviet military authorities believed carried reconnaissance sensors. Fighters and anti-aircraft missiles were deemed ineffective against the threat, leading to the development of the A-60, equipped with a cargo bay-mounted high-energy laser gun. The aircraft's spine fairing houses the mirror system to direct the beam, guided by the aircraft's Ladoga fire-control radar. The first weapon had a 25-mile range and managed to hit and damage a balloon during tests in 1984. Trials were suspended after the fall of the Soviet Union, but resumed in 2003, aimed at "blinding" adversary space-based surveillance systems, which are often used to track, characterize, and measure launches and orbital vehicles. The A-60 succeeded in firing on a Japanese Ajisai satellite orbiting at an altitude of 930 miles on Aug. 18, 2009, registering a signal return. Russia is developing the new 1LK222 carbon-monoxide laser and intends to test it aboard the restored A-60 prototype in 2015, later fitting it to a new-build Il-76MD-90A—designated A-60M—intended as an operational weapon.
Extant Variants:
• A-60. Experimental laser-weapon platform.
• A-60M. Next generation laser weapon mounted on a new Il-76MD-90A airframe.
Function: Airborne laser weapon.
Delivered: none.
Inventory: one (development aircraft).
Accommodation: unknown.
Dimensions: span 165.7 ft, length 152.9 ft, height 48.4 ft.
Weight: max T-O 420,000 lb.
Ceiling: operational 33,000 ft.
Performance: approx speed 460 mph, range 3,000 miles.

Il-22 Coot-B

Il-22 • NATO reporting name: Coot-B

Brief: Theater-level airborne command post and relay aircraft based on the Ilyushin Il-18D turboprop airliner. The Il-22 is identifiable by its bullet-shaped tailfin cap and a shallow 66-foot-long, underfuselage pod (30 ft on Il-22M). A single airframe, registered RA-75903, was converted as a developmental Sigint and standoff jamming platform designated Il-22PP. The PP variant features four bulbous ECM fairings on the sides and rear of the fuselage. The fixed underfuselage pod houses a self-defensive chaff/flare system. Testing was completed at Akhtubinsk test center in 2014, and plans call for three aircraft (including the prototype) to be converted as EW platforms. The aircraft's EW suite is also slated to equip a larger, more modern Tu-214-based EW platform (dubbed Tu-214PP) scheduled to fly in 2018.

Extant Variants:

- Il-22 Bison. Airborne command post version.
- Il-22M Zebra. Radio-relay version (most converted to Il-22M11-RT Sokol).
- Il-22M11-RT Sokol. Upgraded version of the Il-22M with Sokol relay system.
- Il-22K. Single airframe equipped with Sokol-K radio relay system.
- Il-22PP. Developmental Sigint and EW platform.

Function: Command and control, signal relay, EW.
Delivered: 1976-85.
Inventory: 15+.
Accommodation: flight crew: five; mission crew: at least six.
Dimensions: span 122.8 ft, length 117.8 ft, height 33.4 ft.
Weight: max T-O 140,000 lb.
Ceiling: 33,000 ft.
Performance: speed 373 mph, range 3,850 miles, endurance 10 hours.

An Il-80 Maxdome with a pair of MiG-29s

Photo by Piotr Butowski

Il-80 • NATO reporting name: Maxdome

Brief: Strategic airborne command post similar to the Air Force's E-4B National Airborne Operations Center, converted from the Il-86 wide-body airliner. The Il-80 is a part of a command system of the Russian nuclear forces, which reports to the General Staff of the Russian Armed Forces. Maxdome has an advanced comms suite developed by Polyot and is easily identifiable by its Satcom hump on the upper, forward fuselage. The aircraft is equipped with VLF and trailing wire antenna for communications with submerged ballistic missile submarines. At least two of the four aircraft were modernized for compatibility with the Zveno-2S command and control network.
Function: National airborne command post.
Delivered: 1987-90.
Inventory: four (two likely airworthy).
Accommodation: flight crew: four; operational crew: numerous.
Dimensions: span 157.7 ft, length 195.3 ft, height 51.9 ft.
Weight: max T-O 474,000 lb.
Ceiling: 36,000 ft.
Performance: speed 528 mph, range in excess of 4,350 miles.

Il-82

Brief: Relay aircraft to augment Russia's Il-80 Maxdome airborne command posts, converted from Il-76 airlifter. The Il-82 features a prominent Satcom hump on the forward fuselage (similar to Maxdome), as well as VLF and a trailing wire antenna for communication with submerged ballistic missile submarines. The Il-82 lacks the transparent nose glazing of the standard airlifter and features a number of additional antenna aerials along the fuselage. Beriev upgraded at least one aircraft in 2008. The Il-82's effective combat radius is unknown.
Function: Relay aircraft.
Delivered: 1987.
Inventory: two (one likely airworthy).
Accommodation: aircrew: five; mission crew: unknown.
Dimensions: span 165.7 ft, length 152.9 ft, height 48.4 ft.
Weight: max T-O 418,878 lb.
Ceiling: approx 39,000 ft.
Performance: approx speed 470 mph, range 3,500 miles.

Mi-8 ECM variants • NATO reporting name: Hip-J, Hip-K. (See Mi-8.)

Tu-142MR • NATO reporting name: Bear-J. (See Tu-142.)

ATTACK AND TRANSPORT HELICOPTERS

Ka-29 • NATO reporting name: Helix-B

Brief: Ship-based helicopter for air assault, transport, and marines' CAS. The Ka-29 is developed from the Ka-27 ASW helicopter and features a new cabin fuselage to accommodate 12 troops. The platform is capable of firing Shturm-V anti-tank missiles, equipped with chaff/flare, and some carry the L-166V (NATO Hot Brick) IR jammer. The cockpit and engines are fitted with armor plating and foam fuel-tank inerting. Helicopters are deployed individually aboard ships, and many near-new airframes are currently in storage.
Function: Attack, assault, and transport helicopter.
Delivered: 1984-93.
Inventory: unknown.
Accommodation: pilot and weapon systems officer, side-by-side.
Dimensions: rotor diameter 52.2 ft, fuselage length 37.1 ft, height 17.9 ft.
Weight: combat T-O 24,471 lb, max T-O 25,353 lb.
Ceiling: 14,100 ft.
Performance: max speed 180 mph, speed 146 mph, range 286 miles with 16 troops.
Armament: eight 9M114 (NATO: AT-6 Spiral) tube-launched anti-tank guided missiles, unguided rockets, gun packs, bombs. Optionally, 2A42 30 mm single-barrel cannon (250 rd) on port weapon rack.

Ka-52 Hokum-B

Ka-52 • NATO reporting name: Hokum-B

Brief: Scout-attack helicopter with coaxial, contrarotating rotors and ejection seats. The helicopter's Ka-band radar is used for targeting, navigation, and reconnaissance tasks, featuring a 15-mile effective range against large structures, and up to nine miles against vehicle targets. The radar's wide 2.6-foot radar array is facilitated by the helicopter's unique side-by-side crew arrangement. The aircraft's EO turret houses thermal imaging camera, TV camera, laser rangefinder/designator for guided missiles, and laser spot tracker. The Ka-52's powerful self-defensive suite combines radar, laser, and UV-warning sensors, IR jamming, and chaff/flare. The Ka-52K Katran (Spiny Dogfish) is a developmental, navalized version for use on the yet-to-be delivered, French-built Mistral class amphibious assault ships. Katran features shorter, folding wings and folding rotor blades, strengthened undercarriage, modified radar, new EO turret, and anti-ship weapons including the Kh-35UV missile.

Extant Variants:

- Ka-50. Black Shark. Early single-seat version (NATO Hokum).
- Ka-52. Alligator. Production sensor-equipped two-seater (NATO Hokum-B).
- Ka-52K. Katran. Developmental ship-based variant.

Function: Scout, attack.
Delivered: 1991-93 (Ka-50s), and then since 2010 (Ka-52s).
Inventory: six Ka-50s, 75+ Ka-52s.
Accommodation: two pilots side-by-side.
Dimensions: rotor diameter 47.6 ft, fuselage length 45.5 ft, height 16.6 ft.
Weight: combat T-O 23,810 lb with six ATGMs, max T-O 26,896 lb.
Ceiling: 18,000 ft.
Performance: max speed 186 mph, speed 162 mph, combat range 286 miles, ferry range 690 miles.
Armament: one 30 mm cannon (460 rd), six to 12 laser guided Ataka-1 or Vikhr-1 (NATO AT-16 Scallion) anti-tank missiles, or radio guided Ataka missiles. Up to four rocket launchers. Four Igla (NATO SA-18 Grouse) portable SAMs.

An Mi-26 Halo with a pair of Mi-8 Hips

Mi-8 • NATO reporting name: Hip

Brief: World's second most common utility helicopter, after the lighter Bell UH-1 Huey, and continuously produced for 50 years. All Russian military Hips are designated Mi-8 and differentiated by suffixes, while export models are designated Mi-17, Mi-171, or Mi-172 (depending on manufacturer.) The Russian defense ministry resumed large-scale purchases after a 15-year break in 2008, ordering more than 300 new-build Mi-8s. Approximately 100 other countries operate Mi-8 variants, mostly in military applications. The newest production version Mi-8MTV-5 features a wider port cabin door, additional starboard cabin door, single-piece rear ramp and restyled nose. Mi-17V-5 is its export equivalent. The US purchased 63 of the newest version for the Afghan National Army Air Corps, the last delivered in 2014. Several special operations versions were developed for counterinsurgency operations, notably in Chechnya and the Northern Caucasus, featuring EO sensors and weapons. The most advanced Mi-8MNP uses the same sensors and armaments as the Mi-35M attack helicopter. Several standoff jamming variants have been produced since the 1980s. The latest and current production model Mi-8MTPR-1 is equipped with the L187A Rychag-AV jammer for use against air defense radars, as well as flares for self-defense.

Extant Variants:

- Mi-8MT. Standard mass-produced version (NATO Hip-H).
- Mi-8MTV. Mi-8MT with uprated engines for better hot/high performance.
- Mi-8AMT. Mi-8MTV equivalent manufactured at Kazan plant.
- Mi-8MTV-5. Current production version.
- Mi-8AMTSh. Alternately manufactured MTV-5 equivalent.
- Mi-8AMTSh-V. Current production version with uprated engines and new avionics.
- Mi-8MNP. SOF version optimized for COIN.
- Mi-8PPA. Early 1980s standoff jamming variant (NATO Hip-K).
- Mi-8SMV-PG. Second jamming variant equipped with SPS-88PG Smalta-PG. (NATO Hip-J).
- Mi-8MTPR-1. Latest standoff jamming variant.

Function: Combat utility, special operations, EW.
Delivered: from 1965.
Inventory: 550+.
Accommodation: crew: three; standard 24 troops (max 36); 12 litters in medevac role; max cargo 8,818 lb (Mi-8MTV-5).
Dimensions: rotor diameter: 69.9 ft, length with rotors turning 83.2 ft, height 15.6 ft to above rotor head, cabin length 17.5 ft, cabin width 7.7 ft, cabin height 5.9 ft.
Weight: standard T-O 24,471 lb, max T-O 28,660 lb.
Ceiling: 19,685 ft.
Performance: max speed 155 mph, speed 137-143 mph, range 425 miles, ferry range 684 miles (Mi-8MTV-5).
Armament: four 80 mm rocket pods (20 rd), gun pods, CBUs, etc. Provision for three cabin-mounted machine guns (Mi-8MTV-5). Special mission versions carry heavier armament, incl anti-armor missiles.

Mi-24, Mi-35M • NATO reporting name: Hind

Brief: Heavy attack helicopter with secondary air assault and CSAR roles, operated by more than 50 countries. The Mi-24 initially saw combat in Afghanistan and was refined through combat experience there from 1979 to 1989, with structural improvements and new equipment and weapons. All variants since the Mi-24D have incorporated its reprofiled fuselage and separate, tandem cockpits for the pilot and weapons operator. The follow-on Mi-24V introduced the Shturm-V anti-tank missile and other weapons and uprated engines for improved hot and high-altitude performance. The Mi-24P replaced the helicopter's flexible machine gun with a fixed 30 mm cannon. The Mi-24VP similarly replaced earlier weapons with a flex-mounted 23 mm cannon. Production of the most advanced Mi-35M variant for the Russian air force and export launched in 2006. Mi-24s have seen combat since the fall of the Soviet Union in Chechnya, Dagestan, Georgia, and other post-Soviet states, as well as the invasion and seizure of Crimea in 2014.

Extant Variants:

- Mi-24D. Reprofiled early version (export Mi-25; NATO Hind-D).
- Mi-24V. Improved version with uprated engines and new weapons (NATO Hind-E).
- Mi-24P. Improved cannon-armed version (export Mi-35P; NATO Hind-F).
- Mi-24VP. Mi-24V with a nose-mounted 23 mm cannon (NATO Hind-E).
- Mi-24R. Nuclear, biological, and chemical sampling version (NATO Hind-G1).
- Mi-24K. Scout/spotter version (NATO Hind-G2).
- Mi-24PN. Upgraded Mi-24P with basic night-mission capability.
- Mi-35M. Current production version.

Function: Attack, air assault, CSAR.
Inventory: approx 150 (Mi-24); 49 (Mi-35M).
Accommodation: pilot, weapons operator, flight engineer.
Dimensions: rotor diameter 56.4 ft, length (with rotors) 70 ft, fuselage length 57.5 ft, height 14.6 ft to above rotor head, wing span 16.6 ft.
Weight: combat T-O 24,030 lb, max T-O 26,015 lb (Mi-35M).
Ceiling: 17,717 ft.
Performance: max speed 186 mph, speed 149 mph, combat range 342 miles, ferry range 621 miles (Mi-35M).
Armament: one twin-barreled 23 mm GSh-23V cannon (450 rd) in undernose turret, eight (max 16) 9M120 Ataka anti-tank missiles, and four 9M39 Igla-V anti-aircraft missiles. Alternatively, 122 mm and 80 mm unguided rockets, CBUs, gun packs.

Mi-26 • NATO reporting name: Halo

Brief: World's largest heavy-lift helicopter, produced nearly unaltered for 30 years. Due to its massive size the Mi-26 requires rigorous maintenance and overhaul. Gearbox and transmission lives are limited to 3,000 hours, while rotor blades are limited to approximately 1,000 hours, and its obsolete engines require overhaul after 600 hours. A civil-contract Mi-26 successfully recovered a downed US Army CH-47 Chinook from 9,200-foot mountain elevation in Afghanistan, carrying the 24,000-lb load 100 miles to Bagram Airfield. Russia began production of the upgraded Mi-26T2 in 2014 for export to Algeria. Upgrades include a reduced, two-man aircrew, glass cockpit, and new navigation systems.

Function: Heavy lift.
Delivered: 1982-present.
Inventory: approx 40.
Accommodation: aircrew: four; 68 paratroops or 82 troops; 61 litters, three attendants in medevac role. Alternative loads are up to 44,092 lb of vehicles, containers, or pallets.
Dimensions: rotor diameter 105 ft, length (with rotors) 131.3 ft, fuselage length 110.7 ft, height 26.7 ft, cabin length 49.2 ft incl ramp, cabin width 10.7 ft.
Weight: max T-O 123,459 lb.
Ceiling: 15,090 ft.
Performance: max speed 183 mph, speed 158 mph, range with full load 367 miles, ferry range 1,193 miles.
Armament: provision for flex-mounting infantry machine guns in cargo-bay windows.

Mi-28N • NATO reporting name: Havoc-B

Brief: Specialized anti-tank attack helicopter developed starting in 1976 as a counterpart to AH-64 Apache. After many setbacks, the helicopter finally entered Russian military service in recent years. The Mi-28N is heavily armored with 770 lb of titanium and ceramic-plate protecting the cockpit and engine bays. The cockpit is further glazed in 35 to 50 mm bullet resistant glass, capable of withstanding a direct hit by a 12.7 mm round or 20 mm shell fragments. Engine ducting reduces the aircraft's IR signature by mixing hot exhaust through the rotor arc. The fuel tanks are self-sealing, and self-defensive equipment includes RWR, UV- and laser-warning receivers, and flares. Deliveries of 15 export Mi-28NE to Iraq began in 2014, and Algeria placed an order for 42 aircraft.

Extant Variant:

- Mi-28N. Standard version for VVS (NATO Havoc-B).

Function: Anti-armor, attack.
Delivered: from 2008.
Inventory: 80+ (167 ordered).
Accommodation: pilot, weapons operator.
Dimensions: rotor diameter 56.4 ft, length (with rotors) 69.4 ft, fuselage length 55.4 ft, wing span 16 ft.
Weight: combat T-O 24,250 lb, max T-O 26,676 lb.
Ceiling: 16,400 ft.
Performance: max speed 174 mph, speed 149 mph, combat radius 96 miles.
Armament: one single-barrel 30 mm 2A42-2 cannon (250 rd) in movable undernose turret. Standard eight (max 16) 9M120 Ataka-VN ATGMs, 9M39 Igla-V anti-aircraft missiles, 80 mm and 122 mm rockets, gun packs, various other weapons.

Mi-28N Havoc-B

An-22 Cock

STRATEGIC TRANSPORT AND TANKER AIRCRAFT

An-22 • NATO reporting name: Cock

Brief: Was the world's largest propeller-driven airlifter when it debuted in the late 1960s, powered by the same turboprop engines fitted to the Tu-95 Bear bomber. The aircraft's cargo bay is three feet wider than the Il-76 airlifter and cheaper to operate than the larger An-124 strategic airlifter. The Russian air force plans to keep the remaining An-22 fleet in service until 2020.
Function: Heavy airlift.
Delivered: 1969-76.
Inventory: six.
Accommodation: aircrew: five; 132,277 lb of cargo incl vehicles, missile systems, up to 151 paratroops, or 292 troops (in double-deck cabin configuration).
Dimensions: span 211.3 ft, length 188 ft, height 41.3 ft.
Weight: max T-O 496,040 lb.
Ceiling: 29,528 ft.
Performance: speed 373 mph, range 2,300 miles with full payload, max 5,900 miles.


An-124 Condor

An-124 • NATO reporting name: Condor

Brief: World's largest military transport aircraft, surpassing the C-5 Galaxy. Russian and Ukrainian contract carriers employed the aircraft in support of NATO operations in Afghanistan under the Strategic Airlift Interim Solution (SALIS) program from 2006 to 2014. The An-124 fleet is being updated to An-124-100 standards as aircraft are overhauled, bringing them up-to-date with civil airspace requirements.
Extant Variants:
• An-124. Heavy intratheater strategic airlifter.
• An-124-100. Upgraded aircraft with civil certification.
Function: Heavy, long-range strategic airlift.
Delivered: February 1987-92.
Inventory: 26.
Accommodation: aircrew: six; up to 330,693 lb of payload (max certified 264,554 lb) with drive-through access via nose and rear ramps.
Dimensions: span 240.5 ft, length 226.7 ft, height 69.2 ft.
Weight: empty 385,800 lb, max T-O 892,871 lb (An-124) or 864,210 lb (An-124-100).
Ceiling: 38,058 ft.
Performance: speed 497 mph, range 3,107 miles with 264,554 lb payload, max 9,998 miles.

Il-76 • NATO reporting name: Candid-B

Brief: The Russian air force's standard airlift platform. A total of 880 legacy Il-76s were produced at a plant in Uzbekistan from 1973 to 2011. Russia is relaunching domestic production of a modernized Il-76MD-90A version, incorporating a new wing, modern PS-90A-76 turbofans, and new avionics. The updates increase the aircraft's max T-O weight to 462,971 lb, while cutting fuel consumption by 12 percent. The new version is capable of carrying 40 tons of cargo more than 4,000 miles. New-build aircraft retain the legacy aircraft's cargo bay dimensions, which are too narrow to fit a large percentage of common military vehicles and equipment. The VVS is developing new tanker and AEW platforms based on the new production model. Plans are in place to retrofit a least 40 legacy aircraft to similar Il-76MDM standards. The newest Il-76MD-90A is slated to enter service in 2015.
Extant Variants:
• Il-76MD. Improved version of the legacy Il-76.
• Il-76MD-90A. Modernized, new-build aircraft based on the legacy Il-76.
Function: Medium/long-range airlift.
Delivered: June 1974-92; deliveries are to restart in 2015 against an order for 39 newly built aircraft by 2018.
Inventory: approx 110.
Accommodation: five aircrew; up to 105,822 lb of cargo; 126 paratroops or 167 troops (245 with upper-deck installed).
Dimensions: span 165.7 ft, length 152.9 ft, height 48.4 ft.
Weight: empty 196,211 lb, max T-O 418,878 lb.
Ceiling: 39,370 ft.
Performance: speed 485 mph, range 2,958 miles with 88,184-lb payload, max 4,847 miles.


Il-76MD Candid-B

Il-78 • NATO reporting name: Midas

Brief: Aerial tanker based on Il-76MD transport and the only tanker in Russian air force service. Russia is developing the new Il-78M-90A version, based on the new-build Il-76MD-90A airlifter, and is expected to enter production in 2016. The aircraft was adapted for the tanker role with cargo-bay tanks which are removable in Il-78 and permanent on the Il-78M. The aircraft is equipped with two wing-mounted pods to refuel combat aircraft and port-fuselage pod for refueling heavier aircraft.
Extant Variants:
• Il-78. Initial dual-role tanker/transport.
• Il-78M. Current operational version.
• Il-78M-90A. Developmental aircraft based on the new Il-76MD-90A.
Function: Tanker.
Delivered: 1985-93.
Inventory: approx 15.
Accommodation: six, incl refueling operator in the tail.
Dimensions: span 165.7 ft, length 152.9 ft, height 48.4 ft.
Weight: max T-O 462,970 lb.
Ceiling: refueling altitude: 6,562 to 29,525 ft.
Performance: speed 466 mph, refueling speed 267-367 mph, radius 3,138 miles when 44,092 lb of fuel delivered, or 2,144 miles when 88,185 lb delivered.

THEATER AND SPECIAL USE TRANSPORTS


An-12 Cub

An-12 • NATO reporting name: Cub

Brief: Was the Soviet Union's large tactical transport aircraft, specialized for airdrop and tactical insertion, similar to the US C-130. The An-12 has been replaced in the tactical role by the Il-76, but remains in service as a base-level support aircraft.
Extant Variants:
• An-12BK. Airlift variant (NATO Cub-A).
• An-12PP. Standoff EW escort aircraft (NATO Cub-C and Cub-D).
Function: Medium airlift, EW.
Delivered: May 1959-72.
Inventory: approx 65.
Accommodation: aircrew: six; up to 44,092 lb of cargo, 91 troops, or 60 paratroops.
Dimensions: wing span 124.8 ft, length 108.6 ft.
Weight: max T-O 134,482 lb.
Ceiling: 33,465 ft.
Performance: cruising speed 342 to 373 mph, range with full fuel 3,604 miles, range with full payload 1,243 miles.
Armament: two tail-mounted 23 mm cannons (some airframes); runway-illumination flare-bombs.


An-26 Curl

An-26 • NATO reporting name: Curl

Brief: Light transport aircraft derived from the civil An-24 commuter airliner, with a wider fuselage and hydraulically operated rear cargo-ramp (horizontally stowable for airdrop).
Extant Variants:
• An-26. Standard, light transport version (NATO Curl-A).
• An-26RT. Tactical communications-relay aircraft (NATO Curl-B).
• An-26M. AE aircraft with surgical facilities.
• An-26Sh. Navigation trainer.
Function: Light airlift, communications relay, AE.
Delivered: 1970-85.
Inventory: approx 140.
Accommodation: aircrew: three to five; up to 12,125 lb of cargo or 40 troops, or 30 paratroops. In AE configuration, 24 litter patients and three attendants.
Dimensions: wing span 95.8 ft, length 78.1 ft.
Weight: max T-O 52,910 lb.
Ceiling: 29,530 ft.
Performance: max speed 336 mph, max range 1,678 miles.
Armament: two illumination flare-bombs on racks at each side of the fuselage.

An-72 • NATO reporting name: Coaler

Brief: Twin-turbofan light STOL airlifter designed to replace the An-26. The aircraft incorporates blown-flap technology (similar to the Boeing YC-14) and is capable of operations from short, unimproved airstrips. The prototype Coaler-A incorporated a shorter aft fuselage and smaller wing, while Coaler-B is the civil variant. The military An-72 was originally intended to support special operations and directly supply frontline forces, but changes in military doctrine have resulted in An-72s primarily conducting executive airlift. The executive-configured An-72S is equipped with 38 passenger seats and a smaller cargo bay capable of transporting a small vehicle. Some airframes are fitted with a self-defensive suite.
Extant Variants:
• An-72. Standard production military transport (NATO Coaler-C).
• An-72S. Executive airlift version.
Function: Light airlift, VIP transport.
Delivered: 1986 to approx 1991.
Inventory: approx 30.
Accommodation: aircrew: three; standard 11,000 lb, max 22,000 lb of cargo.
Dimensions: span 104.6 ft, length 92.1 ft.
Weight: max T-O 80,469 lb.
Ceiling: 38,715 ft.
Performance: max speed 438 mph, speed 342 to 373 mph, T-O distance at maximum T-O weight 3,051 ft, landing distance 1,378 to 1,526 ft, range with full payload 839 miles, max range 2,983 miles.


An-72 Coaler

An-140-100

Brief: Turboprop commuter airliner intended to replace the An-24 with a faster, more efficient, and longer-range platform. Only 35 examples were produced on three assembly lines in Russia, Ukraine, and Iran, due to a lack of orders. The Russian military is the sole operator of the type, with 14 additional examples still on order.
Extant Variant:
• An-140-100. Production version.
Function: VIP transport.
Delivered: August 2011-present.
Inventory: eight (five VVS, three VMF); 14 ordered.
Accommodation: two aircrew, 52 passengers; max payload 13,228 lb.
Dimensions: wing span 83.7 ft, length 74.1 ft.
Weight: max T-O 47,400 lb.
Ceiling: 24,934 ft.
Performance: max speed 336 mph, range with max payload 808 miles, ferry range 2,300 miles.


An-140-100

An-148-100E

Brief: Regional jet used for executive airlift and intended to replace the 1960s-era Tu-134. The design was intended as a commercial aircraft but is operated almost exclusively by Russian military and government agencies. Six of the 15 aircraft ordered in 2013 are due to be delivered by mid-2015.
Extant Variant:
• An-148-100E. Extended-range version used by VVS.
Function: VIP transport.
Delivered: 2013-present.
Inventory: six.
Accommodation: two pilots, up to 80 passengers.
Dimensions: wing span 94.9 ft, length 95.6 ft.
Weight: max T-O 96,342 lb.
Ceiling: 40,026 ft.
Performance: max speed 540 mph, range 2,734 miles with 75 passengers.

L-410 Turbolet

Brief: Twin-turboprop light transport and executive aircraft widely used by the Soviet air force. The Soviet air force purchased 230 of the L-410UVP STOL version before the fall of the Soviet Union in 1991. Production of the Czech-designed and -built aircraft dwindled in the post-Soviet era. Manufacturer Let Kunovice was acquired by Russia in 2008, bringing renewed VVS and other Russian orders.
Extant Variants:
• L-410UVP. Early STOL version.
• L-410UVP-E20. Current production version with upgraded engines and avionics.
Function: Light transport.
Delivered: 1979-91; February 2011-present.
Inventory: approx 30 incl 11 new-production UVP-E20 versions.
Accommodation: two pilots and 19 passengers.
Dimensions: wing span 65.6 ft, length 47.3 ft.
Weight: max T-O 14,550 lb.
Ceiling: 27,500 ft.
Performance: max speed 251.7 mph, max range 944.5 miles.

Tu-134 • NATO reporting name: Crusty

Brief: Soviet-era commercial aircraft converted as a VIP transport for the defense ministry command staff. Most aircraft are equipped with long-range comms, identifiable by the "stinger" antenna protruding from the tail. The passenger cabin is divided into three compartments including a planning room, rest area, and comms.
Extant Variants:
• Tu-134A. Standard variant.
• Tu-134B. Later aircraft with improved avionics and smaller flight crew.
• Tu-134Sh. Bomber navigator trainer.
• Tu-134UBL. Bomber pilot trainer.
Function: VIP transport, trainer.
Delivered: 1966-84.
Inventory: approx 100.

Tu-134UBL Crusty

Accommodation: aircrew: three; 80 passengers or 12 trainees.
Dimensions: wing span 95.2 ft, length 122.4 ft, (Tu-134UBL) 137.5 ft.
Weight: max T-O 104,940 lb.
Ceiling: 38,715 ft.
Performance: max speed 564 mph, range with max payload 1,367 miles, max range 2,237 miles.
Armament (bomber crew trainer): eight 110-lb practice bombs.

Tu-154 • NATO reporting name: Careless

Brief: Medium-range airliner equivalent to the Boeing 727 and currently used for passenger airlift and treaty verification flights permitted under the 1992 Open Skies treaty.
Extant Variants:
• Tu-154B-2. Most numerous version powered by Kuznetsov NK-8-2U turbofans.
• Tu-154M. Aircraft equipped with newer D-30KU-154 engines.
• Tu-154M-LK1. Photo surveillance aircraft for the Open Skies program.
Function: Passenger airlift, photo surveillance.
Delivered: 1972 to 2013.
Inventory: approx 20, incl one Tu-154M-LK1.
Accommodation: crew: three to four; up to 180 passengers.
Dimensions: wing span 123.2 ft, length 157.2 ft.
Weight: max T-O 220,462 lb.
Ceiling: 39,040 ft.
Performance: speed 581 mph, range with full payload 2,360 miles, max range 4,100 miles.

MARITIME PATROL AND ANTISUBMARINE AIRCRAFT

Be-12 Mail

Photo by Piotr Butowski

Be-12 • NATO reporting name: Mail

Brief: Turboprop amphibian originally designed for ASW and currently used for noncombat patrol. Russian naval aviation announced in 2015 its intention to modernize the Be-12 fleet, specifically to restore its ASW capability. Several non-airworthy airframes could potentially be returned to service if the plans are implemented.
Function: ASW; maritime patrol.
Delivered: 1964-73.
Inventory: three.
Accommodation: four.
Dimensions: span 97.9 ft, length 98.8 ft, height on parking 29.9 ft.
Weight: max T-O 79,366 lb.
Ceiling: 26,250 ft.
Performance: max speed 329 mph, max range 2,237 miles.
Armament: 3,300 lb (max 6,614 lb with reduced fuel load) of weapons and stores incl torpedoes, depth charges, mines, and sonobuoys in an internal bay.

Il-38 • NATO reporting name: May

Brief: ASW aircraft derived from the Il-18 airliner and roughly equivalent to the Lockheed P-3 Orion. The Il-38 combines the Il-18s wings, tail, engines, and landing gear with a completely redesigned fuselage with two internal weapons bays. The aircraft's Berkut search radar is housed in the bulbous underfuselage radome and its magnetic anomaly detector (MAD) is housed in the tail "stinger." A fleet upgrade begun in 2014 replaces the aircraft's legacy mission computers with the new Novella-P-38 system, which includes the electronic support measures (ESM) sensors fitted in a box over the forward fuselage, new C- and I-band radar, MAD equipment, sonobuoy system, and FLIR turret. Russia has many stored airframes that could be overhauled and returned to future service. The export Il-38SD Sea Dragon variant is operated by India's navy.
Extant Variants:
• Il-38. Legacy variant.
• Il-38N. Upgraded aircraft with modernized sensors and mission system.
Function: Shore-based ASW, maritime patrol.
Delivered: 1968-72.
Inventory: 22 incl four upgraded Il-38Ns.
Accommodation: eight.
Dimensions: span 122.8 ft, length 131.7 ft, height 33.4 ft.
Weight: max T-O 145,500 lb.
Ceiling: mission altitude 330 ft through 3,300 ft.
Performance: max speed 400 mph, mission speed 200 to 250 mph, ferry range 5,900 miles, patrol duration three hours at 1,400 miles.
Armament: standard 12,000 lb (max 18,500 lb) of buoys and weapons incl APR-2, APR-3, AT-2, or UMGT-1 torpedoes, PLAB-250 or RBK-100 depth charges, Zagon guided depth charges, or one RYu-2 nuclear depth charge. India's Il-38 will carry two Kh-35E anti-ship missiles.

Ka-27 • NATO reporting name: Helix

Brief: Ship- or shore-based family of ASW and SAR helicopters. Manufacturer Kamov's typical twin-coaxial contrarotating rotor arrangement makes the helicopter compact despite its 24,000-lb weight, making it ideal for ship-borne deployment. Kamov designed an entire series of civil and military designs based on the Ka-27's core systems, including the Ka-29 attack, Ka-31 and Ka-35 radar platforms, export Ka-28, and civil Ka-32. Russia began upgrading the first eight airframes to Ka-27M standards in 2015 with plans to modernize 46 by 2020. Modifications include new avionics, AESA radar, MAD, EW, dipping sonar, sonobouy, and navigator's tactical display. New weapons include APR-3 rocket-propelled torpedo and Zagon-2 guided depth charge.
Extant Variants:
• Ka-27. Standard ASW version (NATO Helix-A).
• Ka-27PS. SAR version (NATO Helix-D).
• Ka-27M. Current upgraded version.
Function: ASW, SAR.
Delivered: 1979-91.
Inventory: approx 80 incl 60+ ASW (some non-airworthy).
Accommodation: three.
Dimensions: rotor diameter 52.2 ft, fuselage length 37.1 ft, height 17.7 ft.
Weight: max T-O 24,251 lb.
Ceiling: 11,500 ft.
Performance: max speed 180 mph, range 435 miles, patrol duration one hour, 25 minutes at 125 miles from base.
Armament: 1,323 lb (max 2,205 lb) of weapons and stores in heated bay, incl one APR-2, AT-1MV or UMGT-1 torpedo; depth charges, sonobuoys.

Tu-142 • NATO reporting names: Bear-F, Bear-J

Brief: ASW and maritime patrol version of the Tu-95 Bear strategic bomber designed to operate at distances up to 2,500 miles from a shore base. The aircraft's Korshun (Black Kite) sensor system couples search radar, sonobuoys, and tactical-data presentation system. The aircraft's MAD sensor functions as an independent system. The most recent Tu-142MZ incorporates the newer Zarechye sonobuoy system and

Il-38N May

Photo by Piotr Butowski

Tu-142MR Bear-J

Sayany-M ECM suite. The Russian navy opted not to upgrade the overall Tu-142 fleet's Soviet-era mission equipment, prioritizing the Il-38N instead. The Tu-142MR version is specially equipped as an airborne nuclear command post similar to the US Navy's E-6 Mercury, ensuring unbroken contact with ballistic missile submarines.

Extant Variants:
- Tu-142MK. Standard long-range ASW version (NATO Bear-F Mod 3).
- Tu-142MZ. Late-model ASW version (NATO Bear-F Mod 4).
- Tu-142MR. Airborne nuclear command post (NATO Bear-J).

Function: Long-range ASW.
Delivered: 1968-94.
Inventory: approx 20 of all versions.
Accommodation: two pilots, two navigators, navigator/weapons-system operator, three mission system operators, technician, rear gunner, and ECM operator on equipped airframes.
Dimensions: span 164.2 ft, length 174.2 ft, height 44.7 ft.
Weight: max T-O 407,885 lb.
Ceiling: 39,400 ft.
Performance: max speed 531 mph, speed 457 mph, range 7,456 miles, patrol duration four hours, 10 minutes at 2,500 miles from base.
Armament: 9,700 lb (max 19,800 lb) in two fuselage bays. Options incl three APR-3, APR-2, AT-2M or UMGT-1 torpedoes, depth charges (incl nuclear ones), mines, and sonobuoys.

TRAINER AIRCRAFT

An-2 • NATO reporting name: Colt

Brief: The partially fabric-covered An-2 biplane is the oldest type still in Russian air force service, and several dozen are retained to support airborne troops' parachute jump-training (similar to the Air Force's UV-18 Twin Otter).
Function: Utility.
Inventory: dozens.
Accommodation: two pilots, 12 passengers/paratroops.
Dimensions: length 41.8 ft, wing span 59.6 ft.
Weight: max T-O 12,130 lb.
Ceiling: 13,650 ft.
Performance: speed 157 mph, T-O/landing run 722 ft/738 ft, max range 864 miles.

Ansat-U

Brief: Trainer and light utility helicopter in Russian air force service. The lightweight helicopter is equipped with unique fly-by-wire controls that allow it to imitate the handling characteristics of large, heavy helicopters for pilot training.
Extant Variant:
- Ansat-U. VVS trainer variant fitted with wheeled undercarriage instead of skids.

Function: Trainer.
Delivered: from 2009.
Inventory: more than 30 (40 ordered).
Accommodation: two pilots, nine passengers.
Dimensions: rotor diameter 37.7 ft, length with rotors turning 44.4 ft.
Weight: max 7,280 lb.
Ceiling: 18,700 ft.
Performance: speed 171 mph, max range 316 miles.

Ansat-U

Ka-226 Hoodlum

Ka-226V • NATO reporting name: Hoodlum

Brief: Training and light utility helicopter used by the Russian air force. It features a modular exoskeleton fuselage containing the cockpit, engines, empennage, and undercarriage that can be paired with specialized, interchangeable payload pods for cargo, passenger, AE, or other roles.
Function: Trainer, utility.
Delivered: 2011-15.
Inventory: 42.
Accommodation: two pilots, eight passengers.
Dimensions: fuselage length 28.2 ft, rotor diameter 42.7 ft.
Weight: max 7,496 lb.
Ceiling: 16,404 ft.
Performance: max speed 137 mph, range with standard fuel 373 miles.

L-39C Albatros

Brief: Czech-built single engine jet trainer introduced during the Soviet-era and still used as the Russian air force's standard military pilot training platform, despite introduction of the Yak-130. The aircraft retains its 1970s avionics suite but uses new Bekas-03 radios. The original ejection seats are being gradually replaced by new Russian-built K-93 seats.
Function: Advanced trainer.
Delivered: 1971-91.
Inventory: approx 150.
Accommodation: two pilots in tandem ejection seats.
Dimensions: length 39.8 ft, wing span 31.0 ft.
Weight: max 10,362 lb.
Ceiling: 37,730 ft.
Performance: speed 466 mph, normal range 684 miles, ferry 1,087 miles.
Armament: two underwing pylons for rocket pods/bombs.

Yak-130 • NATO reporting name: Mitten

Brief: New generation light-attack/trainer jointly developed by Yakovlev and Italy's Aermacchi. The twin-jet, swept wing subsonic trainer boasts a high thrust-to-weight ratio and quadruple digital fly-by-wire control systems. The aircraft incorporates wingtip decoy launchers, and new radar and targeting pods are being developed to expand its combat capability. In addition to Russian air force orders, Russia is exporting Yak-130 versions to Algeria, Bangladesh, and Belarus. The VVS has orders for 89 aircraft and plans to purchase an additional 150 by 2020.
Extant Variant:
- Yak-130. Next generation fly-by-wire light-attack/trainer.

Function: Trainer.
Delivered: from February 2010.
Inventory: 65.
Accommodation: two pilots in tandem ejection seats.
Dimensions: wing span 32.3 ft, length 37.7 ft.
Weight: trainer configuration 15,935 lb, max 22,679 lb.
Ceiling: 41,013 ft.
Performance: max speed 659 mph, approach speed 118 mph, range clean 994 miles, ferry 1,305 miles, T-O run 1,804 ft, landing run 2,461 ft.
Armament: provision for centerline 23 mm gun pod, up to 6,614 lb, incl R-73 air-to-air missiles, Kh-25M air-to-surface missiles, KAB-500 GBUs, rockets, and gun pods. ✪

ACRONYMS

AE aeromedical evacuation
AESA active electronically scanned array
AGM air-to-ground missile
ALCM air launched cruise missile
ASW anti-submarine warfare
CAS close air support
CBU cluster bomb unit
COIN counterinsurgency
CSAR combat search and rescue
ECM electronic countermeasures
Elint electronic intelligence
EO electro-optical
EW electronic warfare
FCR fire-control radar
FLIR forward-looking infrared
GBU guided bomb unit
HMS helmet-mounted sight
INS inertial navigation system
IR infrared
IRST infrared search and track
LCD liquid crystal display
LO low observable
MAD Magnetic Anomaly Detector
MLU midlife upgrade
PESA passive electronically scanned array
PGM precision guided munitions
RWR radar warning receiver
SAM surface-to-air missile
SAR search and rescue
Satnav satellite navigation
SEAD suppression of enemy air defenses
Sigint signals intelligence
SLAR side-looking airborne radar
SOF special operations forces
STOL short takeoff and landing
T-O takeoff
VLF very low frequency
VMF Russian navy (Voyenno-Morskoy Flot)
VVS Russian airforce (Voyenno-Vozdushnye Sily)
WSO weapon systems officer