Significant Dates in Soviet Military History

1918—Treaty of Brest-Litovsk ends Russia's participation in World War I (March 3). Russian Civil War begins. Fighting lasts until 1920 in western regions of the country and until 1922 in far eastern regions.
1921—Russo-Polish War. A naval mutiny at Kronstadt/Petrograd is put down by the Red Army (March 7–16).
1922—Union of Soviet Socialist Republics is established (December 30).
1927—Stalin initiates his Great Purges of the Soviet military. The purges continue through 1938.
1939—Soviet forces battle Japanese forces at Khalkhin Gol in Outer Mongolia (May–August). The Soviets sign a non-aggression pact with Nazi Germany (August 23). Hitler's invasion of Poland begins World War II (September 1). The Soviets join the Germans in the invasion of Poland (September 17). War breaks out between the Soviet Union and Finland on November 30 and lasts into March 1940.
1940—The independent Baltic republics of Lithuania, Latvia, and Estonia are occupied by the Soviets and incorporated into the USSR (July–August).
1941—The Soviets and Japanese conclude a treaty of neutrality (April 13). Germany invades the Soviet Union (June 22). German forces push to the gates of Moscow, but are turned back by the Soviets (September 30–December 5). The US approves Lend-Lease to the USSR (November).
1942—The Battle of Stalingrad is fought (August to February 1943).
1943—The Battle of Kursk is fought (July 5–July 16).
1945—Berlin falls to Soviet troops (May 2). Germany surrenders to the Allies (May 8). The Soviet Union declares war on Japan (August 8). Japan surrenders to the Allies (September 2).
1948—The Soviets begin the Berlin Blockade (April 1 through September 49).
1949—The Soviets explode an atomic bomb (August 29).
1953—The Soviets explode a hydrogen bomb (August 12).
1955—The Warsaw Pact organization is established (May 14).
1956—Soviet forces crush the Hungarian uprising (November 4).
1957—The USSR announces its first successful ICBM test (August 26). The first Sputnik satellite is launched by the Soviets (October 4).
1960—An American U-2 is shot down over the USSR (May 1). A rift begins to develop between the USSR and the People's Republic of China (approximate).
1961—The Soviets begin construction of the Berlin Wall (August 15).
1962—The Cuban Missile Crisis occurs (October 22–November 2).
1968—Soviet forces invade Czechoslovakia (August 20–21).
1969—The USSR accuses China along the Sino-Soviet border.
1972—The US and the USSR sign the SALT I accord (May 22).
1979—The US and the USSR initial the SALT II accord (June 18). The Soviets invade Afghanistan (December 25).
1983—Soviet fighters down KAL 007, a civilian South Korean airliner that had inadvertently strayed into Soviet airspace (September 1).

Soviet Znachkii

Soviet znachkii are small plastic or light metal badges that commemorate noteworthy events, people, locations, and achievements. Costing on the average anywhere from five kopeks to fifty kopeks (seven cents to seventy cents), they feature clasps that allow them to be worn on clothing.

Soviet youngsters frequently trade znachkii among themselves and to Western tourists for such items as chewing gum and ballpoint pens. Examples of znachkii are pictured throughout this "Soviet Aerospace Almanac" section.

Top Soviet Aces of World War II

<table>
<thead>
<tr>
<th>Men</th>
<th>Solo Victories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kozhedub, I. N.</td>
<td>62</td>
</tr>
<tr>
<td>Pokryshkin, A. I.</td>
<td>59</td>
</tr>
<tr>
<td>Gulaev, N. D.</td>
<td>57</td>
</tr>
<tr>
<td>Rechkalov, G. A.</td>
<td>56</td>
</tr>
<tr>
<td>Yevstigneyev, K. A.</td>
<td>56</td>
</tr>
<tr>
<td>Vorozheykin, A. V.</td>
<td>52</td>
</tr>
<tr>
<td>Glinka, D. B.</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Women</th>
<th>Solo Victories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yamschikova, O.</td>
<td>17</td>
</tr>
<tr>
<td>Lityak, L.</td>
<td>12</td>
</tr>
<tr>
<td>Budanova, K.</td>
<td>10</td>
</tr>
</tbody>
</table>

More than 800 Soviet aviators claimed sixteen or more victories in the "Great Patriotic War." Many of these—including Gulaev, Rechkalov, and Yevstigneyev—are additionally credited with shared victories in "group flights."
Official and Military Holidays

Official Holidays of the USSR
(Workers are given time off on these days)

January 1
New Year's Day
March 8
International Women's Day
May 1 & 2
International Workers' Solidarity Days
May 9
Victory Day
October 7
Constitution Day of the USSR
November 7 & 8
Anniversary of the Great October Socialist Revolution

Key Military Days of the USSR
(Time off from work is not normally given, but celebrations are held)

February 23
Soviet Army and Navy Day
April 12
World Aviation and Cosmonautics Day
Second Sunday of April
Troops of Air Defense Day
May 28
Border Troops Day
First Sunday after July 22
Navy Day
Third Sunday of August
USSR Air Force Day (Aviation Day)
Second Sunday of September
Tank Forces Day
November 10
Soviet Militia Day
November 19
Rocket and Artillery Forces Day

The Military Uniform

Soviet uniforms can vary widely, depending on the rank, service, and position of the wearer as well as the season, occasion, and environment. The following distinctions are applicable to a Soviet equivalent of a USAF officer's Class-A uniform.

- The color of the collar tabs indicates the branch of service. The hatband of the billed cap will be the same color as the collar tabs. Some examples: light blue = aviation and airborne; red = combined arms; black = rocket, artillery, armor, and most technical (chemical, etc.) troops; royal blue = KGB (except Border Guards); and green = KGB Border Guards.
- The branch emblem on the tab indicates the individual's specialty. Some examples: propeller and wings = aviation, parachute = airborne, wreath and star = motorized rifle, crossed barrels = rocket and artillery, and tank = armor.
- Shoulder boards indicate grade (see accompanying chart).
- The right side of the blouse will display qualifications and classification badges, including aviator wings and elite unit designations.

A Typical Day for a Soviet Conscript

0600-0609
Reveille
0610-0630
Exercise (tidying up)
0630-0650
Barracks time
0650-0720
Political information (morning inspection)
0725-0755
Breakfast
0800-1400
Training periods (six fifty-minute periods with ten-minute breaks between)
1400-1440
Dinner
1440-1510
After dinner time
1510-1530
Maintenance: personal, weapon, and equipment
1530-1830
Political education work (Monday and Thursday)
1830-1940
Equipment maintenance (Tuesday and Friday)
1940-2010
Sports (Wednesday and Saturday)
2010-2040
Self-preparation or homework
2040-2155
Supper
2155-2200
Personal time
2200
Evening walk and checkup
Taps
### Comparative Grades and Insignia

*Bold face indicates equivalent USAF rank.*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Insignia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glavniy Marshal Aviatsii</td>
<td>General of the Air Force</td>
</tr>
<tr>
<td>Marshal Aviatsii</td>
<td>General</td>
</tr>
<tr>
<td>General-Polkovnik Aviatsii</td>
<td>Lieutenant General</td>
</tr>
<tr>
<td>General-Leytenant Aviatsii</td>
<td>Major General</td>
</tr>
<tr>
<td>General-Mayor Aviatsii</td>
<td>Brigadier General</td>
</tr>
<tr>
<td>Polkovnik</td>
<td>Colonel</td>
</tr>
<tr>
<td>Podpolkovnik</td>
<td>Lieutenant Colonel</td>
</tr>
<tr>
<td>Mayor</td>
<td>Major</td>
</tr>
<tr>
<td>Kapitan</td>
<td>Captain</td>
</tr>
<tr>
<td>Starshiy Leytenant</td>
<td>1st Lieutenant</td>
</tr>
<tr>
<td>Leytenant</td>
<td>2d Lieutenant</td>
</tr>
<tr>
<td>Mladshiy Leytenant</td>
<td>2d Lieutenant</td>
</tr>
<tr>
<td>Starshiy Praporshchik</td>
<td>Senior Warrant Officer</td>
</tr>
<tr>
<td>Praporshchik</td>
<td>Warrant Officer</td>
</tr>
<tr>
<td>Starshina</td>
<td>Chief Master Sergeant</td>
</tr>
<tr>
<td>Starshiy Serzhant</td>
<td>Senior Master Sergeant</td>
</tr>
<tr>
<td>Serzhant</td>
<td>Master Sergeant</td>
</tr>
<tr>
<td>Mladshiy Serzhant</td>
<td>Staff Sergeant</td>
</tr>
<tr>
<td>Efreytor</td>
<td>Airman First Class</td>
</tr>
<tr>
<td>Ryadovoy</td>
<td>Airman Basic</td>
</tr>
</tbody>
</table>
Normal peacetime command and control of Soviet combat forces (excepting strategic elements, some air defense assets, and KGB and MVD units) is primarily exercised through the Commanders of the sixteen Military Districts, the four Naval Fleets within the country, and the four Groups of Soviet Forces in eastern Europe. District commanders are responsible for the training and housekeeping of the diverse forces in their geographic area; individual services handle administrative support.

In wartime, operational control would shift to Theaters of Military Operations (TVD—Teatr Voyennych Deystviy), which could include several "fronts." In some instances, district commanders would become the TVD commanders. Fifteen TVDs have been tentatively identified. Some of these may be grouped into continental Theaters of War (TV—Teatr Voyny). While the Far Eastern and Southern TVs probably correspond to their TVDs, the Western TV most likely includes the Northwestern, Western, and Southwestern TVDs.

Commanders of TVDs and TVs are combined-arms commanders, directing all operations in their areas during conflict and reporting directly to the Soviet Supreme High Command. The Soviets consider the Western TV the most important, and its commander holds a position of special responsibility—perhaps extending to control of all Warsaw Pact forces in wartime.

The Soviets have never published specific information on TVs or TVDs.

---

**FAR EAST THEATER**

**Far East TVD**

- Divisions: 54
- Tanks: 14,985
- Artillery: 13,420
- Tactical Aircraft: 1,720

**Indian Ocean Squadron**

(most units drawn from Pacific Ocean Fleet)

- Ships, average: 15–25
- Submarines: 1–2
- Principal Surface Combatants: 2–3
- Amphibious Warfare Ships: 1–2
- Mine Warfare Ships: 0–1
- Auxiliaries: 7–9

---

**WESTERN THEATER**

**Northwestern TVD**

- Divisions: 11
- Tanks: 1,320
- Artillery: 1,940
- Tactical Aircraft: 225

**Southwestern TVD**

- Divisions: 26
- Tanks: 7,030
- Artillery: 5,900
- Tactical Aircraft: 940

**Western TVD**

- Divisions: 63
- Tanks: 19,395
- Artillery: 15,400
- Tactical Aircraft: 2,380

---

**LEGEND**

- Military District Borders
- USSR Border

---

**LEGEND**

- Military District Borders
- USSR Border
## MILITARY DISTRICTS

1. Leningrad
2. Baltic
3. Belorussia
4. Moscow
5. Carpathia
6. Odessa
7. Kiev
8. North Caucasus
9. Transcaucasus
10. Volga
11. Ural
12. Turkestan
13. Central Asia
14. Siberia
15. Transbaykal
16. Far East

## FLEETS

I. Northern
II. Baltic
III. Black Sea
IV. Pacific Ocean

---

### Atlantic TVD

**Baltic Fleet**
- Principal Surface Combatants: 42
- Other Combatant Craft: 323
- Auxiliaries: 165
- Submarines: 45
- Naval Aviation: 275
- Naval Infantry Brigade: 1

**Black Sea Fleet**
- Principal Surface Combatants: 75
- Other Combatant Craft: 224
- Auxiliaries: 148
- Submarines: 35
- Naval Aviation: 465
- Naval Infantry Brigade: 1

**Mediterranean Squadron**
- Ships, average: 35–45

### Arctic TVD

**Submarines**: 6–7
**Cruisers**: 1–2
**Destroyers**: 2–3
**Frigates**: 2–3
**Amphibious Warfare Ships**: 0–1
**Mine Warfare Ships**: 0–1
**Auxiliaries**: 24–28

### FLEET RESOURCES

<table>
<thead>
<tr>
<th>Southern TVD</th>
<th>Divisions</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tanks⁴</td>
<td>5,450</td>
</tr>
<tr>
<td></td>
<td>Artillery²</td>
<td>5,810</td>
</tr>
<tr>
<td></td>
<td>Tactical Aircraft</td>
<td>915</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Caspian Flotilla</th>
<th>Principal Surface Combatants</th>
<th>5</th>
</tr>
</thead>
</table>

### STRATEGIC RESERVES

<table>
<thead>
<tr>
<th>Divisions</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanks⁴</td>
<td>4,580</td>
</tr>
<tr>
<td>Artillery²</td>
<td>4,070</td>
</tr>
<tr>
<td>Tactical Aircraft</td>
<td>150</td>
</tr>
</tbody>
</table>

---

¹During wartime, the Western Theater would comprise the Northwestern, Western, and Southwestern Theaters of Military Operations (TVDs).
²This category includes all field artillery, mortars, and multiple rocket launchers 100 mm in size or greater.
³Not including SSBNs.
⁴Medium tanks only.
THE SOVIET MILITARY EXPERIENCE

Age

6
Begin formal education

7
Join youth groups

15
Begin military training

(Males)

(Females)

Registration

Deferred

17
Excused from service

18

Induction

Complete active-duty commitment

Released - attend school

Attend military school

Attend university

Enroll in ROT Degree

20 and up

Released

Enter and serve in reserves

Serve extended duty as NCO

Serve extended duty as warrant officer

Receive commission & enter active service

Receive reserve commission

Serve active duty

Serve as reserve officer

45

Enter reserves

Selected as warrant officer

Commission

Serve as reserve officer

50

Complete service in reserves

Retirement at maximum age

65 and up

Reserve commitment complete

Separation or retirement

Separation or retirement

Separate at maximum age for officer rank or retire
Footnotes

a Formal education begins at age 6; eleven years of schooling required.

b Youth groups include Little Octobrists (ages 7-9), Young Pioneers (10-14/15), and Komsomol, the All-Union Communist Union of Youth (14-28).

c At age 15, Soviet teenagers begin military training and receive a minimum of 140 hours before induction. Boys get thirty additional hours during summer camp. First aid is emphasized for girls.

d By age 17, all males must register for military service. They may be assigned to specific training prior to induction.

e Soviet law provides for conscription of women, but in practice this is not done. However, women may volunteer. A very few women are commissioned officers.

f Few deferments from military service are granted; the majority of these allows selected students to attend approved schools to learn skills critically needed by the state or military. Males enroll concurrently in Reserve Officer Training (ROT). In rare instances, males may be deferred for health or family reasons and excused from their active commitment upon reaching age 27.

g Most Soviet males are inducted for enlisted service at the age of 18. Call-ups are held annually in the spring and fall. Conscripts rarely have a choice of service or branch. The usual term of service is two years for the Army and Navy ashore and three years for the Navy afloat.

h Males who qualify by competitive examination and political recommendation may attend one of about 140 higher military schools. These schools are the primary sources of active-duty officers.

i The Soviet military does not have an "up-or-out" policy for officers, but does impose maximum ages on active service according to rank. An officer who reaches his maximum age but is not eligible for retirement will be transferred to the reserves.

j The Soviet armed services require a large number of reserve officers. Citizens receiving reserve commissions may spend their entire careers as part-time reservists, or they may be called to a period of active duty, particularly if they possess critical skills.

Soviet Active Military Population
(As of October 1, 1986)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Forces</td>
<td>1,992,000</td>
</tr>
<tr>
<td>Air Forces</td>
<td>454,900</td>
</tr>
<tr>
<td>Navy</td>
<td>449,100</td>
</tr>
<tr>
<td>Strategic Defense Forces</td>
<td>531,200</td>
</tr>
<tr>
<td>Strategic Attack Forces (includes Rocket Forces and strategic elements of the Air Forces and Navy)</td>
<td>410,500</td>
</tr>
<tr>
<td>Command/General Support</td>
<td>1,472,300</td>
</tr>
<tr>
<td>Security Forces (KGB/MVD)</td>
<td>570,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,880,000</strong></td>
</tr>
</tbody>
</table>

The Military Oath

Soviet officers and enlisted members take the same oath. The text printed below is the official Soviet translation.

I, citizen of the Union of Soviet Socialist Republics, joining the ranks of the Armed Forces, take the oath and solemnly pledge to be a conscientious, brave, disciplined and vigilant warrior, strictly to observe military and state secrets, to observe the constitution of the USSR and Soviet laws, unquestioningly to carry out the requirements of all military regulations and orders of commanders and superiors.

I pledge conscientiously to study military science, to preserve in every way military and public property and to remain devoted till my last breath to my people, my Soviet homeland, and the Soviet government.

I am prepared at all times, on orders from the Soviet government, to come out in defense of my homeland, the Union of Soviet Socialist Republics. I pledge to defend it courageously, skillfully, with dignity and honour, without sparing my blood and life in securing complete victory over the enemies.

If I break this solemn vow, may I be severely punished by the Soviet people, universally hated, and despised by the working people.

Col. G. Kobozev described the Soviet military oath thusly in Soviet Military Review in 1983: "If you ask [a Soviet] ex-serviceman or servicewoman which was the most memorable day in his life, he will, in most cases, say that it was the day when he took the Oath of Allegiance. And that is quite natural, because it is a solemn pledge of loyalty to his Homeland. As soon as a man takes it, he assumes responsibility for the fate of his country and people, he swears he will defend them to his last breath, to the last drop of his blood."
The Soviet Military Establishment

Ministry of Defense

General Staff

Main Political Administration of the Army and Navy

Council of Ministers

KGB

Border Troops

MVD

Internal Troops

Ministry of Defense

General Staff

Construction and Billeting Troops¹

Civil Defense Troops¹

Troops of the Rear Services¹

Inspectorate¹

Armaments¹

Cadres¹

Services of the Armed Forces (by order of precedence)

1. Strategic Rocket Forces²

2. Ground Forces

3. Troops of Air Defense

4. Air Forces

5. Navy

Motorized Rifle Troops

Tank Troops

Rocket Troops & Artillery

Troops of Troop Air Defense

Airborne Troops²

Aviation of Air Defense

Zenith Rocket Troops

Radiotechnical Troops

Antispace & Antirocket Units

Strategic Air Armies²

Frontal (Tactical) Aviation

Transport Aviation

Ballistic Missile Submarines²

General-Purpose Submarines

Naval Aviation

Surface Ships

Naval Infantry

Aeroflot³

Coastal Artillery & Rocket Troops

Merchant Marine & Fishing Fleets³

¹Each headed by a deputy minister of defense.
²Controlled directly by the General Staff.
³Secondary military mission.
Lineup of Soviet Military Power
(As of October 1, 1986)

Strategic Nuclear Missiles
1,418—Intercontinental ballistic missiles (ICBM), SS-11: 440, SS-13: 60, SS-17: 150 (with 600 warheads), SS-18: 306 (with 3,060 warheads), SS-19: 360 (with 2,160 warheads), SS-25: 100. (The total ICBM figure does not include ICBMs held in reserve for flight testing.)


550—Interceptor/mid-range ballistic missiles (IRBM/RBM), SS: 4: 112 (all based west of the Urals), SS: 20: 441. (Approximately one-third of the SS-20 launchers are deployed in the Far East.)

Air Defense


7,000—Airborne warning and control aircraft, Tu-16D Moss: 7, II-76 Mainstay: 1.

100—Ballistic missile launchers, ABM-18 Gashel. (The ABM system is being upgraded to the maximum total of launchers allowed by the ABM Treaty.)

7,000—Warning systems. These include early warning and ground control intercept radars and satellites.

Air Forces
165—Long-range strategic bombers, Tu-95 Bear: 150, Mya-4 Bison: 15. Blackjack is still under development.


50—Tanker aircraft, Mya-4 Bison: 30, Tu-16 Badger: 20.


3,050—Attack assault helicopters (including Mi-8 Hip and Mi-24 Hind aircraft).

1,500—Training aircraft (including 800 fixed-wing, of which perhaps 600 are combat capable, and 700 rotary-wing aircraft).


1,300—Transports in other elements of the armed forces, An-12 Cub: 300, Others: 1,000.

1,635—Civil aviation aircraft (Aeroflot), An-12 Cub: 160, II-76 Candid: 50. Other medium- and long-range transports: 1,425.

Ground Forces

1,532—Air defense interceptors, FROG-3/-5: 130, FROG-7: 550, N: 20, MiG-23 Flogger: 420.

1,770—Artillery pieces, mortars, and multiple rocket launchers, Artillery pieces: 29,000, Mortars: 10,760, MRLs: 6,775. (Total does not include more than 2,000 antitank artillery pieces.)

59,100—Infantry fighting vehicles and armored personnel carriers, Mi-2 Hoplite: 675, Mi-4 Hound: 20, Mi-6 Hound: 450, Mi-8 Hip: 950, Mi-24 Hind: 1,100, Mi-26 Halo: 50, Mi-10 Harke: 15, Mi-28 Havoc and Hormone are still in development. (Total includes 170 Hip E and 1,050 Hind D and E gunship helicopters.)

Naval Forces


15—Auxiliary submarines (includes both nuclear-powered and non-nuclear-powered boats).

3—Guided missile V/STOL aircraft carriers (Kiev class).

2—Guided missile aviation cruisers (Moskva class).

37—Cruisers. Kiev class nuclear-powered guided missile: 2, Sverdlov class light: 8, Guided missile: 27.

63—Destroyers (including 43 guided missile destroyers).

179—Frigates and corvettes (including 32 Krivak class guided missile frigates).


184—Amphibious warfare ships and craft.


Naval Aviation
340—Strike and bomber aircraft, Tu-22M Backfire: 120, Tu-16 Badger: 190, Tu-22 Blinder: 30.

145—Fighter and fighter-bomber aircraft, Su-17 Fitter: 75, Yak-38 Forger: 10.

70—Tankers (Tu-16 Badger).

200—Reconnaissance and electronic warfare aircraft. Includes Tu-16 Badgers, Tu-95 Bear Ds, Tu-22 Blinders. An-12 Cubs, and others.


465—Transport and training aircraft.

Alliances and Treaties

Prior to the 1970s, the Soviet Union maintained very few alliances or treaties with other nations. The Warsaw Pact, initiated by the Soviets in 1955 as a response to NATO, remains the only multinational defense alliance to which it is a signatory. Known bilateral treaties of military significance are listed. Others may exist, but, if so, have been kept secret by the signatories. The USSR also maintains bilateral arrangements with each of the other Warsaw Pact countries.

Multinational Alliances
- Warsaw Pact Organization. Members include Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the USSR. Albania was an original signatory, but was excluded from the Pact in 1962. Pact Headquarters is in Moscow; the Pact's Commander in Chief is a Soviet Marshal.

Bilateral Treaties
- Finland: Mutual Assistance (1948).
- Iran: Provisions of a treaty dating from 1921 between what was then Persia and the USSR were abrogated by Iran in 1979. These provisions permitted Soviet intervention in Iran if a third party should attempt an attack against the USSR from Iranian soil. The Soviets have not recognized this unilateral abrogation.
- Mongolia: alliance (1921); defense treaty (1966).
- South Yemen: Friendship, Cooperation, and Mutual Assistance (1980).
## Comparison of Key Military Technologies

As of September 30, 1986

### Basic Technologies

<table>
<thead>
<tr>
<th>Technology</th>
<th>US Superior</th>
<th>US-USSR Equal</th>
<th>USSR Superior</th>
<th>Ind. US lead is diminishing</th>
<th>Ind. US lead is increasing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerodynamics/Fluid Dynamics</td>
<td></td>
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<tr>
<td>Computers and Software</td>
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<tr>
<td>Conventional Warheads (including all chemical explosives)</td>
<td></td>
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<tr>
<td>Directed Energy (lasers)</td>
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<tr>
<td>Electro-Optical Sensors (including IR)</td>
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<tr>
<td>Guidance and Navigation</td>
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<tr>
<td>Life Sciences (human factors/biotechnology)</td>
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<tr>
<td>Materials (lightweight, high strength, high temperature)</td>
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<tr>
<td>Microelectronic Materials and Integrated Circuit Manufacture</td>
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<tr>
<td>Nuclear Warheads</td>
<td></td>
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<tr>
<td>Optics</td>
<td></td>
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</tr>
<tr>
<td>Mobile Power Sources (including automated control)</td>
<td></td>
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</tr>
<tr>
<td>Production/Manufacturing (including automated control)</td>
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<tr>
<td>Propulsion (aerospace and ground vehicles)</td>
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<tr>
<td>Radar Sensors</td>
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<tr>
<td>Robotics and Machine Intelligence</td>
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<tr>
<td>Signal Processing</td>
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<tr>
<td>Signature Reduction</td>
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<tr>
<td>Submarine Detection</td>
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<tr>
<td>Telecommunications (including fiber optics)</td>
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</tbody>
</table>

### Significant Military Deployments Outside the Soviet Union

(As of October 1, 1986)

**EUROPE**
- Warsaw Pact Countries: 715,000

**ASIA**
- Afghanistan: 118,000
- Mongolia: 65,000
- Vietnam: 2,500
- Laos: 500
- India: 200
- Kampuchea: 200

**MIDEAST**
- Syria: 2,500
- South Yemen: 1,000
- Iraq: 800
- North Yemen: 500

**AFRICA**
- Ethiopia: 1,500
- Libya: 1,400
- Angola: 1,000
- Algeria: 700
- Mozambique: 500
- Congo: 100
- Mali: 50

**LATIN AMERICA**
- Cuba: 3,000
- Peru: 100
- Nicaragua: 50

1Total includes an estimated 10,000 MVD and KGB forces.
2Estimate does not include transient Soviet naval presence.
3About 900 additional Soviet military advisors are deployed in smaller numbers to many other African nations.
4Significant Cuban military forces are also deployed to this country.
5Does not include an estimated 2,800 Soviet technicians in Cuba.
**Soviet Aeronautical Milestones**

1884—First "hop" by a steam-engine-powered monoplane designed by Alexander Fedorovich Mozhaiski. Short distance and incline-assisted takeoff prevent it from being considered true powered flight.


1910—Russian Imperial War Ministry establishes flying school at Gatchina.

1913—(May 13) First flight of the world's first four-engine airplane—The Russian Knight, affectionately called Le Grand. Designed by Igor Sikorsky.

1913—(August 20) Staff Capt. Peter Nesterov performs history's first inside loop in a Nieuport IV.

1914—(August 26) First air battle of World War I on the Eastern Front. First recorded aerial ramming in combat by Staff Captain Nesterov.

1921—The ANT-1 flies, the first of a record number of more than 100 aircraft designed by Andrei N. Tupolev.

1922—The Germans begin construction of a modern aircraft plant at Fill (near Moscow) under the provisions of the Treaty of Rapallo.

1927—The Tat-A Link flaps, the first Soviet-designed and -built fighter. The Tat-A was the first Soviet fighter to exceed 1,000 km/h.

1930—First flight of the ANT-20 Maxim Gorki, at the time the world's largest aircraft. Designed by Tupolev.

1937—The Soviets set several record-endurance flights, including the first polar flight between Europe and North America.


1947—(December 30) First flight of the MiG-15.

1956—The Tu-104 makes its debut as the world's first commercial jetliner.

1968—(December 31) First flight of the Tu-144, the world's first supersonic transport.

**Soviet Aircraft Designations**

The several parts of a Soviet aircraft designation have distinct meanings. Take the designation "MiG-21MF Fishbed J" as an example. MiG is an abbreviation of the design bureau responsible for the aircraft—Mikoyan and Gurevich (the bureau's originators) in this case. Other examples are Su for Sukhoi (or Sukhoy), Tu for Tupolev, and Yak for Yakovlev. The numeral 21 is the model number of the production aircraft. Odd numerals are assigned to fighters, even numerals to bombers and transports.

The letter arrangement MF is the progressive development suffix. M stands for modified or modified for export, F for boosted. Other examples are A for aerodynamic refinement, B for attack or bomber version, bis for a reinitialized suffix, P for interceptor version, S for boundary layer blowing, and U or Ut for trainer.

Fishbed is the identifying code name assigned to this MiG series by NATO. All important Soviet aircraft are named as they are identified by photographs from a man-operated camera. The first letter of the name identifies the aircraft type—F for fighter, B for bomber, C for cargo or transport, H for helicopter, and M for miscellaneous. A code name of one syllable means the aircraft is propeller-powered; a code name of two syllables means it is jet-powered.

The letter following the name—J in this example—indicates the point in the letter sequence at which this version was identified by NATO.

**Top Soviet Military Aircraft Exports (1985-86)**

<table>
<thead>
<tr>
<th>Aircraft Type</th>
<th>NATO Code Name</th>
<th>Primary Role</th>
<th>Number Exported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Su-7/-17/-22</td>
<td>Fitter</td>
<td>Ground attack</td>
<td>170</td>
</tr>
<tr>
<td>MiG-23/-27</td>
<td>Flogger</td>
<td>Interceptor/ground attack</td>
<td>115</td>
</tr>
<tr>
<td>MiG-21</td>
<td>Fishbed</td>
<td>Multirole fighter</td>
<td>70</td>
</tr>
<tr>
<td>An-32</td>
<td>Cline</td>
<td>Short/medium-range transport</td>
<td>50</td>
</tr>
<tr>
<td>Su-25</td>
<td>Frogfoot</td>
<td>Ground attack</td>
<td>50</td>
</tr>
<tr>
<td>MiG-21U</td>
<td>Mongol</td>
<td>Miscellaneous/trainer</td>
<td>40</td>
</tr>
<tr>
<td>MiG-29</td>
<td>Fulcrum</td>
<td>Interceptor</td>
<td>40</td>
</tr>
<tr>
<td>An-26</td>
<td>Curl</td>
<td>Short-range transport</td>
<td>10</td>
</tr>
</tbody>
</table>

**Trends in Soviet Military Force Levels**

<table>
<thead>
<tr>
<th>Year</th>
<th>Active</th>
<th>Ready Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>10.0</td>
<td>9.1</td>
</tr>
<tr>
<td>1975</td>
<td>9.2</td>
<td>5.7</td>
</tr>
<tr>
<td>1980</td>
<td>5.1</td>
<td>4.5</td>
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<tr>
<td>1985</td>
<td>4.8</td>
<td>4.8</td>
</tr>
<tr>
<td>1986</td>
<td>4.8</td>
<td>4.8</td>
</tr>
</tbody>
</table>

**Recipients of Soviet Military Exports**

(Ranked by value of Soviet military equipment received, 1985-86)

1. Iraq
2. India
3. Libya
4. Angola
5. Vietnam
6. Poland
7. Syria
8. Cuba
9. Jordan
10. Czechoslovakia
Soviet Space Shots by Program
(1957-1986)

- Photo Reconnaissance: 712
- Communications: 268
- Electronic Intelligence (ELINT): 157
- Related to Manned Spaceflight (Manned: 59, Unmanned: 90): 149
- Navigation/Geodetic: 131
- Scientific/Developmental (including rocket tests): 104
- Weather/Natural Resources: 74
- Early Warning: 53
- Venus or Mars Missions: 40
- ASAT-Related: 38
- Lunar Missions: 30
- Fractional Orbital Bombardment System (FOBS): 18
- Unknown: 4

Total: 1,922

—Courtesy Teledyne Brown Engineering

Soviet Space Firsts

- First artificial earth satellite
- First satellite to collect biological data
- First lunar probe to hit the moon
- First photographs of the moon’s far side
- First manned orbital flight (Cosmonaut Yuri Gagarin)
- First woman in space (Cosmonaut Valentina Tereshkova)
- First multiple crew member spaceflight (Cosmonauts Komarov, Yegarov, Feoktistov)
- First space walk (Cosmonaut Alexei Leonov)
- First soft landing of a probe on the moon
- First artificial satellite of moon
- First automatic docking of satellites
- First successful ASAT test
- First launch of manned vehicles and in-orbit crew exchange
- First triple launch and rendezvous of manned ships
- First robot vehicle on the moon
- First launch of a prototype manned space station
- First pictures of surface of Venus
- First international rendezvous and docking in space
- First manned double docking in space
- Record of 237 days living in space
- First close rendezvous with a comet
- First transfer between operational space stations

Soviet Space Launches to Orbit or Beyond
(As of December 31, 1986)

<table>
<thead>
<tr>
<th>Year</th>
<th>Launches</th>
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<tbody>
<tr>
<td>1957</td>
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<td>1985</td>
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<td>1986</td>
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</tbody>
</table>

—Courtesy Teledyne Brown Engineering