

FOR OFFICIAL USE ONLY

COMBAT INTELLIGENCE REFERENCE GUIDE



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This handbook was produced by 21 AF/1NO. The majority of the work was accomplished by 1Lt Greg Griffith, assisted by numerous AFIA IMA's on their annual tours. All information in this handbook has been found in unclassified, open-source material.

Any comments, criticisms, or corrections to the handbook are encouraged. Also, if you have any information that can be added to future editions, please send them to us.

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AAA

5.45mm AKS-74

ASSAULT RIFLE



WEIGHT: 7.94 lb (with loaded magazine)

LENGTH: Unknown, but short

AMMUNITION: 5.45 mm

MUZZLE VELOCITY: 2,854 ft/sec

EFFECTIVE RANGE: 1,641 ft

NOTES: Based upon the AKM, and may be a rebarrelled and modified version of it. Reported to be extremely accurate. Used by Soviet paratroopers.

7.62mm AK & AKM



ASSAULT RIFLE

WEIGHT: AK 10.58 lb (with loaded magazine)
AKM 8.00 lb (with loaded magazine)

LENGTH: AK 34.25 in
AKM 34.50 in

AMMUNITION: Standard M43

MUZZLE VELOCITY: 2,345 ft/sec

EFFECTIVE RANGE: 1,311 ft (semi-auto)
984 ft (full auto)

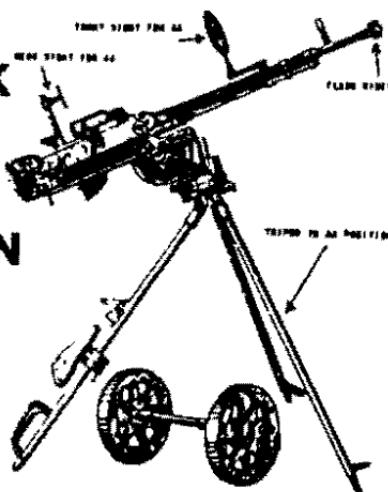
RATE OF FIRE: 600/min (Cyclic)
90/min (Auto)
40/min (Semi-auto)

NOTES: The present standard Soviet infantry small arm is the AKM. The AKM is a development of the AK-47 with a number of improvements including a cyclic-rate reducer, compensator and extensive use of stampings and plastics.

12.7mm DShK

HEAVY

MACHINE GUN



WEIGHT: 75 lb

LENGTH: 62.5 in

AMMUNITION: All standard Soviet 12.7 mm in 50 round belts.

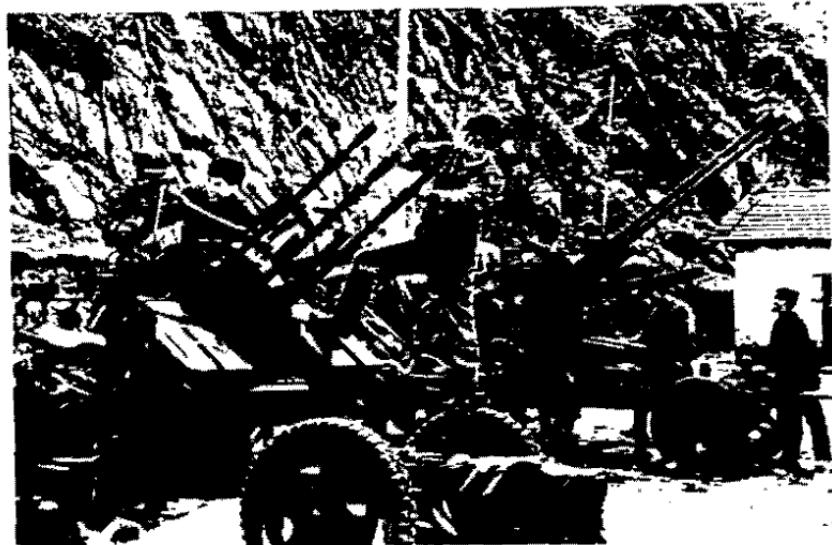
MUZZLE VELOCITY: 2,822 ft/sec

EFFECTIVE RANGE: 4,920 ft (Horizontal)
3,279 ft (Slant)

RATE OF FIRE: 550-600/min (Cyclic)
80/min (Practical)

NOTES: The basic design is over 50 years old; however, it has worked so well that the Soviets have made few modifications. It can be found in both towed and mounted configurations. It is most often found as an air defense weapon mounted on armored vehicles.

14.5mm ZPU-2,4



Chinese 37mm Type 53 (right) with quad 14.5mm Type 56 anti-aircraft gun (left)

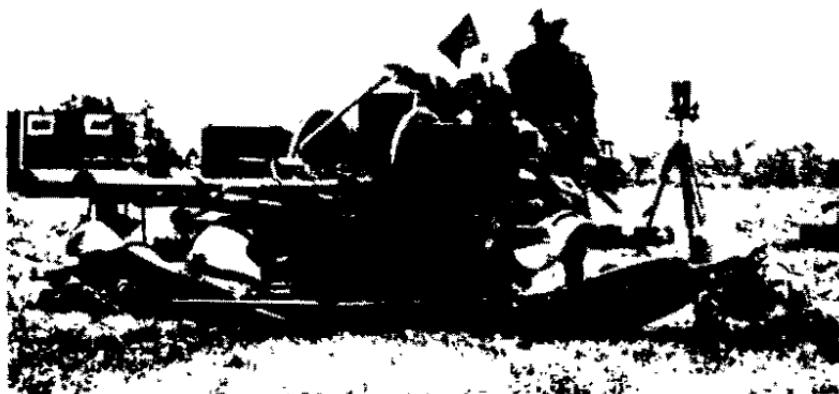
RANGE: 4,600 ft (Tactical)
16,400 ft (Max vertical)

RATE OF FIRE: 600/min/brl (Cyclic)
150/min/brl (Effective)

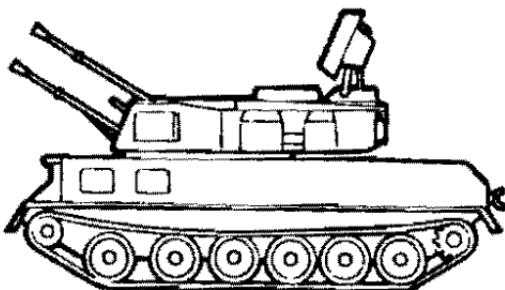
FIRE CONTROL: Optical

NOTES: The 14.5 mm Machine is an old, reliable system that can be found throughout the world. The basic 14.5 mm machine gun used in the ZPU is designated the KPV and is also installed in turrets of armored vehicles such as the BRDM-2 and the BTR-60. The KPV is used in a single anti-aircraft mount known as the ZPU-1, a twin mount known as the ZPU-2, and a quad mount known as the ZPU-4. Despite its age, the system is very reliable and still poses a threat to MAC aircrews.

23mm ZU-23 ANTI-AIRCRAFT GUN



23mm ZSU-23-4 SPAAG



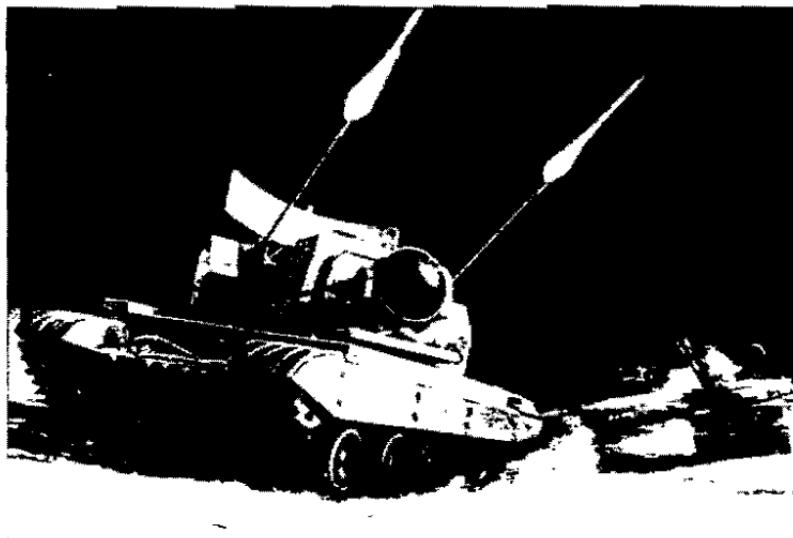
RANGE: 8,200 ft (Tactical)
12,500 ft (Self destruct range)

RATE OF FIRE: 850/min/brl (Max rate)
200/min/brl (Practical)

FIRE CONTROL: Gun Dish radar
Optical

NOTES: In service since 1965, this vehicle is used throughout the Warsaw Pact where it is named "Shilka". The ZSU-23-4 saw extensive service during the 1973 Arab-Israeli War where it proved to be a deadly low-level air defense system; however, its radar suffers from "clutter" when targeting aircraft below 200 ft. It is capable of firing on the move. There are usually 16 ZSU-23-4 in a division, four with each regiment. They normally operate in pairs or in conjunction with the SA-9 or SA-13. In 1983, the ZSU-30-2 twin 30 mm SPAAG began to replace the ZSU-23-4 in Soviet units.

2S6 30mm AAA



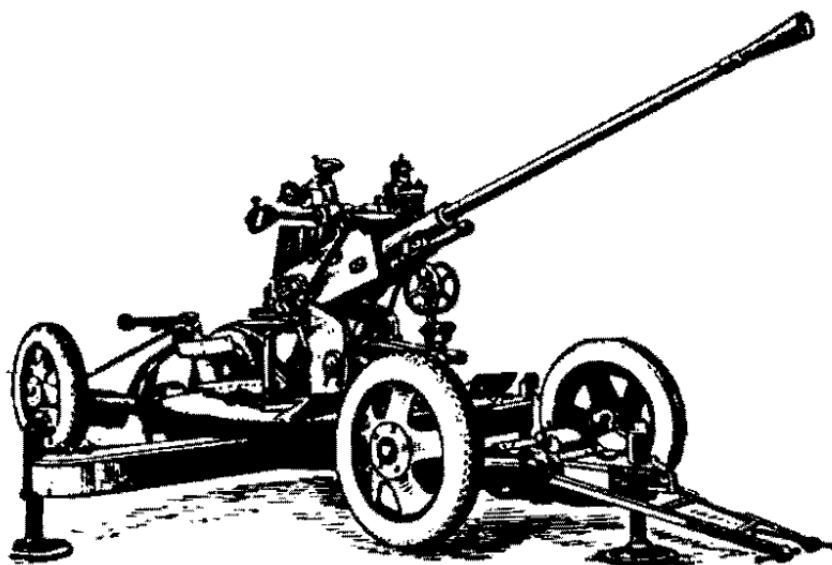
ARMAMENT: 2 x 30mm CANNON
4 x SA-19 SAMS

FIRE CONTROL: Hot Shot radar system.

DIMENSIONS: Height--3.89 M
Length--7.89 M
Track--600mm

NOTES: The 2S6 is the Soviet's newest regimental air defense system and will replace the ZSU-23-4 and possibly the SA-13 "Gopher." It was first identified in 1986 and entered widespread service in 1988. The SA-19 missiles can be elevated independently of the 30mm cannon; the guidance for the missiles is currently unknown. The 'Hot Shot' radar system has a fire control radar mounted at the front of the turret and a surveillance and target acquisition radar at the rear.

37mm ANTI-AIRCRAFT GUN



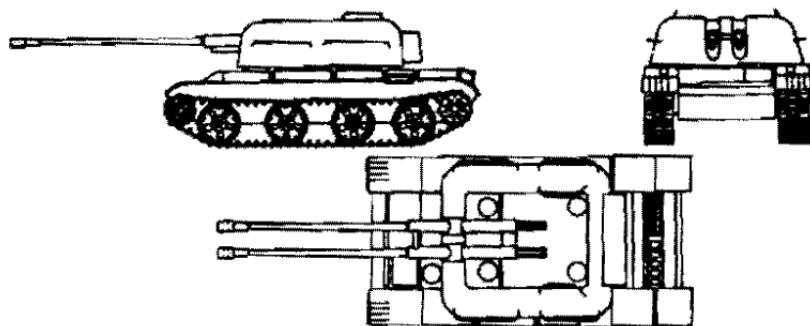
RANGE: 8,200 ft (Tactical)
14,800 ft (Self destruct range)

RATE OF FIRE: 180/min (Cyclic)
80/min (Practical)

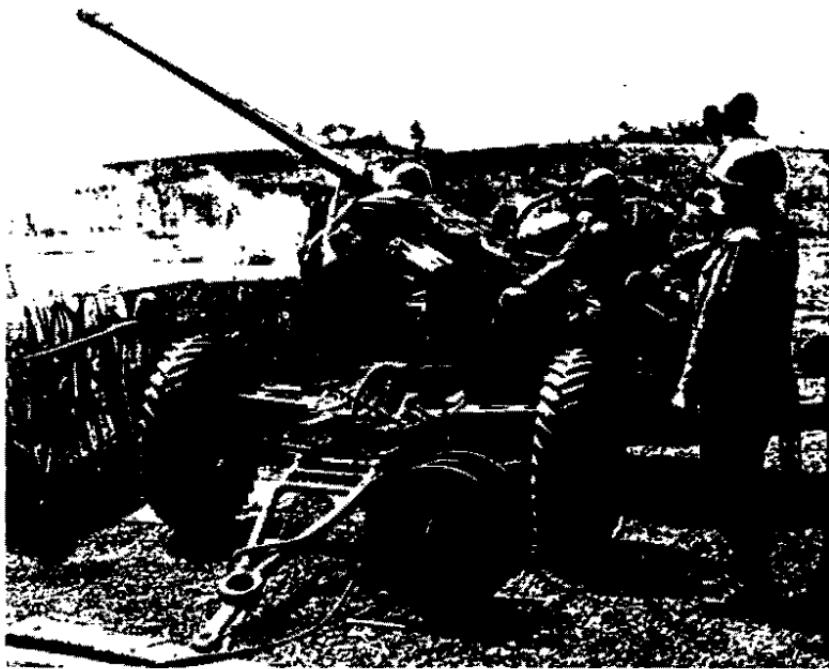
FIRE CONTROL: Optical

NOTES: Developed for the Soviet Army shortly before WW-II. Currently in reserve status in the Soviet Union but is actively used by many other countries. Twin barrel versions have appeared outside the Soviet Union. It utilizes high explosive and armor piercing ammunition.

ZSU-57-2



S-60



57mm S-60, ZSU-57-2

CALIBER: 57 mm

TACTICAL RANGE: 20,000 ft (Radar)
13,200 ft (Optical)

SELF DESTRUCT RANGE: 24,300 ft

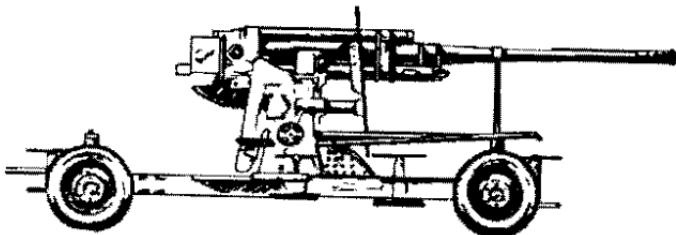
RATE OF FIRE: 120/min (Cyclic)
85 min (Radar)

FIRE CONTROL: Fire Can, Whiff, Flap Wheel radars, optical

NOTES: The S-60 is the most widely used anti-aircraft artillery piece in the world. In the Soviet Union, 24 are deployed with tank and motorized rifle divisions and 18 with parachute divisions. It is radar controlled and has the capability to engage both aerial and ground targets. The design is thought to have come directly from the German 5.7 cm FLAK Gerät 58 which was not completed in 1945 and was taken over by occupying Soviet forces. It is still considered to be the second best system in the Soviet's inventory (behind the ZSU-23-4).

In the self-propelled version, the ZSU-57-2 mounts two guns in a large, square turret. The total cyclic rate of fire in this combination is about 240 rounds/min. It is driven by the same engine as the T-54. The driver is in the extreme left corner of the chassis.

85mm KS-12



TACTICAL RANGE: 38,100 ft

SELF DESTRUCT: Variable

RATE OF FIRE: 15-20/min

FIRE CONTROL: Firecan radar
Optical

NOTES: The M-1944 is basically the 85 mm M-1939 (KS-12) with a longer barrel and capable of firing ammunition with a higher velocity. It is in service with Afghanistan, Albania, Algeria, Bulgaria, China, Cuba, Czechoslovakia, East Germany, Egypt, Hungary, Iran, Iraq, Kampuchea, North Korea, Poland, South Yemen, Sudan, Syria, Vietnam, and Yugoslavia.

100mm KS-19

RANGE: 42,000 ft (Tactical)
48,000 ft (Max range)

RATE OF FIRE: 15/min

FIRE CONTROL: Firecan

NOTES: The KS-19 entered service with the Soviet Army shortly after the end of the Second World War and for a short period was known as the M-49. The KS-19 replaced most of the 85 mm anti-air guns before it was replaced by SAMs. It is in service with Afghanistan, Algeria, Cuba, East Germany, Egypt, Iraq, Kampuchea, Morocco, Poland, Rumania, Somalia, Syria and Vietnam.

130mm KS-30

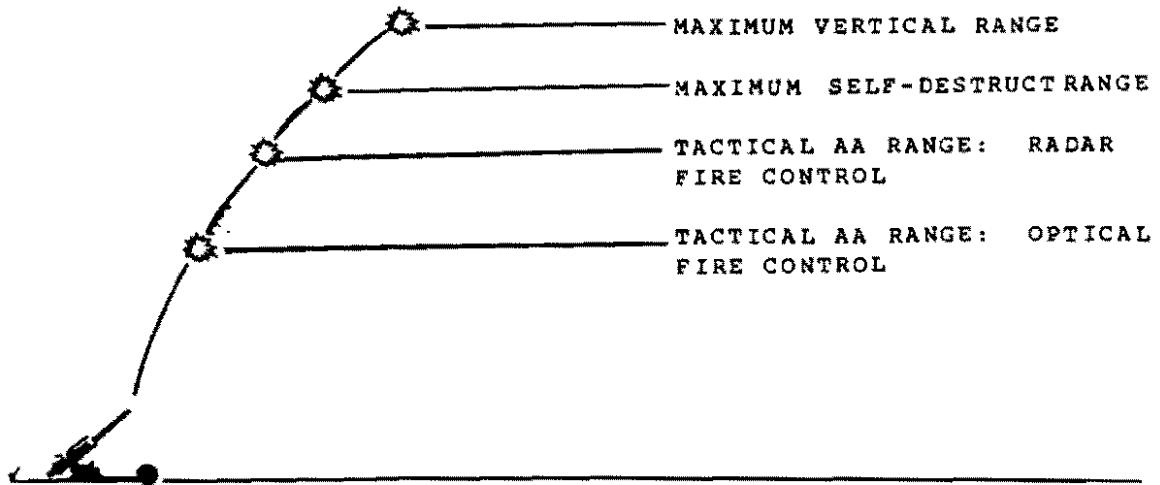
RANGE: 64,000 ft (Tactical)
68,000 ft (Max vertical)

RATE OF FIRE: 10-12/min

FIRE CONTROL: Firecan radar

NOTES: Intended for static air defense

AAA RANGE



ANTI-AIRCRAFT ARTILLERY

TYPE	CALIBER	DESIGNATOR	TACTICAL RANGE (FT)	RATE OF FIRE (RPM)	TRACER	COLOR OF AIRBURST
MACHINE GUN	5.45	AK-74	1,350 (OPT)	30		NONE
MACHINE GUN	7.62	AK-47	1,000 (OPT)	30		NONE
MACHINE GUN	12.7	M1938/46	3,300 (OPT)	600	ORANGE-RED	NONE
MACHINE GUN	14.5	ZPU-1,2,4	4,600 (OPT)	600/BRL	ORANGE-RED	NONE
LIGHT AAA	23	ZU-23-2	8,200 (OPT)	800/BRL	ORANGE-RED	VERY LT GRAY
LIGHT AAA	23	ZSU-23-4	8,200 (OPT) 8,200 (ROR)	800/BRL	ORANGE-RED	VERY LT GRAY
LIGHT AAA	30	M53/59	9,700 (OPT)	900	RED-ORANGE	LIGHT GRAY
LIGHT AAA	30	ZSU-30-2	UNK	UNK	RED-ORANGE	LIGHT GRAY
LIGHT AAA	37	M-1939/55	10,000 (OPT)	180	ORANGE-RED	LIGHT GRAY
LIGHT AAA	57	S-60	13,100 (OPT) 19,700 (ROR)	120		DIRTY GRAY
LIGHT AAA	57	ZSU-57-2	13,100 (OPT)	120/BRL		DIRTY GRAY
MEDIUM AAA	85	M-1944 / KS-12	37,100 (ROR)	20		BLACK
MEDIUM AAA	100	M-49 OR KS-19	41,500 (ROR)	15		BLACK
HEAVY AAA	130	M-55 OR KS-30	64,000 (ROR)	12		BLACK

SAMS

SA-2 GUIDELINE



SLANT RANGE: 31 nm

ALTITUDE: max 82,000 ft
min 300 ft

SPEED: mach 3.5+

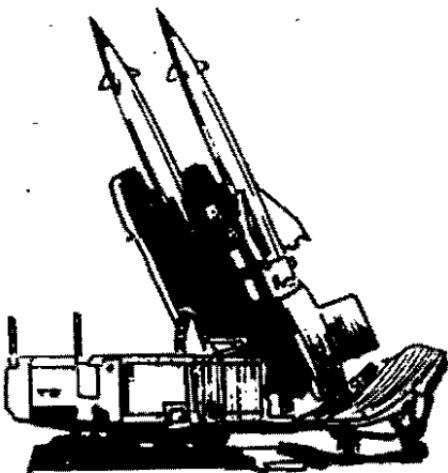
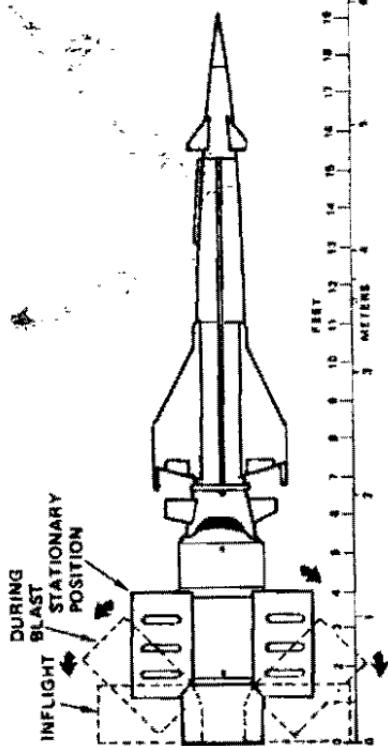
WARHEAD: High explosive, 288 lb
proximity fuse

DIMENSIONS: LENGTH 34 ft 9 in
DIAMETER 1 ft 8 in
WING SPAN 5 ft 7 in

RADAR: FAN SONG (fire control and guidance)
SPOON REST (acquisition)

NOTES: The SA-2/Guideline is a two stage, radar-guided, surface-to-air missile. It is transported on a semitrailer towed by a truck to the launch site. Each battery has six launchers arranged in a star formation, with centrally located FAN SONG fire control radar. The SA-2 is second only to the SA-7 in total numbers manufactured and deployed and has been heavily exported. Most have high-explosive warheads, although one version, first seen in 1967, is reported to have a nuclear warhead.

SA-3/GOA



SLANT RANGE: 15-18.5 MILES

ALTITUDE: max 43,000 ft
min 150 ft

SPEED: mach 2.5+

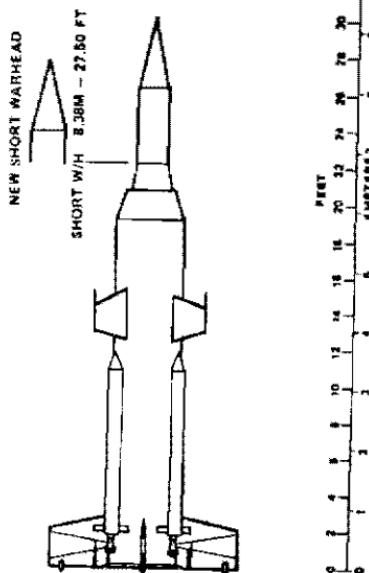
WARHEAD: High explosive, 132 lb
proximity fuse

DIMENSIONS: LENGTH 22 ft
DIAMETER 27.6 in

RADAR: LOW BLOW (fire control)
SQUAT EYE, FLAT FACE (acquisition)

NOTES: Soviet counterpart to the American HAWK, the SA-3 is a two-stage, solid fuel, low to medium altitude SAM. It is often found in conjunction with the SA-2.

SA-4/GANEF



SLANT RANGE: 43 nm

ALTITUDE: max 79,000 ft
min 1,000 ft

SPEED: mach 2.5+

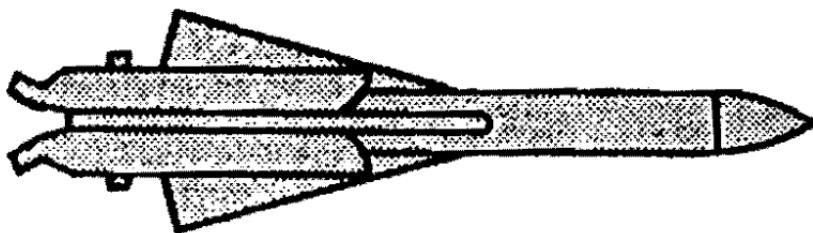
WARHEAD: High explosive, 298 lb
proximity fuse

DIMENSIONS: LENGTH 28 ft 10.5 in
DIAMETER 2 ft 8 in
WING SPAN 7 ft 6 in

RADAR: PAT HAND (fire control)
LONG TRACK, THIN SKIN (acquisition)

NOTES: First displayed publicly in 1964, the SA-4 is carried on a twin-round tracked launch vehicle. The SA-4 can be airlifted in the AN-22 and AN-124 military transport aircraft. The SA-4 is deployed at the army or front level in brigade size. Each brigade has nine batteries with three TEL's, one loading vehicle and one PAT HAND radar per battery. The brigade usually operates in battery size with three of the batteries moving into forward positions while the remaining six are spread out approximately ten miles back.

SA-5/GAMMON



SLANT RANGE: 185 nm

ALTITUDE: max 95,000 ft

SPEED: mach 3.5+

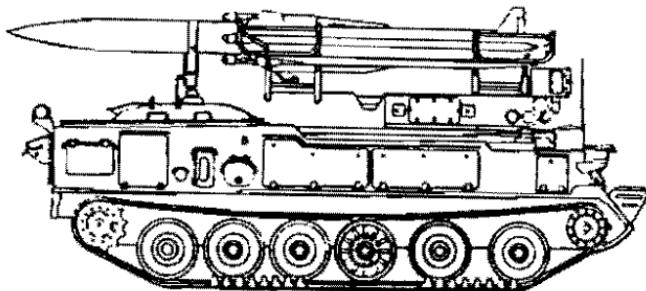
DIMENSIONS: LENGTH 34 ft 9 in
DIAMETER 2 ft 10 in
WING SPAN 9 ft 6 in

GUIDANCE: Semi-active radar homing

RADAR: SQUARE PAIR (fire control)
TALL KING, BACK NET (acquisition)

NOTES: In partnership with the low-altitude SA-3, the long range, high-altitude SA-5 constitutes the major part of the Soviet Union's home defense force. Each regiment consists of two SA-5 battalions, with a total of 12 launchers, and three SA-3 battalions. More than 2,000 SA-5s are said to be deployed at more than 100 sites in the USSR, with others in eastern Europe, Mongolia, Libya and Syria. Those in East Germany pose a particular threat to key NATO reconnaissance and AWACS aircraft, even when they are operating in West German airspace.

SA-6/GAINFUL



RANGE: 37 nm (high altitude)
19 nm (low altitude)

ALTITUDE: max 59,000 ft
min 50 ft

SPEED: mach 2.8

WARHEAD: High explosive, 176 lb
proximity and impact fuse

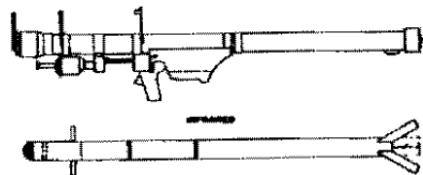
DIMENSIONS: LENGTH 20 ft 4 in
DIAMETER 1 ft 1.2 in

GUIDANCE: Semi-active radar homing

RADAR: STRAIGHT FLUSH (fire control)
LONG TRACK, THIN SKIN (acquisition)

NOTES: SA-6 regiments organic to motorized rifle and tank divisions consist of 20 TELs in five batteries. Each battery has four triple launchers, one STRAIGHT FLUSH vehicle, and two reload vehicles. Around 1979, SA-11 began to appear along side the SA-6 in batteries of divisional SAM regiments. Substitution of a SA-6B launch vehicle, with SA-11 tracking radar, for one of the original SA-6A vehicles overcomes an earlier shortcoming by enabling two targets to be engaged simultaneously. Export models have been acquired by at least 22 nations.

SA-7 GRAIL



SLANT RANGE: 5 nm

ALTITUDE: max 14,000 ft
min 33 ft

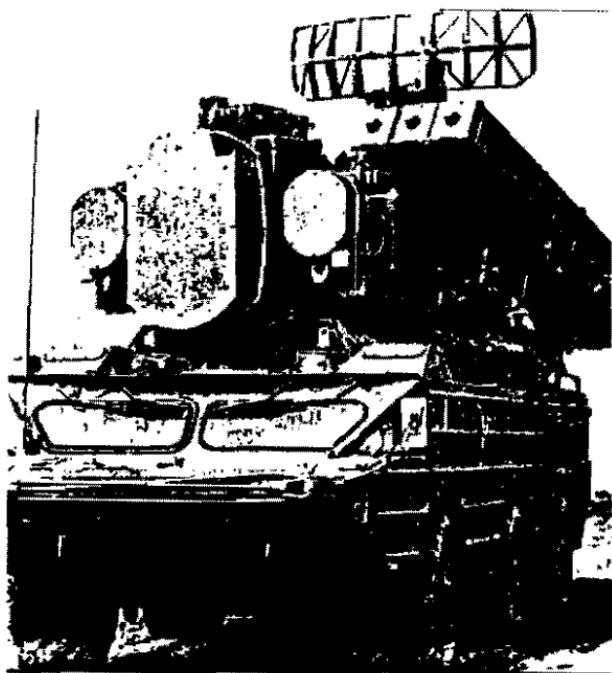
SPEED: mach 1.5

WARHEAD: High explosive, 5.6 lb
impact fuse

DIMENSIONS: LENGTH 4 ft 3 in
DIAMETER 2.75 in

NOTES: The original SA-7A was very similar to the US manufactured REDEYE missile; however, an improved SA-7B missile has been in production since 1972 with augmented propulsion, IR filter, and much better guidance. The missile is primarily effective against small, slow, low-flying aircraft. In the Yom Kippur War, almost half of the A-4s hit by SA-7s returned to base. Designed for use by infantry, the Sa-7 is also carried by vehicles, including ships, in batteries of four, six, and eight. Some are deployed on helicopters for anti-helicopter use. Over 50,000 have been produced and distributed world wide.

SA-8 GECKO



RANGE: 6-8 nm

ALTITUDE: max 20,000 ft
min 150 ft

SPEED: Mach 2

WARHEAD: High explosive, 90-100 lb
proximity fuse

DIMENSIONS: LENGTH 10.5 ft
DIAMETER .68 ft

RADAR: LAND ROLL

NOTES: The SA-8 is an all-weather, short-range tactical SAM system. All the components necessary to operate the system are contained on the unique six wheeled Transporter-Erector-Launcher and Radar (TELAR). On the original SA-8, four missiles are mounted in an integrated rotating turret. On the SA-8B, six missiles are carried in launch containers. The surveillance radar has an estimated range of 18 miles. Used for divisional air defense.

SA-9/GASKIN



RANGE: 5 nm

ALTITUDE: max 16,500 ft
min 50 ft

SPEED: mach 1.5

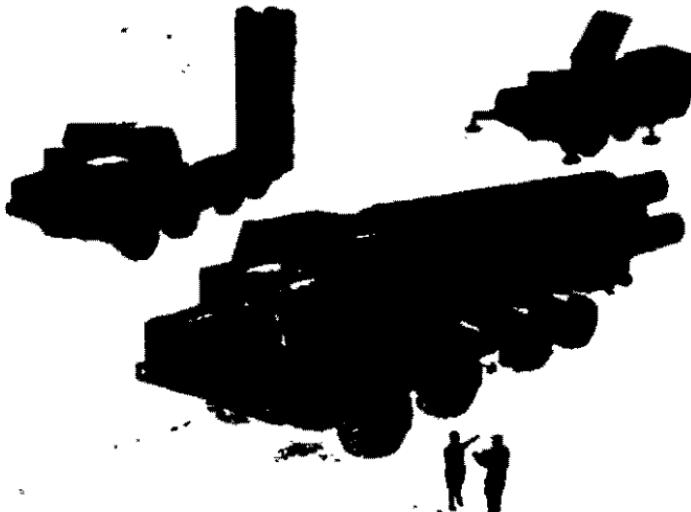
WARHEAD: High explosive, impact fuse

DIMENSIONS: LENGTH 5 ft 9 in
DIAMETER 4.75 in

GUIDANCE: Infrared

NOTES: This weapon is comprised of a BRDM-2 amphibious vehicle carrying a box launcher for two pair of IR missiles. Four additional missiles are carried inside the vehicle. A platoon of four SA-9 vehicles is organic to the anti-aircraft battery of motorized rifle and tank regiments. It is often teamed with a platoon of four ZSU-24-4s. The system does not have an onboard radar, and the target must be visually acquired by the crew. The SA-9 is being replaced by the SA-13.

SA-10/GRUMBLE



RANGE: 54 nm

ALTITUDE: HIGH/MED/LOW

SPEED: Mach 6

WARHEAD: High explosive, approximately 200 lb

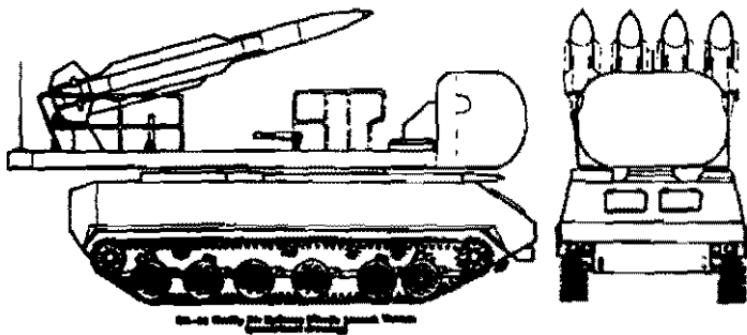
DIMENSIONS: LENGTH 23 ft
DIAMETER 1 ft 8 in

GUIDANCE: Track via missile

RADAR: FLAP LID (fire control)
CLAM SHELL (acquisition)

NOTES: The SA-10/GRUMBLE is designed to engage targets at all altitudes. Its capabilities include multitarget tracking and engagement, and the ability to target low altitude cruise missiles. It also has the ability to target tactical ballistic missiles and may be able to target strategic ballistic missiles. For improved survivability, the Soviets are now deploying a land-mobile SA-10B version on a four-axle, four-round TEL.

SA-11/GADFLY



RANGE: 16 nm

ALTITUDE: Max 46,000 ft
Min 100 ft

SPEED: mach 3

WARHEAD: High explosive

DIMENSIONS: LENGTH 17 ft 6 in
DIAMETER 1 ft 2 in

RADAR: Unknown, may be compatible with STRAIGHT FLUSH.

NOTES: The SA-11 is replacing the SA-4 in Army-level SAM brigades for defense against high-performance aircraft operating at low-to-medium altitudes as well as cruise missiles. The SA-11 uses a four-round tracked vehicle. The SA-11 can engage targets independently, and up to four targets simultaneously per battery.

SA-12/GLADIATOR



RANGE: 54 nm

ALTITUDE: Max 98,000 ft
Min 300 ft

SPEED: mach 3

WARHEAD: High explosive, 330 lb

DIMENSIONS: LENGTH 23 ft 8 in
DIAMETER 1 ft 8 in

RADAR: Planar phased array.

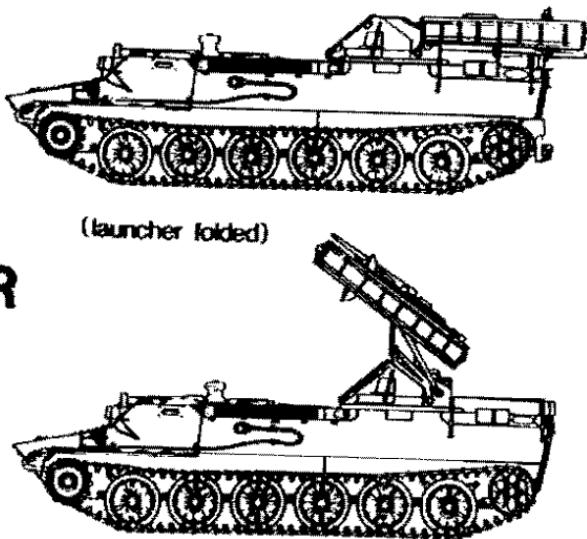
NOTES: This formidable land-mobile tactical missile system is capable of intercepting aircraft at all altitudes as well as cruise missiles and tactical ballistic missiles. The complete fire unit includes two twin-round erector launchers, a reload vehicle, two phased-array radar vehicles, and a command vehicle. Deployment to replace the SA-4 began in early 1987. The complete system is mounted in tracked vehicles and two and four round launch vehicles are available.

SA-X-12B GIANT



Said by DoD to be approaching operations status in 1988, this is an improved version of the SA-12A. The SA-X-12B is considered capable of intercepting some strategic ballistic missiles. This potential would make it capable of nationwide deployment, in contravention of the ABM treaty. The missile is believed to be an improved version of the SA-12A with longer range and higher altitude capabilities.

SA-13 GOPHER



RANGE: 5 nm

ALTITUDE: Max 16,500 ft
Min 30 ft

SPEED: mach 2

WARHEAD: High explosive, 13 lb

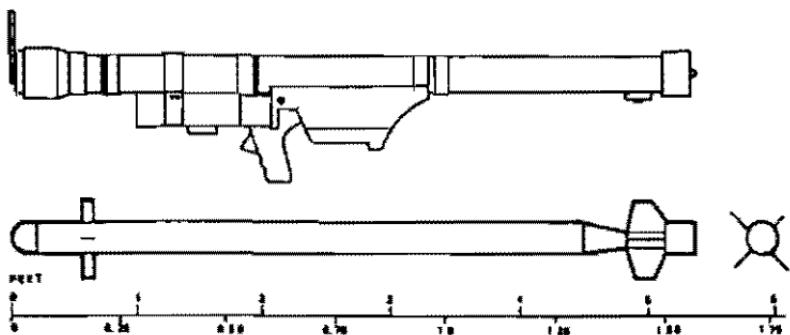
DIMENSIONS: LENGTH 7 ft 2 in
DIAMETER 4.75 in

GUIDANCE: Infrared, a range finding radar is also incorporated.

RADAR: May be associated with DOG EAR search radar.

NOTES: The SA-13 is a replacement for the SA-9, providing improved capability in rough terrain and increased storage for reload missiles. Together with the ZSU-23-4, it equips the anti-aircraft batteries of motorized rifle and tank regiments.

SA-14/GREMLIN



RANGE: 3 nm

ALTITUDE: Max 13,000 ft
Min 32 ft

SPEED: mach 3

WARHEAD: High explosive, 5.5 kg

DIMENSIONS: LENGTH 20.000

CULTURE - 1

NOTES: A direct development of the SA-7, this system offers greater resistance to IR countermeasures. It can engage aircraft pulling up to 8 g's and has an all-aspect engagement capability.

SA-15

This is a new mobile, low-to-medium altitude system being deployed to replace the SA-8/GECKO. No details are available, except that the tracked launch vehicle is related to that of the SA-11.

SA-16/IGLA



▲ The picture in Soviet Military Power showing the Warsaw Pact version of the SA-16



DIMENSIONS: LENGTH 5.09 ft
DIAMETER 3.15 in
WEIGHT 27.5 lb

NOTES: The SA-16/IGLA represents a new line of development for Soviet hand-held SAMs. The SA-16 is longer than the SA-14, and has a conical nose cone rather than the hemispherical nose cones of SA-7 and SA-14. This makes for less drag and better maneuverability. It is believed that the SA-16 entered service in the early '80s and has been exported.

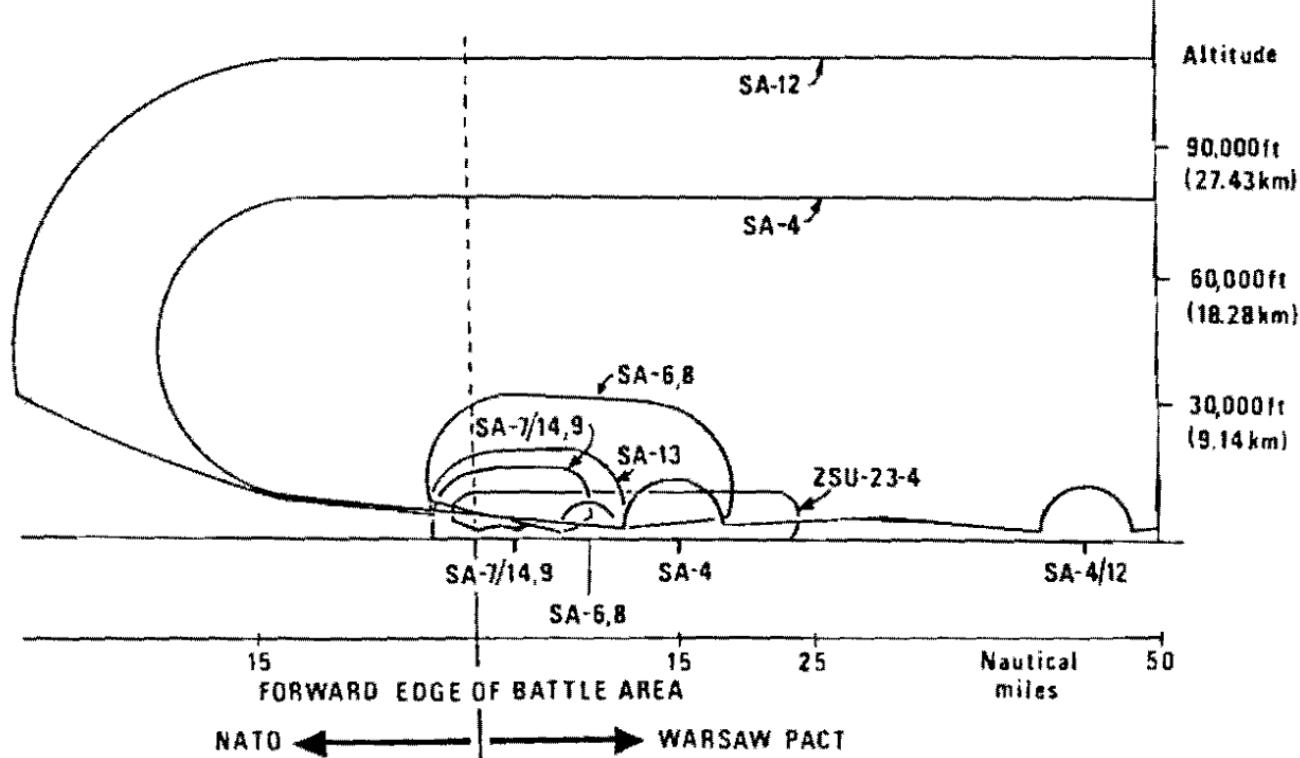
SA-17

Little is known about this system except that it is a successor to the SA-II and is being deployed on a similar chassis. It operates in conjunction with a new surveillance radar, the SNOW DRIFT, rather than the TUBE ARM associated with SA-11 batteries.

SURFACE-TO-AIR MISSILES

MISSILE	NAFO NAME	RANGE (NM)	MAX ALT. (FT)	TARGETS	GUIDANCE	ACQ RADAR	FE RADAR	MOBILITY	LEVEL	COMMENTS
SA-2	GUIDELINE	31	82,000	HEO/HI	COMMAND	SPOTK KEST	FAN SONG	FIXED SITE	PVO	CHINESE VERSION: CSA-1 HAS OPTICAL SYSTEM
SA-3	GOA	15	43,000	LOW/MED	COMMAND	SQUAT EYE	LOW BLOW	FIXED SITE	PVO	COUNTERPART: I-HAWK
SA-4	GARF	41	79,000	HEO/HI	COMMAND/ TERMINAL	LONG TRACK	PAT HAND	TRACKED	FRONT/ ARMY	COUNTERPART: MIKE HERCULES
SA-5	GAMMON	186	93,000	HEO/HI	SARH	TALL KING BACK NET	SQUARE FAIR	FIXED SITE	PVO	POSSIBLE ANTI-MISSILE ROLE
SA-6	GATHEFUL	19 LOW 37 HI	59,000	LOW/MED	SARH	LONG TRACK	STRAIGHT FLUSH	TRACKED	DIVISION	COUNTERPART: I-HAWK
SA-7	GRAIL	5	14,000	LOW	IR	N/A	N/A	HAND HELD	COMPANY/ BATTALION	TAIL SHOT ONLY
SA-8	GECKO	5	28,000	LOW/MED	COMMAND	LONG TRACK	LAND ROLL	WHEELED	DIVISION	TELAR. COUNTERPART: ROLAND/RAPIER.
SA-9	GASKIN	5	16,500	LOW	IR	N/A	N/A	WHEELED	REGIMENT	WITH ZSU-23-4
SA-10	GRUBBLE	54	UNK	LOW/MED/ TVN HI	CLAN SHELL	FLAP SID	N/A	WHEELED	PVO	COUNTERPART: PATRIOT
SA-11	GADFLY	16	46,000	LOW/MED	SARH	UNK	UNK	TRACKED	DIVISION	REPLACES SA-5
SA-12	GIANT/ GLADIATOR	547	98,000	LOW/MED/ TVN HI	UNK	UNK	N/A	TRACKED	FRONT/ ARMY	REPLACES SA-4
SA-13	COPHER	5	16,500	LOW	IR	N/A	N/A	TRACKED	REGIMENT	REPLACES SA-3
SA-14	GREENLIN	5	13,000	LOW	IR	N/A	N/A	HAND HELD	COMPANY/ BATTALION	FACE OR TAIL SHOT
SA-15										
SA-16	ICLA		13,000+?	LOW	IR	N/A	N/A	HAND HELD	UNK	HAS BEEN EXPORTED
SA-17										REPLACES SA-11

SOVIET ARMY SAM COVERAGE

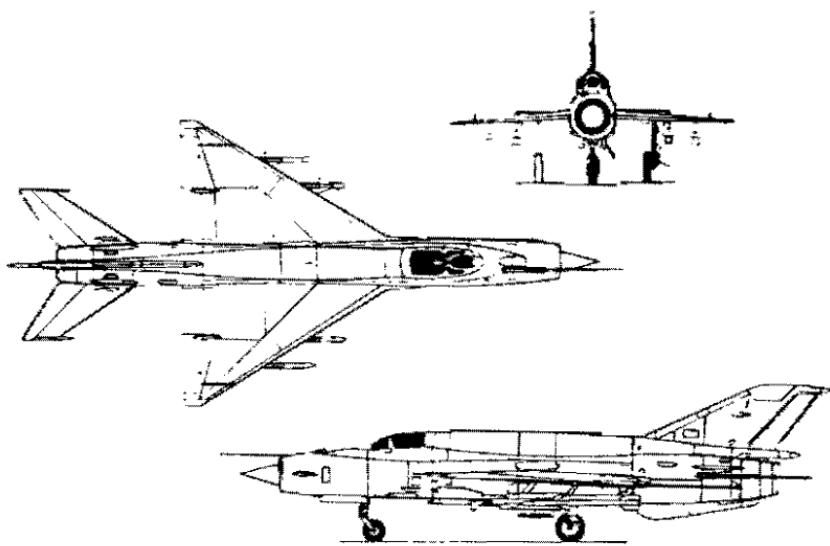


FREEWORLD SAMS

COUNTRY	MISSILE	TARGET	RANGE (NM)	WARHEAD	ALT (FT)	GUIDANCE	MOBILITY	COMMENTS
FR	CROTALE	LOW	5.4	HE FRAG	16,400	COMMAND	WHEEL/TRACK	
FR	SHAHINE	LOW/MED	5.9	14 KG	26,000	TV,IR	WHEEL/TRACK/AIR	
FRG	ROLAND 1/2	LOW/MED	3.4	6.5 KG	18,000	COMMAND/MW	ARMORED VEH/WHEEL	
JA	TAN-SAM	LOW	3.8	HE		AUTO/IR	3.5 TON WHEEL	
UK	BLOWPIPE	LOW		HE		RAO10/OPT	HANDHELD	
UK	JAVELIN	LOW	> 2.0	HE		SACLOS	HANDHELD	
UK	BLOODHOUND	MED/HI	>43.0	HE		SAH/TIR	WHEEL/AIR	
UK	RAPIER	LOW/FAST	3.6	.55KG SAP	10,000	CLOS	WHEEL/TOWED	R/2000 IN DEV
UK	TIGERCAT	LOW	CLOSE	HE		CLOS/TV	WHEEL/TOWED	RDR SYS AVAIL
US	CHAPPARAL	LOW	3.2	HE	8,200	OPT/IR	TRACK/AMPHIB	
US	HAWK	LOW/MED	21.5	HE	52,000	SAH	WHEEL/TOWED	
US	NIKE HERCULES	HIGH	75.5	NUKE/HE	147,000	COMMAND	WHEEL/TOWED	
US	PATRIOT	HIGH		HE		CMD/SAH	WHEEL/TOWED	
US	REDEYE	LOW	1.5	HE		OPT/IR	HANDHELD	
US	STINGER	LOW	1.5	HE		IR	HANDHELD	

FIGHTERS

MIG-21J/FISHBED



PRIMARY MISSION: Multi-role fighter, all weather

MAX SPEED: 1200 kts

MAX ALTITUDE: 50,000 ft

COMBAT RADIUS: 310 nm

MISSILE: AA-2/ATOLL, AA-1/ALKALI

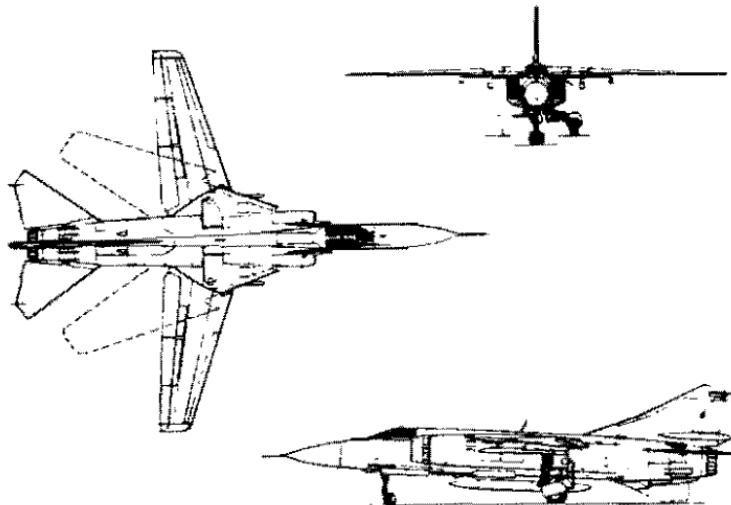
GUN: 23 mm cannon

BOMBS: 2 x 550 lb and 2 x 1100 lb

RADAR: JAYBIRD

DIMENSIONS: LENGTH - 44 ft
WIDTH - 23 ft

MIG-23/FLOGGER



PRIMARY MISSION: All weather interceptor

MAX SPEED: 1320 kts

MAX ALTITUDE: 59,000 ft

COMBAT RADIUS: 400 nm

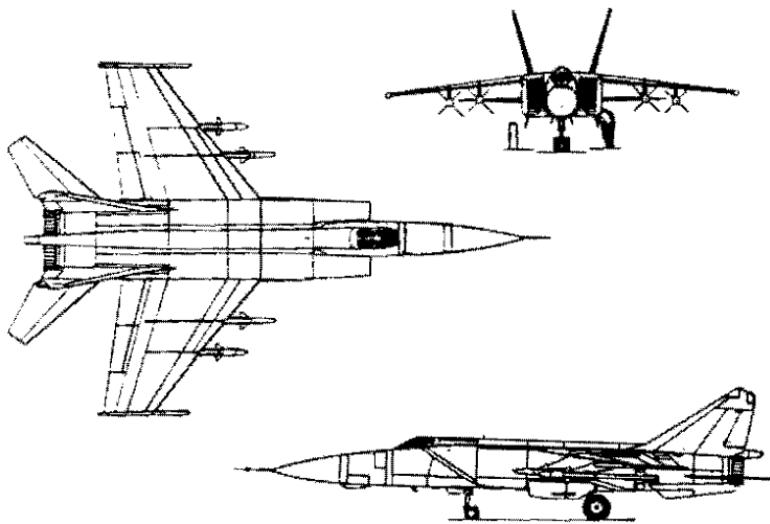
MISSILE: AA-2/ATOLL, AA-7/APEX, AA-8/APHID

GUN: 23 mm cannon

RADAR: HIGH LARK (JAYBIRD in export)

DIMENSIONS: LENGTH - 55 ft
WIDTH - 47 ft

MIG-25/FOXBAT



PRIMARY MISSION: All weather interceptor, reconnaissance

MAX SPEED: 1600 kts

MAX ALTITUDE: 80,000 ft

COMBAT RADIUS: 600 nm

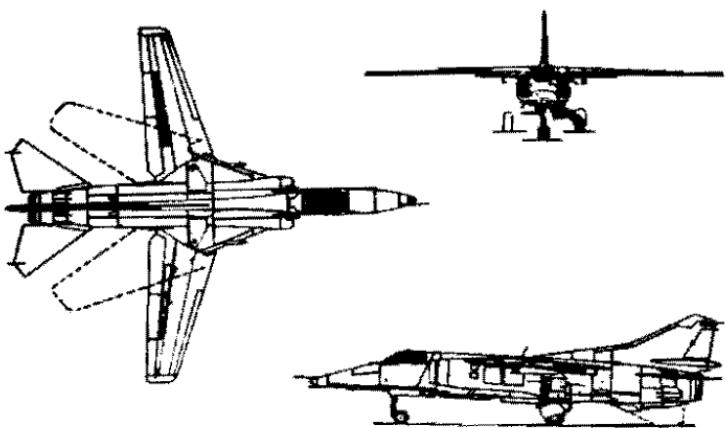
MISSILE: AA-6/ACRID

RADAR: FOX FIRE

DIMENSIONS: LENGTH - 73 ft
WIDTH - 46 ft

NOTE: Limited look-down/shoot-down, side-looking radar.

MIG-27/FLOGGER D



PRIMARY MISSION: Ground attack

MAX SPEED: 860 kts

MAX ALTITUDE: 52,500 ft

COMBAT RADIUS: 300 nm

MISSILE: AA-2/ATOLL, AA-6/APHID

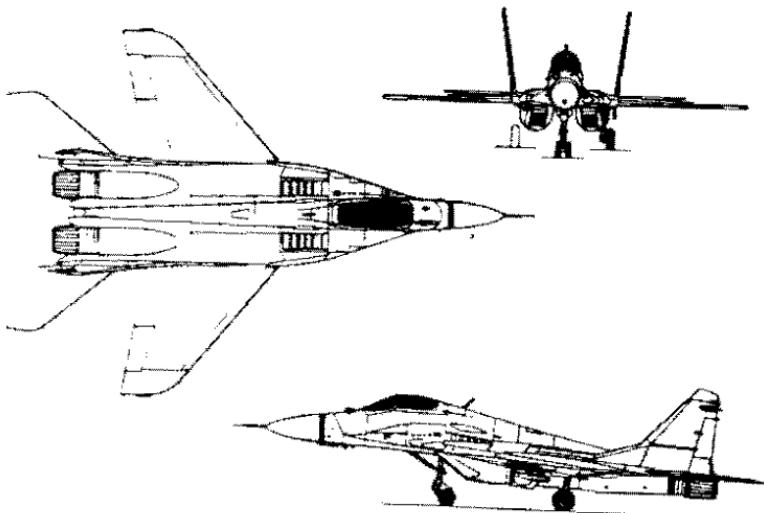
GUN: 23 mm cannon

BOMBS: Rocket pods, tactical nuclear missile

DIMENSIONS: LENGTH - 55 ft

WIDTH - 47 ft

MIG-29/FULCRUM



PRIMARY MISSION: Counter-air, attack

MAX SPEED: 1340 kts

MAX ALTITUDE: 56,000 ft

COMBAT RADIUS: 430 nm

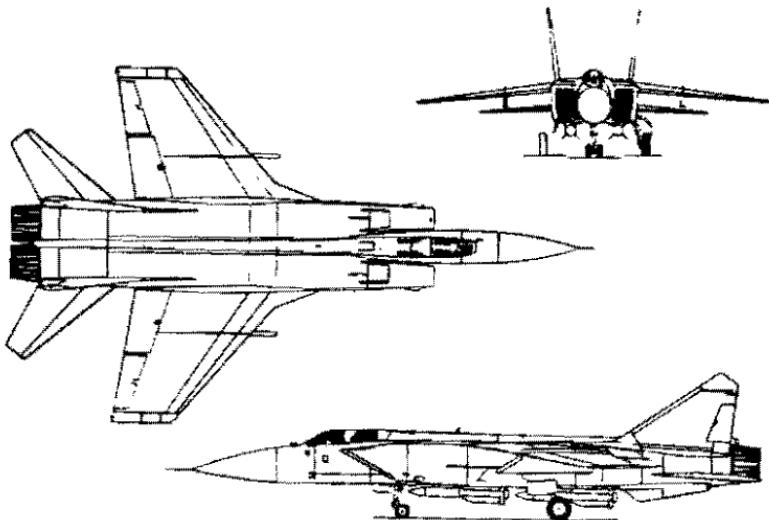
MISSILE: AA-10/ALAMO, AA-11/ARCHER

BOMBS: 57, 80, and 240 mm rocket pod

RADAR: Pulse doppler, look-down, shoot-down

DIMENSIONS: LENGTH - 57 ft
WIDTH - 37 ft

MIG-31/FOXHOUND



PRIMARY MISSION: Interceptor

MAX SPEED: 1400 kts

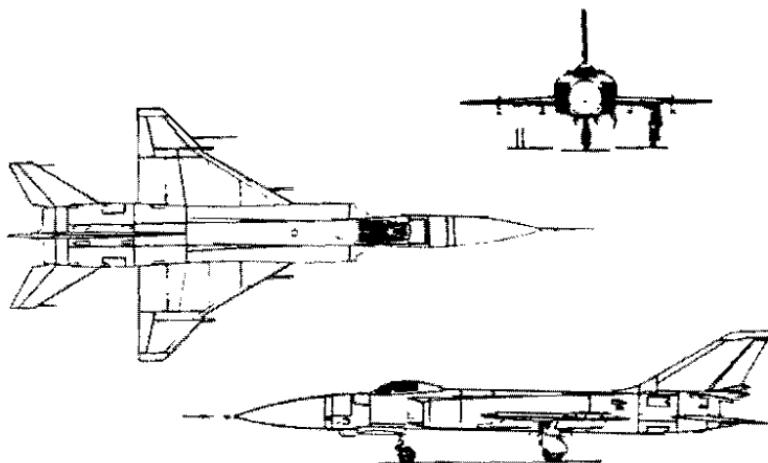
COMBAT RADIUS: 810 nm

MISSILE: AA-9/AMOS, AA-8/APHID

RADAR: Pulse doppler, look-down, shoot-down

DIMENSIONS: LENGTH - 70 ft
WIDTH - 46 ft

SU-15/FLAGON



PRIMARY MISSION: All weather interceptor

MAX SPEED: 1430 kts

MAX ALTITUDE: 65,600 ft

COMBAT RADIUS: 390 nm

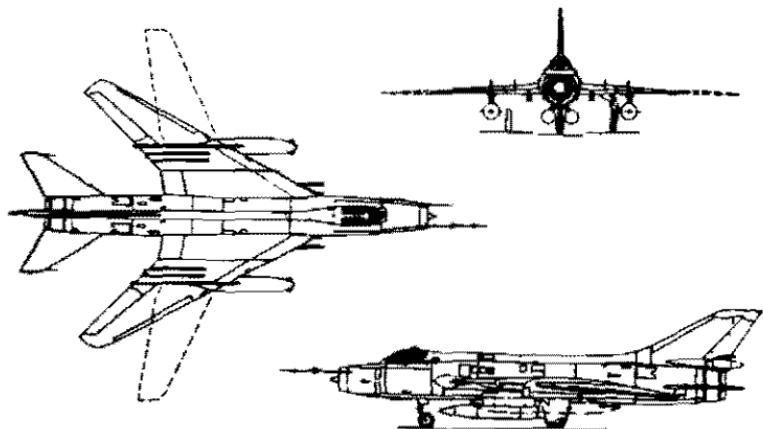
MISSILE: AA-3/ANAB, AA-8/APHID

GUN: 23 mm cannon

RADAR: TWIN SCAN

DIMENSIONS: LENGTH - 70 ft
WIDTH - 30 ft

SU-17/20/22 FITTER



PRIMARY MISSION: Ground attack

MAX SPEED: 1257 kts

MAX ALTITUDE: 59,000 ft

COMBAT RADIUS: 350 nm

MISSILE: AA-2/ATOLL (SU-22), AS-7/KERRY

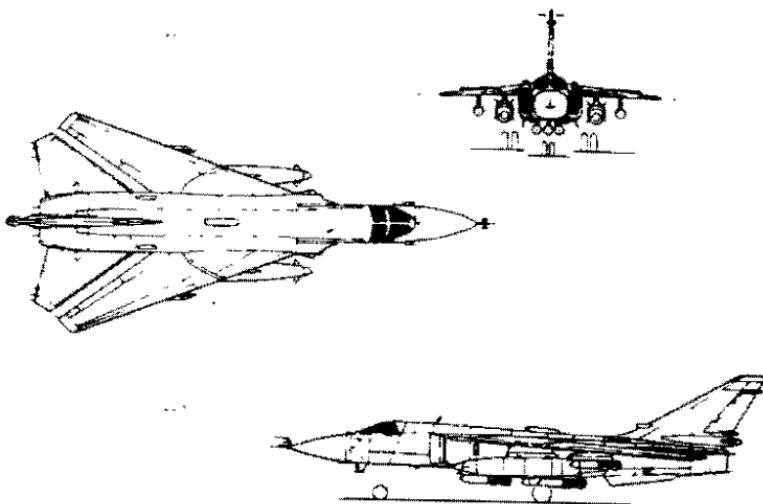
GUN: 30 mm cannon

BOMBS: 8 HARPOUNTS, 8,820 lb capacity

RADAR: HIGH FIX

DIMENSIONS: LENGTH - 61 ft
WIDTH - 45 ft

SU-24/FENCER



PRIMARY MISSION: Ground attack, deep interdiction

MAX SPEED: 1260 kts

MAX ALTITUDE: 54,135 ft

COMBAT RADIUS: 800 nm

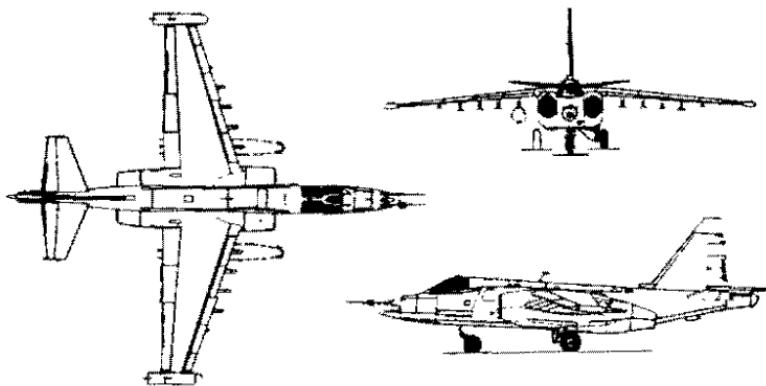
MISSILE: AS-7/KERRY, AS-10/ALAMO, AS-11/ARCHER, AS-12/KEGLER
AS-13/RINGBOLT, AS-14/KEDGE

GUN: 30 mm cannon

BOMBS: 8 HARPOUNTS, 24,250 lb capacity

DIMENSIONS: LENGTH - 70 ft
WIDTH - 57 ft

SU-25/FROGFOOT



PRIMARY MISSION: Close air support (CAS)

MAX SPEED: 530 kts

COMBAT RADIUS: 345 nm

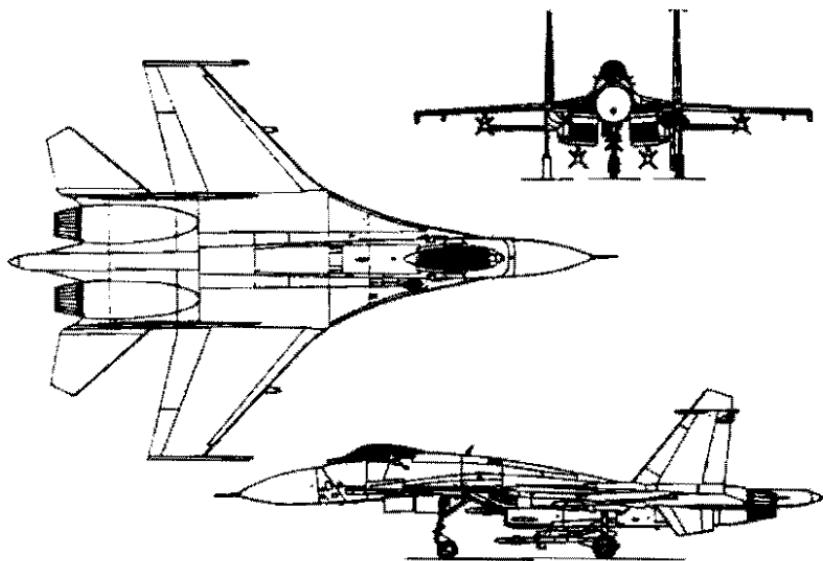
MISSILE: AA-2D/ATOLL (SU-22), AA-8/APHID

GUN: 30 mm cannon

BOMBS: 11,000 lb chemical, incendiary, and cluster bombs

DIMENSIONS: LENGTH - 50 ft
WIDTH - 46 ft

SU-27/FLANKER



PRIMARY MISSION: COUNTER AIR, GROUND ATTACK

MAX SPEED: 1368kts

COMBAT RADIUS: 930nm

**MISSILE: AA-8/APHID, AA-10/ALAMO,
AA-11/ARCHER.**

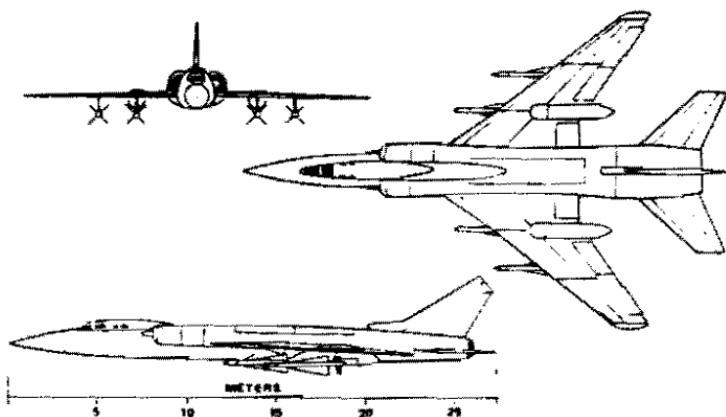
GUN: 30mm

BOMBS: 13,225lb EXTERNAL STORES

RADAR: PULSE DOPPLER

**DIMENSIONS: LENGTH - 71ft
WIDTH - 48ft**

TU-128/FIDDLER



PRIMARY MISSION: All weather interceptor

MAX SPEED: 1000 kts

MAX ALTITUDE: 65,600 ft

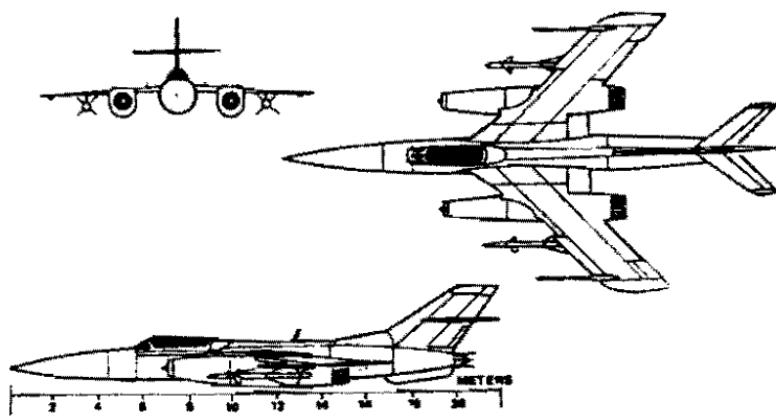
COMBAT RADIUS: 930 nm

MISSILE: AA-5/ASH

RADAR: BIG NOSE

DIMENSIONS: LENGTH - 89 ft
WIDTH - 59 ft

YAK-28/FIREBAR



PRIMARY MISSION: All weather interceptor

MAX SPEED: 1095 kts

MAX ALTITUDE: 55,000 ft

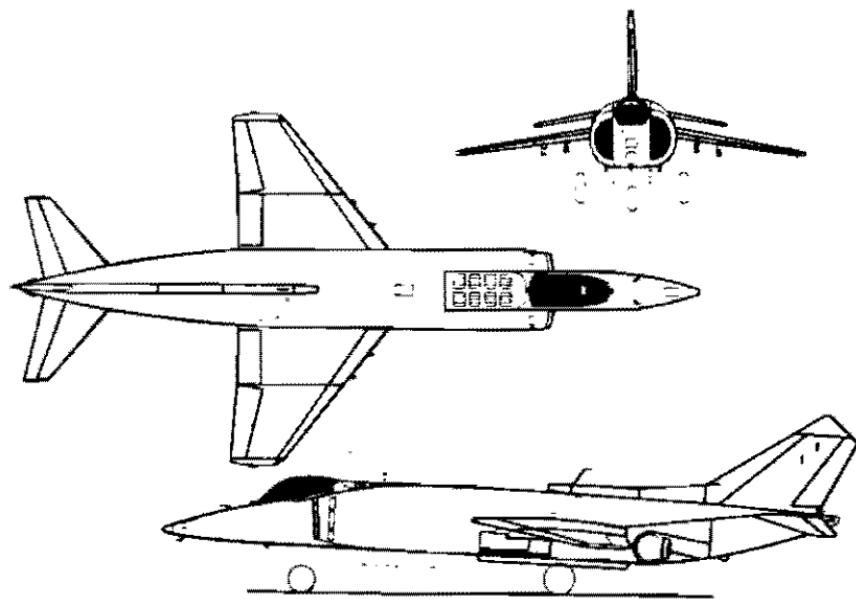
COMBAT RADIUS: 575 nm

MISSILE: AA-2/ATOLL, AA-3/ANAB

RADAR: SKIP SPIN

DIMENSIONS: LENGTH - 75 ft
WIDTH - 42 ft

YAK-38/FORGER



PRIMARY MISSION: Reconnaissance, strike, fleet defense

MAX SPEED: 550 kts

MAX ALTITUDE: 39,375 ft

COMBAT RADIUS: 200 nm

MISSILE: AA-8/APHID, AS-7/KERRY

GUN: 23 mm

BOMBS: 7,935 lb external stores

DIMENSIONS: LENGTH - 50 ft
WIDTH - 24 ft

SOVIET FIGHTER AIRCRAFT

AIRCRAFT	NAME	PRIMARY MISSION	MAX SPO KTS	MAX ALT FEET	CHEM BAG MM	MISSILE CAPABILITY	CANNON	STORES IN POUNDS	RADAR	LETH. MILE IN SEA MILES	LETH. MILE IN KM
MIG-21J	FISHBED	FIGHTER MULTI-ROLE ALL VX	1200	50,000	310	90AA-2	1023MM	2,000 2,000	3-D DAYBIRD 10MM	44	22
MIG-23	FLOGGER	INTERCEPTOR ALL VX	1220	50,000	800	90AA-2 IR 90AA-2 IR	1023MM		2-D NIGHTKILL 8MM/34MM IR	47	
MIG-25	FOXBAT	INTERCEPTOR ALL VX /RECCES	1000	50,000	800	90AA-2/EZCCE SIDELOOK IR			LIR LOOKIN/SHOOTIN	73	46
MIG-27	FLOGGER-D	GROUND ATTACK	860	50,000	800	90AA-2 OR AA-8 IR	1023MM	ECT PODS/TAC NUCLEAR	LASE RANGEFINDER/TOT 32K 80	47	
MIG-29	FULCRUM	COUNTER-AIR /ATTACK	1230	50,000	430	90AA-10 IR 90AA-12		80MM-87/90/ 240MM ECT	LIR LOOKIN/SHOOTIN	57	37
MIG-31	FENGSHUI	INTERCEPTOR	1400		810	90AA-2 S 90AA-2			TRUE LOOKIN/SHOOTIN	70	46
MIG-35	FLAMER	INTERCEPTOR ALL VX	1430	50,000	180	90AA-2 S & 90AA-2	1023MM			70	30
SU-17, 20	FITTER-C,D	GROUND ATTACK	1257	50,000	150		2030MM	8,870 /8000/ECT PODS		42	48
SU-24	PENCER	GROUND ATTACK REFUELLING INTERDICT	1260	50,130	800	AS-7, AS-10,11,12, 13,14	1020MM	8,200 IN RANGE ONLY MISSILES		70	37
SU-25	FROGFOOT	CLOSE AIR SUPPORT	830		345	90AA-2D OR AA-8	1030MM	8,820 CHEN/INCEN/ CLU	LASER RANGEFINDER	80	46
SU-27	FLAMER	COUNTER-AIR /GROUND ATTACK	1368		830	90AA-10 S 90AA-11 S		13,220 ECT STORES	LARGE PULSE-DOPPLER	71	46
YAK-36	FORGER	V/STOL EZCCE /SMALL SHIPS	860	28,375	200	AS-7, AA-8, 80MM PODS	802MM	7,025 ECT STORES	RANGE ONLY RADAR	80	24
TU-26	FIDDLER	INTERCEPTOR ALL VX 2 CREW	1000	45,800	800	90AA-2 EIR AND IR				88	48
TAK-20	FIREBAR	INTERCEPTOR ALL VX 2 CREW	1095	45,000	175	90AA-2				78	42

TRANSPORTS/BOMBERS

An-12/Cub



PRIMARY MISSION: MILITARY PARATROOP &
FREIGHT TRANSPORT

VARIANTS: A - ELINT
B - NAVAL ELINT
C - ECM
D - Upgraded ECM for AF & NAVY
X - Testbeds for Advanced
Avionics (MAD & ASW Radar)

MAX SPEED: 420kts

MAX ALTITUDE: 33,500ft

COMBAT RANGE: 1,940nm, 3,075nm (Max Fuel)

CREW/TROOPS: 6/90

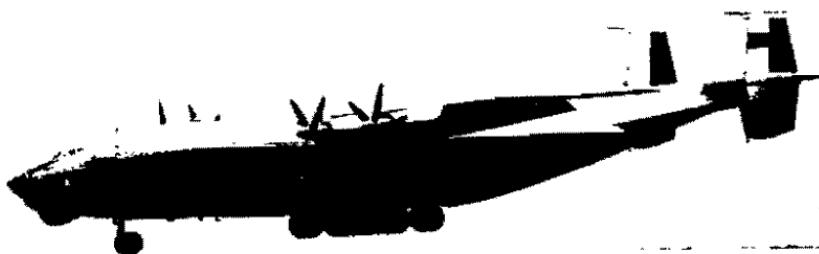
CARGO: 44,000lb

ARMAMENT: Two 23mm Guns in Tail Turret

PRODUCTION: 900+ (400 Operational)

DEPLOYMENT: USSR, ALGERIA, CHINA (Production as Y-8), CZECHOSLOVAKIA, ETHIOPIA, INDIA, IRAQ, MALAGASY REPUBLIC, POLAND, & YUGOSLAVIA

An-22/COCK



**PRIMARY MISSION: LONG-RANGE HEAVY
TRANSPORT (Used mainly in underdeveloped
areas of Northern USSR, Siberia, & Far East)**

MAX SPEED: 400kts

MAX ALTITUDE: UNKNOWN

COMBAT RANGE: 2,690nm, 5,900nm (Max Fuel)

CREW/TROOPS: 5-6/29

CARGO: 176,350lb

ARMAMENT: NONE

PRODUCTION: 55

DEPLOYMENT: USSR

An-26/CURL



**PRIMARY MISSION: SHORT-HAUL CARGO
TRANSPORT**

MAX SPEED: 235kts

MAX ALTITUDE: 24,600ft

COMBAT RANGE: 600nm, 1,375nm (Max Fuel)

CREW/TROOPS: 5/40

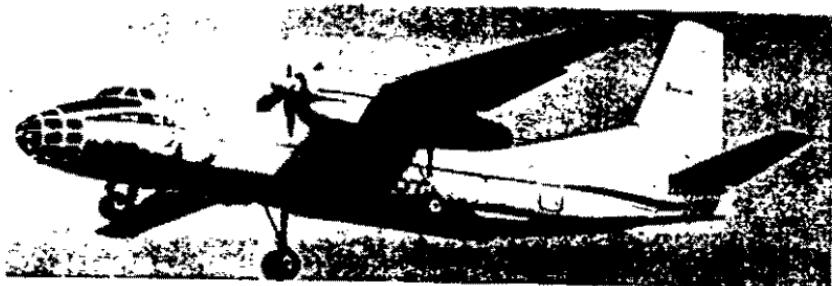
CARGO: 12,125lb

ARMAMENT: NONE

PRODUCTION: 1,100+

**DEPLOYMENT: USSR, plus 27 Foreign Air
Forces**

An-30/CLANK



**PRIMARY MISSION: AERIAL SURVEY
DEVELOPMENT**

SUPPORT OF: Photography for Mapping
 Mineral Prospecting
 Microwave Radiometer
Survey (Heat Emission of
Land, Ocean, and Man-Made
Objects)
 Cloud Seeding
 Conversion for Transport

MAX SPEED: 290kts

MAX ALTITUDE: 27,000ft

COMBAT RANGE: 1,400nm

CREW: 7

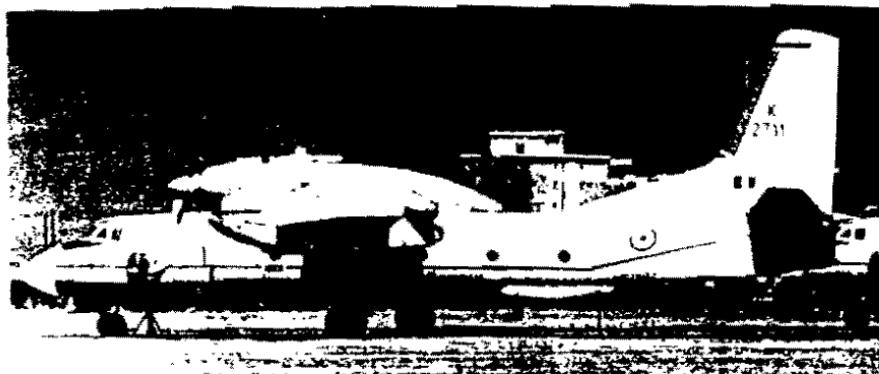
CARGO: 1,400lb+

ARMAMENT: NONE

PRODUCTION: 15+

DEPLOYMENT: USSR, BULGARIA, ROMANIA

An-32/CLINE



PRIMARY MISSION: HOT & HIGH SHORT/MEDIUM RANGE TRANSPORT (Short-Field, High-Altitude(13,000-15,000ft) Operations)

MAX SPEED: 285kts

MAX ALTITUDE: 29,500ft

COMBAT RANGE: 430nm, 1,190nm (Max Fuel)

CREW/TROOPS: 5/39

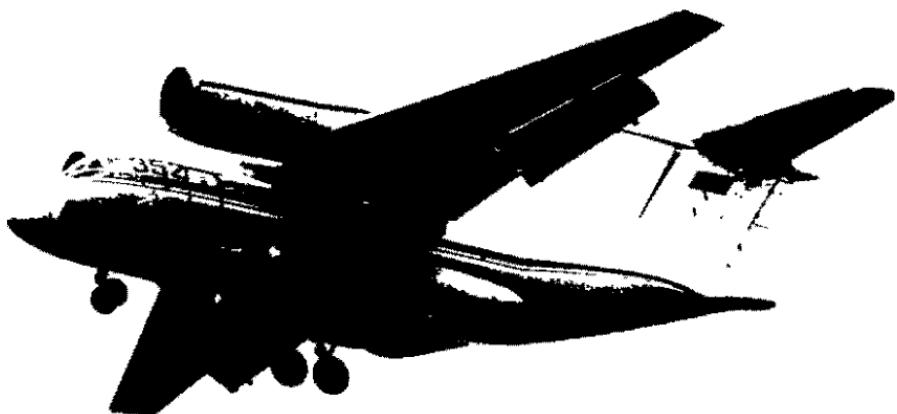
CARGO: 14,470lb

ARMAMENT: NONE

PRODUCTION: 135+

DEPLOYMENT: USSR, INDIA, PERU, plus three additional Air Forces

An-72/COALER



**PRIMARY MISSION: STOL TRANSPORT
(Operations from Unprepared Airfields)**

MAX SPEED: 410kts

MAX ALTITUDE: 36,000ft

COMBAT RANGE: 540nm, 2,000nm (Max Fuel)

CREW/TROOPS: 4/32

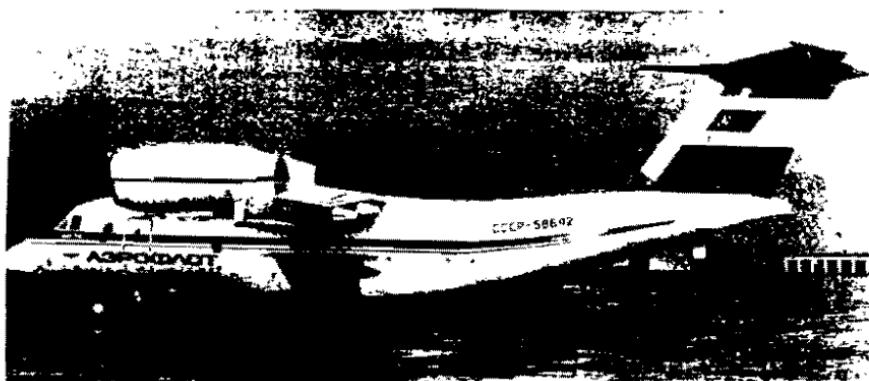
CARGO: 22,045lb(Normal), 7,715lb(STOL)

ARMAMENT: NONE

PRODUCTION: SEVERAL

DEPLOYMENT: USSR

An-74/COALER



**PRIMARY MISSION: ARTIC & ANTARCTIC STOL
TRANSPORT** (Derivative of An-72, with
extended wings, lengthened fuselage, and
wheel-ski landing gear for snow & ice)

MAX SPEED: 380kts

MAX ALTITUDE: 34,450ft

COMBAT RANGE: 620nm, 2,500nm (Max Fuel)

CREW/TROOPS: 4/32

CARGO: 22,045lb

ARMAMENT: NONE

PRODUCTION: SEVERAL

DEPLOYMENT: USSR

An-124/CONDOR



**PRIMARY MISSION: LONG-RANGE HEAVY-LIFT
FREIGHT TRANSPORT (World's Largest ACFT,
Replacement for An-22, C-5 Galaxy-Class)**

MAX SPEED: 465kts

MAX ALTITUDE: UNKNOWN

COMBAT RANGE: 2,430nm, 8,900nm (Max Fuel)

CREW/TROOPS: 7/88

CARGO: 330,700lb

ARMAMENT: NONE

PRODUCTION: 10+ (Estimate 8-10/year)

DEPLOYMENT: USSR

Il-20/COOT



PRIMARY MISSION: ELINT/RECONNAISSANCE
(Derivative of Il-18 Airliner)

MAX SPEED: 365kts

MAX ALTITUDE: 32,800ft

COMBAT RANGE: 2,000nm, 3,500nm (Max Fuel)

CREW: UNKNOWN

ARMAMENT: NONE

PRODUCTION: 700+ (Airline Configuration),
UNKNOWN # Il-20 Derivatives

DEPLOYMENT: USSR

II-38/MAY



PRIMARY MISSION: ANTI-SUBMARINE/MARITIME
PATROL (Derivative of Il-18 Airliner)

MAX SPEED: 390kts

MAX ALTITUDE: 32,800ft

COMBAT RANGE: 3,900nm (Max Fuel)

CREW: 12 (Unconfirmed)

ARMAMENT: Two Weapons/Stores Bays for
variety of Attack Weapons and Sonobouys

PRODUCTION: 50+

DEPLOYMENT: USSR, INDIA

IL-76/GANDID



PRIMARY MISSION: HEAVY FREIGHT TRANSPORT
(Replacement for An-12, C-141 Class ACFT)

VARIANTS: A - Basic Unarmed Production Version
B - Military Version with Rear Gun Turret & ECM Fairings

MAX SPEED: 460kts

MAX ALTITUDE: 50,850ft

COMBAT RANGE: 2,700nm, 3,600nm (Max Fuel)

CREW/TROOPS: 7/140

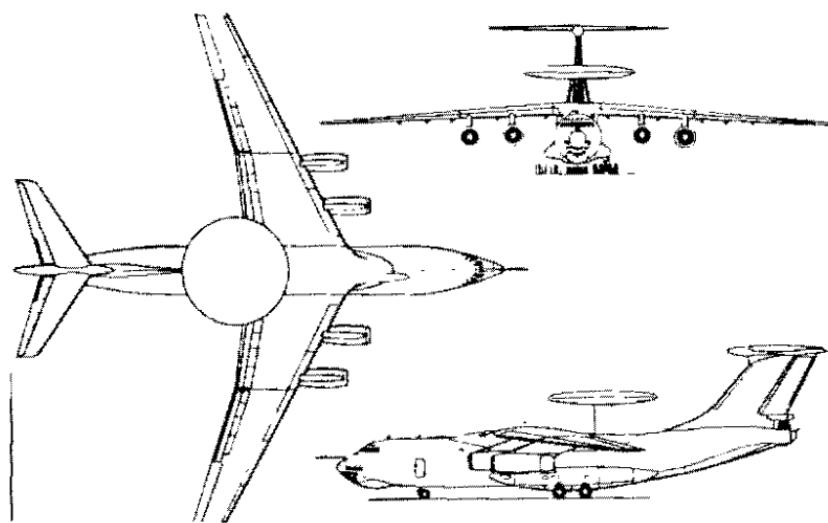
CARGO: 105,800lb

ARMAMENT: Two 23mm Guns in Tail Turret

PRODUCTION: 300+ (30/year)

DEPLOYMENT: USSR, INDIA, IRAQ, CZECHOSLOVAKIA, POLAND

II-76/MAINSTAY



PRIMARY MISSION: AIRBORNE EARLY WARNING AND CONTROL SYSTEM (AEW&C) - (Derivative of Il-76 CANDID)

SUPPORT FOR:

- o Detection of L/L Aircraft Overland and Overwater
- o Detection of L/L Cruise Missiles Overland and Overwater
- o Direction of Fighter/Interceptor Operations
- o Enhanced Surveillance & Air Defense

MAX SPEED: 460kts (CANDID)

MAX ALTITUDE: 50,000ft (CANDID)

COMBAT RANGE: 3,600nm (CANDID)

CREW: UNKNOWN

ARMAMENT: UNKNOWN

PRODUCTION: SEVERAL (5/YR Anticipated)

DEPLOYMENT: USSR, INDIA

M-4/BISON



**PRIMARY MISSION: HEAVY STRATEGIC JET BOMBER
(USSR'S First Operational)**

VARIANTS: A - Bomber & Tanker Versions
(Comparable to B-52)
B - Maritime Reconnaissance
C - Multi-Sensor ELINT/EW/RECCE
Platform

MAX SPEED: 540kts

MAX ALTITUDE: 45,000ft

COMBAT RANGE: 6,000nm

CREW: 6

ARMAMENT: TANKER - NONE; BOMBER - Six 23mm Guns
(Two each - Tail, Forward Dorsal & Ventral
Barbettes), 33,000lb Free-Fall Weapons

PRODUCTION: 200, 75 Operational (30 as Dedicated
Tankers)

70 **DEPLOYMENT:** USSR

Tu-16/BADGER



PRIMARY MISSION: MEDIUM-RANGE BOMBER

VARIANTS:

- A - Strategic Jet Bomber/Tanker
- B - Antishipping
- C - Upgraded Antishipping
- D - Maritime/Electronic Recce
- E - Upgraded E
- F - ECM (Standoff or Escort)
- H - Electronic Reconnaissance

MAX SPEED: 530kts

MAX ALTITUDE: 40,350ft

COMBAT RANGE: 3,200nm

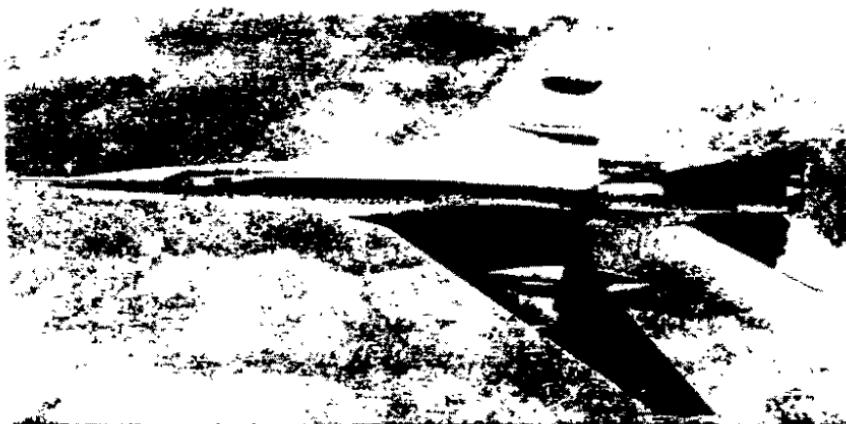
CREW: 6

ARMAMENT: 19,000lb Bombs (Nuclear/Conventional),
A/S Standoff Missiles

PRODUCTION: 400+

DEPLOYMENT: USSR, CHINA

Tu-22/BLINDER



PRIMARY MISSION: SUPERSONIC MEDIUM RANGE BOMBER

VARIANTS: A - Bomber/Recce w/Free-Fall Weapons
B - Blinder A w/Nuclear A/S Missiles
C - Training Version w/Raised
Instructor Position Aft of Flight
Deck

MAX SPEED: 800kts (M1.4 @ 40,000ft)

MAX ALTITUDE: 60,000ft

MAX RANGE: 3,100nm

CREW: 3

ARMAMENT: One 23mm Radar-directed Gun in Tail
Turret, 17,600lb of Nuclear or Conventional Free-
Fall Weapons, Nuclear A/S Missiles

PRODUCTION: 250+

DEPLOYMENT: USSR, IRAQ, LIBYA

Tu-26/BACKFIRE



PRIMARY MISSION: VARIABLE GEOMETRY MEDIUM BOMBER

VARIANTS:

- A - Supersonic Bomber**
- B - Improved Aerodynamic Design for Reduced Drag & Increased Fuel**
- C - Anti-Ship & Reconnaissance**

MAX SPEED: 1,150kts (M2.0 @ 36,000ft)

MAX ALTITUDE: 62,000ft

COMBAT RANGE: 4,300nm

CREW: 4

ARMAMENT: Twin 23mm Radar-directed Tail Guns, 26,500lb Nuclear or Conventional Bombs, A/S Nuclear Missiles

PRODUCTION: 250+

DEPLOYMENT: USSR

Tu-95 & Tu-142/BEAR



PRIMARY MISSION: LONG-RANGE STRATEGIC BOMBER

VARIANTS: A - Strategic Bomber
B - Maritime Reconnaissance
C - BEAR B with ELINT
D - Maritime Targeting for Ships
(No Weapons)
E - Strategic Reconnaissance
(ELINT & Photographic)
F - Anti-Submarine (Tu-142 Version)
G - BEAR B/C with A/S Missiles
H - BEAR F with L/R Cruise Missiles

MAX SPEED: 500kts

MAX ALTITUDE: 41,000ft

COMBAT RANGE: 8,950nm

CREW: 7-12

ARMAMENT: Six 23mm (Remotely Controlled) Guns,
25,000lb Nuclear or Conventional Free-Fall
Weapons, A/S Missiles, Sonobuoys, Torpedos,
Nuclear Depth Charges (All Model Dependent)

PRODUCTION: 250+

DEPLOYMENT: USSR, INDIA

Tu-126/MOSS



**PRIMARY MISSION: AIRBORNE WARNING & CONTROL SYS
(AWACS) - (Marginally Effective Overwater, but
Ineffective Overland)**

MAX SPEED: 460kts

MAX ALTITUDE: 39,000ft

COMBAT RANGE: 6,775nm

CREW: 12

ARMAMENT: NONE

PRODUCTION: 15 (9 Operational)

DEPLOYMENT: USSR

Tu-?/BLACKJACK



**PRIMARY MISSION VARIABLE GEOMETRY SUPERSONIC
STRATEGIC BOMBER (Subsonic Cruise/Supersonic Dash)**

MAX SPEED: 2.0 @ High Altitude (Estimated)

MAX ALTITUDE: UNKNOWN

COMBAT RANGE: 7,900nm (Estimated)

CREW: UNKNOWN

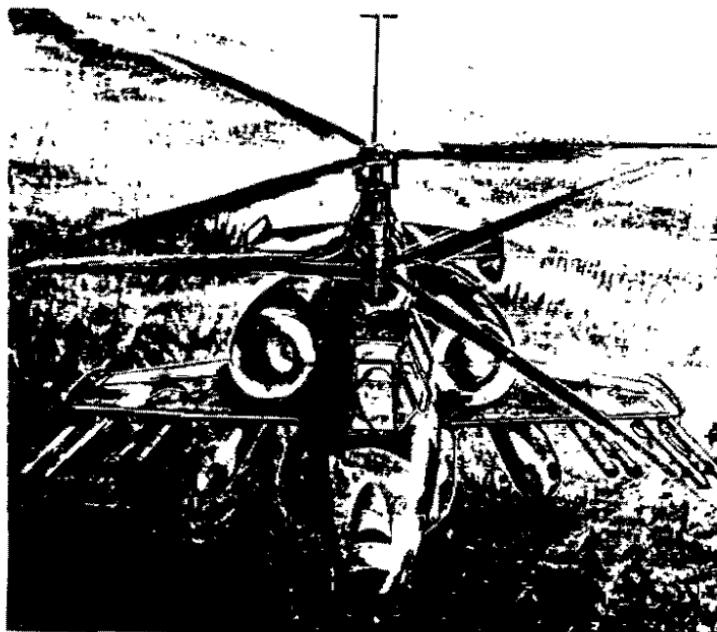
**ARMAMENT: 36,000lb Nuclear or Conventional Bombs,
S/R Missiles, L/R Cruise Missiles**

PRODUCTION: IN PROTOTYPE DEVELOPMENT

DEPLOYMENT: N/A

HELICOPTERS

Ka-?/HOKUM



PRIMARY MISSION: ATTACK & A/A ANTI-HELIICOPTER

MAX SPEED: 190 kts (Estimated)

SERVICE CEILING: UNKNOWN

COMBAT RANGE: 270nm (Estimated)

CREW: 2

ARMAMENT: Rapid-Fire Gun (In Nose), and A/A Missiles

PRODUCTION: In Prototype Development

DEPLOYMENT: N/A

Ka-25/HORMONE



**PRIMARY MISSION: NAVY SUPPORT
(ASW, OTH TGT for L/R Cruise MSIs,
Utility, Search & Rescue)**

MAX SPEED: 120kts

SERVICE CEILING: 11,500ft

COMBAT RANGE: 215nm, 350nm(Exter Tanks)

CREW/TROOPS: 4-5/12

ARMAMENT: Torpedos, Nuclear Depth Chrgs

PRODUCTION: 100+

DEPLOYMENT: USSR, INDIA, SYRIA, VIET-NAM, YUGOSLAVIA

Ka-26/HOODLUM



**PRIMARY MISSION: FREIGHT TRANSPORT/
FLYING CRANE**

MAX SPEED: 90kts

SERVICE CEILING: 9,840ft

COMBAT RANGE: 215nm, 650nm (Aux Tanks)

CREW/TROOPS: 1/7

CARGO: 2,425lb

ARMAMENT: NONE

PRODUCTION: 600+

DEPLOYMENT: USSR, BULGARIA, HUNGARY

Ka-27/HELIX



PRIMARY MISSION: NAVY SUPPORT

MAX SPEED: 135kts

SERVICE CEILING: 19,685ft

COMBAT RANGE: 430nm

CREW: 3/16

CARGO: 8,800/11,000lb (Internal/External)

ARMAMENT: UNKNOWN

PRODUCTION: 60+

DEPLOYMENT: USSR, INDIA

Mi-2/HOPLITE



**PRIMARY MISSION: TROOP TRANSPORT
(Smallest MIL range helicopter)**

SERVICE CEILING: 13,125ft

COMBAT RADIUS: 105nm

CREW/TROOPS: 1/8

ARMAMENT: 2x57mm RK PDS or 4 Sagger Missiles

PRODUCTION: 5,000+

**DEPLOYMENT: USSR, WARSAW PACT,
N. KOREA, LIBYA, SYRIA**

Mi-6/HOOK



PRIMARY MISSION: HEAVY TRANSPORT

MAX SPEED: 160kts

SERVICE CEILING: 14,750ft

COMBAT RANGE: 330nm

CREW/TROOPS: 5/70

CARGO: 26,500/17,600lb (Internal/Slung)

ARMAMENT: 12.7mm MG (In Nose)

PRODUCTION: 860+

DEPLOYMENT: USSR, ALGERIA, IRAQ, PERU, VIETNAM

Mi-8/HIP



**PRIMARY MISSION: ASSAULT TRANSPORT
(Troops, Equipment, & Supplies)**

MAX SPEED: 140kts

SERVICE CEILING: 14,750ft

COMBAT RANGE: 270nm

CREW/TROOPS: 2/24

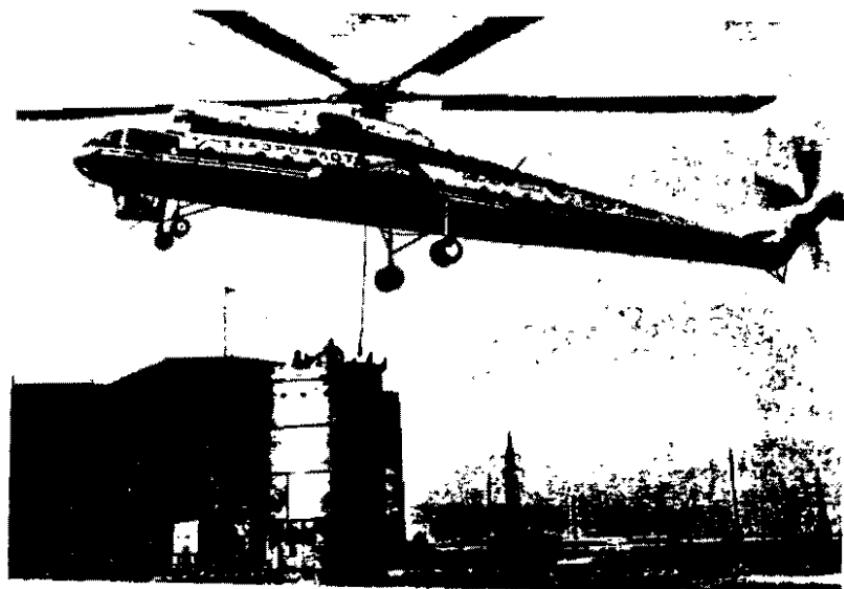
CARGO: 8,800/6,600lb (Internal/Slung)

**ARMAMENT: 57mm RKs, 12.7mm MG (In Nose),
4 Swatter Antitank missiles, 6 Sagger, &
ECM Comm Jamming (All vary w/model)**

PRODUCTION: 10,000+

DEPLOYMENT: USSR & 39 other Air Forces

Mi-10/HARKE



**PRIMARY MISSION: HEAVY FLYING-CRANE
(Troops & Cargo)**

MAX SPEED: 110kts (Loaded)

SERVICE CEILING: 9,850ft

COMBAT RANGE: 135nm

CREW/TROOPS: 2/28

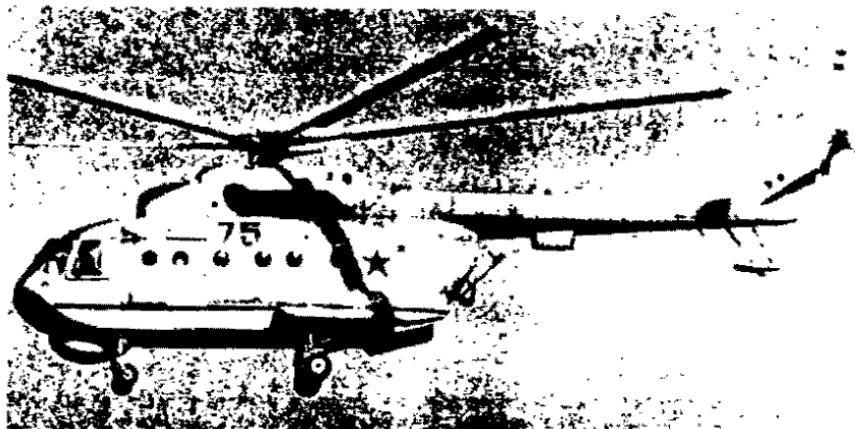
CARGO: 30,865lb (Slung)

ARMAMENT: None

PRODUCTION: Less than 100

DEPLOYMENT: USSR, GDR

MI-14/HAZE



**PRIMARY MISSION: SHORE-BASED AMPHIBIOUS
(ASW, Mine CM, Search & Rescue)**

MAX SPEED: 125kts

COMBAT RADIUS: 500nm

CREW: 4-5

ARMAMENT: Torpedos and Depth Charges

PRODUCTION: 130+

**DEPLOYMENT: USSR, GDR, POLAND, BULGARIA,
ROMANIA, CUBA, LIBYA**

Mi-17/HIP-H



**PRIMARY MISSION: ASSAULT TRANSPORT
AND BORDER PATROL
(Mi-8 derivative with more powerful
engines)**

MAXIMUM SPEED: 135kts

SERVICE CEILING: 11,800ft

COMBAT RANGE: 510nm

CREW/TROOPS: 2/28

CARGO: 8,800/6,600lb (Internal/Slung)

**ARMAMENT: Same as Mi-8 plus 23mm
gun packs**

PRODUCTION: Unknown

**DEPLOYMENT: USSR, CUBA, ANGOLA, INDIA,
N. KOREA, PERU**

Mi-24/HIND



**PRIMARY MISSION: GUNSHIP WITH
TRANSPORT CAPABILITY
(Antitank, Antihelicopter)**

MAX SPEED: 165kts

SERVICE CEILING: 14,750ft

COMBAT RANGE: 200nm, 405nm (Max Fuel)

CREW/TROOPS: 2/8

**ARMAMENT: 57mm & 80mm Rks, 23mm & 30mm
guns (In Nose), 4 Swatter Antitank MSLs,
3,300lb bombs**

PRODUCTION: 2,300+

**DEPLOYMENT: USSR, WARSAW PACT, ANGOLA,
AFGANISTAN, CUBA, INDIA, IRAQ, LIBYA,
MOZAMBIQUE, NICARAGUA, N. KOREA,
VIETNAM, S. YEMEN**

Mi-26/HALO



**PRIMARY MISSION: HEAVY LIFT
(ROMT for day/night capability beyond
Mi-6 & Mi-10)**

MAXIMUM SPEED: 160kts

SERVICE CEILING: 15,100ft

COMBAT RANGE: 430nm (Max Fuel)

CREW/TROOPS: 5/85

CARGO: 44,000lb

ARMAMENT: NONE

PRODUCTION: 50+

DEPLOYMENT: USSR, INDIA

Mi-28/HAVOC



PRIMARY MISSION: ATTACK
(Counterpart to US ARMY AH-64 Apache)

MAX SPEED: 160kts

SERVICE CEILING: UNKNOWN

COMBAT RANGE: 260nm

CREW: 2

**ARMAMENT: Heavy Calibre MG (In Nose),
Rockets, A/A & A/G Missiles**

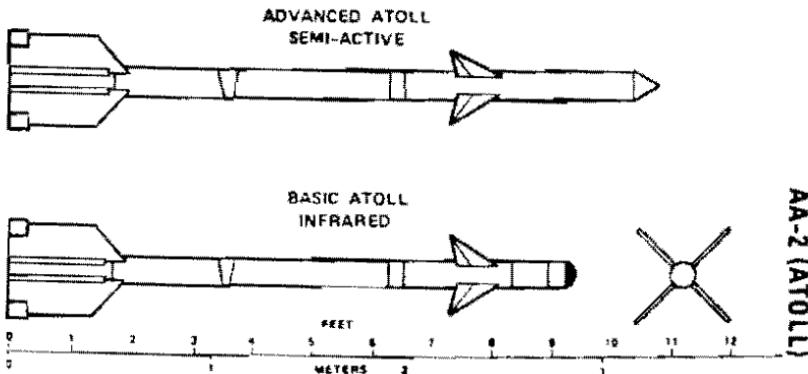
PRODUCTION: In Prototype Development

DEPLOYMENT: N/A

AIR-TO-AIR MISSILES

AA-2/ATOLL

AA-2 ATOLL



**PRIMARY MISSION: CLOSE-RANGE AIR-TO-AIR
MISSILE (Similar to US AIM-9)**

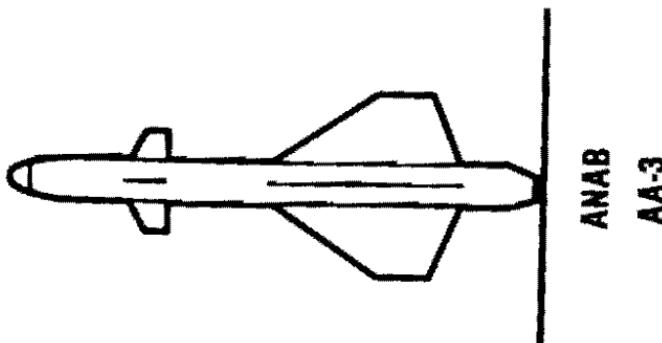
GUIDANCE: IR Homing & Semi-Active Radar

PERFORMANCE: MACH 2.5; RANGE 2nm

**SIZE: LENGTH 9.3ft(IR), 10.7ft(SAR);
DIAMETER 6in; WEIGHT 154lb**

**EMPLOYMENT: MIG-21/FISHBED, MIG-23/FLOGGER,
SU-22/FITTER, SU-25/FROGFOOT**

AA-3/ANAB



**PRIMARY MISSION: LONG-RANGE AIR-TO-AIR
MISSILE**

**GUIDANCE: IR HOMING & I/J BAND SEMI-ACTIVE
RADAR (Works with Skip Scan Radar)**

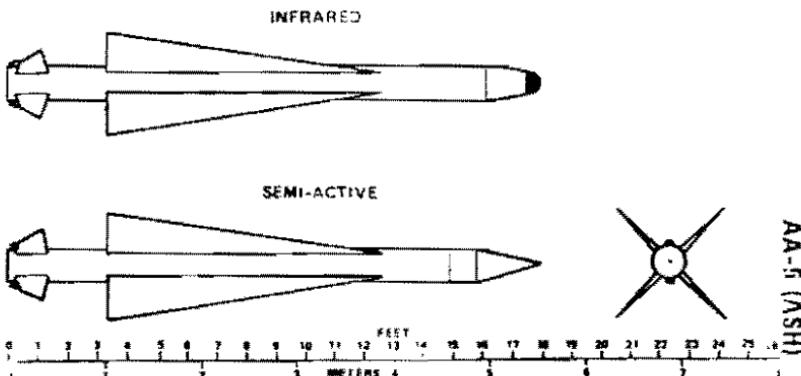
PERFORMANCE: RANGE 1.6nm(IR), 5.4nm(SAR)

**SIZE: LENGTH 13.4ft(IR), 13.1ft(SAR);
DIAMETER 11in**

**EMPLOYMENT: YAK-28/FIREBAR, SU-9/FISHPOT,
SU-15/FLAGON**

AA-5/ASH

AA-5 ASH



**PRIMARY MISSION: LARGE AIR-TO-AIR MISSILE
FOR LONG-RANGE INTERDICTION**

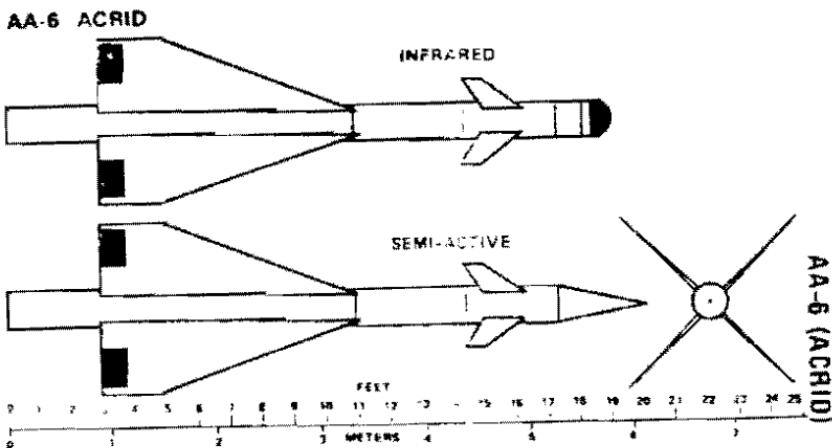
**GUIDANCE: IR HOMING & I/J BAND SEMI-ACTIVE
RADAR (Works with Big Nose I-Band Radar)**

**PERFORMANCE: MACH 1-2; RANGE 2.7nm(IR),
10.8nm(SAR)**

**SIZE: LENGTH 17.8ft(IR), 18.0ft(SAR);
DIAMETER 12in; WEIGHT 440lb**

EMPLOYMENT: TU-28p/FIDDLER, MIG-25/FOXBAT

AA-6/ACRID



**PRIMARY MISSION: LONG-RANGE AIR-TO-AIR
MISSILE (Approximation of USN Phoenix)**

GUIDANCE: IR HOMING & SEMI-ACTIVE RADAR

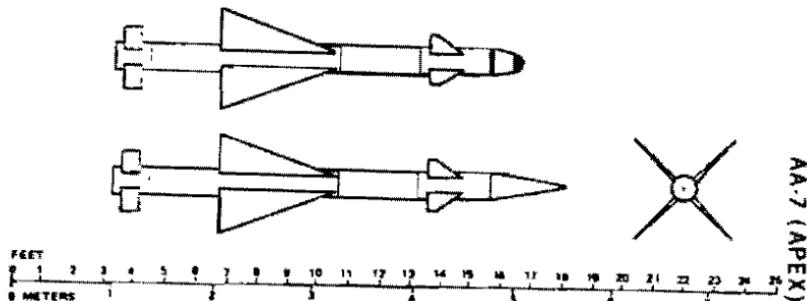
PERFORMANCE: MACH 2.2, RANGE 20nm

**SIZE: LENGTH 19.0ft(IR), 20.6ft(SAR);
DIAMETER 15.7in; WEIGHT 1,400-1,900lb**

EMPLOYMENT: MIG-25/FOXBAT, SU-15/FLAGON

AA-7/APEX

AA-7 (APEX)



**PRIMARY MISSION: LONG-RANGE AIR-TO-AIR
MISSILE WITH LOOK-DOWN SHOOT-DOWN CAPA-
BILITY AGAINST LOW-LEVEL TARGETS
(Comparable to AIM-7/Sparrow)**

GUIDANCE: IR HOMING & SEMI-ACTIVE RADAR

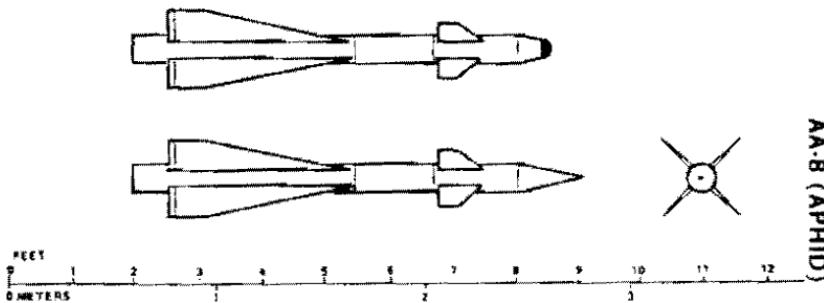
PERFORMANCE: MACH 2, RANGE 17.4nm

**SIZE: LENGTH 16.8ft(IP), 18.1ft(SAR);
DIAMETER 8.75in; WEIGHT 705lb**

EMPLOYMENT: MIG-23/FLOGGER, MIG-25/FOXBAT

AA-8/APHID

AA-8 (APHID)



PRIMARY MISSION: HIGHLY-MANUVERABLE CLOSE COMBAT AIR-TO-AIR MISSILE

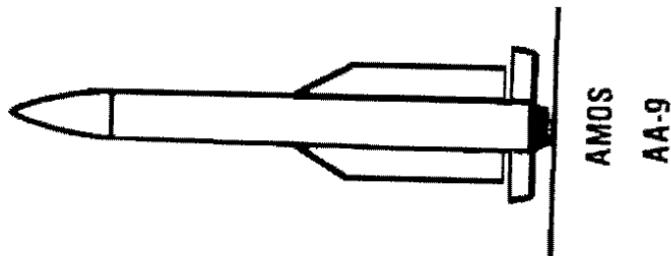
GUIDANCE: ONLY IR HOMING SEEN TO DATE

**PERFORMANCE: MACH 2, RANGE 1,650ft MIN,
3.7nm MAX**

**SIZE: LENGTH 8.6ft; DIAMETER 4.75in;
WEIGHT 121lb**

**EMPLOYMENT: MIG-21/FISHBED, MIG-25/
FOXBAT, MIG-29/FULCRUM, MIG-31/FOXHOUND,
SU-15/FLAGON, SU-25/FROGFOOT, YAK-38/
FORGER**

AA-9/AMOS



**PRIMARY MISSION: LONG-RANGE LOOK-DOWN
SHOOT-DOWN AIR-TO-AIR MISSILE**

GUIDANCE:

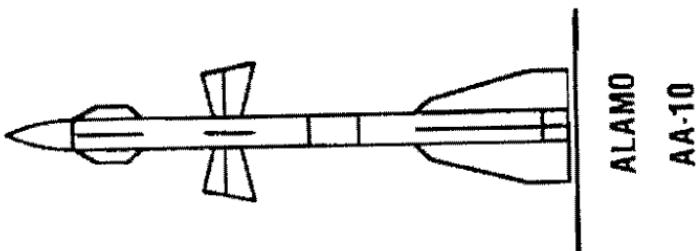
- o Inertial w/Active Radar
- Terminal Homing
- o Semi-Active CW Radar
- w/Monopulse

PERFORMANCE: RANGE 22-24nm

**SIZE: LENGTH 13.1ft; DIAMETER 15.7in;
WEIGHT 990lb(Estimated)**

**EMPLOYMENT: MIG-25/FOXBAT, MIG-31/
FOXHOUND, MIG-29/FULCRUM**

AA-10/ALAMO



**PRIMARY MISSION: LOOK-DOWN SHOOT-DOWN
AIR-TO-AIR MISSILE**

GUIDANCE: A - Short Burn Semi-Active
Radar Homing
B - Short Burn IR Homing
C - Long Burn Semi-Active
Radar Homing

PERFORMANCE: RANGE 4.3nm(IR), 16.2nm(SAR)

SIZE: LENGTH 10.5ft(IR), 13.1ft(SAR);
DIAMETER 7.3in; **WEIGHT** 340lb(IR),
440lb(SAR)

EMPLOYMENT: SU-27/FLANKER, MIG-29/FULCRUM

AIR-TO-SURFACE MISSILES

AS-2/KIPPER

PRIMARY MISSION: Air-to-surface anti-shipping standoff missile (aircraft-like configuration, resembles USAF HOUNDDOG)

GUIDANCE:

- to TGT area w/programmed autopilot
- command override options available
- terminal active radar homing

PERFORMANCE: mach 1.2; **RANGE:** 115 nm

SIZE: LENGTH 32.8 ft; **WEIGHT** 9,260 lb

EMPLOYMENT: TU-16/BADGER

AS-4/KITCHEN

PRIMARY MISSION: TACTICAL & STRATEGIC AIR-TO-SURFACE STANDOFF WEAPON

GUIDANCE: STRATEGIC - Inertial Guidance w/350KT Nuclear Warhead

DEFENSE SUPPRESION - Passive Radar Terminal Homing

ANTI-SHIPPING - Active Radar Terminal Homing

PERFORMANCE: MACH 2.5; **RANGE** 260nm(Low Altitude Launch), 347nm(High Altitude Launch)

SIZE: LENGTH 37ft; **DIAMETER** 2.95ft; **WEIGHT** 13,230lb

EMPLOYMENT: TU-22/BLINDER, TU-26/BSCKFIRE, TU-95/BEAR

AS-5/KELT

PRIMARY MISSION: Air-to-surface anti-shipping & ground attack
GUIDANCE: Autopilot w/active radar; terminal homing
PERFORMANCE: mach .9 at low altitude, mach 1.2 at 30,000 ft;
RANGE: 87 nm at low altitude, 174 nm at high altitude
SIZE: LENGTH 28.2 ft; WING SPAN 14.1 ft; WEIGHT 7,715 lb
EMPLOYMENT: TU-16/BADGER

AS-6/KINGFISH

PRIMARY MISSION: High performance air-to-surface missile
GUIDANCE: Inertial mid-course w/active radar terminal homing
PERFORMANCE: mach 3; RANGE: 117 nm at low altitude, 328 nm at high altitude
SIZE: LENGTH 32.8 ft; DIAMETER 2.95 ft; WEIGHT 10,580 lb
EMPLOYMENT: TU-16/BADGER

AS-7/KERRY

PRIMARY MISSION: Tactical air-to-surface missile

GUIDANCE: Radio command

PERFORMANCE: Transonic; RANGE: 6 nm

SIZE: LENGTH 11.5 ft; WEIGHT 880 lb

EMPLOYMENT: MIG-23/FLOGGER, MIG-27/FLOGGER D, SU-17/FITTER, SU-24/FENCER, YAK-38/FORGER

AS-9/KYLE

PRIMARY MISSION: Anti-radiation air-to-surface missile

GUIDANCE: Radar homing seeker

PERFORMANCE: Supersonic, RANGE: 40 nm

SIZE: LENGTH 19.8 ft; DIAMETER 19.6 in; WEIGHT 1,650 lb

EMPLOYMENT: SU-24/FENCER, TU-16/BADGER, TU-26/BACKFIRE

AS-10/KAREN

PRIMARY MISSION: Air-to-surface anti-tank missile (equivalent to US AGM-65/MAVERICK)

GUIDANCE: Laser homing

PERFORMANCE: Transonic, **RANGE:** 5.3 nm

SIZE: LENGTH 11.5 ft; DIAMETER 11.8 in; **WEIGHT** 660 lb

EMPLOYMENT: MIG-27/FLOGGER, SU-17/FITTER, SU-24/FENCER

AS-11/KILTER

PRIMARY MISSION: Air-to-surface anti-radar missile for defense suppression (improved AS-10/KAREN)

GUIDANCE: IR seeker

EMPLOYMENT: MIG-25/FOXBAT, SU-24/FENCER

AS-12/KEGLER

PRIMARY MISSION: Advanced anti-radiation air-to-surface missile (improved AS-9/KYLE)

GUIDANCE: Radar homing seeker

PERFORMANCE: Supersonic; **RANGE:** 19 nm

SIZE: **WEIGHT** 770 lb

EMPLOYMENT: SU-24/FENCER

AS-13/KINGBOLT

PRIMARY MISSION: High performance stand-off air-to-surface missile (successor to AS-4/KITCHEN & AS-6/KINGFISH)

PERFORMANCE: mach 3.5; RANGE: 430 nm

EMPLOYMENT: TU-26/BACKFIRE, TU-22/BLINDER, TU-95/BEAR

AS-14/KEDGE

PRIMARY MISSION: Improved air-to-surface anti-tank missile (successor to AS-10/KAREN & AS-11/KILTER)

GUIDANCE: - Mid course data link
- Laser terminal homing

PERFORMANCE: RANGE 22 nm

SIZE: LENGTH 12.5 ft

EMPLOYMENT: SU-24/FENCER, MIG-27/FLOGGER

AS-15/KENT

PRIMARY MISSION: Air-launched cruise missile for low-level standoff attack (equivalent to US BGM-109/TOMAHAWK) missile (successor to AS-4/KITCHEN & AS-6/KINGFISH)

GUIDANCE: Terrain matching guidance

PERFORMANCE: Subsonic; RANGE: 1,600 nm

SIZE: LENGTH 23 ft, WING SPAN 10.7 ft, WEIGHT 3,750 lb

EMPLOYMENT: TU-95/BEAR, TU-7/BLACKJACK

WEFT

FOR OFFICIAL USE ONLY

WING

TYPE OF WING

Straight-Straight

A



Straight-Tapered

B



Tapered-Straight

C



Tapered-Tapered

D



Trapeze

E

(In this manual Trapeze is classified as Tapered-Tapered)



Swept

F



Swept Variations

G-K



Two Sweep

G

Crescent

H

Foreswept

I

Saw Leading Edge

J

Trailing Edge Fillet

K

Delta

L

Clipped Delta

M

Variable Geometry

N

(Two-Swept to Swept)

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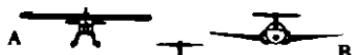
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WING

MOUNTING OF WING

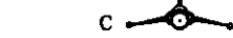
Straight Stretching

A



Positive Dihedral

B



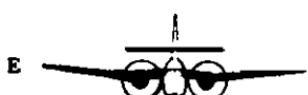
Negative Dihedral

C



Gull

D



Inverted Gull

E



POSITION OF WING

Biplane

A



Monoplane Variations

B-E



Parasol

B



High-Wing

C



Mid-Wing

D



Low-Wing

E

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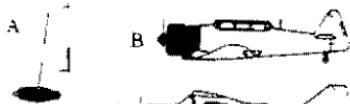
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ENGINE

TYPE OF ENGINE

Piston

A



Radial

B



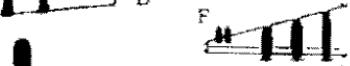
Inline Boxer

C



Turboprop

D



Turboget

E



Mixed Propulsion

F



Lift Engine

G



MOUNTING OF ENGINE

Above Wing Root

A



In Wing Root

B



Below Wing Root

C



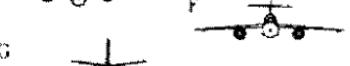
Above Wing

D



Inside Wing

E



Nacelles Under Wing

F



Suspended From Wing

G



Inside Fuselage

H



Rear Mounted

I



Variable Mounting

J

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

FUSELAGE

TYPE OF FUSELAGE

Basic Types

A-D



Round

A



Oval

B



Slabsided

C



Rectangular

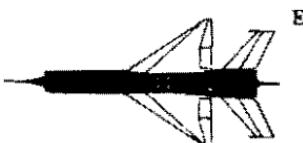
D

Fuselage Variations

E-J

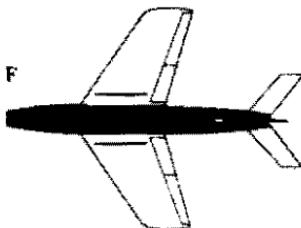
Tube

E



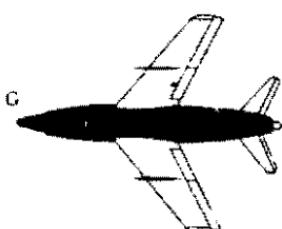
Lobe

F



Barrel

G

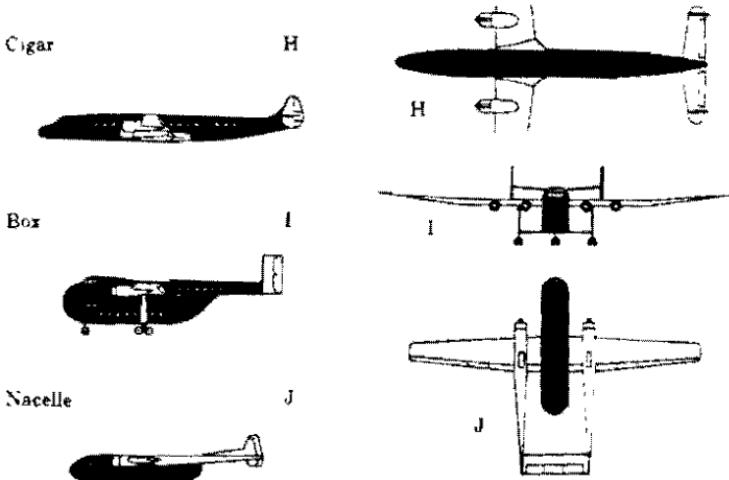


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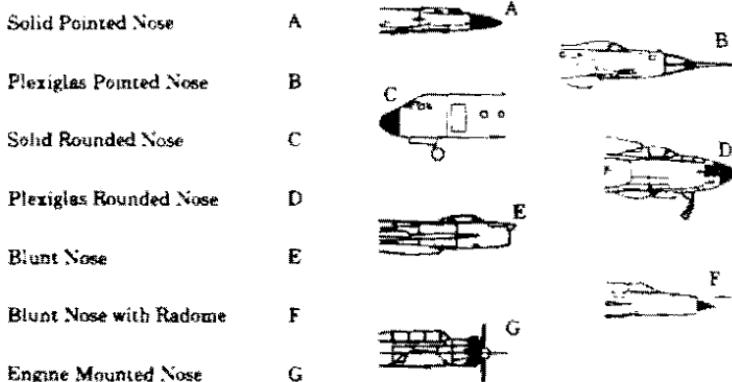
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FUSELAGE

Fuselage Variation cont.



NOSE SECTION OF FUSELAGE



FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

FUSELAGE/TAIL

CANOPY SECTION OF FUSELAGE

Single Seat A



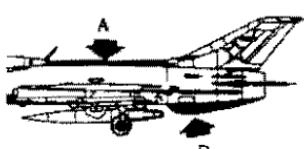
Multiple Seat, Flanked B



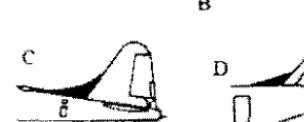
Multiple Seat, Tandem C-D

FUSELAGE MISCELLANY

Dorsal Spine A



Ventral Fin B



Fairing C



Angular Fairing D



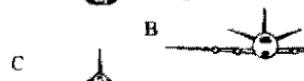
TAIL SECTION

HORIZONTAL STABILIZER POSITION

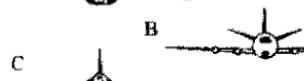
Straight A



V B



Negative V C



MOUNTING OF HORIZONTAL STABILIZER

Fuselage Mounted A-C



Low-Mounted A



Mid-Mounted B



High-Mounted C

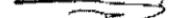


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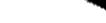
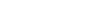
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TAIL.

MOUNTING OF HORIZONTAL STABILIZER cont

On Vertical Fin	D-G		
Top Mounted (T-Tail)	D		
High-Mounted	E		
Mid-Mounted	F		
Low-Mounted	G		

TYPES OF HORIZONTAL STABILIZERS

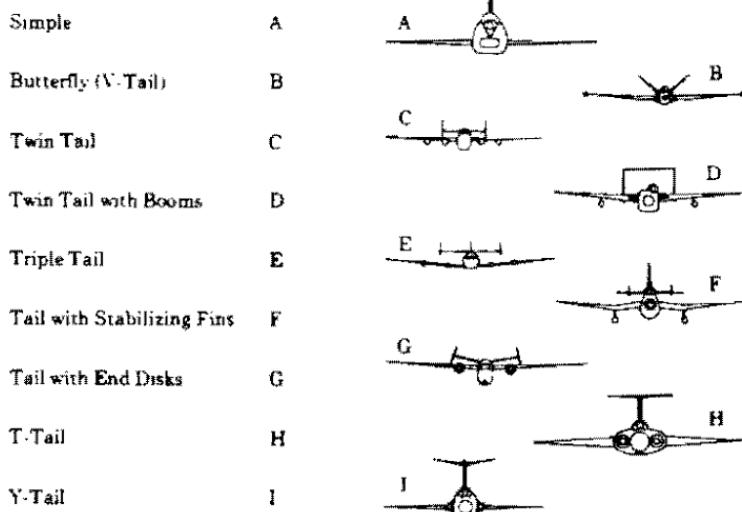
Straight Straight	A		A
Straight-Tapered	B		B
Tapered-Straight	C		C
Tapered-Tapered	D		D
Delta	E		E
Swept Variations	F-G		E
Swept and Unstayed	F		F
Swept and Tapered	G		G
No Horizontal Stabilizer	H		H

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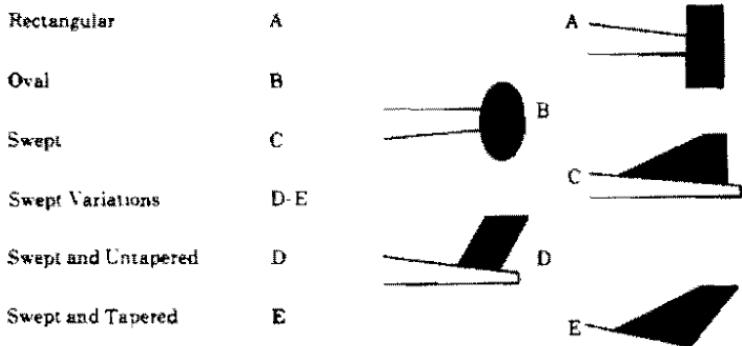
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TAIL

TAIL CONFIGURATIONS



TYPES OF VERTICAL FINS

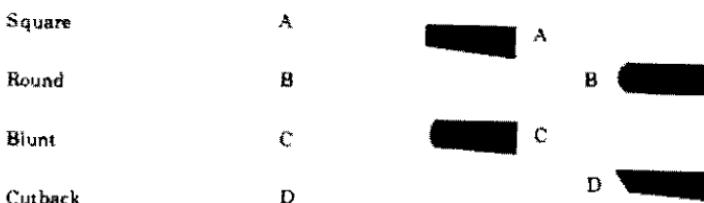


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TIPS/UNDERCARRIAGE

TYPES OF TIPS

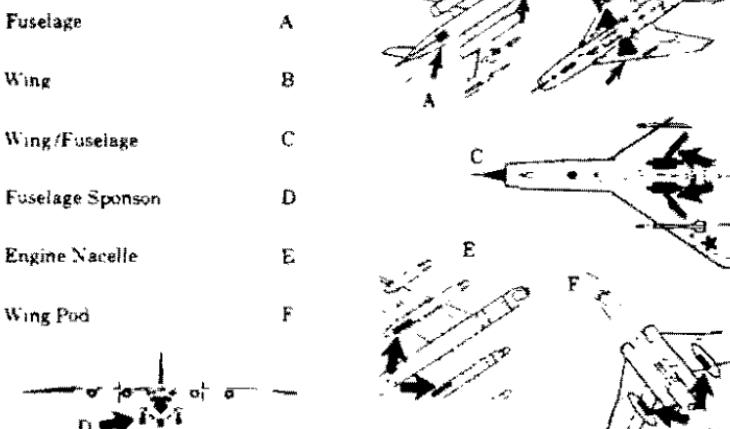


UNDERCARRIAGE

TYPES OF UNDERCARRIAGE



MAIN GEAR HOUSING



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FOR OFFICIAL USE ONLY

APPENDAGES

PROBE (PITOT TUBE) POSITION

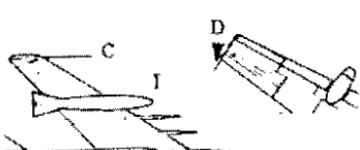
Above Nose A



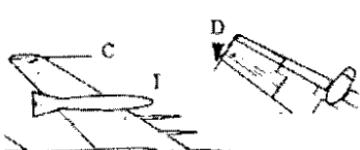
Below Nose B



Wing Tip Leading Edge C



Wing Tip Trailing Edge D



ARMAMENT E - G

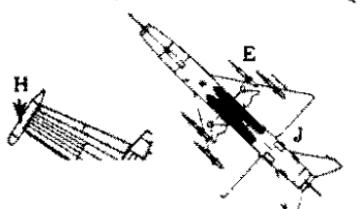
Missiles E



Rockets F



Wing Root Guns G



EXTERNAL FUEL TANKS H - J

Wing Tips H



Under Wing I



Under Fuselage J



REFUEL POSITIONS

Nose K



Wing Tip L



OUTRIGGER PODS

Under Wing M



Wing Tip N



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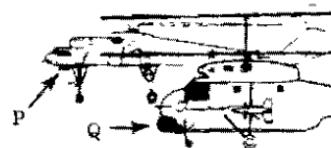
APPENDAGES

MISCELLANEOUS APPENDAGES

MAD Gear O



Chin Gondola P

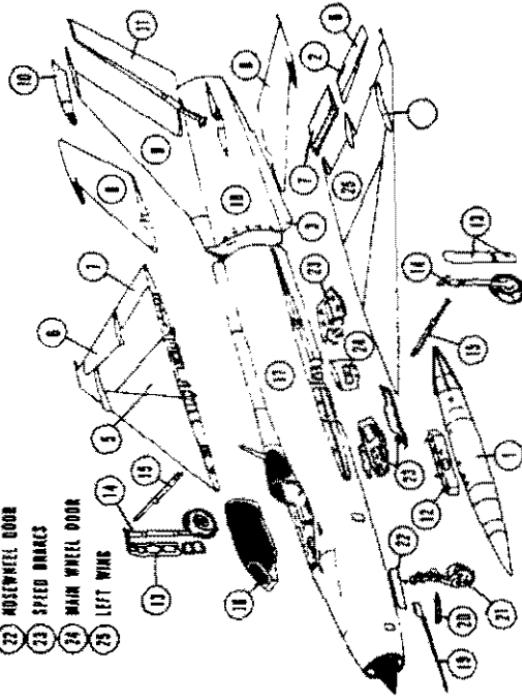


Chin Radome Q

FOR OFFICIAL USE ONLY

UNCLASSIFIED

- 1 EXTERNAL FUEL TANK
- 2 TAIL TAB
- 3 VERTICAL FIN
- 4 WING STAB
- 5 RIGHT WING
- 6 AILERON
- 7 FLAPS
- 8 HORIZONTAL STABILIZER
- 9 VERTICAL STABILIZER
- 10 TAIL TIP FABRIC
- 11 RUDDER
- 12 FREIGHT PYLON
- 13 WHEEL FABRIC
- 14 OIL TIE
- 15 MAIN LANDING GEAR TRUNK
- 16 CANOPY
- 17 FRONT FUSELAGE
- 18 REAR FUSELAGE
- 19 PILOT TUBE
- 20 NOSEWHEEL TRUNK



FIGHTER AIRCRAFT NOMENCLATURE

UNCLASSIFIED

UNCLASSIFIED

BOMBER AIRCRAFT NOMENCLATURE

UNCLASSIFIED

CHEMICAL

CHEMICAL WEAPON CHARACTERISTICS

NERVE

- EFFECT: RAPIDLY DISRUPTS NERVOUS SYSTEM CAUSING CONVULSIONS AND DEATH.
- SYMPTOMS: RUNNY NOSE, MIOSIS, DIFFICULTY IN BREATHING, TIGHTNESS IN CHEST, TWITCHING, COMA, CONVULSIONS, DEATH.
- RESPONSE: MASK, CHEM SUIT, M-258A1 DECONTAMINATION KIT, ATROPINE, MEDICAL ATTENTION.

BLOOD

- EFFECT: INTERFERES WITH THE BLOOD'S ABILITY TO CARRY OXYGEN; CAUSES ORGAN FAILURE.
- SYMPTOMS: HEADACHE, POUNDING OF THE HEART, BLUE TINT OF LIPS AND SKIN, UNCONSCIOUSNESS, DEATH.
- RESPONSE: MASK, MEDICAL ATTENTION.

BLISTER

- EFFECT: CAUSES SEVERE BLISTERING OF ALL TISSUE IN CONTACT, INCLUDING LUNGS, MOUTH AND THROAT.
- SYMPTOMS: REDNESS OF SKIN, FEVER, INFLAMMATION OF NOSE, THROAT AND LUNGS, BLISTERS AND DEATH.
- RESPONSE: MASK, CHEMICAL SUIT, M-258A1 DECONTAMINATION KIT, FLUSH EYES AND GET MEDICAL ATTENTION.

CHOKING

- EFFECT: DAMAGES LUNG TISSUE CAUSING LUNGS TO FILL UP WITH BLOOD, LEADING TO DROWNING OF VICTIM.
- SYMPTOMS: DRY THROAT, COUGHING, TIGHTNESS IN THE CHEST, NAUSEA, DRY-LAND DROWNING, AND DEATH.
- RESPONSE: MASK, MEDICAL ATTENTION.

VOMITING

- EFFECT: CAUSES UNCONTROLLABLE VOMITING, MAY CAUSE DEHYDRATION.
- SYMPTOMS: IRRITATION TO NOSE, THROAT AND EYES; SNEEZING AND VOMITING.
- RESPONSE: MASK, FRESH AIR.

TEAR

- EFFECT: IRRITATES MUCUS MEMBRANES CAUSING PROFUSION OF TEARS.
- SYMPTOMS: WATERING EYES, IRRITATION TO NOSE, THROAT AND SKIN.
- RESPONSE: MASK, FRESH AIR.

INCAPACITATING

- EFFECT: VARIETY OF AGENTS, EFFECTS RANGE FROM CAUSING HALLUCINATIONS, DIZZINESS, OR UNCONSCIOUSNESS TO IMPAIRING VISION (I.E., SMOKE).
- SYMPTOMS: SHORT SPAN OF ATTENTION, DISORGANIZATION OF THOUGHT, UNPREDICTABLE NATURE (IN SOME CASES).
- RESPONSE: MASK, FRESH AIR, OBSERVATION OR DETENTION IF NECESSARY.

CHEMICAL WARFARE GLOSSARY

AC - See Hydrogen Cyanide.

BLISTER AGENT - Any chemical agent that causes casualties by destroying skin tissue and mucous membranes. The H-series agents such as distilled mustard gas (HD), are typical of this type of chemical.

BLOOD AGENT - A lethal agent if inhaled, but not usually fatal when absorbed through the skin. Causes quick death from convulsions and asphyxia by interfering with the blood's ability to supply oxygen to the body. Hydrogen cyanide (AC) is a typical blood agent.

CG - See Choking agent.

CHOKING AGENT - Lethal agents that attack the respiratory system, causing coughing and eventual death by asphyxia. Deadly if inhaled and not very effective against masked troops. Phosgene, a typical choking agent, cause 80 percent of WWI gas casualties. While such agents are no longer considered very effective, the Soviets are thought to have used phosgene (CG) and diphosgene (DP) in Afghanistan and Southeast Asia.

GA - See tabun.

GB - See sarin.

GD - See soman.

G-SERIES NERVE AGENTS - A series of nerve agents developed by the Germans between 1936 and 1944, which includes tabun, sarin and soman.

H-SERIES AGENTS - A series of persistent blister agents, distilled mustard gas is a typical example.

HYDROGEN CYANIDE - Designated AC, this nonpersistent blood agent is lethal if inhaled. Disseminated as a vapor, this favorite soviet agent smells somewhat like bitter almonds. It causes death by convulsions and asphyxia and is immediately fatal at 270 parts per million in air. A single contamination with AC will usually decompose mask and vehicle filters, exposing the victim to a second chemical attack with any other agent, or more AC.

K AGENT - An incapacitating agent used by the Soviets in Afghanistan that reportedly causes sudden loss of consciousness for periods that vary with the concentration of the K agent. K agents generally have no other ill effects, but can be lethal in high concentrations.

MUSTARD GAS - An H-series blister agent that blisters the skin with chemical burns, which can be fatal, and also inflames and ulcerates the eyes, which can cause blindness. Lethal if inhaled and very similar to phosgene in its action on the lungs. Most mustard agents are disseminated as liquid droplets or aerosols.

MYCOTOXIN - Any poison produced by a fungus; specifically, the trichothecene mycotoxins produced by the grain infesting *Fusarium* fungus. These Soviet-developed toxins, also known as "yellow rain," accumulate in the body. Symptoms may vary depending on severity of exposure. Mycotoxins are ideal incapacitating agents since recovery, when it is possible, often takes years. Symptoms include severe and immediate nausea and vomiting, dizziness, burning of skin and small blisters, convulsions, congestion of the outer eyeball with blood in tears, low blood pressure with an elevation in the heart rate, angina, sleepiness, and difficulty in talking, bleeding gums and profuse salivation, shortness of breath, fever and chills, bloody diarrhea, loss of appetite, hemorrhaging under the skin and fingernails, and decreased white blood cell count, death of the tissues of the stomach, intestines, spleen and liver, and swelling of all organs.

NERVE AGENTS - Lethal agents that stop the body's nerve synapses from firing properly by disrupting enzyme reactions in the nervous system. This leads to paralysis of the respiratory system and asphyxiation. All nerve agents -- except soman which has a fruity smell -- are odorless, colorless and tasteless. If inhaled, symptoms begin almost immediately, and death usually results in ten minutes or less. Absorbed through the skin, symptoms usually begin within a few minutes to half an hour. Symptoms include sweating, vomiting, convulsions, chest tightness and pain, cramps, coma and death -- usually through paralysis of the respiratory system.

SARIN A - A nonpersistent nerve agent developed in Germany in 1937. Known as GB, sarin is twice as lethal as tabun, but the effects are virtually identical. Sarin is disseminated as an aerosol or liquid.

SOMAN - Called GD, this persistent nerve agent was developed in Germany in 1944. Disseminated in vapor, liquid or aerosol form, soman has about the same effects as tabun; but is twice as lethal. One Soviet nerve agent, VR-55, once thought to be a Soviet V-series agent, is not believed to be a form of thickened soman.

TABUN - The earliest of the G-series nerve agents, tabun (GA) was first discovered and produced in Germany in 1936. This nonpersistent agent is colorless, odorless and tasteless and can be disseminated as a liquid, vapor or aerosol. The Soviet began production of tabun with captured German equipment in 1945. Tabun is six times as lethal as mustard gas but only one-fifteenth as deadly as the V-series nerve agents.

V-SERIES NERVE AGENTS - A series of nerve agents developed in the 1950s and found in the chemical arsenals of both the US and USSR. It is uncertain just how many V-series agents there are, but they are all very deadly. General symptoms are similar to other nerve agents. The only V-agent thought to be in US stockpiles is VX, a persistent nerve agent that is disseminated as a liquid or aerosol.

VX - See V-series nerve agents.

YELLOW RAIN - See mycotoxin.

MISSION-ORIENTED PROTECTIVE POSTURE SUMMARY

M O P P	Used in alarm	Over- garment is	Over- boots are	Mask and hood are	Gloves and Inserts are	Other CW IPE is (Note 1)	Field gear is (Note 2)	Vari- ations are
0	All Clear	Readily Available					N/A	
1	Yellow	Worn	At Hand					Fatigue Ventilate Indoor
2	Yellow	Worn		At Hand				
3	Black	Worn			At Hand		Worn	Fatigue Ventilate Indoor
4	Red	Worn				At Hand	Worn	Fatigue Indoor
4	Black	Worn				At Hand	Worn	Fatigue Ventilate Indoor

NOTES:

1. Includes antidotes, individual detection systems, and individual decontamination systems.
2. Includes helmet, web belt, and canteen.

HIGH THREAT AREA

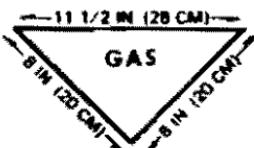
STANDARD ALARM SIGNALS

ALERT CONDITION	MEANING/NOTIFICATION/ACTION
ALL CLEAR	MEANING: ATTACK NOT PROBABLE NOTIFICATION: VERBAL ACTION: NORMAL OPERATIONS
YELLOW	MEANING: ATTACK PROBABLE NOTIFICATION: VERBAL ACTION: DON CW JACKET/PANTS/BOOTS WEAR MASK CARRIER
RED	MEANING: ATTACK IMMINENT/IN PROGRESS NOTIFICATION: VERBAL/WARBLING SIREN ACTION: TAKE IMMEDIATE COVER AND DON ALL CW GEAR
BLACK	MEANING: NBC CONTAMINATION PRESENT/ SUSPECTED NOTIFICATION: VERBAL ACTION: WEAR ALL CW GEAR

NATO

STANDARDIZED MARKERS

Yellow card with
Red Letters



Reverse Side

(AGENT)
(DATE)
(TIME)

Blue card with
Red Letters



(AGENT)
(DATE)
(TIME)

White card with
black letters



(DOSE RATE)
(DATE)
(BURST RATE)
(OPTIONAL)

Red card with
yellow stripe
and letters



TERRORISM

NAME: Alfaro Lives, Damn It! (AVC)

OTHER NAMES: Alfaro Vive, Carajo

YEAR FOUNDED: 1983

OPERATIONS AREA(S): Ecuador

NUMBER OF MEMBERS: 300

CURRENT LEADERS: UNKNOWN

OBJECTIVES AND

ACTIVITIES: Favors social "reform" and opposes "oligarchy and imperialism". Create opposition to the current government, especially among the rural poor. Force the withdrawal of US and foreign interests from Ecuador.

{+}={}

NAME: Basque Fatherland and Liberty (ETA)



OTHER NAMES: Euzkadi ta Askatasuna

YEAR FOUNDED: 1959

HEADQUARTERS: Basque provinces of Spain and France

OPERATIONS AREA(S): Spain and France

NUMBER OF MEMBERS: 200

BASQUE FATHERLAND AND FREEDOM

CURRENT LEADER: Jose Antonio Urruticochea Bengoechea, et al

OBJECTIVES AND

ACTIVITIES: Attempting to establish an independent and probably Marxist Basque nation. Terrorizes Spanish government and business interest in Spain and in the Basque provinces.

NAME: Abu Nidal Organization (ANO)

OTHER NAMES: Black September (BSO), Fatah Revolutionary Council (FRC), Black June Organization (BJO)

YEAR FOUNDED: 1974

HEADQUARTERS: Libya

OPERATIONS AREA(S): International

NUMBER OF MEMBERS: 500

CURRENT LEADER: Sabri Khalil al-Banna (Abu Nidal)

OBJECTIVES AND

ACTIVITIES: Most dangerous terrorist group in existence. Has carried out more than 90 attacks, killing or injuring more than 900 people worldwide. Places the "armed struggle" against the "Zionist enemy" as first priority of the Palestine resistance movement.



NAME: Al-Fatah

OTHER NAMES: Al-'Asifa

YEAR FOUNDED: 1957

HEADQUARTERS: Tunisia

OPERATIONS AREA(S): International

NUMBER OF MEMBERS: 8000

CURRENT LEADERS: Yasir Arafat, Salam Khalaf

OBJECTIVES AND

ACTIVITIES: Trained wide range of terrorist and insurgent groups. Carried out numerous attacks in early-to-mid-1970s. Military arm of PLO. Seeks to establish an independent, secular Palestinian state.

NAME: Cinchoneros Popular Liberation Movement (NPL)

OTHER NAMES: Movimiento Popular de Liberacion

YEAR FOUNDED: 1980

HEADQUARTERS: Tegucigalpa, Honduras

OPERATIONS AREA(S): Honduras, primarily urban-based.

NUMBER OF MEMBERS: 200

CURRENT LEADERS: Unknown

OBJECTIVES AND

ACTIVITIES: Espouse a Marxist-Leninist, Anti-US dogma. Seek to overthrow the government of Honduras, which defends alleged US "imperialist monopolist." The NPL is the armed wing of the Peoples Revolutionary Union (NRP) which is one of the many splinter groups of the Honduran Communist Party.

NAME: Combatant Communist Cells (CCC)

OTHER NAMES: Cellules Communistes Combattantes

YEAR FOUNDED: 1984

HEADQUARTERS: Brussels

OPERATIONS AREA(S): Belgium

NUMBER OF MEMBERS: 9

CURRENT LEADER: Pierre Carette

OBJECTIVES AND

ACTIVITIES: Destroy the capitalist system and oppose "imperialist war." Destroy NATO. Use terrorism to force a reversal of Belgium's defense and economic policies in the short run and foster socialist revolution thereafter.



"FRONTING COMMUNIST CELLS"

NAME: Direct Action (AD)
OTHER NAMES: Action Directe
YEAR FOUNDED: 1979
HEADQUARTERS: Paris, Lyons
OPERATIONS AREA(S): France, Belgium
NUMBER OF MEMBERS: 20
CURRENT LEADER: Several



OBJECTIVES AND
ACTIVITIES: Marxist group committed to armed struggle against "international imperialism". Carry out attacks in support of "anti-Zionist" causes. The international wing of the AD allied itself with the German Red Army Faction (RAF) and possibly the Belgian Combatant Communist Cells (CCC) to reform the Anti-imperialist Armed Front.

NAME: Farabundo Marti National Liberation Front (FMLN)
OTHER NAMES: Frente Farabundo Marti de Liberacion Nacional
YEAR FOUNDED: 1980
HEADQUARTERS: Various locations in El Salvador with other key office in Managua, Nicaragua
OPERATIONS AREA(S): El Salvador; some limited operations inside Honduras
NUMBER OF MEMBERS: 7500
CURRENT LEADERS: UNKNOWN



OBJECTIVES AND
ACTIVITIES: The FMLN is the umbrella organization for five insurgent groups that loosely share Marxist-Leninist ideology and a pro-Cuban/pro-Soviet orientation; the People's Revolutionary Army (ERP), the Farabundo Marti Popular Liberation Forces (FPL), the Armed Forces of National Resistance (FARN), the Revolutionary Party of Central American Workers (PRTC), and the Communist Party of El Salvador's Armed Forces of Liberation (FAL)

NAME: Hizballah (Party of God)

OTHER NAMES: Islamic Jihad, Revolutionary Justice Organization, Organization of the Oppressed

YEAR FOUNDED: 1983

HEADQUARTERS: Lebanon

OPERATIONS AREA(S): Middle East, Europe

NUMBER OF MEMBERS: 3000

CURRENT LEADERS: Council, Muhammad Husayn Fadlallah

OBJECTIVES AND

ACTIVITIES: Strongly anti-Western and anti-Israeli. Closely allied with and largely directed by Iran. Bombed US Marine barracks and US Embassy annex in Beirut.



NAME: Irish National Liberation Army (INLA)

YEAR FOUNDED: 1975

HEADQUARTERS: Dublin

OPERATIONS AREA(S): Urban areas of Northern Ireland

NUMBER OF MEMBERS: 19

CURRENT LEADER: Unknown

OBJECTIVES AND

ACTIVITIES: Dust British from Northern Ireland through violence, and overthrow the elected government of the Republic of Ireland. The INLA is the military arm of the Irish Republican Socialist Party, a political splinter group of the official Irish Republican Army (IRA).

NAME: Japanese Red Army (JRA)
OTHER NAMES: Nippon Sekigun, Nihon Sekigun
YEAR FOUNDED: 1971
HEADQUARTERS: Lebanon
OPERATIONS AREA(S): Western Europe, Middle East, Asia
NUMBER OF MEMBERS: 25
CURRENT LEADER: Fusako Shigenobu

OBJECTIVES AND
ACTIVITIES: Support the worldwide Marxist-Leninist revolution by conducting acts of terrorism. Serve as a uniting force for leftist anarchist organizations in Japan. Oppose Japanese imperialism.



NAME: 19TH OF APRIL MOVEMENT (M-19)
OTHER NAMES: Movimiento 19 de Abril
YEAR FOUNDED: 1970
HEADQUARTERS: Cali, Colombia
OPERATIONS AREA(S): Various rural and urban areas
NUMBER OF MEMBERS: 1000
CURRENT LEADERS: Carlos Pizarro Leon-Gomez, Antonio Navarro, Otty Patino

OBJECTIVES AND
ACTIVITIES: Ideology is mix of Marxism-Leninism, nationalism, and populism, responsible for a number of terrorist attacks in recent years on international and domestic targets. Has cooperated with drug traffickers to gain money and weapons.



NAME: Macheteros (Machete Wielders)

OTHER NAMES: Ejercito Popular de Boricua (EPB), Boricua Popular Army

YEAR FOUNDED: 1978

HEADQUARTERS: Unknown

OPERATIONS AREA(S): Puerto Rico

NUMBER OF MEMBERS: Unknown (small)

CURRENT LEADERS: Unknown

OBJECTIVES AND

ACTIVITIES: Wage a terrorist war against "US colonialist imperialism." Creates public support for creation of a separate Puerto Rican nation. May have ties to the Armed Forces of National Liberation, a Puerto Rican separatist group that has conducted anti-US attacks for over three decades.

NAME: New People's Army (NPA)

YEAR FOUNDED: 1969

HEADQUARTERS: Manila, Central and Northern Luzon

OPERATIONS AREA(S): Philippines

NUMBER OF MEMBERS: 20,000

CURRENT LEADER: Benito Tiamzon

OBJECTIVES AND

ACTIVITIES: Replace Aquino government with a communist regime. Slowly erode support of the general Filipino populace for the continued US military presence on the islands. A Marxist-oriented insurgent organization, the NPA is the military wing of the Communist Party of the Philippines.



NEW PEOPLE'S ARMY



NAME: Palestine Liberation Front (PLF)

OTHER NAMES: Front for the Liberation of Palestine (FLP)

YEAR FOUNDED: 1977

HEADQUARTERS: Iraq (Tal'at), Syria (Abu al Abbas), Libya (Abu al Fatah Ghannam)

OPERATIONS AREA(S): Lebanon, Israel, Europe

NUMBER OF MEMBERS: 300

CURRENT LEADERS: Tal'at Yaqub, Abu al Abbas, Abu al Fatah Ghannam

OBJECTIVES AND

ACTIVITIES: Two factions, led by Tal'at Yaqub and Abu al Fatah Ghannam oppose Yasir Arafat's leadership of PLO, third faction led by Abu al Abbas opposes Arafat's peace moves. All factions want to dismantle Israel. Split from PFLP-GE in 1977.

NAME: Provisional Irish Republican Army (PIRA)

OTHER NAMES: Provos

YEAR FOUNDED: 1970

HEADQUARTERS: Northern Ireland, Irish Republic

OPERATIONS AREA(S): Northern Ireland, Great Britain, Western Europe

NUMBER OF MEMBERS: 400

CURRENT LEADERS: Gerry Adams, Martin McGuinness

OBJECTIVES AND

ACTIVITIES: Establish a unified Ireland under a "Socialist" government. Undermine British support for Northern Ireland remaining in the United Kingdom through a campaign of attrition and terrorism. Numerous bombings, assassinations, kidnapings, kneecapping, extortions and robberies.

NAME: Popular Front for the Liberation of Palestine (PFLP)

YEAR FOUNDED: 1967

HEADQUARTERS: Syria

OPERATIONS AREA(S): Europe, Middle East

NUMBER OF MEMBERS: 1000

CURRENT LEADER: George Habash

OBJECTIVES AND

ACTIVITIES: One of the most violent Palestinian terrorist groups. Advocates pan-Arab revolutionary groups. As a result of ideological inflexibility, internal disputes and personality conflicts, spawned several splinter groups, including the PFLP-General Command and the Democratic Front for the Liberation of Palestine (DFLP).



NAME: Popular Front for the Liberation of Palestine - General Command (PLFP-GC)

YEAR FOUNDED: 1968

HEADQUARTERS: Syria

OPERATIONS AREA(S): Middle East

NUMBER OF MEMBERS: 500

CURRENT LEADER: Ahmad Jabril

OBJECTIVES AND

ACTIVITIES: Known for conventional military as well as terrorist expertise. Specializes in suicides and unorthodox attacks including use of hot air balloons and hang gliders. Splinter group, breaking off from PFLP.

NAME: Red Army Fraction (RAF)

OTHER NAMES: Baader Meinhof Gang

YEAR FOUNDED: 1968

HEADQUARTERS: West Germany

OPERATIONS AREA: Primarily West Germany

NUMBER OF MEMBERS: 30 Hardcore

CURRENT LEADERS: Several including Barbara Mayer, Inge Viett, Sigrid Sternbeck

OBJECTIVES AND

ACTIVITIES: Destroy Western capitalism through terrorism, helping precipitate a worldwide Marxist revolution. Use terrorism to destroy West Germany - US solidarity, especially by attacking American military targets in West Germany.



NAME: Red Brigades (BR)

OTHER NAMES: Brigate Rosse

YEAR FOUNDED: 1970

HEADQUARTERS: Rome, Naples, Geno, Milan, and the Tuscany region of Central Italy

OPERATIONS AREA(S): Italy

NUMBER OF MEMBERS: 50-75 Hardcore

CURRENT LEADERS: Known leaders in jail.

OBJECTIVES AND

ACTIVITIES: Destroy the government of Italy through revolutionary action. Oppose the presence of NATO by creating fear among NATO personnel stationed in Italy. Concentrates on attacking Italian government and private-sector targets through assassinations, kneecapping, and kidnaping.



NAME: Revolutionary Armed Forces of Colombia (FARC)
OTHER NAMES: Fuerzas Armadas Revolucionarias de Colombia
YEAR FOUNDED: 1966
HEADQUARTERS: La Uribe, Meta Department
OPERATIONS AREA: Colombia
NUMBER OF MEMBERS: 5000

CURRENT LEADERS: Manuel Marulanda Velez, Jacobo Arenas

OBJECTIVES AND

ACTIVITIES: Probably the largest, best-trained, and equipped and most effectively insurgent organization in Colombia and South America. The FARC is Pro-Soviet, Pro-Cuban, and Anti-American, and proclaims dedication to Marxism-Leninist ideology. The FARC often is described as the "military" apparatus of the Moscow-line Communist Party of Colombia (PCC), although the FARC and the PCC frequently downplay their connections.

NAME: Revolutionary Cells (RZ)
OTHER NAMES: Revolutionäre Zellen, Rote Zora
YEAR FOUNDED: 1973
HEADQUARTERS: West Berlin, Frankfurt am Main
OPERATIONS AREA(S): West Germany
NUMBER OF MEMBERS: 100

CURRENT LEADERS: Rudolph Raabe, Sonja Suder, Christian Bauger, Rudolf Schindler, Sabine Eckle.

OBJECTIVES AND

ACTIVITIES: Conduct "urban guerrilla" terrorist activity in support of "Anti-Fascism", "Anti-imperialism", "Anti-Zionism", and "Anti-Militarism". Pressure US forces in West Germany through terrorist attacks. May have links to RAF, Palestinian terrorist groups, Irish National Liberation Army and Provisional Irish Republican Army.



REVOLUTIONAERE ZELLEN
(REVOLUTIONARY CELLS)

NAME: Revolutionary Organization 17 November

OTHER NAMES: 17 November

YEAR FOUNDED: 1975

HEADQUARTERS: Athens

OPERATIONS AREA(S): Athens

NUMBER OF MEMBERS: 25

CURRENT LEADERS: UNKNOWN

OBJECTIVES AND

ACTIVITIES: A small Marxist group. Anti-US, Anti-Turkish, Anti-NATO; committed to violent overthrow of regime and ouster of US bases. Attacks include assassinations, and bombings.

NAME: Revolutionary Popular Struggle (ELA)

OTHER NAMES: Espanatikos Laikos Agonas

YEAR FOUNDED: 1973

HEADQUARTERS: Athens

OPERATIONS AREA(S): Athens

NUMBER OF MEMBERS: Unknown

CURRENT LEADERS: Unknown

OBJECTIVES AND

ACTIVITIES: Force Greece out of NATO and eliminate the US military presence in Greece. Targeted US military and business facilities, Greek government and commercial interest.



NAME: Shining Path (SL)

OTHER NAMES: Sendero Luminoso

YEAR FOUNDED: 1969

HEADQUARTERS: Ayacucho Department

OPERATIONS AREA(S): Peru

NUMBER OF MEMBERS: 5000

CURRENT LEADERS: Manuel Ruben Abimael Guzman, Julio Cesar Mezzich, Carlota Tello Cutti

OBJECTIVES AND

ACTIVITIES: Aim is to destroy existing Peruvian institutions and replace them with an Indian-based peasant revolutionary regime. SL criticizes USSR and China as well as the United States - developed from an extremist splinter group of the Peruvian Communist Party.



NAME: Tupac Amaru Revolutionary Movement (MRTA)

OTHER NAMES: Movimiento Revolucionario Tupac Amaru

YEAR FOUNDED: 1983

HEADQUARTERS: Unknown

OPERATIONS AREA(S): Primarily in Lima, Peru

NUMBER OF MEMBERS: 200

CURRENT LEADER: Ernesto Montes Aliaga

OBJECTIVES AND

ACTIVITIES: Chiefly urban-based, Marxist-Leninist terrorist group. Objective is to rid Peru of "imperialist" influence and to establish Marxist regime. Has links to M-19 and "Alfaro Lives, Damn It!"



ORDER OF BATTLE

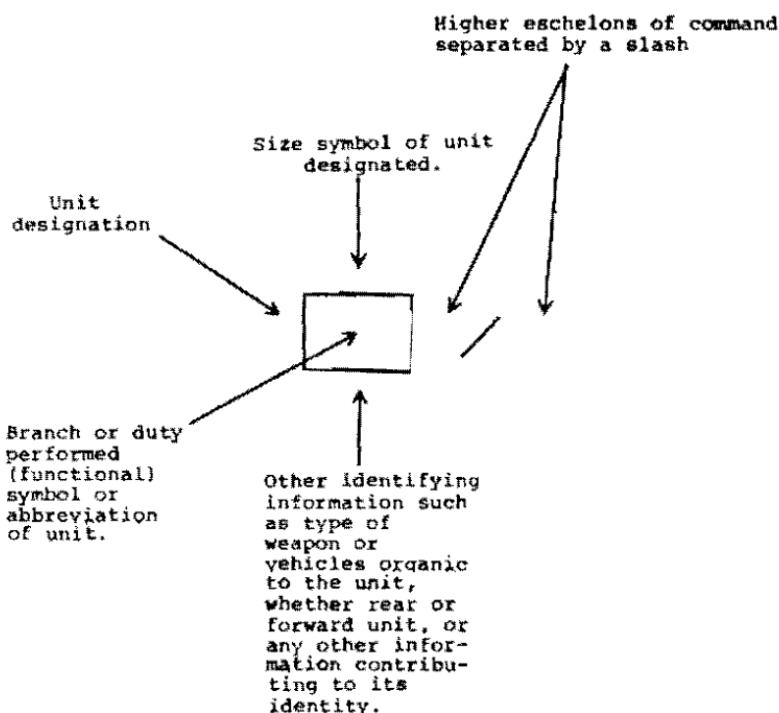
ORDER OF BATTLE SYMOLOGY

	RECON/CAVALRY		AIRBORNE CAVALRY
	INFANTRY		AIRBORNE
	ARMOR		ARMY AVIATION
	MECH INFANTRY		AIR FORCE AVIATION
	MOTORIZED RIFLE		HELICOPTER
	ARTILLERY		NBC
	AIR DEFENSE		AIRMOBILE (no acft)
	ROCKET/MISSILE		NBC
	ANTITANK		SPECIAL FORCES
	ENGINEER		MOUNTAIN
	SIGNAL		PARACHUTE

UNIT SIZE SYMBOLS

•	SQUAD
••	SECTION
•••	PLATOON/DETACHMENT
I	COMPANY/BATTERY/ TROOP
II	BATTALION/SQUADRON
III	GROUP/REGIMENT
X	BRIGADE/WING
XX	DIVISION
XXX	CORPS
XXXX	ARMY/MAJCOM
XXXXX	ARMY GROUP

UNIT SYMBOL DEVELOPMENT



Soviet unit restructuring

The Soviets are restructuring their infantry and armored forces to balance them more evenly. Because this means a reduction in tank-heavy formations, they have sought to portray the change as one to a "defensive" posture.

INFANTRY

A motorized rifle division is the rough Soviet equivalent of a U.S. mechanized infantry division, but with a greater concentration of tanks. Infantry soldiers ride either tracked BMP infantry fighting vehicles or in wheeled BRDM armored personnel carriers.

Motorized rifle division is now:



two infantry regiments...



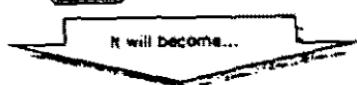
one motorized rifle regiment...



one tank regiment...



and one tank battalion.

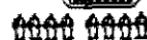


It will become...

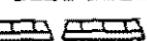
"Defensive mechanized infantry" division consisting of:



160 tanks...



two infantry regiments...



two motorized rifle regiments...



and one tank battalion.



ARMOR

A Soviet tank division is similar to a U.S. armored division, but again has a higher percentage of tanks and infantry fighting vehicles:

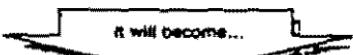
Tank division is now...



one motorized rifle regiment...



and three tank regiments.



It will become...

New "combined arms" division...



two motorized rifle regiments...



and two tank regiments.

AT&T
AT&T

"Interior mechanized gen/artillery" division consisting of:



Three infantry regiments...



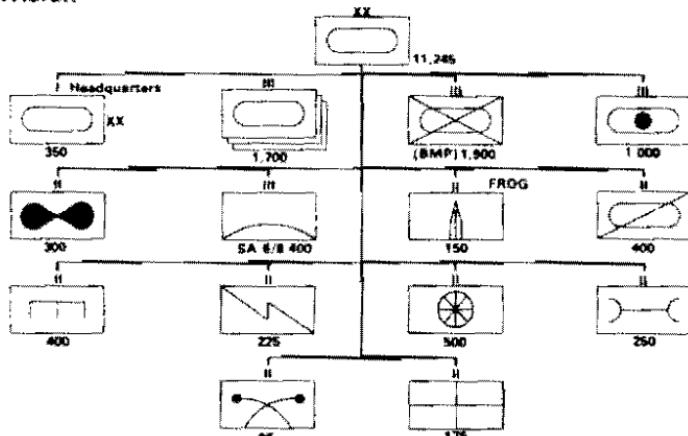
supported by artillery...



and one tank battalion.

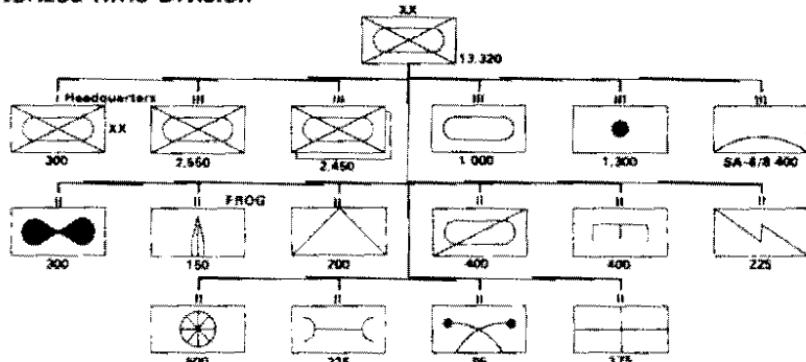
SOVIET GROUND FORCE TROOP STRUCTURE

Tank Division¹



¹ Generally, one to four tank divisions are found in a tank army and one to two in a combined arms army.

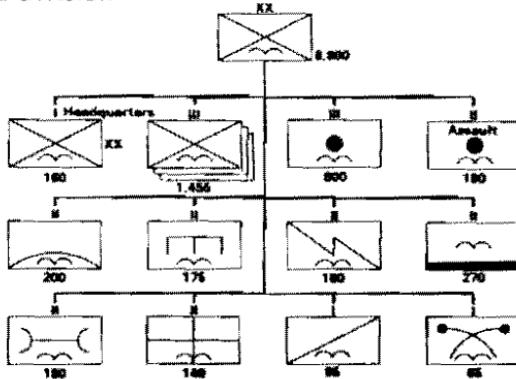
Motorized Rifle Division¹



Generally, two to four motorized rifle divisions are found in a combined arms army and one to two in a tank army.

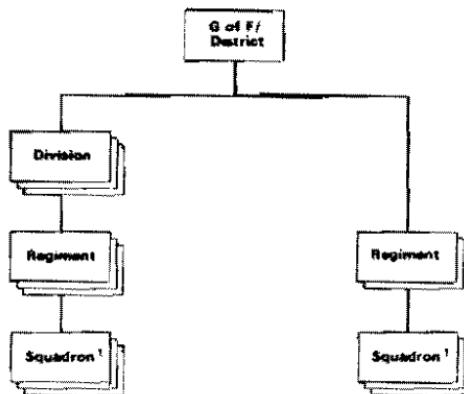
SOVIET GROUND FORCE TROOP STRUCTURE

Soviet Airborne Division



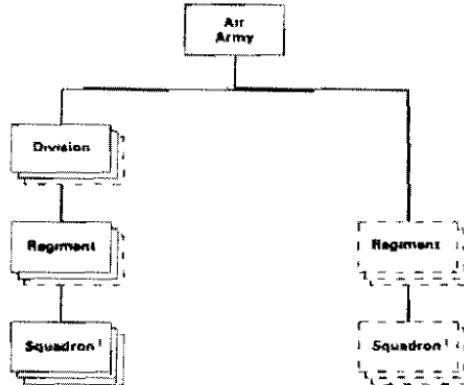
SOVIET AIR FORCE TROOP STRUCTURE

Air Forces Groups of Forces/Military Districts (Typical Representation)



¹A typical squadron operates approximately 12 aircraft.

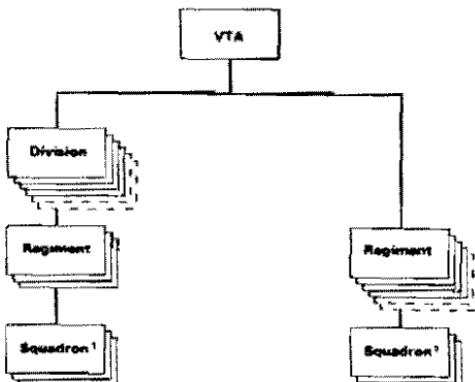
Air Forces Strategic Aviation (Typical Representation)



¹A typical squadron operates approximately 10 aircraft.

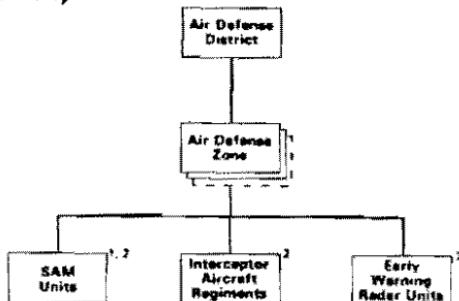
SOVIET AIR FORCE TROOP STRUCTURE

Air Forces Military Transport Aviation (VTA)



¹A typical squadron operates approximately 8 to 10 aircraft.

Air Defense Districts (Typical Representation)

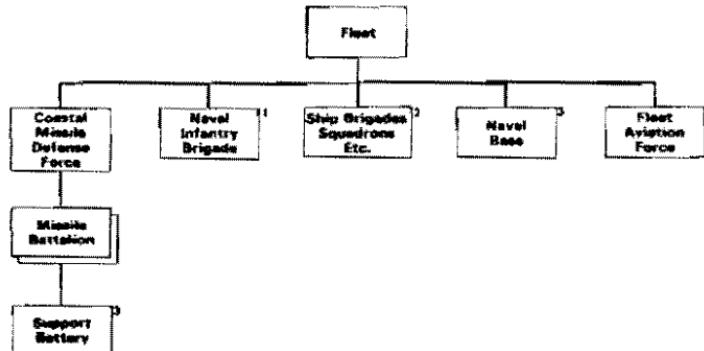


¹ Includes SA-1, 2, 3, 5, and 10 SAM units only. Tactical SAM units belong to ground forces.

² Command levels and numbers of operating units very too widely for publication.

SOVIET NAVAL FORCE TROOP STRUCTURE

Navy Fleet Organization

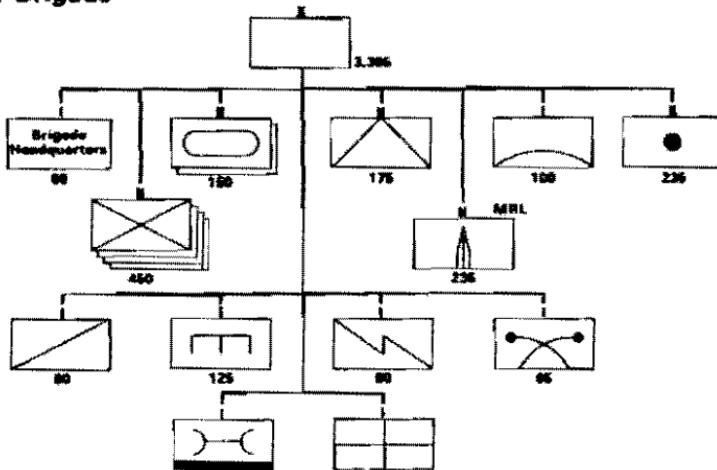


¹ Pacific Fleet has a naval infantry division.

² Composition of these units varies widely.

³ Numbers of units in these categories vary widely from Fleet to Fleet.

Naval Infantry Brigade



QUANTITY	METRIC UNIT	SYMBOL	MULTIPLY BY	TO GET
SPEED, VELOCITY, ACCELERATION				
Speed (air, sea)	kilometer/hour	km/hr	0.539 956 8	*knot
Speed (highway)	kilometer/hour	km/hr	0.621 371 2	mph
Rate of climb	meter/second	m/s	198 850 4	ft/min
Velocity	meter/second	m/s	3 280 840	ft/sec
Acceleration	meter/second squared	m/s ²	3.280 840	ft/sec ²
Acceleration	meter/second squared	m/s ²	0.101 971 6	**"g"
DISTANCE, ALTITUDE, DIMENSION, LENGTH				
Range, distance	kilometer	km	0.539 956 8	*nautical mile
Distance (highway)	kilometer	km	0.621 371 2	mile (statute)
Altitude, dimension	meter	m	3.280 840	foot
Dimension	meter	m	1.093 013	yard
Dimension, wavelength	centimeter	cm	0.393 700 8	inch
Dimension	millimeter	mm	0.039 370 08	inch
Gun bore (US, nominal)	millimeter	mm	0.039 370 08	*caliber
Thickness, wavelength	micrometer	μm	0.039 370 08	mil
Wavelength	nanometer	nm	10	*angstrom
AREA, VOLUME				
Floorspace, wing area, RCS	square meter	m ²	10.763 91	ft ²
Area (small)	square centimeter	cm ²	0.156 000 3	in ²
Territory	square kilometer	km ²	0.291 553 3	*nautical mile
Land tract	hectare (ha = 10,000 m ²)	ha	2.471 054	acre
Nuclear cross section	10 ⁻²⁸ meter	10 ⁻²⁸ m	1	*barn
Volume	cubic meter	m ³	35.314 60	ft ³
Volume	cubic decimeter	dm ³	0.035 314 60	ft ³
Volume (small)	cubic centimeter	cm ³	0.001 023 74	in ³
Volume (oil production)	cubic meter	m ³	0.289 811	barrel
Fuel capacity	liter (liter = dm ³)	liter	0.264 172 0	gallon

QUANTITY	METRIC UNIT	SYMBOL	MULTIPLY BY	TO GET
MASS (WEIGHT)				
Payload, gross weight	kilogram	kg	2.204 623	pound-mass
Mass (small)	gram	g	0.035 273 98	ounce
Mass (bulk)	metric ton (tonne = 10^3 kg)	t	1.102 311	ton
FORCE, THRUST, IMPULSE				
Thrust, force	newton ($N = kg \cdot m/s^2$)	N	0.224 808 9	pound-force
Thrust, force	kilonewton	kN	224.808 9	pound-force
Thrust, force	kilopewton	kN	101.971 0	kilogram-force
Force	micronewton	μ N	0.1	dyne
Total impulse	newton-second	N-s	0.224 808 9	lbf-second
Specific impulse	newton-second/kilogram	N-s/kg	0.101 971 0	"second"
Thrust-to-weight	newton/kilogram	N/kg	0.101 971 0	lbf/lbm, **"g"
SPECIFIC FUEL CONSUMPTION				
SFC (thrust engine)	milligram/newton-second	mg/(N-s)	0.038 303 94	lbm/lbf-hr
SFC (shaft)	kilogram/kilowatt-hour	kg/(kW-hr)	0.608 277 40	lbm/HP-hr
POWER				
Shaft power, etc.	kilowatt	kW	1.341 022	HP (550 ft-lbf/s)
Power	kilowatt	kW	50.869 02	BTU(IT)/min
Power	watt	W	3.412 141 3	BTU(IT)/hr

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