

FOR OFFICIAL USE ONLY

# COMBAT INTELLIGENCE REFERENCE GUIDE



FOR OFFICIAL USE ONLY

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This handbook was produced by 21 AF/INO. 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)

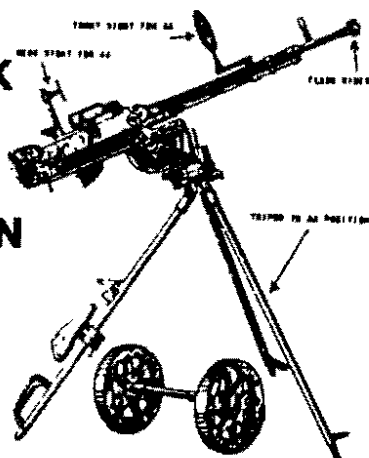
RATE OF FIRE: 600/min (Cyclic)  
90/min (Auto)  
40/min (Semi-auto)

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.

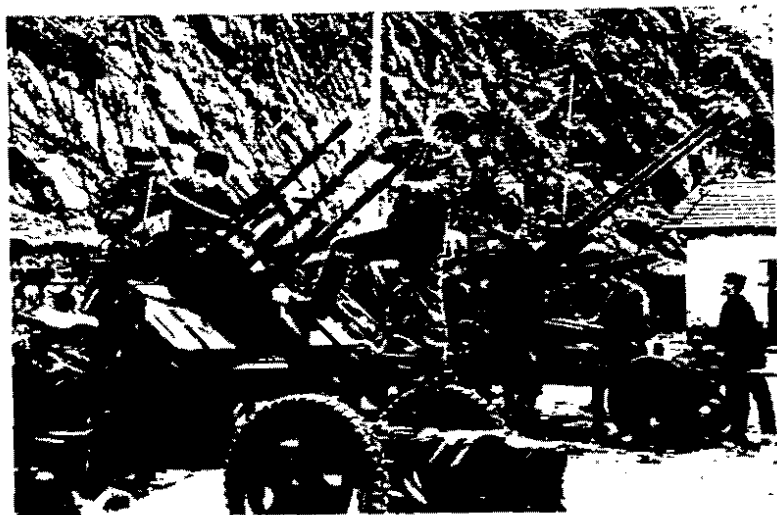
MUZZLE VELOCITY: 2,822 ft/sec

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 83 (right) with quad 14.5mm Type 56 anti-aircraft gun (left)*

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

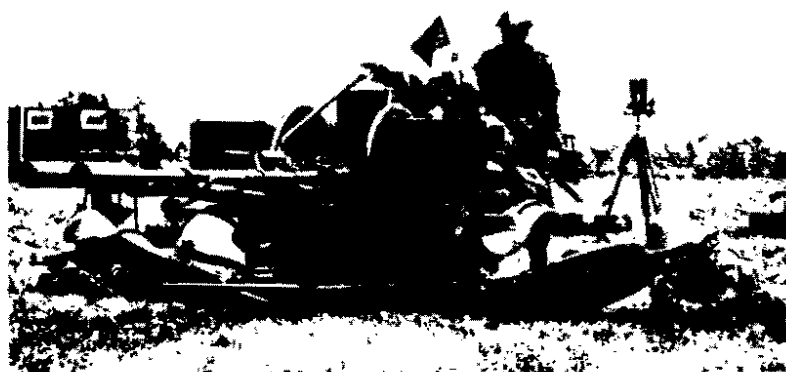
RATE OF FIRE: 600/min/brl (Cyclic)  
150/min/brl (Effective)

FIRE CONTROL: Optical

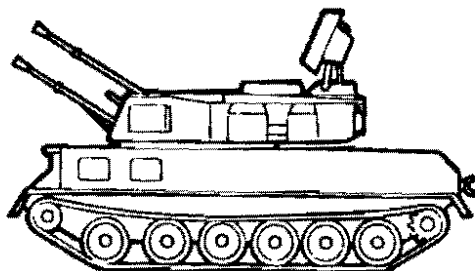
NOTES: The 14.5 mm Machine is an old, reliable system that can be found throughout the world. The basic 14.5 mm machine gun used in the ZPU is designated the KPV and is also installed in turrets of armored vehicles such as the BRDM-2 and the BTR-60. The KPV is used in a single anti-aircraft mount known 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



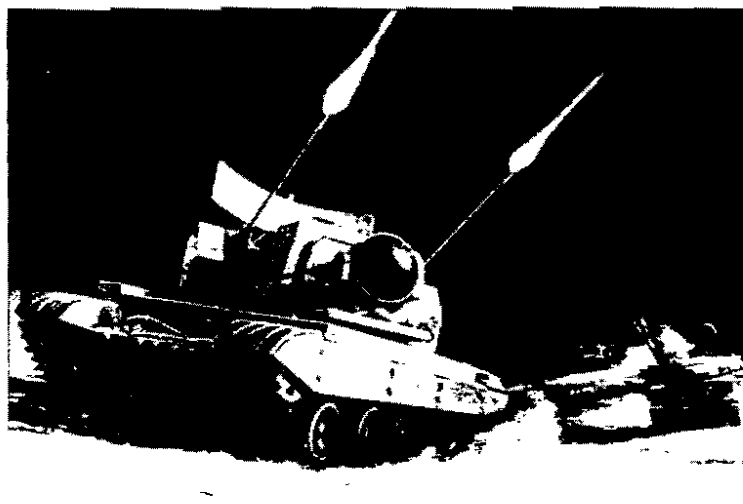
RANGE: 8,200 ft (Tactical)  
12,500 ft (Self destruct range)

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



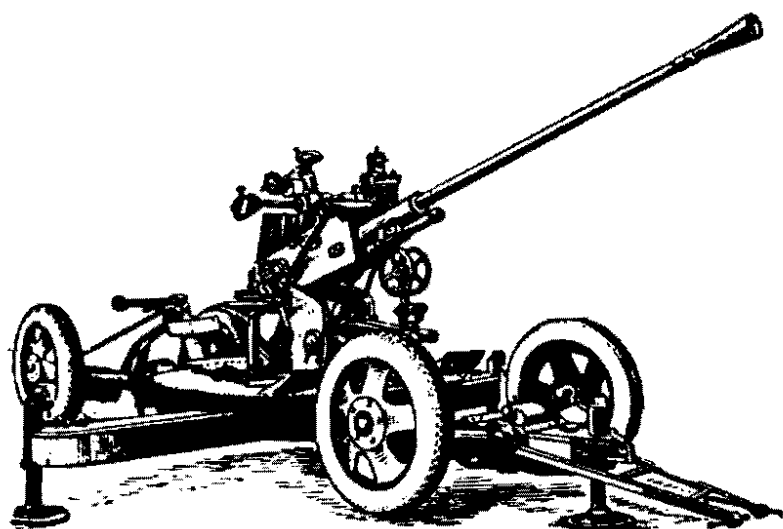
ARMAMENT: 2 x 30mm CANNON  
4 x SA-19 SAMS

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



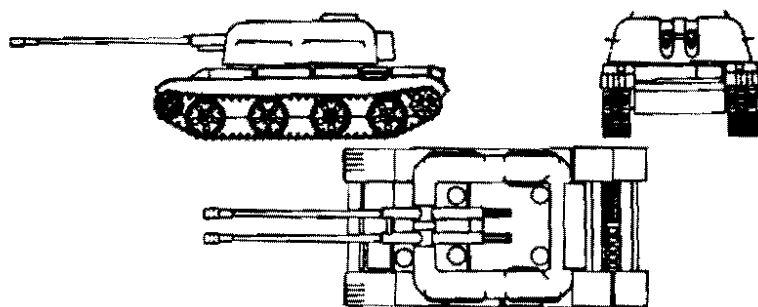
RANGE: 8,200 ft (Tactical)  
14,800 ft (Self destruct range)

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

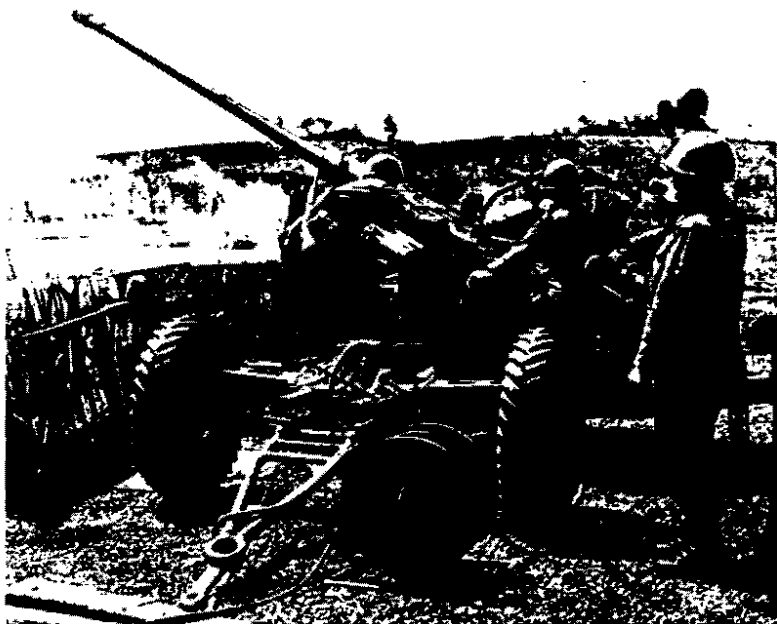
FIRE CONTROL: Optical

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

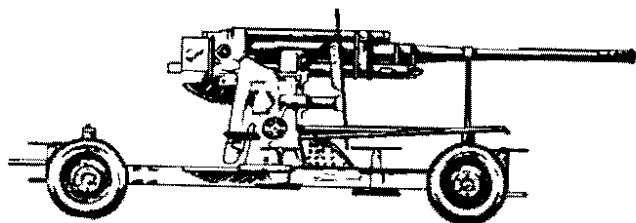
**RATE OF FIRE:** 120/min (Cyclic)  
85 min (Radar)

**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 Gerat 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)

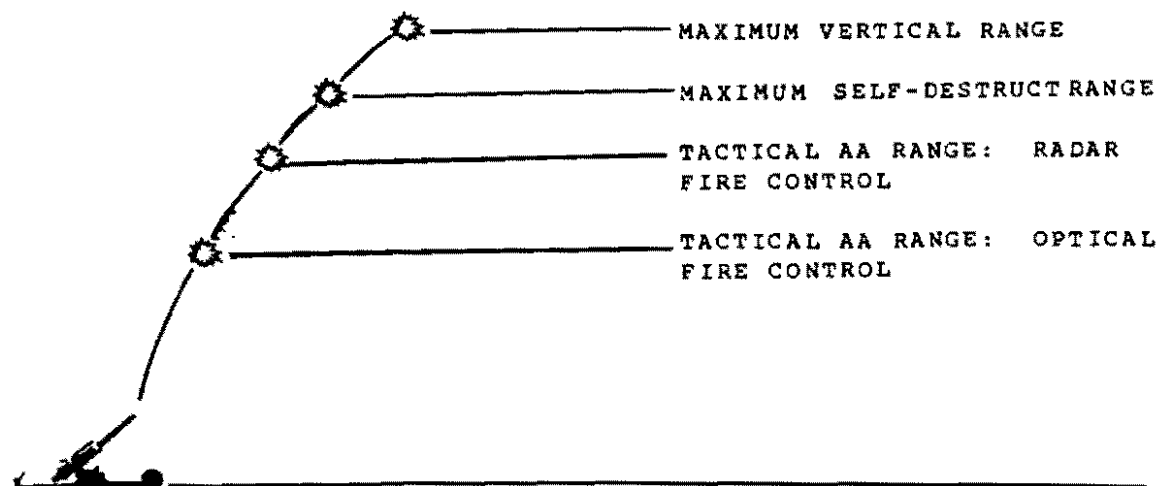
RATE OF FIRE: 10-12/min

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)	COLOR OF 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+

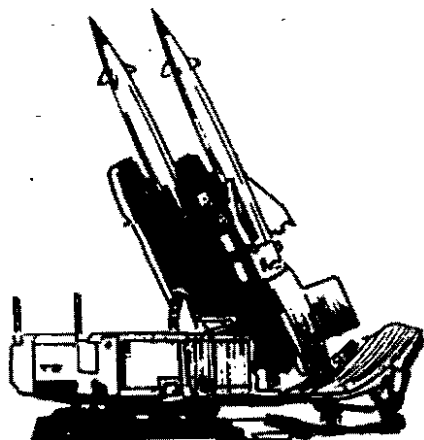
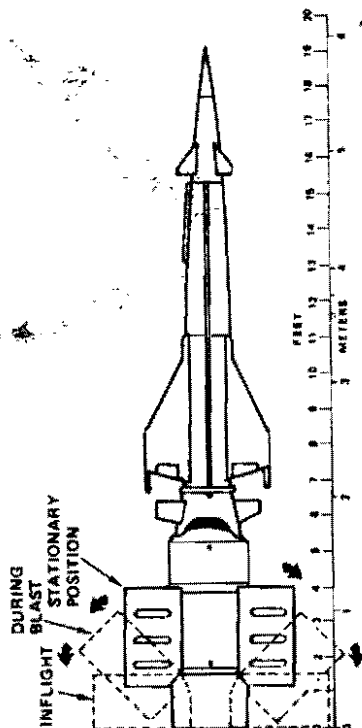
**WARHEAD:** High explosive, 288 lb  
proximity fuse

**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+

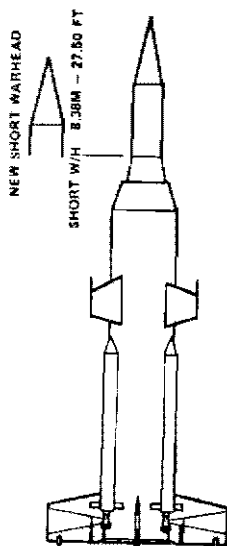
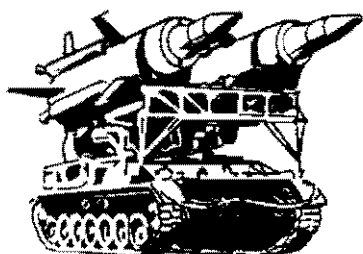
**WARHEAD:** High explosive, 132 lb  
proximity fuse

**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+

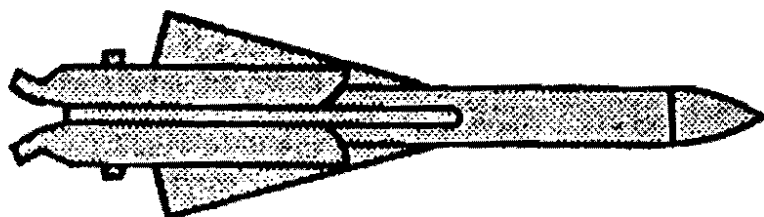
WARHEAD: High explosive, 298 lb  
proximity fuse

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

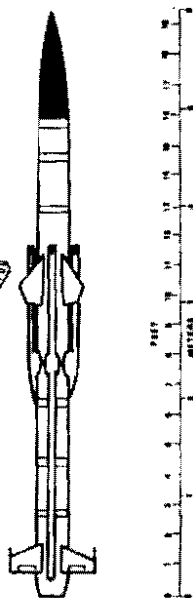
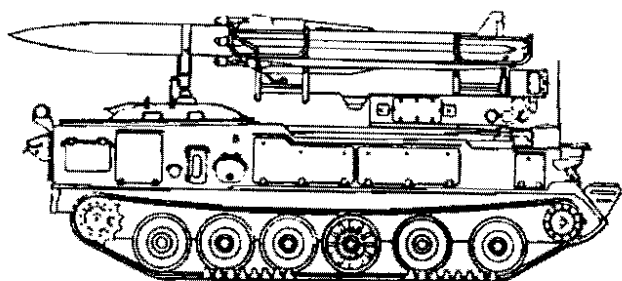
GUIDANCE: Semi-active radar homing

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:** 17 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

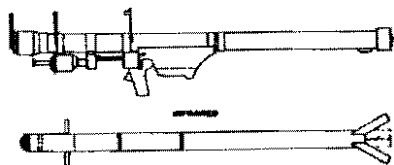
**DIMENSIONS:** LENGTH 20 ft 4 in  
DIAMETER 1 ft 1.2 in

**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

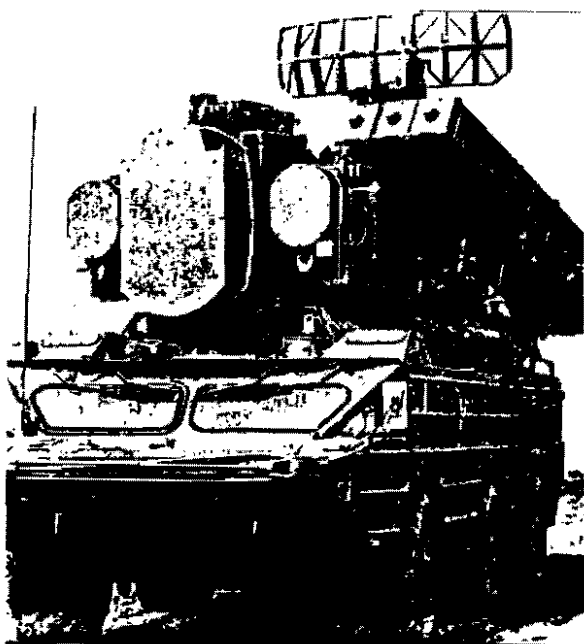
**SPEED:** mach 1.5

**WARHEAD:** High explosive, 5.5 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 km

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 BROM-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

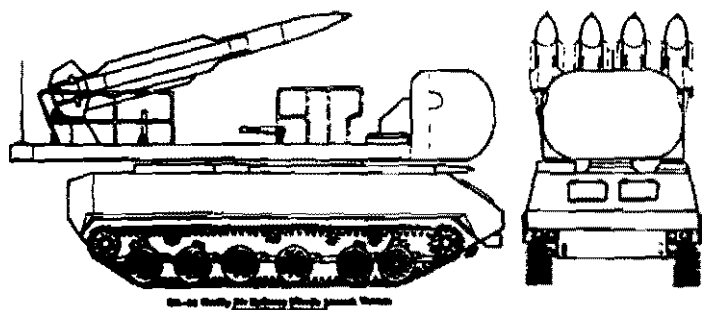
DIMENSIONS: LENGTH 23 ft  
DIAMETER 1 ft 8 in

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.

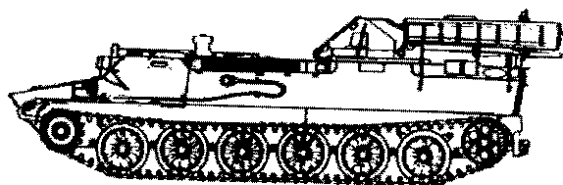
# SA-X-12B GIANT



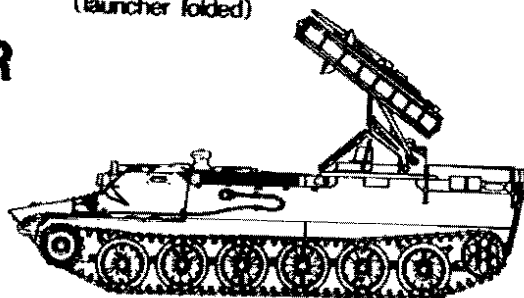
Said by DoD to be approaching operations status in 1988, this is an improved version of the SA-12A. The SA-X-12B is considered capable of intercepting some strategic ballistic missiles. This potential would make it capable of nationwide deployment, in contravention of the ABM treaty. The missile is believed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



# SA-13 GOPHER



(launcher folded)



RANGE: 5 nm

ALTITUDE: Max 16,500 ft  
Min 30 ft

SPEED: mach 2

WARHEAD: High explosive, 13 lb

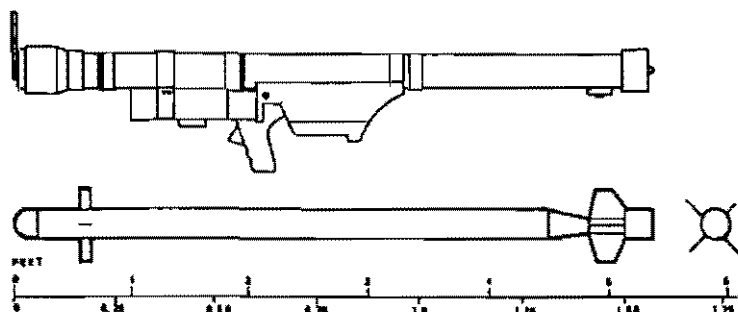
DIMENSIONS: LENGTH 7 ft 2 in  
DIAMETER 4.75 in

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 33 ft

SPEED: mach 2

WARHEAD: High explosive, 5.5 lb

DIMENSIONS: LENGTH 5.3 ft

GUIDANCE: Infrared.

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.

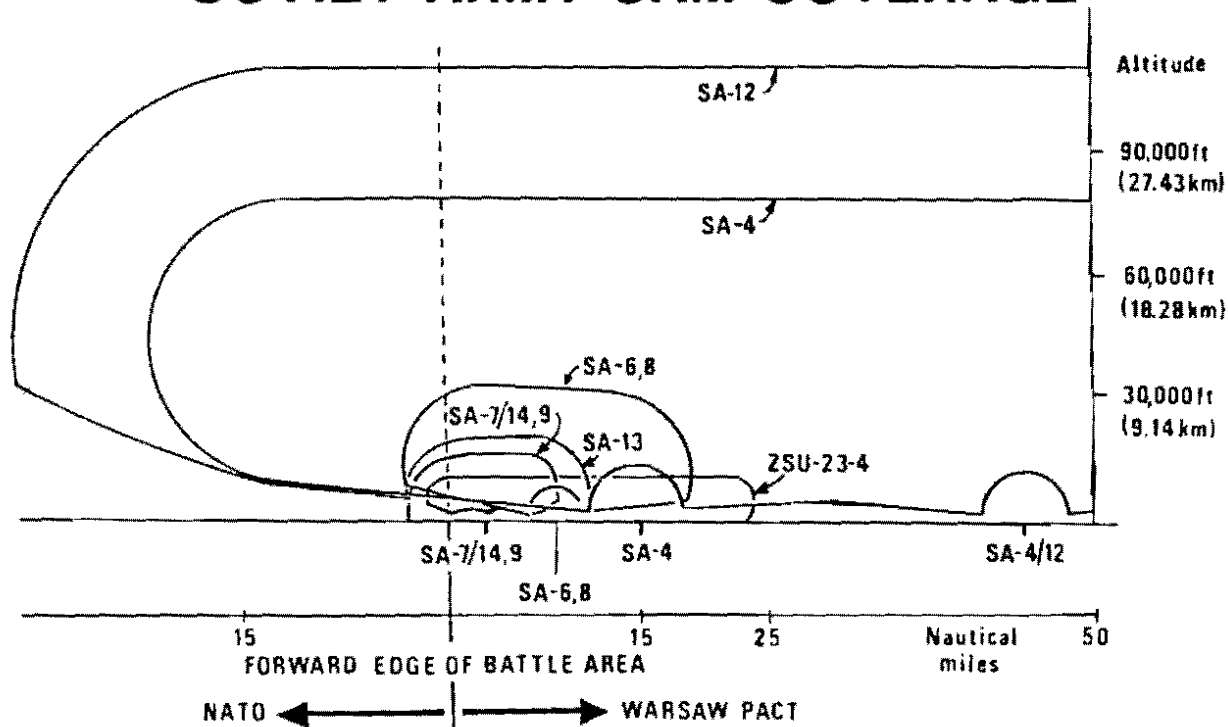
## SA-17

Little is known about this system except that 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

<u>MISSILE</u>	<u>MATO NAME</u>	<u>RANGE (NM)</u>	<u>MAX ALT. (FT)</u>	<u>TARGETS</u>	<u>GUIDANCE</u>	<u>AGG. RADAR</u>	<u>RF RADAR</u>	<u>MOBILITY</u>	<u>LEVEL</u>	<u>COMMENTS</u>
SA-2	GUIDELINE	71	82,000	MED/HI	COMMAND	SPOON 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	GANEF	47	79,000	MED/HI	COMMAND/ TERMINAL	LONG TRACK	PAT HAND	TRACKED	FRONT/ ARMY	COUNTERPART: MIKE HERCULES
SA-5	CANNON	180	95,000	MED/HI	SARH	TALL KING BACK NET	SQUARE PAIR	FIXED SITE	PVO	POSSIBLE ANTI-MISSILE ROLE
SA-6	GAINFUL	19 LOW 37 HI	59,000	LOW/MED	SARH	LONG TRACK	STRAIGHT FLUSH	TRACKED	DIVISION	COUNTERPART: I-HAWK
SA-7	GRILL	5	14,000	LOW	IR	N/A	N/A	HAND HELD	COMPANY/ BATTALION	TAIL SHOT ONLY
SA-8	GECKO	8	20,000	LOW/MED	COMMAND	LONG TRACK	LAND ROLL	WHEELED	DIVISION	TELAR. COUNTERPART: ROLAND/RAPIER.
SA-9	CASHIN	5	16,500	LOW	IR	N/A	N/A	WHEELED	REGIMENT	WITH ZSU-23-4
SA-10	GRUBBLE	54	UNK	LOW/MED/ HI	TVN	CLAM SHELL	FLAP LID	WHEELED	PVO	COUNTERPART: PATRIOT
SA-11	CADFLY	16	46,000	LOW/MED	SARH	UNK	UNK	TRACKED	DIVISION	REPLACES SA-3
SA-12	GIANT/ GLADIATOR	54?	98,000	LOW/MED/ HI	TVN	UNK	UNK	TRACKED	FRONT/ ARMY	REPLACES SA-4
SA-13	COPPER	5	16,500	LOW	IR	N/A	N/A	TRACKED	REGIMENT	REPLACES SA-9
SA-14	GREENLIN	3	13,000	LOW	IR	N/A	N/A	HAND HELD	COMPANY/ BATTALION	FACE OR TAIL SHOT
SA-15										
SA-16	IGLA		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

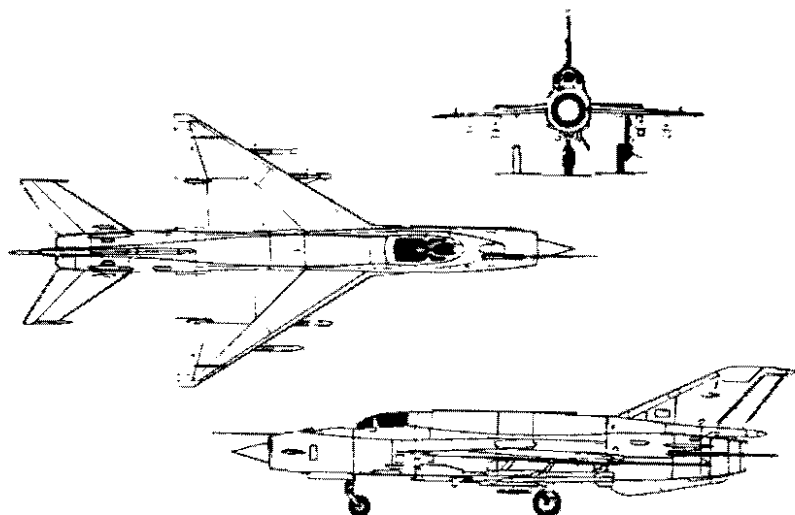
COUNTRY	MISSILE	TARGET	RANGE (NM)	WARHEAD	ALT (FT)	GUIDANCE	MOBILITY	COMMENTS
FR	CROTALE	LOW	5.4	HE FRAG	15,400	COMMAND	WHEEL/TRACK	
FR	SHAHINE	LOW/MED	5.9	14 KG	26,000	TV,IR	WHEEL/TRACK/AIR	
FRG	ROLAND 1/2	LOW/MED	3.4	6.5 KG	18,000	COMMAND/MW	ARMORED VEH/WHEEL	
JA	TAN-SAM	LOW	3.8	HE		AUTO/IR	3.5 TON WHEEL	
UK	BLOWPIPE	LOW		HE		RADIO/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

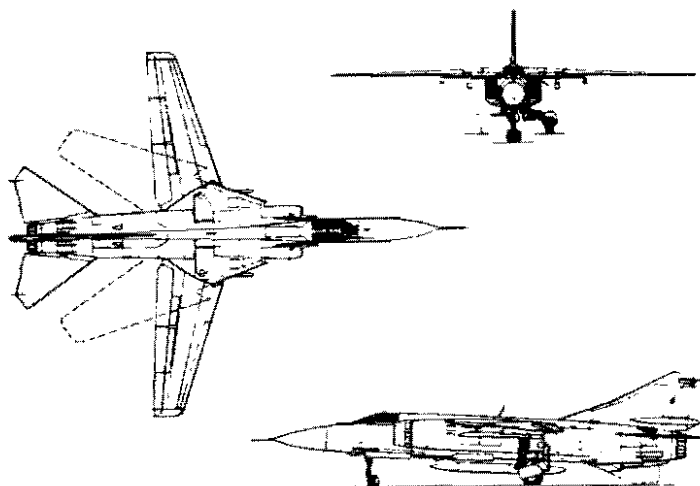
GUN: 23 mm cannon

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

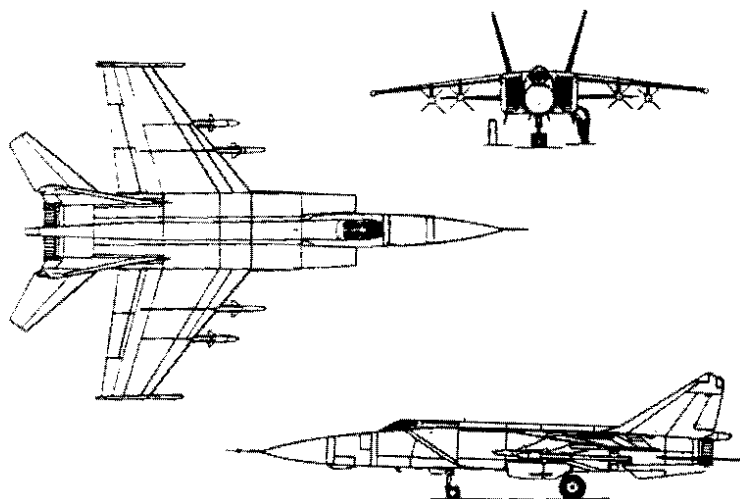
MISSILE: AA-2/ATOLL, AA-7/APEX, AA-8/APHID

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

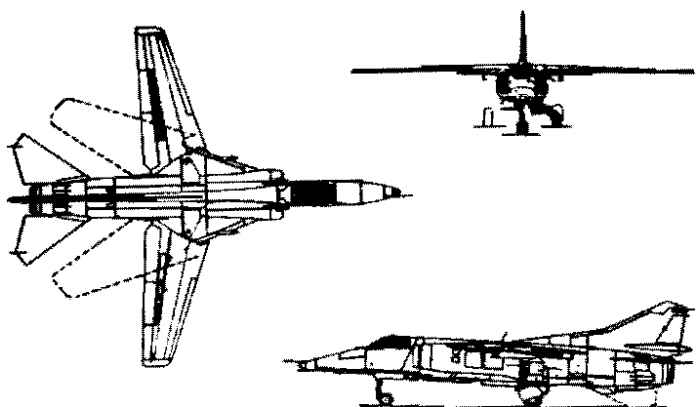
MISSILE: AA-6/ACRID

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

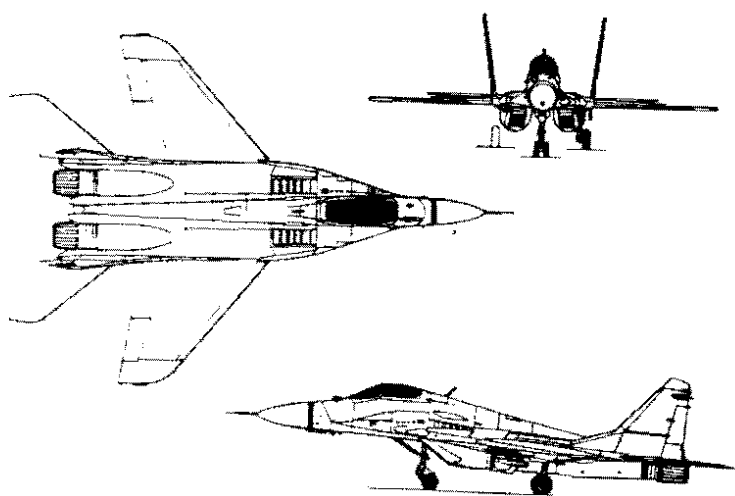
MISSILE: AA-2/ATOLL, AA-8/APHID

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

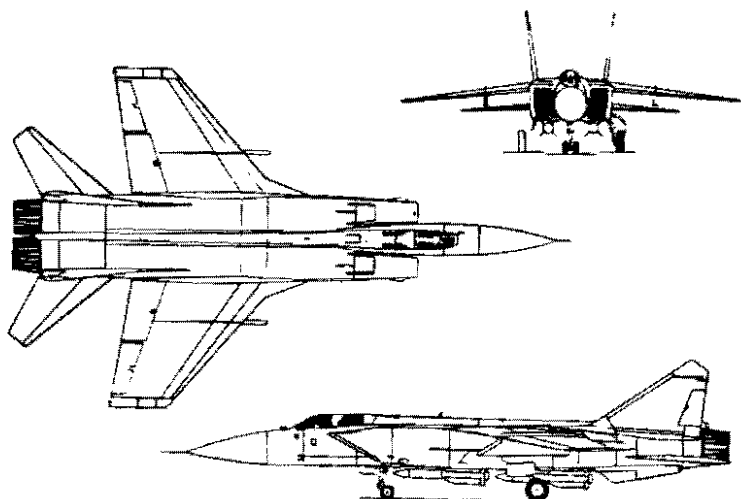
MISSILE: AA-10/ALAMO, AA-11/ARCHER

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

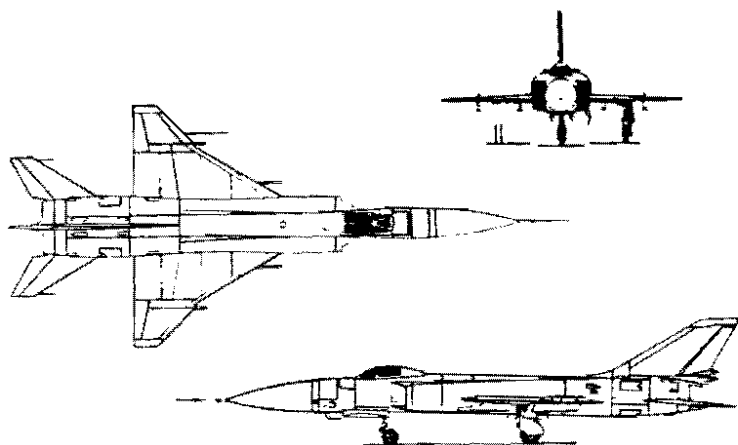
MISSILE: AA-9/AMOS, AA-8/APHID

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

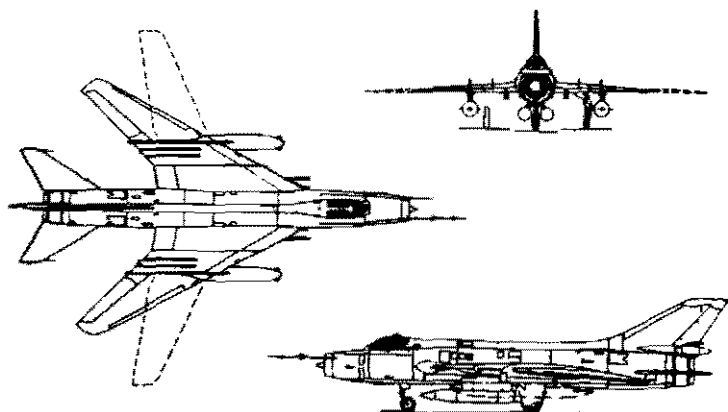
MISSILE: AA-3/ANAB, AA-8/APHID

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

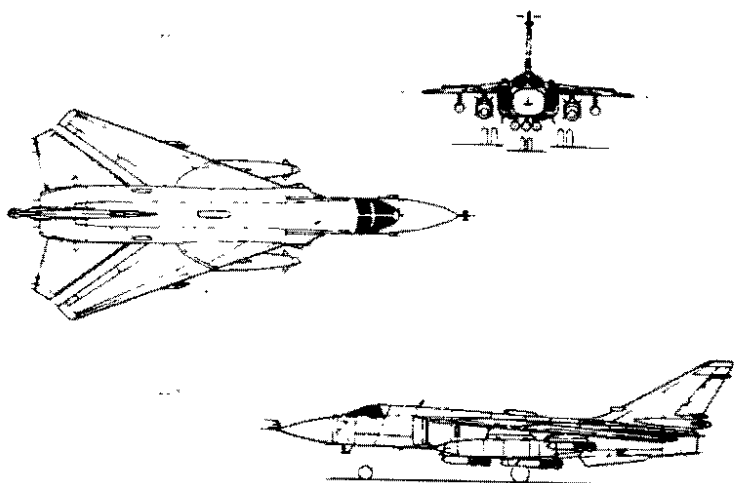
GUN: 30 mm cannon

BOMBS: 8 HARDPOINTS, 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

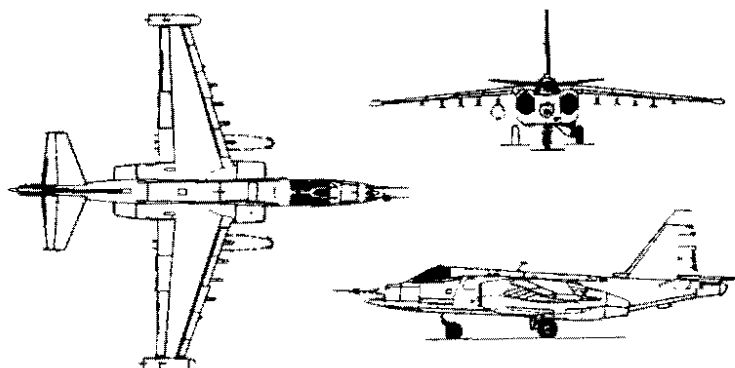
MISSILE: AS-7/KERRY, AS-10/ALAMO, AS-11/ARCHER, AS-12/KEGLER  
AS-13/KINGBOLT, AS-14/KEDGE

GUN: 30 mm cannon

BOMBS: 8 HARDPOINTS, 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

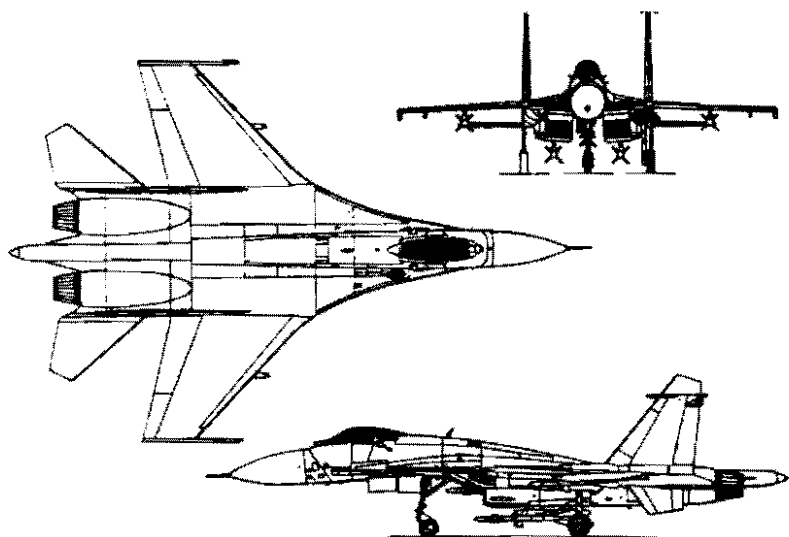
MISSILE: AA-2D/ATOLL (SU-22), AA-8/APHID

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.**

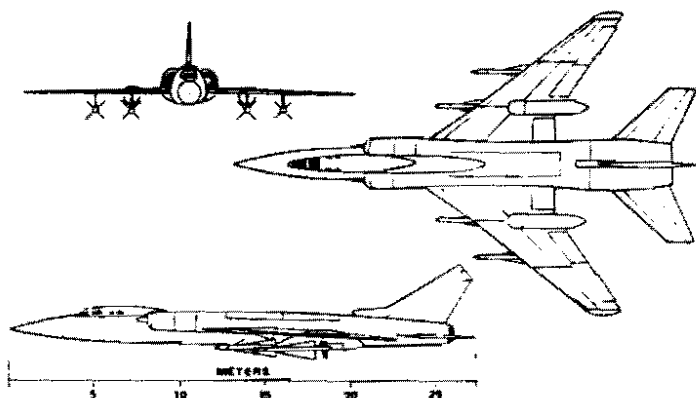
**GUN: 30mm**

**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

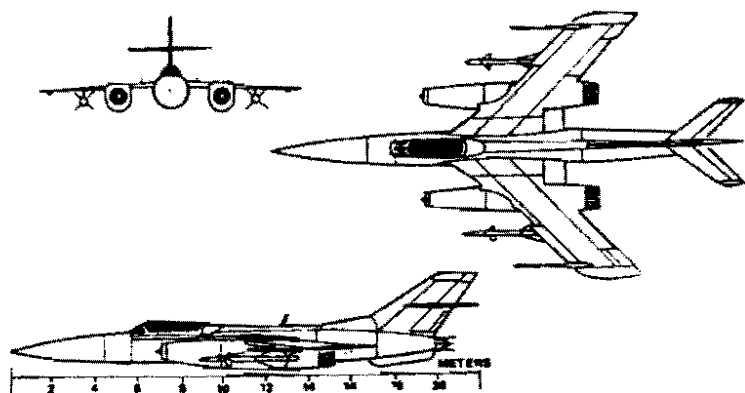
COMBAT RADIUS: 930 nm

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

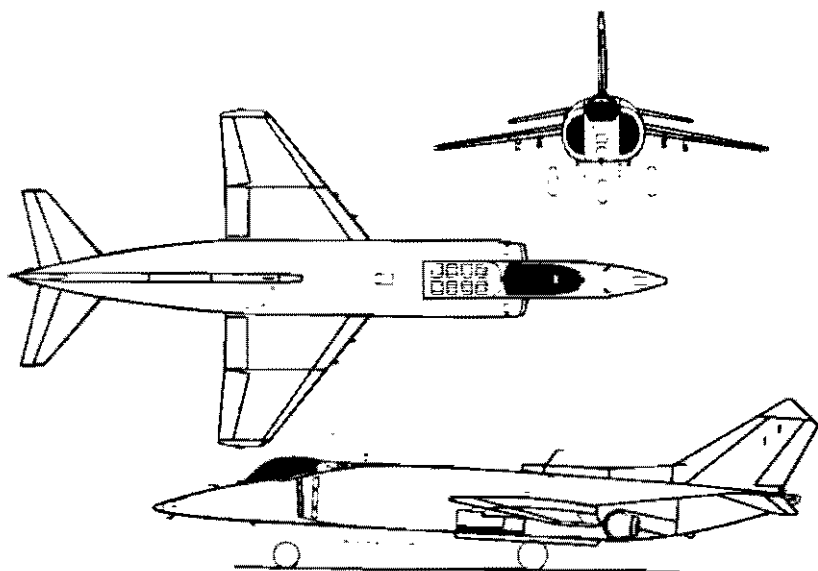
COMBAT RADIUS: 575 nm

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

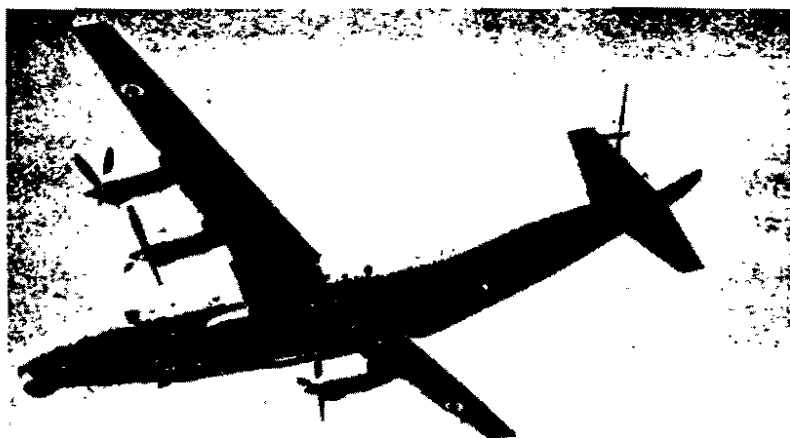


# SOVIET FIGHTER AIRCRAFT

AIRCRAFT	WATO NAME	PRIMARY MISSION	MAX SPD KTS	MAX ALT FEET	CRUIZ RAD NM	MISSILE CAPABILITY	CANNON	STORES IN POUNDS	RADAR	LETK IN FT	WING SPAN FT
NIG-21J	FISHBED	FIGHTER MULTI-ROLE ALL WX	1200	80,000	210	AA-4-2	1023MM	2 0 1100 0 2 0 850	J-DAYBED 12MM	44	23
NIG-23	FLOBER	INTERCEPTOR ALL WX	1120	58,000	800	29AA-7 80 0 29AA-8 30	1023MM		J-HIGHMARK 33MM/34MM 80	47	
NIG-25	POBRAT	INTERCEPTOR ALL WX /RECCE	1800	80,000	800	08AA-8/RECCE SIDELOCK RDR			LIN LOOKIN/SHOOTIN	73	48
NIG-27	FLOBER-D	BROUND ATTACK	880	82,800	800	08AA-2 OR AA-8 30	1023MM	RKT POOB/TAC NUCLEAR	LASA 08MPH/80 TGT 300 80	47	
NIG-29	PULCHIN	COUNTER-AIR / ATTACK	1330	58,000	430	08AA-10 80 08 AA-11		80MB-RT/80/ 240MM RKT	LIN LOOKIN/SHOOTIN	87	37
NIG-31	POBINOUD	INTERCEPTOR	1400		810	08AA-8 6 08AA-8			TRUE LOOKIN/SHOOTIN	70	48
BU-15	FLABON	INTERCEPTOR ALL WX	1430	88,800	380	08AA-3 6 29AA-8	1023MM				70 30
BU-17, 20	FITTER-C,D	BROUND ATTACK	1257	58,080	380		2030MM	0,820 /8000/RKT POOB		61	48
SU-24	PENKER	BROUND ATTACK DEEP INTERDICT	1260	84,120	800	A3-7, A3-10,11,12, 13,14	1020MM	24,3500 IN MISSILES	RANGE ONLY	70	87
SU-26	PROFAOT	CLOSE AIR SUPPORT	530		345	29AA-20 OR AA-8	1030MM	0,820 CHER/INCH/ CLU	LASER RANGEFINDER	80	48
SU-27	FLANKER	COUNTER-AIR / BROUND ATTACK	1388		830	29AA-10 8 08AA-11,8		13,220 EXT STORES	LARGE PULSE-DOPPLER	71	48
YAK-36	PORER	V/STOL RECCE / SMALL INTFS	880	28,375	200	A1-7, AA-8, GUN POOB	802MM	7,835 EXT STORES	RANGE ONLY RADAR	90	24
TU-28	FIDOLER	INTERCEPTOR ALL WX 2 CREW	1000	85,800	830	08AA-8 21A AND 2HR				88	88
YAK-28	FIREBAR	INTERCEPTOR ALL WX 2 CREW	1045	85,000	875	28AA-3				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

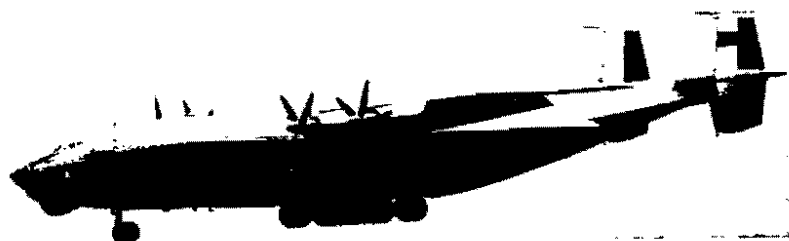
**CARGO:** 44,000lb

**ARMAMENT:** Two 23mm Guns in Tail Turret

**PRODUCTION:** 900+ (400 Operational)

**DEPLOYMENT:** USSR, ALGERIA, CHINA (Production as Y-B), 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

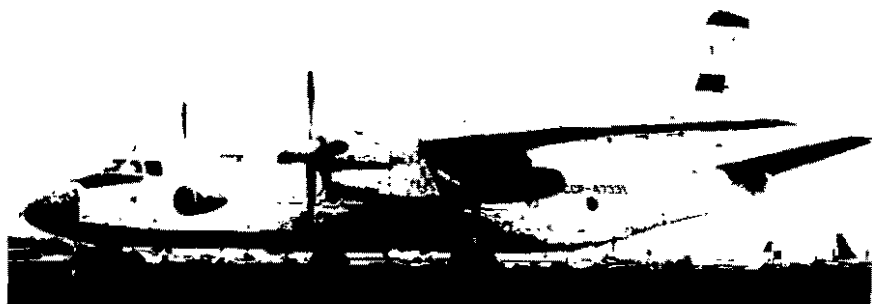
**CARGO:** 176,350lb

**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

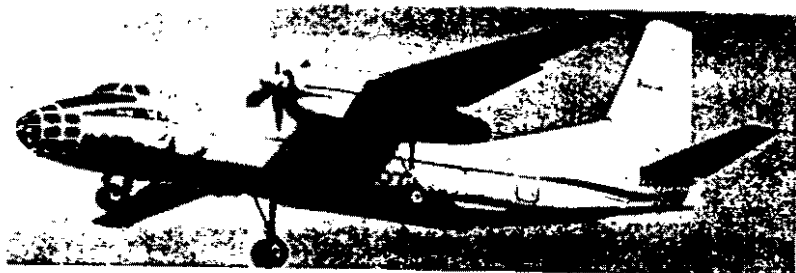
**CARGO:** 12,125lb

**ARMAMENT:** NONE

**PRODUCTION:** 1,100+

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

# An-30/CLANK



**PRIMARY MISSION: AERIAL SURVEY  
DEVELOPMENT**

**SUPPORT OF:**

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

**MAX SPEED: 290kts**

**MAX ALTITUDE: 27,000ft**

**COMBAT RANGE: 1,400nm**

**CREW: 7**

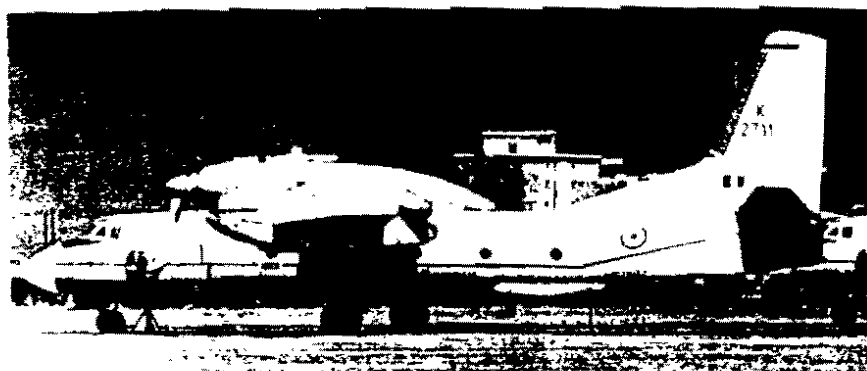
**CARGO: 1,400lb+**

**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

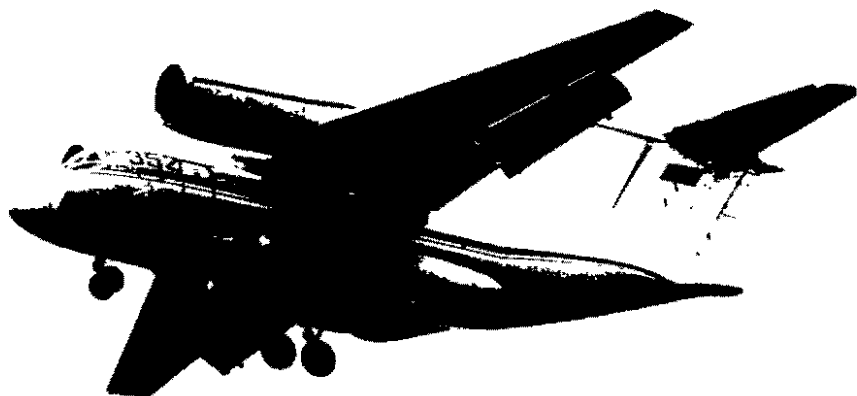
CARGO: 14,470lb

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)

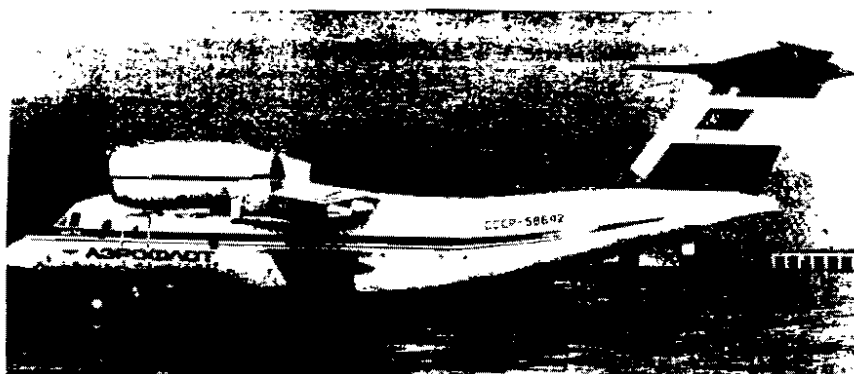
**ARMAMENT:** NONE

**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 II-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/CANDID



**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

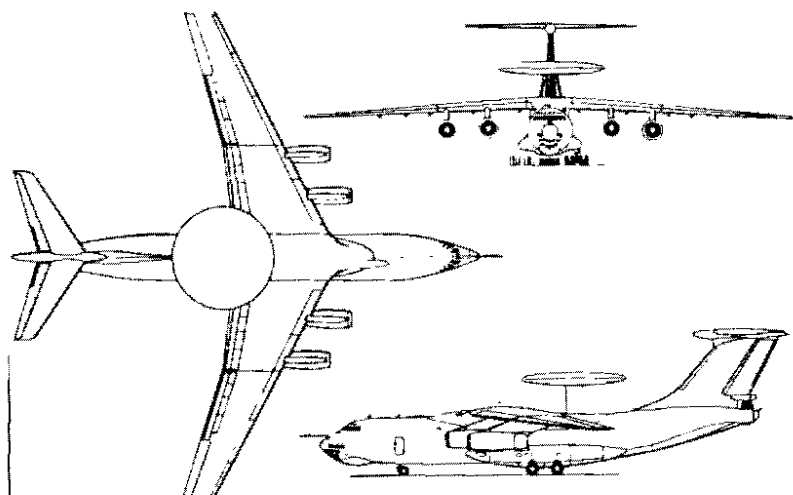
**CARGO:** 105,800lb

**ARMAMENT:** Two 23mm Guns in Tail Turret

**PRODUCTION:** 300+ (30/year)

**DEPLOYMENT:** USSR, INDIA, IRAQ, CZECHOSLO-  
VAKIA, POLAND

# II-76/MAINSTAY



**PRIMARY MISSION:** AIRBORNE EARLY WARNING AND  
CONTROL SYSTEM (AEW&C) - (Derivative of II-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/EM/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  
F - Upgraded E  
G - 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 MSLs  
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**

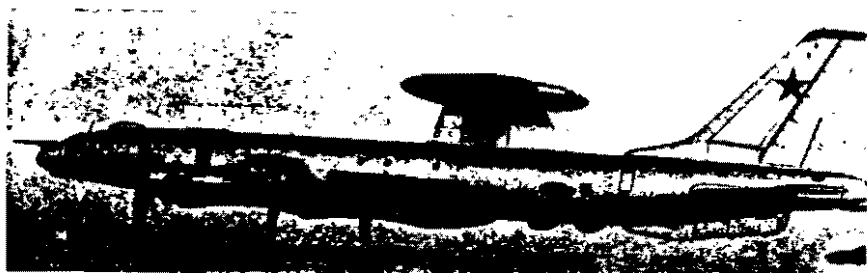
**CREW: 7-12**

**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  
(AMACS) - (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

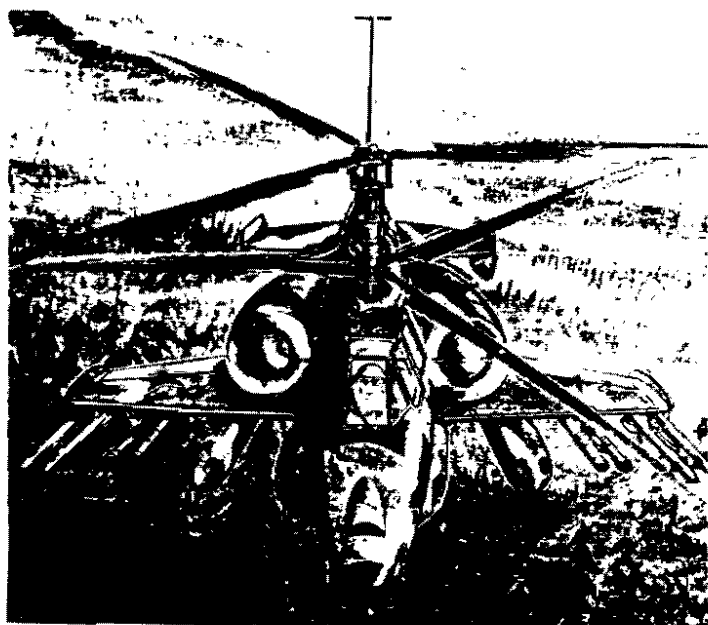
**ARMAMENT:** 36,000lb Nuclear or Conventional Bombs,  
S/R Missiles, L/R Cruise Missiles

**PRODUCTION:** IN PROTOTYPE DEVELOPMENT

**DEPLOYMENT:** N/A

# HELICOPTERS

# Ka-?/HOKUM



**PRIMARY MISSION:** ATTACK & A/A ANTI-  
HELICOPTER

**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 Chrys

**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**

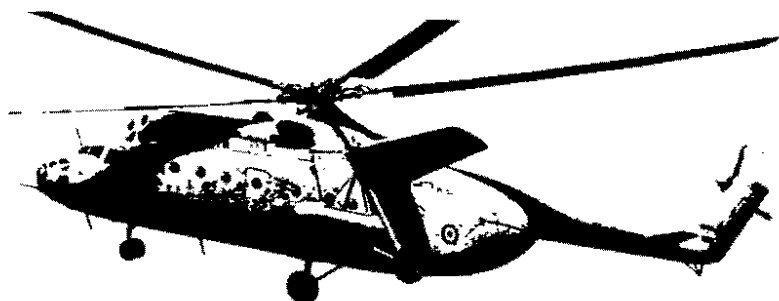
**CREW/TROOPS: 1/8**

**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

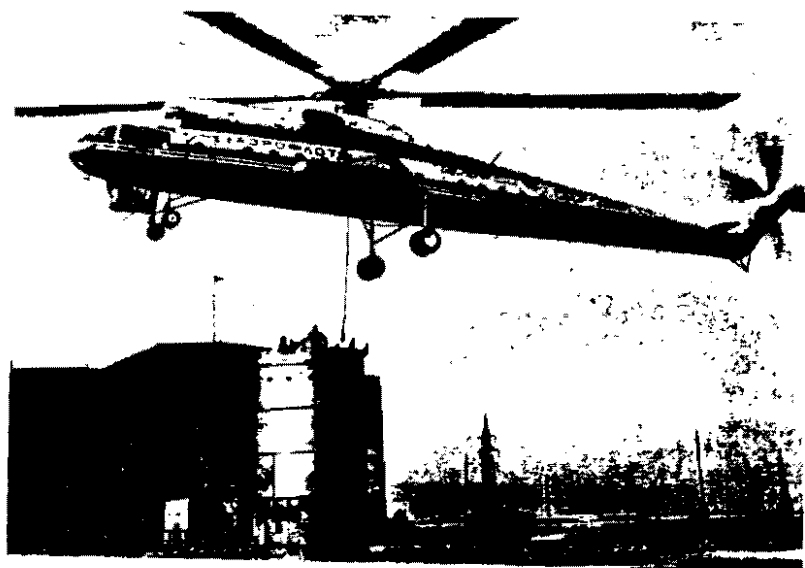
**CARGO:** 8,800/6,600lb (Internal/Slung)

**ARMAMENT:** 57mm RKs, 12.7mm MG (In Nose),  
4 Swatter Antitank MSIs, 6 Sappers, &  
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

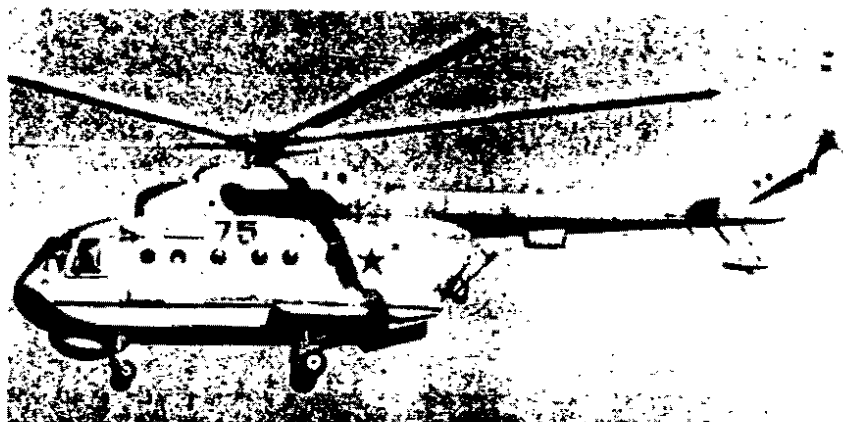
**CARGO:** 30,865lb (Slung)

**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 MSIs,  
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**  
(ROBT 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

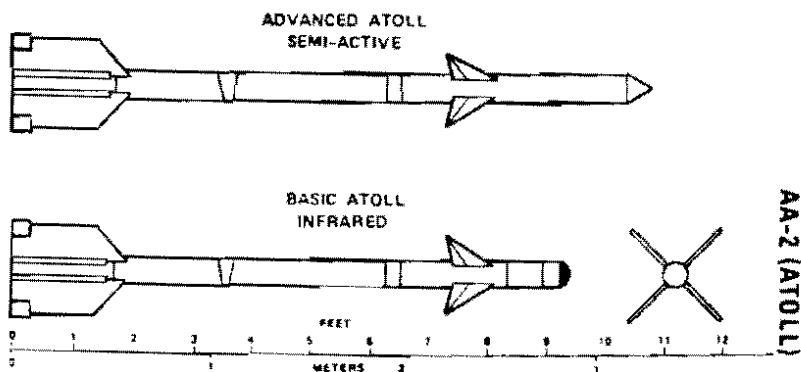
**PRODUCTION:** In Prototype Development

**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)

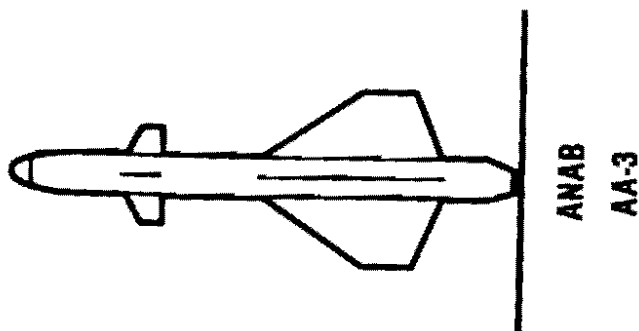
**GUIDANCE:** IR Homing & Semi-Active Radar

**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)

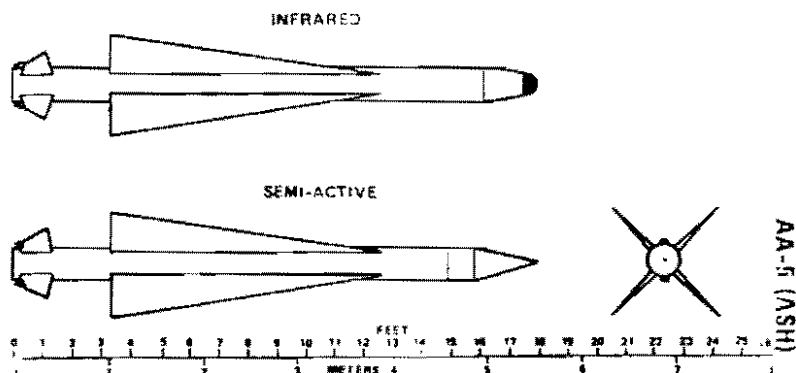
**PERFORMANCE:** RANGE 1.6nm(IR), 5.4nm(SAR)

**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**

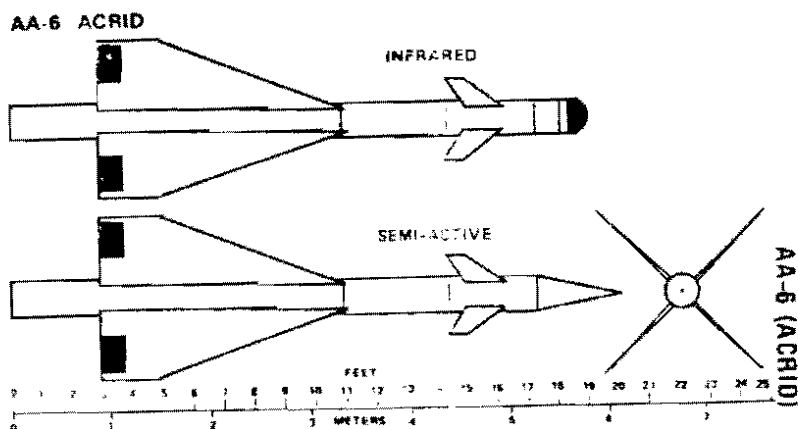
**GUIDANCE: IR HOMING & I/J BAND SEMI-ACTIVE  
RADAR (Works with Big Nose I-Band Radar)**

**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**

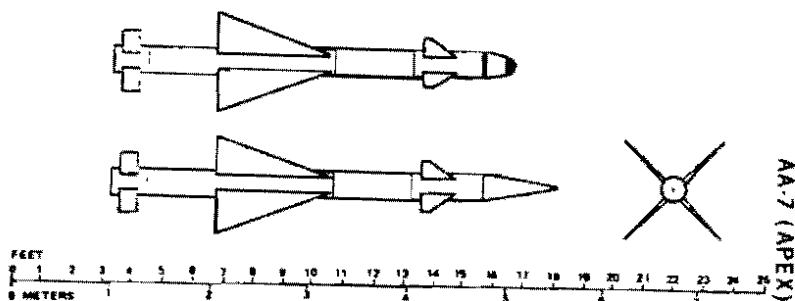
**SIZE: LENGTH 19.0ft(IR), 20.6ft(SAR);  
DIAMETER 15.7in; WEIGHT 1,400-1,900lb**

**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**

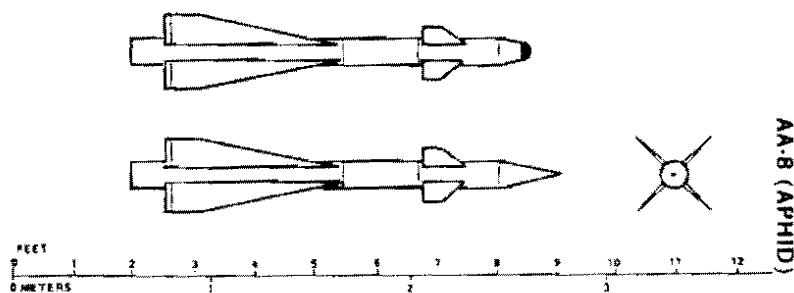
**PERFORMANCE: MACH 2, RANGE 17.4nm**

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

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

# AA-8/APHID

AA-8 (APHID)



**PRIMARY MISSION: HIGHLY-MANUEVERABLE CLOSE COMBAT AIR-TO-AIR MISSILE**

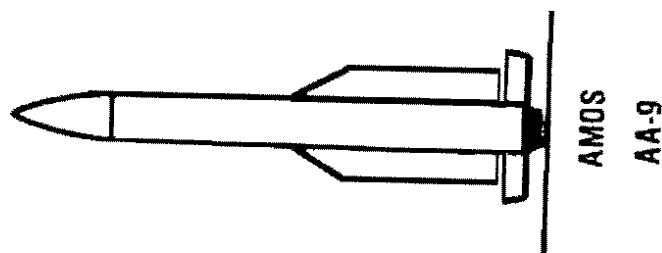
**GUIDANCE: ONLY IR HOMING SEEN TO DATE**

**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**

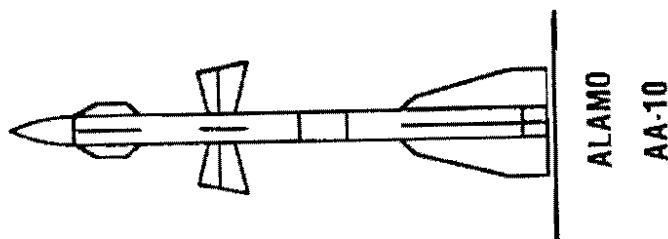
**GUIDANCE:**   o Inertial w/Active Radar  
                    Terminal Homing  
                    o Semi-Active CW Radar  
                      w/Monopulse

**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:** RNAGE 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 SUPPRESSION** - 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 10,000 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-21/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-?/BLACKJACK

WEFT

# FOR OFFICIAL USE ONLY

## WING

### TYPE OF WING

Straight-Straight

A



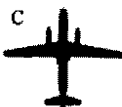
Straight-Tapered

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



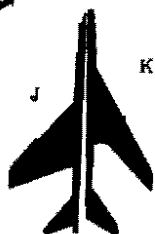
Crescent

H



Foreswept

I



Saw Leading Edge

J

Trailing Edge Fillet

K



Delta

L

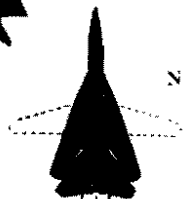


Clipped Delta

M

Variable Geometry

N



(Two Sweep to Sweep)

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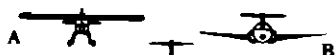
**FOR OFFICIAL USE ONLY**

**WING**

**MOUNTING OF WING**

Straight Stretching

A



Positive Dihedral

B



Negative Dihedral

C

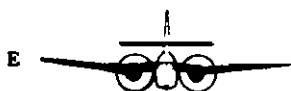


Gull

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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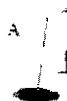
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ENGINE

TYPE OF ENGINE

Piston

A



Radial

B



In-line Boxer

C

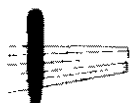
Turboprop

D



Turbopet

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



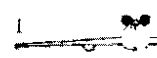
Suspended From Wing

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



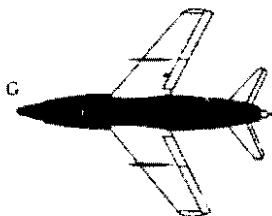
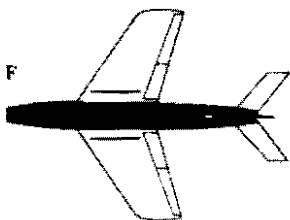
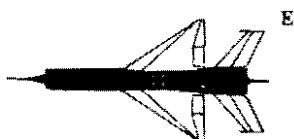
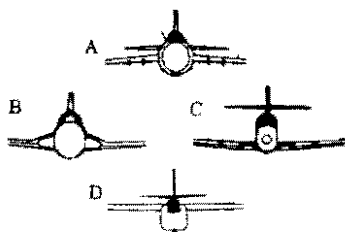
Lobe

F



Barrel

G



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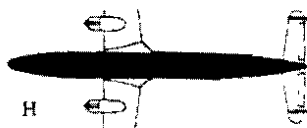
# FOR OFFICIAL USE ONLY

## FUSELAGE

Fuselage Variation cont.

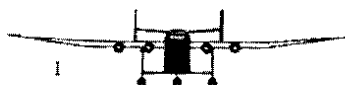
Cigar

H



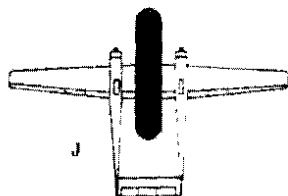
Box

I



Nacelle

J



## NOSE SECTION OF FUSELAGE

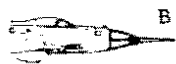
Solid Pointed Nose

A



Plexiglas Pointed Nose

B



Solid Rounded Nose

C



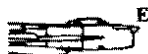
Plexiglas Rounded Nose

D



Blunt Nose

E



Blunt Nose with Radome

F



Engine Mounted Nose

G



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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

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



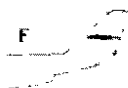
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## TAIL

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



A



B



C



D



E



F



G



H

FOR OFFICIAL USE ONLY

# FOR OFFICIAL USE ONLY

## TAIL

### TAIL CONFIGURATIONS

Simple

A



Butterfly (V-Tail)

B



Twin Tail

C



Twin Tail with Booms

D



Triple Tail

E



Tail with Stabilizing Fins

F



Tail with End Disks

G



T-Tail

H



Y-Tail

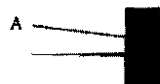
I



### TYPES OF VERTICAL FINS

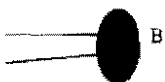
Rectangular

A



Oval

B



Swept

C



Swept Variations

D-E

Swept and Untapered

D



Swept and Tapered

E



FOR OFFICIAL USE ONLY

# FOR OFFICIAL USE ONLY

## TIPS/UNDERCARRIAGE

### TYPES OF TIPS

Square

A



Round

B



Blunt

C



Cutback

D



### UNDERCARRIAGE

#### TYPES OF UNDERCARRIAGE

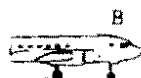
Conventional

A



Tricycle

B



Bicycle with Outriggers

C



#### MAIN GEAR HOUSING

Fuselage

A



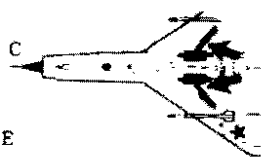
Wing

B



Wing/Fuselage

C



Fuselage Sponson

D

Engine Nacelle

E

Wing Pod

F



# FOR OFFICIAL USE ONLY

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

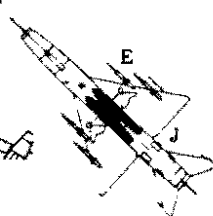
Wing Tips

H



Under Wing

I



Under Fuselage

J



REFUEL POSITIONS

Nose

K



Wing Tip

L



OUTRIGGER PODS

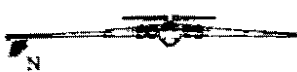
Under Wing

M



Wing Tip

N



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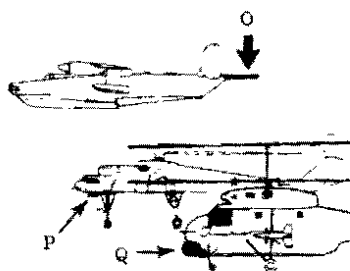
**APPENDAGES**

**MISCELLANEOUS APPENDAGES**

MAD Gear O

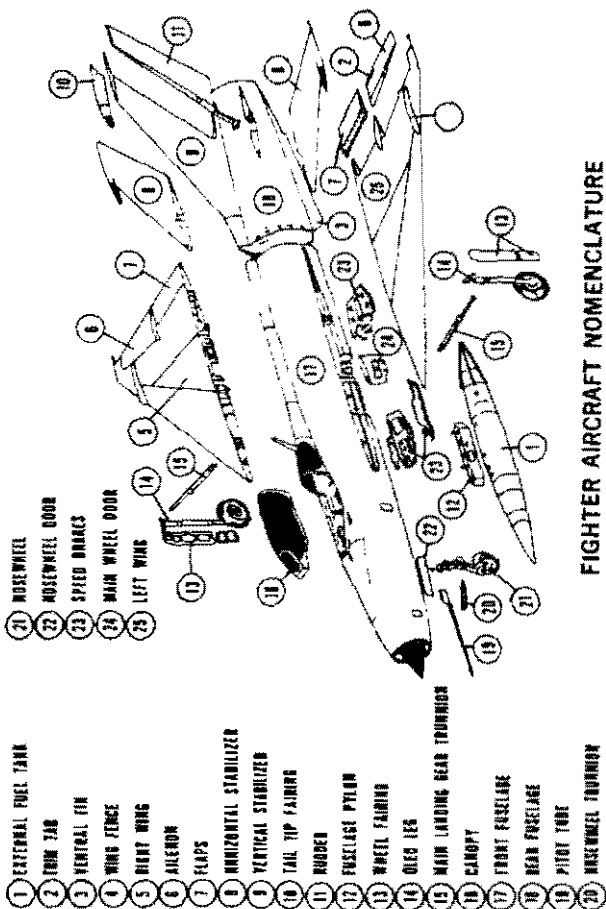
Chin Gondola P

Chin Radome Q



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UNCLASSIFIED



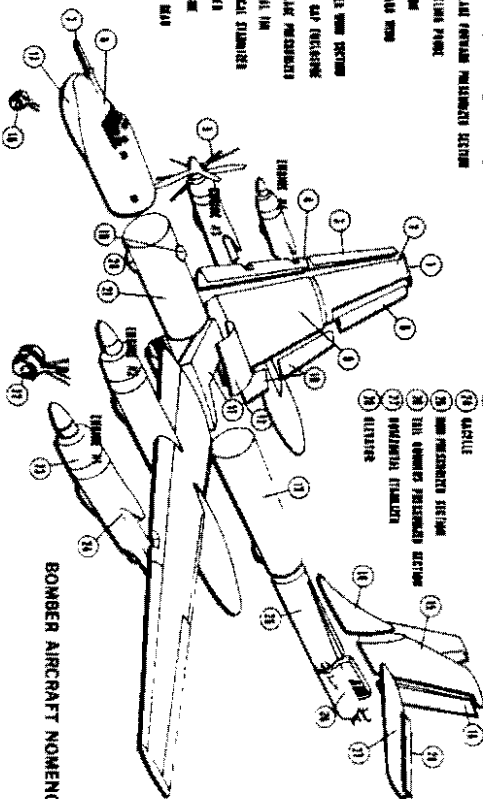
FIGHTER AIRCRAFT NOMENCLATURE

UNCLASSIFIED



# UNCLASSIFIED

- 1 NOSE
- 2 REINFORCED NOSE
- 3 FORWARD GEAR MOUNTING NOSE
- 4 FORWARD GEAR MOUNTING NOSE
- 5 FORWARD GEAR MOUNTING NOSE
- 6 FORWARD GEAR MOUNTING NOSE
- 7 FORWARD GEAR MOUNTING NOSE
- 8 FORWARD GEAR MOUNTING NOSE
- 9 FORWARD GEAR MOUNTING NOSE
- 10 FORWARD GEAR MOUNTING NOSE
- 11 FORWARD GEAR MOUNTING NOSE
- 12 FORWARD GEAR MOUNTING NOSE
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- 16 FORWARD GEAR MOUNTING NOSE
- 17 FORWARD GEAR MOUNTING NOSE
- 18 FORWARD GEAR MOUNTING NOSE



- 19 ALTERNATE
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- 38 ALTERNATE

## 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 DEHYORATION.
- 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 tricothecene 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				Fatigue Ventilate Indoor
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

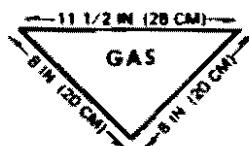
## STANDARD ALARM SIGNALS

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



(OPTIONAL)  
(TYPE OF AGENT)  
(DATE EMPLACED)



# TERRORISM

NAME: Alfaro Lives, Damn It! (ALVI)

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

CURRENT LEADER: Jose Antonio Urruticoechea 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.

4+3=7=1



ETA

BASQUE FATHERLAND AND FREEDOM

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 monopolies." The NPL is the armed wing of the Peoples Revolutionary Union (URP) 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 Carotte

**OBJECTIVES AND**

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



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 (PRCA), 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

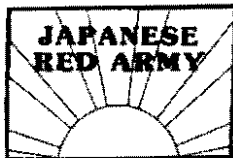
NUMBER OF MEMBERS: 19

CURRENT LEADER: Unknown

OBJECTIVES AND

ACTIVITIES: Oust 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



NEW PEOPLE'S ARMY

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.

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 Ghannem)  
OPERATIONS AREA(S): Lebanon, Israel, Europe  
NUMBER OF MEMBERS: 300  
CURRENT LEADERS: Tal'at Yaqub, Abu al Abbas, Abd al Fatah Ghannem  
OBJECTIVES AND  
ACTIVITIES: Two factions, led by Tal'at Yaqub and Abd al Fatah Ghannem 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-GC 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, kidnappings, 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 (PFLP-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 Faction (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, Genoa, 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, kidnapping, and kidnapping.

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: Revolutionaere 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, Christfan Gauger, Rudolf Schindler, Sabine Eckle.



**REVOLUTIONAERE ZELLEN**  
(REVOLUTIONARY CELLS)

**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.

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: Epanastikos 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)

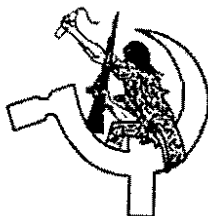
OTHER NAMES: Sendero Luminoso

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:** Aims 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

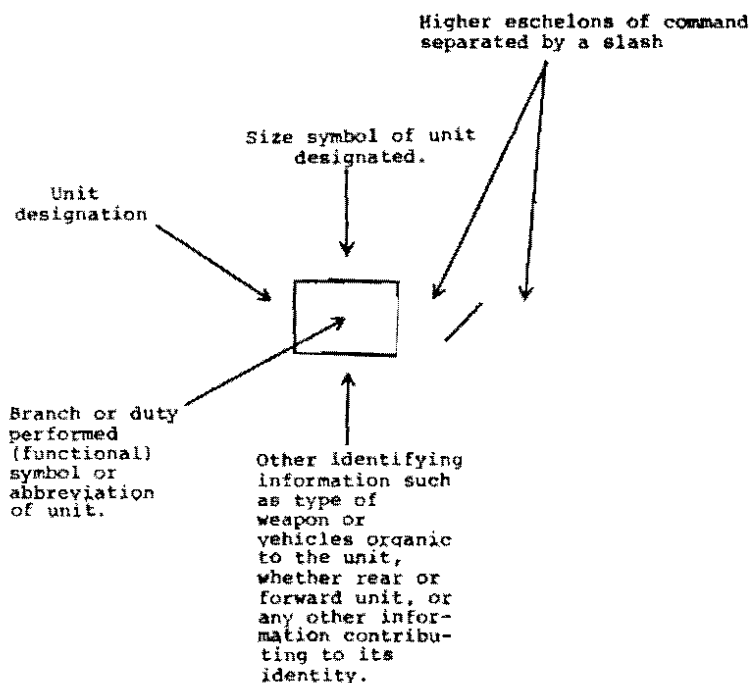
## ORDER OF BATTLE SYMBOLOGY

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

## 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



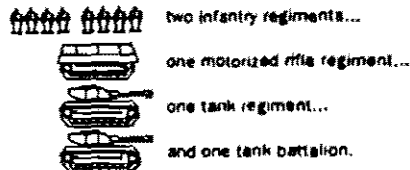
## Soviet unit restructuring

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

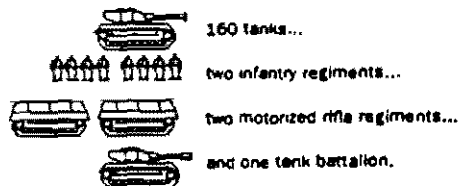
A motorized rifle division is the rough Soviet equivalent of a U.S. mechanized infantry division, but with a greater concentration of tanks. Infantry soldiers ride either tracked BMP infantry fighting vehicles or in wheeled BRDM armored personnel carriers.

Motorized rifle division is now:



It will become...

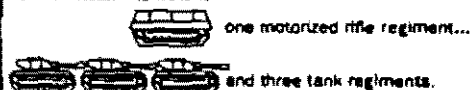
"Defensive mechanized infantry" division consisting of:



### ARMOR

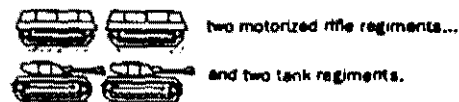
A Soviet tank division is similar to a U.S. armored division, but again has a higher percentage of tanks and infantry fighting vehicles:

Tank division is now...



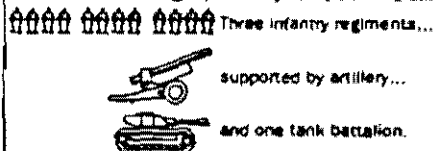
It will become...

New "combined arms" division...



ARMOR

"Infantry machine gun/artillery" division consisting of:

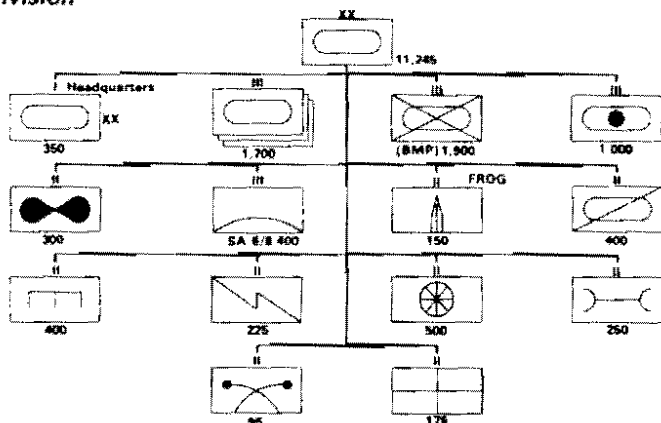


ARMOR

or...

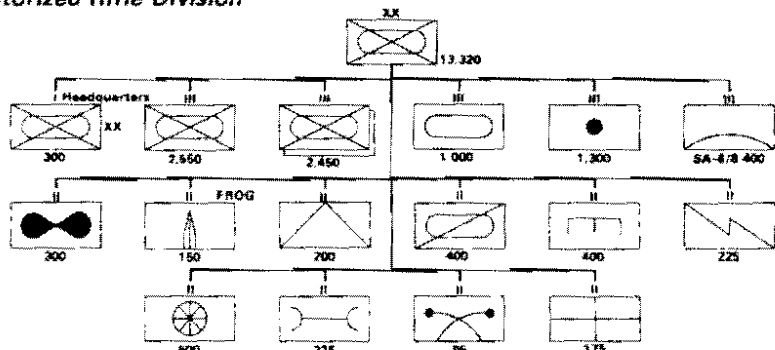
# SOVIET GROUND FORCE TROOP STRUCTURE

## *Tank Division<sup>1</sup>*



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

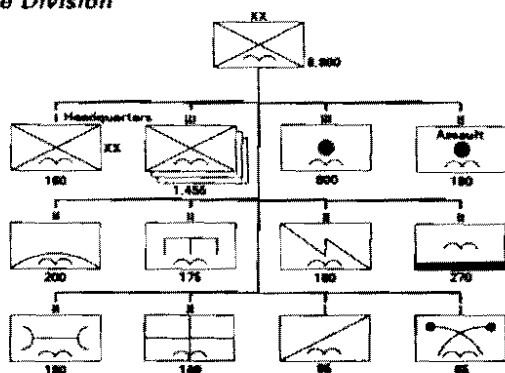
## *Motorized Rifle Division<sup>1</sup>*



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

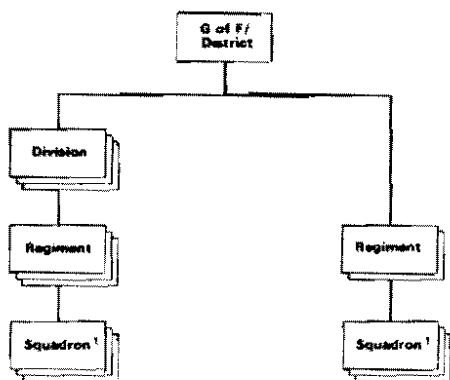
## *Soviet Airborne Division*





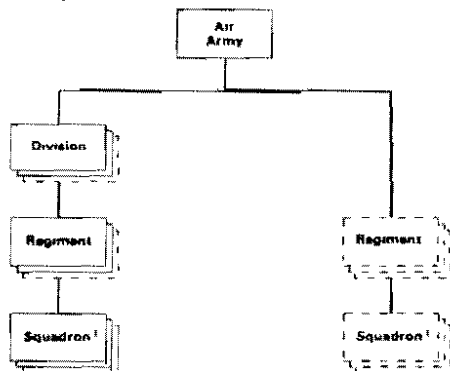
# SOVIET AIR FORCE TROOP STRUCTURE

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



<sup>1</sup>A typical squadron operates approximately 12 aircraft

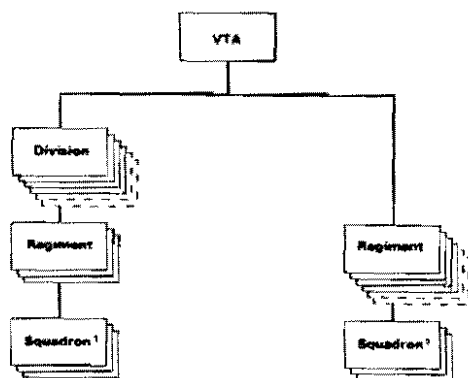
*Air Forces  
Strategic Aviation  
(Typical Representation)*



<sup>1</sup>A typical squadron operates approximately 10 aircraft

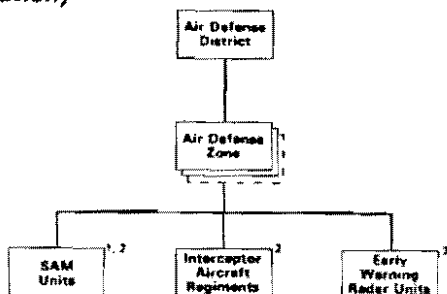
# SOVIET AIR FORCE TROOP STRUCTURE

*Air Forces  
Military Transport Aviation (VTA)*



<sup>1</sup> A typical squadron operates approximately 8 to 10 aircraft.

*Air Defense Districts  
(Typical Representation)*

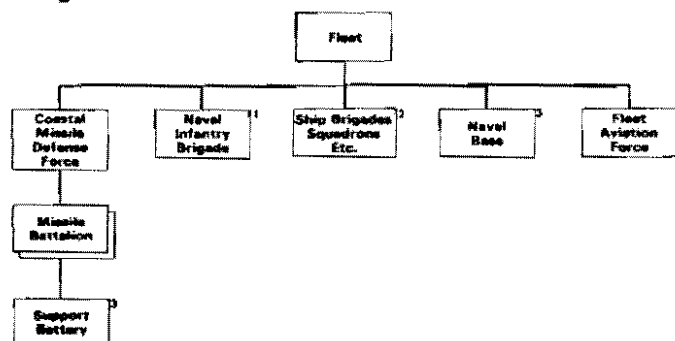


<sup>1</sup> Includes SA-1, 2, 3, 5, and 10 SAM units only. Tactical SAM units belong to ground forces.

<sup>2</sup> Command levels and numbers of operating units vary too widely for publication.

# SOVIET NAVAL FORCE TROOP STRUCTURE

### ***Navy Fleet Organization***

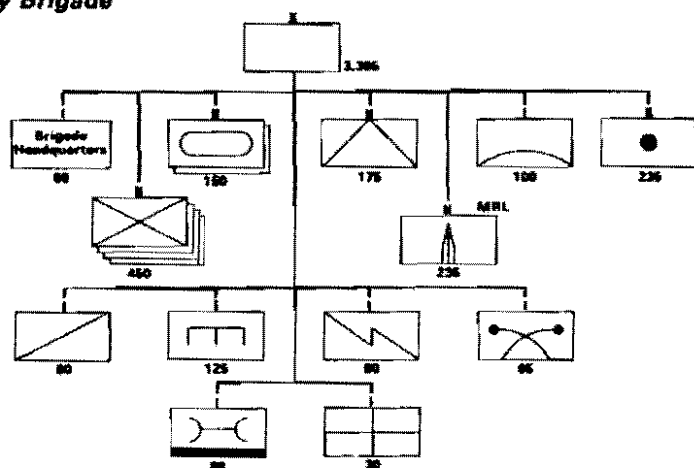


<sup>1</sup> Pacific Fleet has a naval infantry division.

<sup>2</sup> Comparison of these results with results

<sup>3</sup> Numbers of birds in these categories vary widely from year to year.

### 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	1.68 850 4	ft/min
Velocity	meter/second	m/s	3.280 840	ft/sec
Acceleration	meter/second squared	m/s <sup>2</sup>	3.280 840	ft/sec <sup>2</sup>
Acceleration	meter/second squared	m/s <sup>2</sup>	0.101 071 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	$\mu$ m	0.039 370 08	mil
Wavelength	nanometer	nm	10	*angstrom
AREA, VOLUME				
Floorspace, wing area, RCS	square meter	m <sup>2</sup>	10.763 91	ft <sup>2</sup>
Area (small)	square centimeter	cm <sup>2</sup>	0.155 000 3	in <sup>2</sup>
Territory	square kilometer	km <sup>2</sup>	0.261 553 3	*nautical mile
Land tract	hectare (ha = 10,000 m <sup>2</sup> )	ha	2.471 054	acre
Nuclear cross section	10 <sup>-28</sup> meter	10 <sup>-28</sup> m	1	*barn
Volume	cubic meter	m <sup>3</sup>	35.314 60	ft <sup>3</sup>
Volume	cubic decimeter	dm <sup>3</sup>	0.035 314 06	ft <sup>3</sup>
Volume (small)	cubic centimeter	cm <sup>3</sup>	0.061 023 74	in <sup>3</sup>
Volume (oil production)	cubic meter	m <sup>3</sup>	6.289 811	barrel
Fuel capacity	liter (liter = dm <sup>3</sup> )	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 96	ounce
Mass (bulk)	metric ton (tonne = 10 <sup>3</sup> kg)	t	1.102 311	ton
FORCE, THRUST, IMPULSE				
Thrust, force	newton (N = kg m/s <sup>2</sup> )	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	$\mu$ 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)	0.035 303 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-lb/s)
Power	kilowatt	kW	50.869 02	BTU(IT)/min
Power	watt	W	3.412 141 3	BTU(IT)/hr

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