



FALCON BMS

THE VAULT THREAT GUIDE



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The Vault is a collection of information on weapons used in the battlefields of the Falcon BMS world. The threat data in the simulation has changed over the years and I found myself adding a lot of notes to other resources. So I decided to make this threat reference guide based on the current state of BMS. Most of the performance data used in this guide was collected from observations while flying in the simulation and analysis of ACMI tapes.

The performance of these weapons can vary. For example, a heavily loaded aircraft will not turn and climb as well as clean aircraft. Just having one extra missile on the rail or a few thousand pounds more fuel in the tank can change performance characteristics. Missile ranges can vary too. If a jet that is carrying a missile is flying with significant altitude and speed advantage over a target, then the ranges have the potential to be greater. There are many things to consider. A missile may travel longer with a higher and faster moving launching aircraft but that will not make much difference if the missile seeker head can't track the target. To get the most out of this reference, the reader will need to use a reasonable amount of good judgement. Due to these potential variations, all of the observations were made under similar conditions so that fair comparisons can be made.

The data in this reference was collected in the Korean Theater of Operations. Some weapon information may vary in different theaters. There are weapon load out variations in some other theaters for aircraft which will change the nature of the threat.

Some people may find the data in this reference to be a spoiler for the simulation. If you want to experience a theater for the first time as though your side has limited knowledge of the enemy weapons then you should not read on, but rather collect the data as you gain your own experience.

The information in this guide is here to help you to know your enemy. There are other resources in the Falcon BMS docs folder that cover tactics, maneuvers, and avionics. My hope is that with those references, and this one, you may be better able to plan and execute missions. As Sun Tzu said in the Art of War, "If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle."



Credits: The images used in this guide are snap shots taken from the models used in the BMS simulation. Credit for the creation of these models and skins goes to the countless number of people who volunteered their time making them. The motivation for this guide came from the original Threat Guide that was in the Docs folder of BMS 4.32. References: airvectors.net, jet-engine.net, The Encyclopedia of Modern Military Aircraft by Paul Eden, F-16.net, ausairpower.net, fas.org, Int. Electronic Countermeasures Handbook by Horizon House 2004.

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ausairpower.net

General Notes

- Break turns should generally be into the missile. Sometimes this means turning down, in lieu of right and left. If you can't see the missile, move your nose across the launcher.
- Jink in the vertical if shot at by AAA. If down low, fly fast to get out of range and stay below 2,000 ft.
- Avoid guns down low by flying at 300+ knots and moving the aircraft nose in a figure 8 pattern.
- Ranges in nm are slant ranges.
- Typical Engagement Range: Very high probability of being shot at between the minimum range and the typical engagement range.
- Maximum Engagement Range: Lower chance of being shot at between the typical engagement range and the maximum range. Missiles fired within the typical engagement range can still chase you as far as the maximum range.
- The sounds from the RWR are subtle. Listen carefully for a tone change from SA to FC. You will be shot at shortly after the tone change by most SAMs.
- No smoke: the missiles will show a contrail for the first few miles then nothing. Don't get confused by this, the missile is still coming for you.
- Mobile SAM's can move approx. 25nm during typical mission.
- SA radar finds targets for FC to point at. If SA is destroyed then FC spins to look for targets before pointing at them, slows target acquisition and stays on longer.
- Radar Lobes: Numbers in () indicate main lobe detection angle. Target tracking is limited to main lobe area. Radar can be detected in side or main lobe area.

Abbreviations

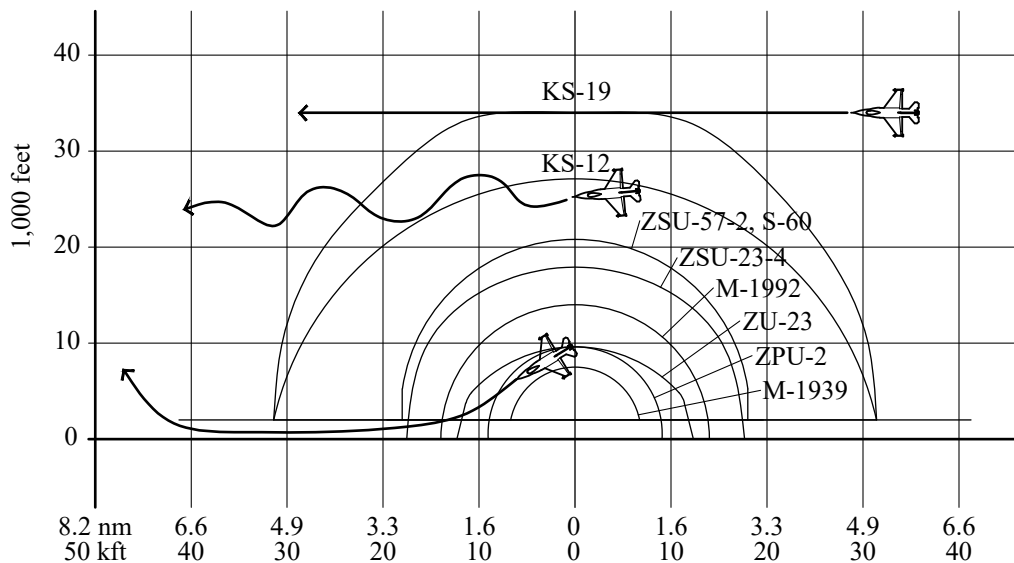
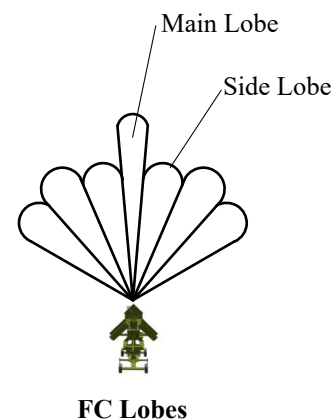
AA	Anti Air
ABM	Anti Ballistic Missile
AZ	Azimuth
BT	Burn Through
CM	Countermeasures (Chaff or Flare)
CW	Continuous Wave Radar
ECM	Electronic Counter Measures
ECCM	Electronic Counter Counter Measures
EL	Elevation
EOTS	Electro-Optical Tracking System
FC	Fire Control Radar
FTS	FLIR TV Sight System
HIMAD	High to Medium Range Air Defense
HOJ	Home on Jam
IRCCM	Infrared Counter Countermeasures
MANPAD	Man Portable Air Defense
MP	Monopulse Radar
OB	On Board
OC	Off Carriage
PESA	Passive Electronically Scanned Array Radar
SA	Search and Acquisition Radar
S-A-	Flashing S and A on RWR
SHORAD	Short Range Air Defense
TEL	Transporter Erector Launcher
TELAR	Transporter Erector Launcher and Radar
TLAR	Transporter Launcher and Radar
THAAD	Terminal High Altitude Air Defense
TVM	Track Via Missile
(g)	Missile max g
« »	Radar Band

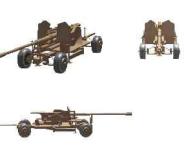
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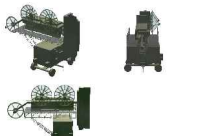
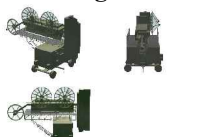
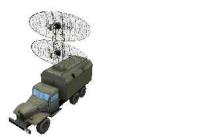
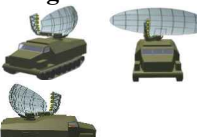
No Effect	-
Very Low	20-50
Low	6-17
Medium	4-6
High	2-4
Very High	1-2

RWR Symbols Diagram

SA FC	
D 11	AN/ALR-69(V), AN/ALR-56M
1D 711	AN/ALR-93(V)1

**AAA Chart**

	Fire Can Radar A-S- Tracking: Fire Can Radar/ Son-9 Rdr Lock Range: FC: 25nm Min. Altitude: 2,000 ft Max Rng Guns: N/A Notes: 1950. Guns still fire high without Fire Can. Radar is needed to see through clouds.	Type: Towed Radar ECM BT Range: 13 nm Chaff Vuln.: Medium Bands (System): E (PD) Initial/ Terminal: N/A
	KS-12 (Type 72) Tracking: OC Fire Can Radar/ Optical Min Rng Guns: 0 nm / 2,000 ft Typical Engagement: 5 nm / 28,000 ft Max Rng Guns: 5 nm / 28,000 ft Notes: 1939. Jink vertically.	Type: Towed SHORAD ECM BT Range: No Effect Shoot and Move: No Gun Caliber: 85 mm Flak Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: SA: 13nm / FC: 7nm
	KS-19 (KC-19) Tracking: OC Fire Can Radar/ Optical Min Rng Guns: 0 nm / 2,000 ft Typical Engagement: 5 nm / 33,500 ft Max Rng Guns: 5 nm / 33,500 ft Notes: 1949. Jink vertically.	Type: Towed SHORAD ECM BT Range: No Effect Shoot and Move: No Gun Caliber: 100 mm Flak Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: SA: 13nm / FC: 7nm
	S-60 (Type 59) Tracking: OC Fire Can Radar/ Optical Min Rng Guns: 0 nm / 2,000 ft Typical Engagement: 3 nm / 20,900 ft Max Rng Guns: 3 nm / 20,900 ft Notes: 1950. Maintain high speed jink vertically.	Type: Towed SHORAD ECM BT Range: No Effect Shoot and Move: No Gun Caliber: 57 mm Flak Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: SA: 13nm FC: 7nm
	M-1939 (61K) (Type 55) Tracking: Optical Min Rng Guns: 0 nm / 2,000 ft Typical Engagement: 1.3 nm / 8,600 ft Max Rng Guns: 1.3 nm / 8,600 ft Notes: 1939. Maintain high speed, jink. There is a (52k) variant with 85mm N/I.	Type: Towed SHORAD ECM BT Range: N/A Shoot and Move: No Gun Caliber: 37 mm Flak Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: N/A
	M-1992 A Tracking: OB Gun Dish Radar «J» Min Rng Guns: 0 nm / 0 ft Typical Engagement: 2.5 nm / 10,000 ft Max Rng Guns: 2.5 nm / 14,000 ft Notes: 1992. Maintain high speed 450+ knots, jink. Usually fires many rounds in short bursts.	Type: Mobile SHORAD ECM BT/ Chaff: 5.5 nm/ Medium Shoot and Move: Yes Gun Caliber: 30 mm x2 Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: SA: 12nm / FC: 10nm
	ZU-23 Tracking: Optical/ 2A13 Min Rng Guns: 0 nm / 0 ft Typical Engagement: 2.0 nm / 9,900 ft Max Rng Guns: 2.0 nm / 9,900 ft Notes: 1960. Maintain high speed, jink.	Type: Towed SHORAD ECM BT Range: N/A Shoot and Move: No Gun Caliber: 23 mm Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: N/A
	ZPU-2 (Type 58) Tracking: Optical Min Rng Guns: 0 nm / 0 ft Typical Engagement: 1.8 nm / 9,800 ft Max Rng Guns Opt: 1.8 nm / 9,800 ft Notes: 1949. Maintain high speed, jink.	Type: Towed SHORAD ECM BT Range: N/A Shoot and Move: No Gun Caliber: 14.5 mm KPV Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: N/A
	ZSU-23-4 Shilka A Tracking: OB Gun Dish Radar «J»/ Zeus Min Rng Guns: 0 nm / 0 ft Typical Engagement: 2 nm / 10,000 ft Max Rng Guns: 3 nm / 16,000 ft Notes: 1962. Maintain high speed 450+ knots, jink. Very dangerous. SA Dog Ear.	Type: Mobile SHORAD ECM BT/ Chaff: 5.5 nm/ Medium Shoot and Move: Yes Gun Caliber: 23mm 2A7 x4 Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: SA: 12nm / FC: 10nm
	ZSU-57-2 Sparka Tracking: Optical/ Type-80 Min Rng Guns: 0 nm / 2,000 ft Typical Engagement: 3 nm / 20,800 ft Max Rng Guns Opt: 3 nm / 20,800 ft Notes: 1955. Maintain high speed, jink. Gun has low accuracy.	Type: Mobile SHORAD ECM BT Range: N/A Shoot and Move: No Gun Caliber: 57mm Flak Max Vel.(mach): N/A (N/A kts) Rdr Lock Range: N/A

	B	Tracking/ Name: Search Radar/ P-35 Saturn	Type: Towed SA Radar
	15	Rdr Lock Range: SA: 250 nm Min. Altitude: 1,100 ft Notes: 1958. SA radar for SA-5. Used for EW, GCI, and SAM target acquisition.	ECM BT Range: 45 nm Chaff Vulnerability: Medium Bands (System): E/ F (PD) Initial/ Terminal: N/A
	10	Tracking/ Name: Search Radar/ 5N64S	Type: Towed SA Radar
	710	Rdr Lock Range: SA: 170 nm Min Altitude: . Notes: 1978. SA radar for SA-10B. Gives battery better range and ABM role. This 10 has lower sound and stays in outer ring.	ECM BT Range: 30 nm Chaff Vulnerability: Low Band (System): E Initial/ Terminal: N/A
	BB	Tracking/ Name: Search Radar/ 64N6E	Type: Towed SA Radar
	7BB	Rdr Lock Range: SA: 165 nm Min Range: 4.8nm / 50 ft, 40/ 1kft, 80/ 4kft Notes: 1992. Long range SA radar for SA-20A. Gives battery better range and ABM role.	ECM BT Range: 66 nm Chaff Vulnerability: Low Band (System): E (PD) Initial/ Terminal: N/A
	CS	Tracking/ Name: Search Radar/ 76N6	Type: Towed SA Radar
	7CS	Rdr Lock Range: SA: 17.3 nm (65nm) Min Range: 100 ft at 14nm down to 0 ft Notes: 1988. Low altitude SA radar for SA-20A. ALIC 620.	ECM BT Range: . Chaff Vulnerability: Medium Band (System): E (FMCW) Initial/ Terminal: N/A
	O	Tracking/ Name: Search Radar/ 9S80 Ovod	Type: Mobile SA Radar
	113	Rdr Lock Range: SA: 43 nm Min Altitude: . Notes: 1976. SA radar for SA-9, SA-13, ZSU23-4.	ECM BT Range: 30 nm Chaff Vulnerability: High Band (System): G Initial/ Terminal: N/A
	2	Tracking/ Name: SA-2 SAM Radar/ SNR-75	Type: Towed SAM Radar
	72	Rdr Lock Range: FC: 82 nm Min Altitude: Launch: 330 ft / Track: 80 ft Notes: 1960. Destroy to neutralize SA-2 site. 1 target, 2 missiles. SA radar Spoon Rest.	ECM BT Range: 12 nm Chaff Vulnerability: Medium Band (System): G (PD/ CW) Initial/ Terminal: Command/ Command Targets: 1 AZ: 120 (10) EL: 90 (10)
	2	Tracking/ Name: SA-2 SAM Radar/ SNR-75	Type: Towed SAM Radar
	72	Rdr Lock Range: FC: 62 nm Min Altitude: Launch: 330 ft / Track: 80 ft Notes: 1960. Destroy to neutralize SA-2 site. 1 target, 2 missiles. SA radar Spoon Rest.	ECM BT Range: 9 nm Chaff Vulnerability: Medium Band (System): G (PD/ CW) Initial/ Terminal: Command/ Command Targets: 1 AZ: 120 (10) EL: 90 (10)
	10	Tracking/ Name: SA-10B SAM Radar/ 30N6	Type: Mobile SAM Radar
	710	Rdr Lock Range: FC: 60 nm Min Altitude: Launch: 60 ft / Track: 60 ft Notes: 1978. Destroy to neutralize SA-10 site. Can track w/o 10 on RWR. No launch warning. SA radars Big Bird, Tin Shield, Clam Shell N/I. Higher chirp inner ring.	ECM BT Range: 36 nm HOJ Chaff Vulnerability: No effect Band (System): I/ J (PESA) Initial/ Terminal: Command/ TVM Targets: 6 AZ: 120 (60) EL: 90 (60)
	F	Tracking/ Name: Search Radar/ P-15 Tropa	Type: Mobile SA Radar
	1F	Rdr Lock Range: SA: 108 Min. Altitude: . Notes: 1955. SA radar for SA-3, SA-6, SA-13. Part of group of radars and CC systems. Spoon Rest, Side Net, rdr cntrl truck and Mercury Grass CC system N/I.	ECM BT Range: 49 Chaff Vulnerability: No effect Band (System): C (UHF Pulse) Initial/ Terminal: N/A
	L	Tracking/ Name: Search Radar/ P-40, 1S12 Bronya	Type: Mobile SA Radar
	1L	Rdr Lock Range: SA: 85 nm Min Altitude: . Notes: 1963. SA radar. Primary SA-4. Also SA-6, SA-8 and SA-11. Occasionally SA-13. Sometimes overlaps with F to look like E on RWR.	ECM BT Range: 38 nm Chaff Vulnerability: High Band (System): E Initial/ Terminal: N/A

Low Blow

3	Tracking/ Name:	SA-3 SAM Radar/ SNR-125 Neva/	Type:	Towed SAM Radar
73	Rdr Lock Range:	FC: 30 nm Pechora	ECM BT Range:	6 nm
	Minimum Altitude:	Launch: 150 ft / Track: 60 ft	Chaff Vulnerability:	Medium
	Notes:	1961. Destroy to neutralize SA-3. Beam + 6 chaff tends to break lock. Guide to one target at a time. SA radars Flat Face, Side Net, Squat Eye N/I.	Band (System):	I/ D (PD)
			Initial/ Terminal:	Command/ Command
			Targets: 1	AZ: 120 (10) EL: 90 (10)

Odd Group

B	Tracking/ Name:	Search Radar/ PRV-17 Azimut	Type:	Towed Search Radar
15	Rdr Lock Range:	SA: 167 nm	ECM BT Range:	30 nm
	Minimum Altitude:		Chaff Vulnerability:	Medium
	Notes:	1984. Height finding radar for SA-5.	Band (System):	E
			Initial/ Terminal:	N/A

Pat Hand

4	Tracking/ Name:	SA-4 SAM Radar/ 1S32	Type:	Mobile SAM Radar
74	Rdr Lock Range:	FC: 50 nm	ECM BT Range:	14 nm
	Min Altitude:	Launch: 500 ft / Track: 500 ft	Chaff Vulnerability:	Medium
	Notes:	1965. Destroy to neutralize SA-4 site. SA radar Long Track, Thin Skin N/I.	Band (System):	H (PD/ CW)
			Initial/ Terminal:	Command/ SARH
			Targets: 1	AZ: 120 (10) EL: 90 (10)

Snow Drift

D	Tracking/ Name:	Search Radar/ 9S18M1 Tube Arm	Type:	Mobile SA Radar
1D	Rdr Lock Range:	SA: 86 nm	ECM BT Range:	52 nm
	Min Altitude:	60 ft	Chaff Vulnerability:	Very Low
	Notes:	1979. SA radar for SA-11 and SA-17.	Band (System):	F
			Initial/ Terminal:	N/A

Spoon Rest

	Tracking/ Name:	Search Radar/ P-12 Yenisei	Type:	Mobile SA Radar
	Rdr Lock Range:	SA: 145 nm	ECM BT Range:	65 nm
	Min. Altitude:		Chaff Vulnerability:	High
	Notes:	1956. SA radar for SA-2, SA-11, SA-6. Part of group of radars and CC systems. Flat Face, Side Net, rdr cntrl truck and Mercury Grass CC system N/I.	Band (System):	A (VHF PD)
			Initial/ Terminal:	N/A

Square Pair

5	Tracking/ Name:	SA-5 SAM Radar/ 5N62	Type:	Towed SAM Radar
75	Rdr Lock Range:	FC: 145 nm	ECM BT Range:	26 nm
	Min. Altitude:	Launch: 1,000 ft / Track: 1,000 ft	Chaff Vulnerability:	Medium
	Notes:	1966. Destroy to neutralize SA-5 site. SA radars: Bar Lock, Odd Group. Optional radars: Tall King or Big Back, Back Net or Back Trap, Side Net, Squat Eye N/I.	Band (System):	H (PD/ CW)
			Initial/ Terminal:	Command/ SARH
			Targets: 1	AZ: 120 (10) EL: 90 (10)

Straight Flush

6	Tracking/ Name:	SA-6 SAM Radar/ 1S91 SURN	Type:	Mobile SAM Radar
76	Rdr Lock Range:	FC: 30 nm	ECM BT Range:	4 nm HOJ
	Min Altitude:	Launch: 550 ft / Track: 80 ft	Chaff Vulnerability:	Medium
	Notes:	1970. Destroy to neutralize SA-6 sites. SA radar Spoon Rest, Long Track, Flat Face, Thin Skin, Side Net, Score Board N/I.	Band (System):	G/ H/ I (PD/ CW)
			Initial/ Terminal:	Command/ SARH
			Targets: 1	AZ: 120 (10) EL: 90 (10)

Tombstone

20	Tracking/ Name:	SA-20A SAM Radar/ 30N6E1	Type:	Mobile SAM Radar
720	Rdr Max. Range:	FC: 143 nm	ECM BT Range:	72 nm HOJ
	Min Range:	4.8nm / 125 ft, 40/ 1kft, 80/4kft	Chaff Vulnerability:	Low
	Notes:	1978. Destroy to neutralize SA-20A site. No launch warning. SA radars Big Bird, Clam Shell, Tin Shield, N/I.	Band (System):	I/ J (PESA)
			Initial/ Terminal:	Command/ TVM
			Targets: 8	AZ: 120 (60) EL: 90 (60)

HN-5A Red Tassel

	Tracking/ Name:	Optical, IR Rear Aspect/ Hong Ying-5	Type:	MANPAD
	Min. Rng Missiles:	0 nm / 60 ft	ECM BT Range:	N/A
	Typical Engagement:	1.6 nm / 8,000 ft	Flare Vulnerability:	Very High
	Max Rng Missiles:	2 nm / 10,500 ft 9M32M	Init/ Term/ Pursuit:	IR Rear Aspect/ Lead
	Notes:	1970. Maintain high speed, break turn, flare.	Max Vel.(mach)	1.6 (1,058 kts) .29 nm/s
			Rdr Lock Range:	N/A

SA-2 Guideline

2	Tracking/ Name:	OC Fan Song Radar/ S-75 Dvina	Type:	Towed SAM
72	Min Rng Missiles:	4 nm / 300 ft launch / 80 ft track	ECM BT Range:	E:12 nm F:9 nm
	Typical Engagement:	16 nm / 73,000 ft	Chaff Vulnerability:	Medium
	Max Rng Missiles:	38 nm / 198,000 ft V-750	Init / Term/ Pursuit:	Cmd/ Cmd / Lead
	Notes:	1957. Break turn 4g. Beam/ split-s/ turn away. SA Spoon Rest. 13nm pump bad. Pump/ nose up/ ECM.	Max Vel.(mach):	3.6 (2,381 kts) .66 nm/s
			Rdr Lock Range:	SA: 108nm / FC: E82-F62nm

	F	3	Tracking/ Name:	OC Low Blow Radar/ S-125 Neva	Type:	Towed SAM
	1F	73	Min Rng Missiles:	2.7 nm / 150 ft launch / 60 ft track	ECM BT Range:	6 nm
			Typical Engagement:	9 nm / 45,000 ft	Chaff Vulnerability:	Medium
			Max Rng Missiles:	11 nm / 67,000 ft 5V27/ D (V601/P)	Init/ Term/ Pursuit:	Cmd/ Cmd/ Lead
			Notes:	1961. Break turn 6-7g (13g). Beam+ chaff. Beam/ split-s/ turn away. SA Flat Face, Squat Eye.	Max Vel.(mach):	2.4 (1,587 kts) .44 nm/s
					Rdr Lock Range:	SA: 108 nm / FC: 30 nm
	L	4	Tracking/ Name:	OC Pat Hand, EOTS/ 2K11 Krug	Type:	Mobile SAM TEL
	1L	74	Min Rng Missiles:	4 nm / 500 ft launch / 50 ft track	ECM BT Range:	14 nm
			Typical Engagement:	18 nm / 60,000 ft	Chaff Vulnerability:	Medium
			Max Rng Missiles:	22 nm / 80,000 ft 9M8, 9M8M1/ M2	Init/ Term/ Pursuit:	Cmd / SARH/ Lead
			Notes:	1967. Break turn 4g. Beam/ split-s/ turn away. SA Long Track. Missile can only pull 6g, weak turn.	Max Vel.(mach)	2.4 (1,587 kts) .44 nm/s
					Rdr Lock Range:	SA: 86 nm / FC: 48 nm
	B	5	Tracking/ Name:	OC Square Pair/ S-200 Angara	Type:	Towed SAM
	1B	75	Min Rng Missiles:	7 nm / 1,000 ft launch/ 1,000 ft track	ECM BT Range:	26 nm
	15		Typical Engagement:	53 nm / 123,000 ft	Chaff Vulnerability:	Medium
	15		Max Rng Missiles:	190 nm / 327,000 ft 5V21, 5V28	Init/ Term/ Pursuit:	Cmd / SARH/ Pure
			Notes:	1967. Break turn 5-6g, chaff, beam. SA Bar Lock, Odd Group PRV-17, Odd Pair PRW-13.	Max Vel.(mach)	8.0 (5,291 kts) 1.47 nm/s
					Rdr Lock Range:	SA: 250 nm / FC: 145 nm
	F	6	Tracking/ Name:	OC Straight Flush Radar/ 2K12 Kub	Type:	Mobile SAM TEL
	1F	76	Min Rng Missiles:	2 nm / 550 ft launch / 80 ft track	ECM BT Range:	4 nm HOJ
			Typical Engagement:	10 nm / 36,000 ft	Chaff Vulnerability:	Medium
			Max Rng Missiles:	20 nm / 101,500 ft 3M9	Init/ Term/ Pursuit:	Cmd / SARH/ Lead
			Notes:	1970. Beam/ chaff. Beam/ split-s/ turn away. Break turn 7-8g/ chaff. SA Flat Face.	Max Vel.(mach)	3.2 (2,116 kts) .59 nm/s
					Rdr Lock Range:	SA: 108 nm / FC: 30 nm
			Tracking/ Name:	Optical, IR Rear Aspect/ 9K32 Strela-2	Type:	MANPAD
			Min Rng Missiles:	0.2 nm / 50 ft	ECM BT Range:	N/A
			Typical Engagement:	1.5 nm / 5,000 ft	Flare Vulnerability:	Very High
			Max Rng Missiles:	2 nm / 12,000 ft 9M32	Init/ Term/ Pursuit:	IR Rear Aspect/ Lead
			Notes:	1968. Maintain high speed 4g turn to put missile on 3/9 line, flare. Carried by BMP-1, ACRV,	Max Vel.(mach)	1.6 (1,058 kts) .29 nm/s
					Rdr Lock Range:	N/A
		8	Tracking/ Name:	OB Land Roll«H/J», EOTS/ 9K33 Romb	Type:	Mobile SHORAD TELAR
		78	Min Rng Missiles:	0.8 nm / 80 ft launch / 80 ft track	ECM BT Range:	14 nm
			Typical Engagement:	4 nm / 16,000 ft	Chaff Vulnerability:	Medium
			Max Rng Missiles:	8.5 nm / 50,000 ft 9M33/ M2/ M3	Init/ Term/ Pursuit:	Cmd/ Cmd/ Lead
			Notes:	1971. Break turn 8-9g + chaff. Evade close shot with slice turn to get under 80'. 4nm shot break within 8 sec. Missile will get to you in 11s.	Max Vel.(mach)	2.0 (1,323 kts) .37 nm/s
					Rdr Lock Range:	SA: 24 nm / FC: 24 nm
					Targets: 1	AZ: 120 (10) EL: 90 (10)
	O		Tracking/ Name:	OB Pasv Flat Box«G», IR/ 9K31 Strela-1	Type:	Mobile SHORAD
	1O	113	Min Rng Missiles:	0.3 nm / 50 ft	ECM BT Range:	N/A
			Typical Engagement:	2.0 nm / 14,500 ft	Flare Vulnerability:	Very High
			Max Rng Missiles:	3.2 nm / 14,500 ft 9M31	Init/ Term/ Pursuit:	IR Rear Aspect / Lead
			Notes:	1968. Break turn 7-8g + 2 flare/ change plane of turn. In M-84 and BMP-2 battalions. 1 msl/tgt. SA Dog Ear.	Max Vel.(mach)	1.5 (992 kts) .28 nm/s
					Rdr Lock Range:	SA: 2 nm / FC: 2 nm
	10	10	Tracking/ Name:	OC Flap Lid B Radar/ S-300PS	Type:	Mobile HIMAD TEL
	110	710	Min Rng Missiles:	3 nm / 60 ft launch / 60 ft track	ECM BT Range:	36 nm HOJ
			Typical Engagement:	48 nm / 123,000 ft	Chaff Vulnerability:	No Effect
			Max Rng Missiles:	54 nm / 276,000 ft 48N6	Init/ Term/ Pursuit:	Cmd/ TVM/ Lead
			Notes:	1982. Very dangerous. No smoke or launch warning. ABM. Pump 45nm. 300'/25nm. ECM pump 32nm. SA Big Bird.	Max Vel.(mach)	5.5 (3,638 kts) 1 nm/s
					Rdr Lock Range:	SA: 170 nm / FC: 60 nm
	D	11	Tracking/ Name:	OB Fire Dome «H/I», EOTS/ Buk-M1	Type:	Mobile SAM TELAR
	1D	711	Min Rng Missiles:	1.5 nm / 180 ft launch / 100 ft track	ECM BT Range:	19 nm HOJ
			Typical Engagement:	12 nm / 54,000 ft	Chaff Vulnerability:	Very Low
			Max Rng Missiles:	20 nm / 90,000 ft 9M38, 9M38M1, ...	Init/ Term/ Pursuit:	SARH / Lead
			Notes:	1979. 2msl/tgt. No smoke. ABM. Pump/ weave x3/ pull up at 15nm. Some launch warning. SA rdr Snow Drift.	Max Vel.(mach)	2.6 (1,720 kts) .48 nm/s
					Rdr Lock Range:	SA: 85 nm / FC: 30 nm
					Targets: 6	AZ: 120 (60) EL: 90 (60)

	O 413	Tracking/ Name:	OB Snap Shot «K», *IR/ 9K35 Strela-10	Type:	Mobile SHORAD
		Min Rng Missiles:	0.1 nm / 30 ft	ECM BT Range:	4 nm
		Typical Engagement:	2 nm / 12,000 ft	Flare Vulnerability:	Very Low IRCCM
		Max Rng Missiles:	5 nm / 26,800 ft 9M37, 9M31	Init/ Term/ Pursuit:	IR All Aspect/ Lead
		Notes:	1976. Very dangerous. Optical IR skr. 13 on Thales & ALR-67 . SA rdr LT, FF, Dog Ear, Squat Eye N/I.	Max Vel.(mach)	1.6 (1,058 kts) .29 nm/s
				Rdr Lock Range:	SA: 43 nm / FC: 5 nm
		Tracking/ Name:	Optical, IR/ 9K34 Strela-3	Type:	MANPAD
		Min Rng Missiles:	0 nm / 50 ft launch / 80 ft track	ECM BT Range:	N/A
		Typical Engagement:	1.6 nm / 10,000 ft	Flare Vulnerability:	Very High
		Max Rng Missiles:	3 nm / 12,100 ft 9M36	Init/ Term/ Pursuit:	IR All Aspect/ Pure
		Notes:	1974. No smoke. Brk turn 5-7g/ flares. BMP-CMD, BMP-1.	Max Vel.(mach)	1.6 (1,058 kts) .29 nm/s
				Rdr Lock Range:	SA: N/A / FC: N/A
	15-M- 715	Tracking/ Name:	OB Scrum Half «G/H/J»/9K331 Tor-M1	Type:	Mobile SHORAD TLAR
		Min Rng Missiles:	0.5 nm / 35 ft	ECM BT Range:	13 nm
		Typical Engagement:	6.5 nm / 20,000 ft	Chaff Vulnerability:	Medium
		Max Rng Missiles:	7 nm / 42,500 ft 9M331	Init/ Term/ Pursuit:	Cmd / Lead
		Notes:	1991. Very dangerous. No smoke. ABM. 1 msl l/tgt. 2 tgts. 8 msls rdy. No shoot and move. 6nm pump+chaff. 7-8g break+chaff.	Max Vel.(mach)	3.0 (1,984 kts) .63 nm/s
				Rdr Lock Range:	FC: 16 nm
		Tracking/ Name:	Optical, IR All Aspect/ 9K310 Igla-1	Type:	MANPAD
		Min Rng Missiles:	0.2 nm / 60 ft	ECM BT Range:	N/A
		Typical Engagement:	3 nm / 10,000 ft	Flare Vulnerability:	Very Low IRCCM
		Max Rng Missiles:	3.5 nm / 19,400 ft 9M313	Init/ Term/ Pursuit:	IR All Aspect/ Lead
		Notes:	1981. No smoke. 6-7g slice+flares. 9kft mach1 straight thru. Turn to keep missile on 3-9.	Max Vel.(mach)	1.6 (1,058 kts) .29 nm/s
				Rdr Lock Range:	SA: N/A / FC: N/A
	D 4D 17	Tracking/ Name:	OB Chair Back «H/I»/ Buk M1-2 or M2	Type:	Mobile SAM TELAR
		Min Rng Missiles:	1.6 nm / 140 ft launch / 50 ft track	ECM BT Range:	30 nm HOJ
		Typical Engagement:	16.5 nm / 81,000 ft	Chaff Vulnerability:	No Effect
		Max Rng Missiles:	18.5 nm / 115,000 ft 9M317, 9M38....	Init/ Term/ Pursuit:	SARH/ Lead
		Notes:	1998. 2msl/tgt. No smoke. ABM. 14nm pump/ 2-3 weaves/ pull up. 9g slice. SA-7&14. SA Snow Drift. Link to SA-6 N/I.	Max Vel.(mach)	2.7 (1,786 kts) .50 nm/s
				Rdr Lock Range:	SA: 85 nm / FC: 40 nm
	A 19	Tracking/ Name:	OB Hot Shot«E/J»,Optcl, IR/ 2K22,9K22	Type:	Mobile SHORAD
		Max Rng Guns:	2.2 nm / 10,700 ft	ECM BT Range:	7 nm HOJ
		Typical Engagement:	6.5 nm / 10,200 ft	Chaff/ Flare Vuln:	Medium
		Max Rng Missiles:	5.7 nm / 33,000 ft 9M311	Gun Caliber:	30mm 2A38
		Notes:	1982. Very Dangerous. 1msl/tgt 6 tgts. No smoke. SAM's stationary. Missiles min. launch 0.5nm, 20 ft.	Max Vel.(mach):	2.7 (1,786 kts) .50 nm/s
				Rdr Lock Range:	SA: N/A / FC: 10 nm
	BB CS 7BB 720 7CS	Tracking/ Name:	OC Tombstone Radar/ S-300PM	Type:	Mobile HIMAD TEL
		Min Rng Missiles:	4.8 nm / 125 ft, 40/ 1kft, 80/ 4kft	ECM BT Range:	72 nm HOJ
		Typical Engagement:	81 nm / 450,000 ft	Chaff Vulnerability:	Low
		Max Rng Missiles:	95 nm / 450,000 ft 48N6	Init/ Term/ Pursuit:	Cmd/ TVM/ Lead
		Notes:	1992. Very dangerous. No smoke or launch warning. ABM. SA Big Bird, Clam Shell. 75nm dive to under 3kft. If radar inactive until 60nm, dive under 2kft.	Max Vel.(mach)	7 80nm pump 105 s
				Loses speed low.	Shorter range against low targets.
				Rdr Lock Range:	SA: 165 nm / FC: 143 nm



AN/MPQ-43 	N	Tracking:	Nike Radar	Type:	Fixed Radar HIMAD
	1P 1N	Rdr Lock Range:	SA: 76 nm / FC: 53 nm	ECM BT Range:	15 nm
		Min. Altitude:	Launch: 8,400 ft / Track: 400 ft	Chaff Vulnerability:	Medium
		Max Rng Missiles:	N/A	Bands (System):	D/ F/ I (HIPAR)
		Notes:	1961. Destroy to neutralize Nike. Passing through beam usually breaks lock.	Initial/ Terminal:	Command
				Targets:	16
					AZ: 180 (180) EL: 90 (90)
AN/MPQ-46 HPI 	H	Tracking:	I-Hawk Radar / Optical	Type:	Towed Radar HIMAD
	1MQ	Rdr Lock Range:	FC: 19-33 nm	ECM BT Range:	8 - 10 nm HOJ
		Min. Altitude:	Launch: 200 ft / Track: 0 ft	Chaff Vulnerability:	Medium
		Notes:	1971. Destroy to neutralize HAWK. FC tone at 19nm first time in. 33nm sec time. Part of group of radars. SA: AN/MPQ-50 and 55.	Bands (System):	D/ I/ J
				Initial/ Terminal:	SARH
				Targets:	1
					AZ: 120 (10) EL: 90 (10)
AN/MPQ-50 PAR 	50	Tracking:	Search Radar	Type:	Towed Search Radar
	1H	Rdr Lock Range:	SA: 36 nm	ECM BT Range:	25 nm
		Min. Altitude:	0 ft	Chaff Vulnerability:	High
		Notes:	1971. HAWK search radar. Part of group of radars. SA: AN/MPQ-50 and 55. FC: AN/MPQ 46 and 51.	Bands (System):	C (PD)
				Initial/ Terminal:	
AN/MPQ-53 	P	Tracking:	Patriot Radar	Type:	Towed Radar HIMAD
	1P	Rdr Lock Range:	SA: 77 nm and FC: 77 nm	ECM BT Range:	63 nm HOJ
		Min Altitude:	Launch: 160 ft / Track: 50 ft	Chaff Vulnerability:	No Effect ECCM
		Max Rng Missiles:	N/A	Bands (System):	G (PESA)
		Notes:	1984. Destroy to neutralize Patriot site. No launch warning. Assume launch if you hear FC tone.	Initial/ Terminal:	Command/ TVM
				Targets:	8
					AZ: 180 (180) EL: 90 (90)
AN/MPQ-55 CWAR 	55	Tracking:	Search Radar	Type:	Towed Search Radar
	1H	Rdr Lock Range:	SA: 33 nm	ECM BT Range:	~11 nm
		Min. Altitude:	0 ft	Chaff Vulnerability:	Low
		Notes:	1979. HAWK search radar. Part of group of radars. SA: AN/MPQ-50 and 55. FC: AN/MPQ 46 HPI and 51.	Bands (System):	I/ J (CW)
				Initial/ Terminal:	
OE-349 AMG 		Tracking:	UHF Antenna Mass Group PADIL	Type:	Mobil Network Antenna
		Rdr Lock Range:	SA and FC: See Patriot Radar	ECM BT Range:	See Patriot Radar
		Min Altitude:	Launch / Track: See Patriot Radar	Chaff Vulnerability:	See Patriot Radar
		Max Rng Missiles:	N/A	Bands (System):	See Patriot Radar
		Notes:	1984. Creates PADIL network between Patriot batteries/ radars. UHF shots using networked radars.	Initial/ Terminal:	See Patriot Radar
Sky Guard Rdr 	P	Tracking:	Sky Guard Radar	Type:	Towed Radar
	1R	Rdr Lock Range:	SA: 13 nm FC: 13 nm	ECM BT Range:	4 nm
		Min Altitude:	0 ft	Chaff Vulnerability:	Medium
		Max Rng Missiles:	N/A	Bands (System):	I (MP)
		Notes:	1960. Destroy to neutralize Skyguard site. SAM and AAA fire control radar.	Initial/ Terminal:	SARH
				Targets:	1
					AZ: 120 (10) EL: 90 (10)
Avenger M1097 HMMWV 		Tracking:	Optical/ IR / UV All Aspect	Type:	Mobile SHORAD
		Min Rng Missiles:	0 nm / 50 ft	ECM BT Range:	N/A
		Typical Engagement:	4 nm / 10,000 ft	Flare Vulnerability:	Very Low
		Max Rng Missiles:	4.1 nm / 20,000 ft FIM-92 Stinger	Init/ Term/ Pursuit:	IR All Aspect/ Lead
		Notes:	1989. Reduce throttle, flares, Break turn 7-9g.	Max Vel.(mach)	2.3 (1,534 kts) .43 nm/s
				Rdr Lock Range:	N/A
Chaparral 		Tracking:	OB AN/MPQ-49 FAAR/ Optcl / IR Rear	Type:	Mobile SHORAD
		Min Rng Missiles:	0 nm / 0 ft	ECM BT Range:	N/A
		Typical Engagement:	0.2 nm / 100 ft	Flare Vulnerability:	High
		Max Rng Missiles:	1.4 nm / 3,100 ft AIM-9D, MIM-72A	Init/ Term/ Pursuit:	IR Rear Aspect/ Pure
		Notes:	1969. Maintain high speed, jink. Missile loses energy very fast. No radar showed on RWR.	Max Vel.(mach)	1.2 (794 kts) .22 nm/s
				Rdr Lock Range:	SA: N/A / FC: N/A
HAWK ADS 	50	Tracking:	OC AN/MPQ-46 Hawk Radar SARH	Type:	Towed SAM HIMAD
	55	Min Rng Missiles:	0.5 nm / 200 ft launch / 0 ft track	ECM BT Range:	8 - 10 nm HOJ
	1H 1MQ	Typical Engagement:	9-12 nm / 44,000 ft	Chaff Vulnerability:	Medium
	1H	Max Rng Missiles:	18-39 nm / 62,000 ft MIM-23 Hawk	Init/ Term/ Pursuit:	SARH / Lead
		Notes:	1960. Pump 5g slice/ ECM/ Chaff 90%. Beam/ split-s/ chaff/ turn away 50%. 6g barrel roll 50%.	Max Vel.(mach)	2.5 (1,650 kts) .46 nm/s
				Rdr Lock Range:	SA: 33 nm / FC: 19-33 nm

K263 Cheongoon A 	Tracking/ Name: OB TPS-830K«I/J»/ K200-AD Rdr Lock Range: SA and FC: 6 nm Max Rng Guns: 2.0 nm / 9,900 ft Max Rng Missiles: N/A Notes: 1986. Maintain high speed, jink. ROK HQ-K263 Cheongoon, AAA-K263 Cheongoon.	Type: Mobile SHORAD ECM BT Range: N/A Flare Vulnerability: N/A Gun Caliber: 20 mm KM167A1 Max Vel.(mach) N/A
KSAM Chun-ma Pegasus C 	Tracking: OB Daewoo Radar«E/F/J»/ FLIR / EOTS Min Rng Missiles: 0 nm / 0 ft Typical Engagement: 5 nm / 10,000 ft Max Rng Missiles: 8 nm / 27,000 ft Crotale Notes: 1999. 1 msl/ tgt. No smoke. ABM. Slice down 7-9g /chaff x6/ turn away very low. Launch warning varies.	Type: Mobile SHORAD TELAR ECM BT Range: 7 nm Chaf Vulnerability: Medium Init/ Term/ Pursuit: Cmd/ Cmd/ Lead Max Vel.(mach) 3.1 (2,067 kts) .57 nm/s Rdr Lock Range: SA & FC: 10 nm
LAV-AD 	Tracking: IR/ Laser Guided Missiles Min Rng Missiles: 0 nm / 50 ft Typical Engagement: 4 nm / 10,000 ft Max Rng Missiles: 4.1 nm / 20,000 ft FIM-92 Stinger Notes: 1989. Reduce throttle, flares, break turn 7-9g. FTS.	Type: Mobile SHORAD Gun Range: 8,000 ft Flare Vulnerability: Very Low Init/ Term/ Pursuit: IR All Aspect/ Lead Max Vel.(mach) 2.3 (1,534 kts) .43 nm/s Rdr Lock Range: SA: N/A FC: N/A
M-163/M-167 Vulcan 	Tracking: OB AN/VPS2 Range Only/ M61 Optical Rdr Lock Range: SA & FC: 6nm Max Rng Guns: 2.0 nm / 9,900 ft Max Rng Missiles: N/A Notes: 1968. M-167 is towed variant. Supposed to have radar but doesn't appear on RWR.	Type: Mobile SHORAD ECM BT Range: N/A Chaf Vulnerability: N/A Gun Caliber: 20mm Max Vel.(mach) N/A
M2A2/ ADATS 	Tracking: IR / UV All Aspect Min Rng Missiles: 0 nm / 50 ft Typical Engagement: 4 nm / 10,000 ft Max Rng Missiles: 4.1 nm / 20,000 ft FIM-92 Stinger Notes: 1989. Reduce throttle, flares, break turn 7-9g.	Type: Mobile SHORAD ECM BT Range: N/A Flare Vulnerability: Very Low Init/ Term/ Pursuit: IR All Aspect/ Lead Max Vel.(mach) 2.3 (1,534 kts) .43 nm/s Rdr Lock Range: N/A
M2A2/ BSFV-ADV/ M6 BL 	Tracking: IR / UV All Aspect Min Rng Missiles: 0 nm / 50 ft Typical Engagement: 4 nm / 10,000 ft Max Rng Missiles: 4.1 nm / 20,000 ft FIM-92 Stinger Notes: 1988. Reduce throttle, flares, break turn 7-9g.	Type: Mobile SHORAD ECM BT Range: N/A Flare Vulnerability: Very Low Init/ Term/ Pursuit: IR All Aspect/ Lead Max Vel.(mach) 2.3 (1,534 kts) .43 nm/s Rdr Lock Range: N/A



Mistral

Tracking: **IR All Aspect**
 Min Rng Missiles: 0 nm / 0 ft
 Typical Engagement: **3 nm / 10,000 ft**
 Max Rng Missiles: 3 nm / 18,000 ft Mistral
 Notes: 1988. 6-7g slice down across launcher then dive away.
 No smoke.

Type: MANPAD
 ECM BT Range: N/A
 Flare Vulnerability: Very Low
 Init/ Term/ Pursuit: **IR All Aspect/ Lead**
 Max Vel.(mach) **1.7** (1,133 kts) .31 nm/s
 Rdr Lock Range: N/A

Nike Hercules

N
P
7N

Tracking: **OC Radar AN/MPQ-43**
 Min Rng Missiles: 3 nm / 3,400 ft launch / 50 ft track
 Typical Engagement: **46nm / 150,000 ft**
 Max Rng Missiles: 70 nm / 259,000 ft MIM-14
 Notes: 1961. Break turn 8-9g. Beam.

Type: Fixed HIMAD
 ECM BT Range: 15 nm
 Chaff Vulnerability: Med
 Init/ Term/ Pursuit: **Cmd / Pure then Lead**
 Max Vel.(mach) **3.7** (2,467 kts) .69 nm/s
 Rdr Lock Range: SA: 76nm / FC: 53nm

Patriot MIM-104 P

7P

Tracking: **OC AN/MPQ-53 Patriot Radar**
 Min Rng Missiles: 2 nm / 160 ft launch / 50 ft track
 Typical Engagement: **49 nm / 80,000 ft**
 Max Rng Missiles: 91 nm / 80,000 ft MIM-104
 Notes: 1984. No launch warning. ABM. Pump 40nm, up 50, turn back 60. Stingers. 2msls/ tgt. 23nm/300 ft.

Type: Towed SAM HIMAD
 ECM BT Range: 63 nm HOJ
 Chaff Vulnerability: No Effect ECCM
 Init/ Term/ Pursuit: **Cmd/ TVM/ Lead**
 Max Vel.(mach) **4.8** (3,200 kts) .89 nm/s
 Rdr Lock Range: SA: 77nm and FC: 62-77nm

Sky Guard SAM

P
7R

Tracking: **OC Sky Guard Radar**
 Min Rng Missiles: 0 nm / 0 ft
 Typical Engagement: **8 nm / 20,000 ft**
 Max Rng Missiles: 11 nm / 23,000 ft Aspide
 Notes: 1982. No smoke. Slice break turn 7g/ chaff. Bm/ split-s/ turn away. Drag to max rng.

Type: Towed SHORAD
 ECM BT Range: 4 nm / 20,000 ft
 Chaff Vulnerability: Med
 Init/ Term/ Pursuit: **SARH/ Lead**
 Max Vel.(mach) **1.6** (1,058 kts) .29 nm/s
 Rdr Lock Range: SA: 13nm / FC: 13nm

Stinger

Tracking: **Optical / IR / UV All Aspect**
 Min Rng Missiles: 0 nm / 50 ft
 Typical Engagement: **4 nm / 10,000 ft**
 Max Rng Missiles: 4.1 nm / 20,000 ft FIM-92 Stinger
 Notes: 1981. Reduce throttle, flares, break turn 7-9g.

Type: MANPAD
 ECM BT Range: N/A
 Flare Vulnerability: Very Low
 Init/ Term/ Pursuit: **IR All Aspect/ Lead**
 Max Vel.(mach) **2.3** (1,534 kts) .43 nm/s
 Rdr Lock Range: N/A



General Notes

- Performance numbers are optimum numbers on clean aircraft. This is to get an idea of the relative performance of each aircraft. Added drag, weight or pilots with varying skills will effect performance.
- RWR number is when shown AC detects F-16C52 on RWR. The detection range increases significantly if the F-16 locks the AC.
- Radar range is when shown AC typically detects F-16C52. RCS varies with target size. RCS varies with loadout and aspect N/I.
- ECM number is when shown AC has a stable lock on a jamming F-16C52 with AN/ALQ-131(V)1. AC with better radar can sometimes lock a jamming target much further away only to loose the lock right away, especially if the target maneuvered. SARH shots were usually broken at longer ranges.
- When shown AC is using ECM, its radar will be weaker so the ECM burn through # will get smaller.
- Max Mach is at 25kft with full burner and no externals. Most jets run out of fuel fast getting to top speed. Exceptions are the Su-27, 30, 33, 35 which have long range and a lot of fuel. Most AC can go faster at higher altitudes.
- Turn rate is best observed in the sim with no externals. The first numbers are sustained turn rates in level turn at 10,000 feet and 2,000 feet at 400, 300 and 200 knots. The lower number tends to be at 10,000 feet and 400 knots. The better number tends to be at 2,000 feet and 200 to 300 knots. The instant turn rate is the best turn rate experienced in a slice break turn without maintaining speed. Some AC performed better at higher or lower speeds so the speeds were adjusted during testing.
- Smoke exhaust appears at lower altitudes.
- Vertical rating is based on no externals 250 kts from 2kft, 3-4g pull to 90 deg straight up x<4k very bad, 4k bad, 6k med, 10k good, 14k<x very good. This rating can also be used to gauge an aircraft's ability to accelerate.
- Thrust numbers are in 1,000 lbs. Outside source research may not match BMS data.
- Avionics: many of the bluefor names have an AN/ prefix that were left off to save room. i.e. APG-65 would be AN/APG-65.
- MAR can be smaller using a jammer. A jammer can prevent a launch until the burn through number is reached.
- MAR is for longer range shots. At closer ranges where it is obvious that the bandit could not have shot from further away, the MAR can be smaller and when you should abort will depend on the distance to the bandit and speed of the missile.
- A fast and clean jet is needed to engage in air to air combat. Especially when the opposing aircraft have similar weapons and capabilities. The MAR should be much higher for planes carrying wing tanks because the plane will turn slower and cannot fly as fast.
- External stores increase RCS of stealth aircraft.
- If flying an F-15C, multiply radar detection ranges by 1.32.

Abbreviations

AESA	Active Electronically Scanned Array
AC	Aircraft
CFT	Conformal Fuel Tank
CMD5	Counter Measure Dispensing System
DASH	Display and Sight Helmet
DVI	Direct Voice Input
ECM	Electronic Counter Measures
FLIR	Forward Looking Infrared
HMCS	Helmet Mounted Cuing System
IDM	Improved Data Modem or similar system
IRST	Infrared Search and Track
MAR	Minimum Abort Range
RAM	Radar Absorbent Materials
RCS	Radar Cross Section
RWR	Radar Warning Receiver
SEAM	Sidewinder Extended Acquisition Mode
TDL	Tactical Data Link such as Link 16 or similar
T/W	Thrust to weight ratio
TV	Thrust Vector
VG	Variable Geometry (Swing Wings)
VTAS	Helmet Mounted Visual Target Acquisition System
« »	Radar Band

RWR Symbols

- ⤴ Top symbol AN/ALR-69(V), AN/ALR-56M
- ⤵ Bottom symbol AN/ALR-93(V)1



G4 Super Galeb 		Type: Attack (Super Galeb/ Seagull, N-62)	Max Vel. Mach	0.81	MAR:07
		Armament: AA-8	Hard Points:	4/ 2-AA	
		RWR: 30 nm Iskra SD-1	CMDs/ ECM:	Yes/ No	
		Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>	Vertical:	Bad Viper MK-632 (3.9k)	
		Notes: 1984. Slow attack aircraft.	Turn Rate °/sec:	10 / Instant: 21	
			Roll:	Very good	
J-5/Mig-17F Fresco 		Type: Attack (Shenyang J-5, PLAAF, Fresco-C)	Max Vel. Mach	0.9	MAR:02
		Armament: 37mm and 23mm guns only	Hard Points:	4/ No AA	
		RWR: N/A	CMDs/ ECM:	No/ No	
		Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>	Vertical:	Bad VK-1F (14.9k)	
		Notes: 1952. Smoke exhaust. Very good turn rate at slow speeds.	Turn Rate °/sec:	16 - 22/ Instant: 31 (0.2nm Ø)	
			Roll:	Good	
J-7G Fishcan 	21	Type: Fighter (Chengdu, PLAAF)	Max Vel. Mach	1.77	MAR:08
	1	Armament: PL-7, PL-8, AA-2B, AA-2C, 30mm	Hard Points:	4/ 4AA	
		RWR: 24 nm RKL-204 Radar: SL-3 «E/G»	CMDs/ ECM:	Yes/ No ECM	
		Radar Range: Up: <u>9 nm</u> Down: <u>2 nm</u> ECM: <u>5 nm</u>	Vertical:	Medium Liyang WP-7C (13.6K)	
		Notes: 2003.	Turn Rate °/sec:	10 - 13 / Instant: 18 (0.4nm Ø)	
			Roll:	Very Good	
J-8I Finback 	21	Type: Interceptor (Shenyang, PLAAF, Finback-A)	Max Vel. Mach	1.7	MAR:08
	1	Armament: PL-7, PL-8, 23 mm	Hard Points:	5/ 4AA	
		RWR: 29 nm RKL-204 Radar: SL-7A «E/G»	CMDs/ ECM:	Yes/ No ECM	
		Radar Range: Up: <u>9 nm</u> Down: <u>2 nm</u> ECM: <u>5 nm</u>	Vertical:	Good Liming WP-7A (26.4k)	
		Notes: 1985. Smoke exhaust.	Turn Rate °/sec:	12-15/ Instant: 18 (0.3nm Ø)	
			Roll:	Very Good	
J-11 Flanker 	27	Type: Multi-role Fighter (PLAAF, Flanker-L)	Max Vel. Mach	1.68	MAR:15
	27	Armament: AA-8, AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	10/ 10AA	
		RWR: 29 nm SPO-15 Rdr: NIIP N001VE «I»	CMDs/ ECM:	Yes/ Sorbtsiya	
		Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>35 nm</u>	Vertical:	Good Lyulka AL-31F (59.4k)	
		Notes: 1995. No smoke. Long range. DASH N/I. Chinese copy of Su-27SK.	Turn Rate °/sec:	13 - 17/ Instant: 24 (0.2nm Ø)	
			Roll:	Very Good	
J-15 Flanker 	30	Type: Multi-role (Flying Shark, PLAAF, Flanker-X2)	Max Vel. Mach	1.6	MAR:17
	30	Armament: PL-8, PL-10E, PL-12	Hard Points:	11/ 4AA +2 Heat	
		RWR: 29 nm SPO-15 Radar: NIIP N011 «I»	CMDs/ ECM:	Yes / Integrated ECM	
		Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>30 nm</u>	Vertical:	Good Shenyang WS-10 (60k)	
		Notes: 2013. Naval. HMCS. No smoke exhaust. Long range. Copy of Su-33/ Su-27K.	Turn Rate °/sec:	13 - 18/ Instant: 24 (0.2nm Ø)	
			Roll:	Good	
J-16 Flanker 	J	Type: Multi-role (Hidden Dragon, PLAAF, Flanker-N)	Max Vel. Mach	1.85	MAR:17
	20	Armament: PL-10E, PL-12, PL-15, PL-17	Hard Points:	12-22	
		RWR: 29 nm SPO-29 Radar: KLJ-5 «I»	CMDs/ ECM:	Yes / Integrated ECM	
		Radar Range: Up: <u>75 nm</u> Down: <u>75 nm</u> ECM: <u>55 nm</u>	Vertical:	Good Shenyang WS-10A (60k)	
		Notes: 2015. HMCS. IDM. No smoke exhaust. Long range.	Turn Rate °/sec:	13 - 17/ Instant: 24 (0.2nm Ø)	
			Roll:	Good	
J-20 Black Eagle 	22	Type: Fighter (Mighty Dragon, PLAAF)	Max Vel. Mach	1.7	MAR:17
	20	Armament: PL-10E, PL-12, PL-15	Hard Points:	4/ 4AA+2 Heat	
		RWR: 48 nm Radar: KLJ-5 «I»	CMDs/ ECM:	Yes / Integrated ECM	
		Radar Range: Up: <u>75 nm</u> Down: <u>75 nm</u> ECM: <u>55 nm</u>	Vertical:	Good Shenyang WS-10C (64k)	
		Notes: 2017. HMCS. No smoke exhst. EASA, IRST, EOTS N/I. Stealth. Supercruise 1.04	Turn Rate °/sec:	13 - 16/ Instant: 25 (0.3nm Ø)	
			Roll:	Very Good	
Mig-17PF Fresco 	A	Type: Multi-role Fighter (Fresco-D)	Max Vel. Mach	0.9	MAR:04
	19	Armament: AA-1, 23mm	Hard Points:	4/ 4AA	
		RWR: N/A Radar: RP-5 Izumrud-5 «I»	CMDs/ ECM:	No/ No	
		Radar Range: Up: <u>7 nm</u> Down: <u>N/A</u> ECM: <u>4 nm</u>	Vertical:	Bad VK-1F (14.8k)	
		Notes: 1955. Smoke exhaust.	Turn Rate °/sec:	12 - 22/ Instant: 32 (0.2nm Ø)	
			Roll:	Good	
Mig-19PM/ J-6B 	A	Type: Fighter (Farmer-E)	Max Vel. Mach	0.84	MAR:07
	19	Armament: AA-2B, AA-2C	Hard Points:	6/ 4AA	
		RWR: N/A Radar: RP-ZU Izumrud-2 «I»	CMDs/ ECM:	No/ No	
		Radar Range: Up: <u>7 nm</u> Down: <u>N/A</u> ECM: <u>4 nm</u>	Vertical:	Bad Tumansky RD-9B (14.4k)	
		Notes: 1957/ 1962. Smoke exhaust.	Turn Rate °/sec:	9 - 18/ Instant: 30 (0.2nm Ø)	
			Roll:	Medium	

	Mig-19SF Farmer	Type: Attack (Farmer-C) Armament: Cannon 30mm x3 RWR: N/A Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1956. Smoke exhaust. F-6 and J-6 are Chinese copies.	Max Vel. Mach 0.83 Hard Points: 4/ No AA CMDs/ ECM: No/ No Vertical: Very Bad T. RD-9BF-1 (14.6k) Turn Rate °/sec: 9 - 19/ Instant: 31 (0.2nm Ø) Roll: Medium	MAR:02
	Mig-21F-13 Fishbed 21	Type: Multi-role Fighter (Fishbed-E) Armament: <u>AA-1</u> , <u>AA-2C</u> Cannon 30mm RWR: N/A SPO-2 N/I Radar:SRD-5M «I» Radar Range: Up: <u>11 nm</u> Down: <u>2 nm</u> ECM: <u>4 nm</u> Notes: 1955. Smoke exhaust. Easy to break radar lock.	Max Vel. Mach 1.40 Hard Points: 3/2AA CMDs/ ECM: ASO-21/ SPS-141 pod Vertical: Bad T. R-11F-300 (12.7k) Turn Rate °/sec: 8 - 11/ Instant: 18 (0.3nm Ø) Roll: Good	MAR:07
	Mig-21bis Fishbed 21	Type: Multi-role Fighter (Fishbed-N) Armament: <u>AA-2B</u> , <u>AA-2C</u> , <u>AA-8</u> RWR: 29 nm SPO-10 Radar: SOD-57M «I» Radar Range: Up: <u>31 nm</u> Down: <u>24 nm</u> ECM: <u>12 nm</u> Notes: 1958. Smoke exhaust.	Max Vel. Mach 1.38 Hard Points: 5/4AA or +2 AA-8 CMDs/ ECM: Yes / SPS-141 Pod Vertical: Bad Tumansky R-25-300(15.7k) Turn Rate °/sec: 8 - 13/ Instant: 18 (0.3nm Ø) Roll: Good	MAR:08
	Mig-21MF Fishbed 21	Type: Multi-role Fighter (Fishbed-J) Armament: <u>AA-2B</u> , <u>AA-2C</u> , <u>AA-8</u> RWR: 24 nm SPO-2 Radar: RP-21M «I» Radar Range: Up: <u>23 nm</u> Down: <u>3 nm</u> ECM: <u>4 nm</u> Notes: 1958. Smoke exhaust. Easy to break lock. Samotsvet IR sight N/I.	Max Vel. Mach 1.46 Hard Points: 5/4AA CMDs/ ECM: No / SPS-141 Pod Vertical: Bad T. R-11F2S-300 (13.6k) Turn Rate °/sec: 9 - 11/ Instant: 17 (0.3nm Ø) Roll: Good	MAR:08
	Mig-23ML Flogger 23	Type: Multi-role Fighter (Flogger-G) Armament: <u>AA-2B</u> , <u>AA-2C</u> , <u>AA-7A</u> , <u>AA-7B</u> , <u>AA-8</u> RWR: 29 nm SPO-15 Radar: Sapfir 23ML «I» Radar Range: Up: <u>30 nm</u> Down: <u>14 nm</u> ECM: <u>10-20 nm</u> Notes: 1978. Smoke. Accelerate in turn. IRST TP 23ML N/I. VG wings. IDM.	Max Vel. Mach 1.6 Hard Points: 5/4AA or +2 AA-8's CMDs/ ECM: Yes / SPS-141 Pod Vertical: Good R-35F-300 (28.7k) Turn Rate °/sec: 13 - 25/ Instant: 27 (0.1nm Ø) Roll: Medium	MAR:12
	Mig-25 Foxbat 25	Type: Interceptor Armament: <u>AA-6A</u> , <u>AA-6B</u> , <u>AA-7A</u> , <u>AA-7B</u> , <u>AA-8</u> RWR: 29 nm Sirena-3 Radar:RP-25 Smerch «J» Radar Range: Up: <u>46 nm</u> Down: <u>21 nm</u> ECM: <u>8-12 nm</u> Notes: 1967. Bad pitch. Smoke. Hard to lock low or bm AC. ECM uses AA slot. No gun.	Max Vel. Mach 2.6 Hard Points: 5/4AA or +2 AA-8's CMDs/ ECM: Yes / SPS-141 MWGE Pod Vertical: Bad R31-300 (54k) Turn Rate °/sec: 9 - 14/ Instant: 17 (0.3nm Ø) Roll: Medium	MAR:12
	Mig-27 Flogger	Type: Attack Armament: <u>AA-2C</u> , <u>AA-7B</u> , <u>AA-8</u> RWR: 20 nm SG-1 Radar: N/A Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1975. Smoke exhaust. VG wings 380. IDM.	Max Vel. Mach 1.74 Hard Points: 7/4AA or +2 AA-8 CMDs/ ECM: Yes / SPS-141 Pod Vertical: Medium R-29B-300 (17.7k) Turn Rate °/sec: 13 - 25/ Instant: 28 (0.2nm Ø) Roll: Very Good	MAR:08
	Mig-29A Fulcrum 29	Type: Multi-role Fighter (Fulcrum-A) Armament: <u>AA-8</u> , <u>AA-10A</u> , <u>AA-11</u> RWR: 30 nm SPO-15 Radar:N019 Sapfir 29 «I» Radar Range: Up: <u>34 nm</u> Down: <u>34 nm</u> ECM: <u>12-14 nm</u> Notes: 1983. HMCS. Smoke exhaust. Break lock with beam or hard 180. IDM. IRST N/I.	Max Vel. Mach 2.0 Hard Points: 7/6AA CMDs/ ECM: Yes BVP-30-26M/ No Vertical: Very Gd Kilmov RD33 (36.6k) Turn Rate °/sec: 13 - 24 / Instant: 28 (0.2nm Ø) Roll: Good	MAR:12
	Mig-29G Fulcrum 29	Type: Multi-role Fighter (Fulcrum-B, GAF) Armament: <u>AA-8</u> , <u>AA-10A</u> , <u>AA-11</u> RWR: 30 nm SPO-15 Radar:N019 Sapfir 29 «I» Radar Range: Up: <u>34 nm</u> Down: <u>34 nm</u> ECM: <u>12-14 nm</u> Notes: 1995. HMCS. Smoke exhaust. Break lock with beam or hard 180. IDM. IRST N/I.	Max Vel. Mach 1.8 Hard Points: 7/6AA CMDs/ ECM: Yes/ No Vertical: Very Gd Kilmov RD33 (36.6k) Turn Rate °/sec: 13 - 24 / Instant: 28 (0.2nm Ø) Roll: Good	MAR:12
	Mig-29M Fulcrum 29	Type: Multi-role Ftr (Fulcrum-F, Super Fulcrum) Armament: <u>AA-8</u> , <u>AA-10A</u> / <u>B</u> / <u>C</u> / <u>D</u> , <u>AA-11</u> , <u>AA-12</u> RWR: 30 nm SPO-15 Radar:N010 Zhuk-M «I» Radar Range: Up: <u>34 nm</u> Down: <u>34 nm</u> ECM: <u>12-14 nm</u> Notes: 1989. HMCS. Not tested. IRST N/I. Target pod. IDM.	Max Vel. Mach 1.8 Hard Points: 9/8AA Can carry 8 Adders CMDs/ ECM: Yes/ Int. ECM Vertical: Very Gd K. RD33K (38.6k) Turn Rate °/sec: 13 - 24 / Instant: 28 (0.2nm Ø) Roll: Good	MAR:15

Mig-29S Fulcrum 	29	Type:	Multi-role Fighter (Fulcrum-C)	Max Vel. Mach	2.0	MAR:15
	29	Armament:	AA-8, AA-10A, AA-11, AA-12	Hard Points:	7/6AA	Can carry 6 Adders
Mig-31 Foxhound 	31	RWR:	30 nm SPO-15 Radar:N019M Topaz «I»	CMDs/ ECM:	Yes/ Int. ECM L-203 Gardenya	
	31	Radar Range:	Up:34 nm Down:34 nm ECM:12-14 nm	Vertical:	Very Gd Kilmov RD33 (36.6k)	
Q-5N Fantan 		Notes:	1992. HMCS. Smoke exhaust. Break lock with beam or hard 180. IDM. IRST N/I.	Turn Rate °/sec:	13 - 24 / Instant: 28 (0.2nm Ø)	
				Roll:	Good	
Su-7BMK Fitter 	41	Type:	Interceptor	Max Vel. Mach	1.7	MAR:20
		Armament:	AA-6B, AA-8, AA-9, AA-10B /C, AA-11	Hard Points:	8AA +2 with AA-8's	
Su-15 Flagon-F 	43	RWR:	29 nm SPO-15 Radar: Zaslon RP-31 «J»	CMDs/ ECM:	Yes APP-50/ No	
		Radar Range:	Up:65 nm Down:60 nm ECM:20 nm	Vertical:	Med. Soloviev D-30 F6 (68.2k)	
Su-17 Fitter-C 		Notes:	1979. IRST N/I. Smoke. Brk lock bm. Long range AA-9 msls. IDM.	Turn Rate °/sec:	13 - 20/ Instant: 25 (0.2nm Ø)	
				Roll:	Good	
Su-20 Fitter-C 		Type:	Attack (PLAAF)	Max Vel. Mach	0.78	MAR:05
		Armament:	AA-2C, PL-7, 23 mm cannon	Hard Points:	10/ 4AA	
Su-22 Fitter-F 		RWR:	20 nm SPO-2, Sirena-2	CMDs/ ECM:	No/ No	
		Radar Range:	Up:N/A Down:N/A ECM:N/A	Vertical:	Med. LW-6A or RD-9(16.4k)	
Su-24 Fencer 	41	Notes:	1970. Smoke exst. Chinese Mig-19 derivative.	Turn Rate °/sec:	11 - 18/ Instant: 24 (0.2 nm Ø)	
				Roll:	Medium	
Su-25 Frogfoot 		Type:	Fighter Bomber	Max Vel. Mach	1.6	MAR:02
		Armament:	30mm cannon	Hard Points:	6/ No AA	
Su-25 Frogfoot 		RWR:	20 nm Kremniy-2 Radar:SRD-5M «I»	CMDs/ ECM:	No / No	
		Radar Range:	Up:7 nm Down:N/A ECM:1 nm	Vertical:	Good Lyulka AL-7F-1 (22.1k)	
Su-25 Frogfoot 		Notes:	1967. Ranging Radar. Easy to break lock. Smoke exhaust.	Turn Rate °/sec:	11 - 20/ Instant: 25 (0.2nm Ø)	
				Roll:	Good	
Su-25 Frogfoot 		Type:	Interceptor (Su-15TM)	Max Vel. Mach	1.58	MAR:07
		Armament:	AA-1, AA-2C, AA-8N/I	Hard Points:	4/4AA	
Su-25 Frogfoot 		RWR:	29 nm Sirena-3 Radar:Taifun-M «I»	CMDs/ ECM:	Yes/ Int. ECM	
		Radar Range:	Up:16 nm Down:13 nm ECM:8 nm	Vertical:	Med Tumansky R13-300 (19k)	
Su-25 Frogfoot 		Notes:	1969. Smoke exst. Low fuel short range. Easy to break lock over 10nm. Bm works.	Turn Rate °/sec:	14 - 23/ Instant: 27 (0.2nm Ø)	
				Roll:	Very good	
Su-25 Frogfoot 		Type:	Attack	Max Vel. Mach	2.0	MAR:07
		Armament:	AA-2C, AA-8	Hard Points:	8/ 4AA	
Su-25 Frogfoot 		A:	29 nm SPO-3 Sir.-10 Rdr:K.(1)/SRD-5M«I»	CMDs/ ECM:	No / SPS-141 MWGE Pod	
		Radar Range:	Up:4 nm Down:4 nm ECM:2 nm	Vertical:	Medium AL-7F-1 (22.1k)	
Su-25 Frogfoot 		Notes:	1971. Short range. Smoke exhaust. ECM uses AA slot. VG wings.	Turn Rate °/sec:	14 - 23/ Instant: 28 (0.2nm Ø)	
				Roll:	Good	
Su-25 Frogfoot 		Type:	Attack (Su-17M)	Max Vel. Mach	2.0	MAR:07
		Armament:	AA-2C, AA-8	Hard Points:	8/ 4AA	
Su-25 Frogfoot 		RWR:	29 nm SPO-3 Sir.-10 Rdr:K.(1)/SRD-5M«I»	CMDs/ ECM:	No/ SPS-141 MWGE Pod	
		Radar Range:	Up:4 nm Down:4 nm ECM:2 nm	Vertical:	Medium AL-21F-3 (24.8k)	
Su-25 Frogfoot 		Notes:	1973. Short range. ECM uses AA slot. Smoke. VG wings.	Turn Rate °/sec:	15 - 23/ Instant: 28 (0.2nm Ø)	
				Roll:	Good	
Su-25 Frogfoot 		Type:	Attack (Su-17M2)	Max Vel. Mach	2.0	MAR:07
		Armament:	AA-2C, AA-8	Hard Points:	8/ 4AA	
Su-25 Frogfoot 		RWR:	29 nm SPO-3 Sirena-10 Radar: Komar «I»	CMDs/ ECM:	Yes / SPS-141 MWGE Pod	
		Radar Range:	Up:4 nm Down:4 nm ECM:2 nm	Vertical:	Good T. R29-BS300 (25.3k)	
Su-25 Frogfoot 		Notes:	1976. Short range. Smoke exhaust. VG wings. Export version.	Turn Rate °/sec:	14 - 23/ Instant: 30 (0.2nm Ø)	
				Roll:	Good	
Su-25 Frogfoot 	41	Type:	Attack (Fencer-C)	Max Vel. Mach	2.19	MAR:07
		Armament:	AA-8, 30mm gattling cannon	Hard Points:	7/2AA	
Su-25 Frogfoot 		RWR:	44 nm SPO-15 Radar: Orien «E/G»	CMDs/ ECM:	SPS-5-2x/Int. ECM SPS161/162	
		Radar Range:	Up:16 nm Down:16 nm ECM:7 nm	Vertical:	Med. Lyulka AL-21F-3 (49.6k)	
Su-25 Frogfoot 		Notes:	1974. Can sustain turn with no AB. VG wings. Smoke exhaust.	Turn Rate °/sec:	14 - 19/ Instant: 23 (0.3nm Ø)	
				Roll:	Good x>220 kts	
Su-25 Frogfoot 		Type:	Attack (Grach)	Max Vel. Mach	0.86	MAR:07
		Armament:	AA-8	Hard Points:	10/ 2AA	
Su-25 Frogfoot 		RWR:	20 nm SPO-15 Radar:DISS-7 N/I	CMDs/ ECM:	Yes / SPS-141 MWGE Pod	
		Radar Range:	Up:N/A Down:N/A ECM:N/A	Vertical:	Bad Tumansky R-95 (17.6k)	
Su-25 Frogfoot 		Notes:	1981. Faster at altitudes below 10kft. 25kft clng. Very tough. IDM.	Turn Rate °/sec:	9 - 15/ Instant: 21 (0.2nm Ø)	
				Roll:	Medium	

Su-39 Frogfoot



	A-1H Skyraider		Type: Attack (AD-6, Sandy, Spade, Hobo, Firefly) Armament: No missiles. 4x 20mm guns. RWR: N/A Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1954. Tough armored attack and FAC aircraft.	Max Vel. Mach 0.51 Hard Points: 15/0AA CMDs/ ECM: No / No Vertical: Medium Wright R-3550 26WA Turn Rate °/sec: 7 - 24/ Instant: 25 (0.2nm Ø) Roll: Medium	MAR:02
	A-4E Skyhawk		Type: Attack (A4D-5) Armament: <u>AIM-9J/ M/ P</u> , 2x 20mm cannon RWR: 49 nm AN/ALR-45 Radar:AN/APG-53A«J» Radar Range: Up: <u>4.7 nm</u> Down: <u>4.7 nm</u> ECM: <u>2.5 nm</u> Notes: 1963. Smaller RCS than F-16, much harder to detect. Smoke.	Max Vel. Mach 0.95 Hard Points: 5/4AA CMDs/ ECM: No / <u>ALQ-51 N/I</u> Vertical: Medium J52-P6A (8.5k) Turn Rate °/sec: 11 - 14/ Instant: 21 (0.2nm Ø) Roll: Very Good	MAR:07
	A-4E Agressor		Type: Attack (A4D-5, Mongoose) Armament: <u>AIM-9J/ M/ P</u> , 2x 20mm cannon RWR: 49 nm AN/ALR-45 Radar:AN/APG-53A«J» Radar Range: Up: <u>4.7 nm</u> Down: <u>4.7 nm</u> ECM: <u>2.5 nm</u> Notes: 1969. Smaller RCS than F-16, much harder to detect. Smoke.	Max Vel. Mach 0.95 Hard Points: 5/4AA CMDs/ ECM: No / <u>ALQ-51 N/I</u> Vertical: Medium J52-P-408 (11.2k) Turn Rate °/sec: 11 - 14/ Instant: 21 (0.2nm Ø) Roll: Very Good	MAR:07
	A-4PTM Skyhawk		Type: Attack (Peculiar to Malaysia, RMAF) Armament: <u>AIM-9J/ M/ P</u> , 2x 20mm cannon RWR: 49 nm ALR-45/50 Radar:AN/APQ-145«J» Radar Range: Up: <u>4.7 nm</u> Down: <u>4.7 nm</u> ECM: <u>2.5 nm</u> Notes: 1984. Smaller RCS than F-16, much harder to detect. Smoke.	Max Vel. Mach 0.95 Hard Points: 5/4AA CMDs/ ECM: No / <u>ALQ-162 N/I</u> Vertical: Medium J52-P408 (11.2k) Turn Rate °/sec: 11 - 14/ Instant: 21 (0.2nm Ø) Roll: Very Good	MAR:07
	A-4SU Super Skyhawk		Type: Attack (RSAF) Armament: <u>AIM-9J/ M/ P</u> , 2x 20mm cannon RWR: 49 nm ALR-45/50 Radar:AN/APQ-145«J» Radar Range: Up: <u>4.7 nm</u> Down: <u>4.7 nm</u> ECM: <u>2.5 nm</u> Notes: 1974. Smaller RCS than F-16, much harder to detect. Smoke.	Max Vel. Mach 0.95 Hard Points: 5/4AA CMDs/ ECM: No / <u>ALQ-162 N/I</u> Vertical: Medium F-404-GE-100D(11k) Turn Rate °/sec: 11 - 14/ Instant: 21 (0.2nm Ø) Roll: Very Good	MAR:07
	41	⌒	Type: Attack Armament: No missiles. No gun. RWR: 49 nm AN/ALR-67 Radar:APQ-148 «E/G» Radar Range: Up: <u>21 nm</u> Down: <u>21 nm</u> ECM: <u>12 nm</u> Notes: 1979. IDM. Smoke.	Max Vel. Mach 0.93 Hard Points: 5/0AA CMDs/ ECM: Yes / No Vertical: Bad J52-P8B (18.6k) Turn Rate °/sec: 9 - 13/ Instant: 25 (0.3nm Ø) Roll: Good	MAR:00
	41	⌒	Type: Attack (USN) Armament: <u>AIM-9M/ P</u> , 20mm cannon RWR: 49 nm AN/ALR-45 Radar: APQ-128«E/G» Radar Range: Up: <u>22 nm</u> Down: <u>22 nm</u> ECM: <u>12 nm</u> Notes: 1970. IDM. Terrain following radar. Smoke.	Max Vel. Mach 0.90 Hard Points: 8/2AA CMDs/ ECM: Yes / No Vertical: Very Bad TF41-A-2 (15k) Turn Rate °/sec: 12 - 18/ Instant: 26 (0.2nm Ø) Roll: Good	MAR:07
	A-10A/ C Warthog		Type: Attack (Thunderbolt II) Armament: <u>AIM-9M/ P</u> , 30 mm GAU-8/A Avenger RWR: 29 nm ALR-69 Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1977. Tough armored attack aircraft. C=IDM, TDL.	Max Vel. Mach 0.65 Hard Points: 11/2AA CMDs/ ECM: Yes/ <u>ALQ-119 pod</u> Vertical: Med T34 GE 100 (18k) Turn Rate °/sec: 11 - 16/ Instant:21 (0.3 nm Ø) Roll: Bad	MAR:07
	37	⌒	Type: Multi-role Fighter (Attack Jakt) Armament: <u>AIM-9M</u> , <u>AIM-120B</u> , <u>Skyflash</u> RWR: 29 nm SATT Elektronik Radar:PS-37A«I» Radar Range: Up: <u>32 nm</u> Down: <u>32 nm</u> ECM: <u>20 nm</u> Notes: 1971. Swedish. Ground wpns N/I. Can't put in TE.	Max Vel. Mach 1.69 Hard Points: 6/6AA CMDs/ ECM: Yes/ <u>Ericson Erijammer Pod N/I</u> Vertical: Bad Volvo RM8A (26k) Turn Rate °/sec: 9 - 12/ Instant: 22 (xx nm Ø) Vert/ Roll: Good	MAR:17
	43	⌒	Type: Attack (A-11 Ghibli, ITAF) Armament: <u>AIM-9M</u> RWR: 30 nm ELT-156X Radar:EL/M20001B«I» Radar Range: Up: <u>21 nm</u> Down: <u>21 nm</u> ECM: <u>15 nm</u> Notes: 1989. Supposed to be range only radar. Smoke.	Max Vel. Mach 0.94 Hard Points: 6/2AA CMDs/ ECM: Yes/ Integrated ECM ELT-558 Vertical: Very Bad RB168MK807 (11k) Turn Rate °/sec: 7 - 10/ Instant: 20 (0.3nm Ø) Roll: Good	MAR:07

  	AV-8B Harrier II 18	Type: Attack Armament: AIM-9M RWR: 49 nm AN/ALR-67 Radar: AN/APG-65 N/I Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1985. V/STOL. Smoke. HMCS.	Max Vel. Mach 0.83 Hard Points: 6/4AA CMDS/ ECM: Yes/ Int ECM Vertical: Very Bad F402RR408 (23.8k) Turn Rate °/sec: 6 - 11/ Instant: 16 Roll: Very Good	MAR:07
	AV-8B Harrier II+ 18	Type: Attack Armament: AIM-9M, AIM-120B RWR: 49 nm AN/ALR-67 Radar: AN/APG-65 «I» Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>25 nm</u> Notes: 1993. V/STOL. Smoke. HMCS.	Max Vel. Mach 0.83 Hard Points: 6/4AA CMDS/ ECM: Yes/ Int ECM Vertical: Very Bad F402RR408 (23.8k) Turn Rate °/sec: 6 - 11/ Instant: 16 Roll: Very Good	MAR:17
	CF-188 Hornet 18	Type: Multi-role Fighter Armament: AIM-7F/ M, AIM-9H/J/ M/ P, AIM-120B RWR: 49 nm AN/ALR-67 Radar: AN/APG-73 «I» Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>25 nm</u> Notes: 1982. RCAF. IDM. TDL.	Max Vel. Mach 1.59 Hard Points: 7/8AA/ 12AA CMDS/ ECM: Yes/ Int ECM Vertical: Very Good F-404-GE-400 (32k) Turn Rate °/sec: 14 - 18/ Instant: 21 Roll: Good	MAR:17
	EA-6B Prowler 41	Type: Attack (Electronic Intruder, USN, USMC) Armament: No AA missiles. No gun. RWR: 49 nm ALQ-99,32,162 Rdr: APQ-129 «E/G» Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>39nm</u> Notes: 1971. Electronic warfare. IDM. TDL. AGM-88, jmr pods, tanks only. Jam 40nm r.	Max Vel. Mach 0.93 Hard Points: 5/0AA CMDS/ ECM: Yes/ Int ECM, AN/ALQ-99 pod Vertical: Bad J-52-P-408A (20.8k) Turn Rate °/sec: 7 - 14/ Instant: 26 (0.2 nm Ø) Roll: Medium	MAR:00
	EA-18G Growler 18	Type: Attack Armament: AIM-120C . No gun. RWR: 49 nm ALQ-128 Radar: AN/APG-79 «I» Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>25 nm</u> Notes: 2009. Electronic warfare. HMCS. IDM. TDL. AGM-88, tanks & pods only. Jam 40nm.	Max Vel. Mach 1.48 Hard Points: 9/2AA CMDS/ ECM: Yes/ Int ECM, AN/ALQ-99 pod Vertical: Medium F-414-GE-400 (44k) Turn Rate °/sec: 11 - 15/ Instant: 20 (0.3 nm Ø) Roll: Very Good	MAR:20
	Eurofighter GAF E	Type: Multi-role Fighter (Eurofighter) Armament: AIM-120C, IRIS-T, Meteor RWR: 44 nm PIRATE Radar: CAPTOR-M «I» Radar Range: Up: <u>89 nm</u> Down: <u>89 nm</u> ECM: <u>57 nm</u> Notes: 2002. HMCS. IDM. TDL. Supercruise m. 1.29. PIRATE IRST. 8.8g turn in mil.	Max Vel. Mach 1.97 Hard Points: 13/6AA +2 IRIS-T CMDS/ ECM: Yes/ Int ECM Vertical: Very Gd Eurojet EJ200 (40.5k) Turn Rate °/sec: 17 - 25 / Instant: 28 (0.2 nm Ø) Roll: Very Good	MAR:56
	F-4D ROKAF 4	Type: Fighter Bomber (Phantom II) Armament: AIM-7M, AIM-9M, AIM-9P RWR: 29 nm AN/APR-36/37, AN/ALR-46 Radar Range: Up: <u>20 nm</u> Down: <u>20 nm</u> ECM: <u>8 nm</u> Notes: 1965. Gun. Smoke AN/APQ-109 radar «I».	Max Vel. Mach 1.6 Hard Points: 9/4AA + 4 AIM-9 CMDS/ ECM: Yes/ AN/ALQ-119 pod Vertical: Medium J79-GE-15B (34k) Turn Rate °/sec: 9 - 12/ Instant: 17 (0.4 nm Ø) Roll: Very Good/ very bad with α	MAR:13
	F-4E ROKAF 4	Type: Fighter Bomber (Phantom II Rhino) Armament: AIM-7M, AIM-9M/ P RWR: 29 nm AN/APR-36/37, AN/ALR-46 Radar Range: Up: <u>30 nm</u> Down: <u>30 nm</u> ECM: <u>13 nm</u> Notes: 1965. Gun. Smoke. AN/APQ-120 rdr «I». Likes to be fast.	Max Vel. Mach 1.6 Hard Points: 9/4AA + 4 AIM-9 CMDS/ ECM: Yes/ AN/ALQ-119 pod Vertical: Med J79-GE-17C/ 17E (35.8k) Turn Rate °/sec: 10 - 13/ Instant: 17 (0.4 nm Ø) Roll: Very Good/ very bad with α	MAR:13
	F-4EJ Phantom 4	Type: Fighter (Phantom, Japan) Armament: AAM-3, AIM-7E-2/ M, AIM-9M RWR: 29 nm J/APR-2 (tail RWR) Radar Range: Up: <u>30 nm</u> Down: <u>30 nm</u> ECM: <u>13 nm</u> Notes: 1965. Gun. Smoke. IDM. AN/APQ-120 rdr «I». No ground wpns N/I. Likes speed.	Max Vel. Mach 1.6 Hard Points: 9/4AA + 4 AIM-9 or AAM-3 CMDS/ ECM: Yes/ AN/ALQ-119 pod Vertical: Med J79-GE-10 (35.8k) Turn Rate °/sec: 10 - 13/ Instant: 17 (0.4 nm Ø) Roll: Very Good/ very bad with α	MAR:13



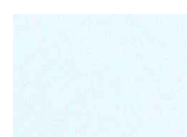
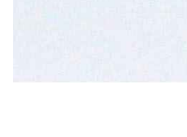
F-4F Phantom  	4	Type:	Fighter Bomber (Germany, SK, Japan)	Max Vel. Mach	1.6	MAR:17
	4	Armament:	AIM-7M, AIM-9M/ P, AIM-120B (1994)	Hard Points:	9/5AA + 4 AIM-9	
F-4G Phantom  	4	RWR:	29 nm AN/APR-36/ 37, AN/ALR-46	CMDs/ ECM:	Yes/ AN/ALQ-119 pod	
	4	Radar Range:	Up:30 nm Down:30 nm ECM:13 nm	Vertical:	Med J79-MTU-17A (35.8k)	
F-5A Freedom Fighter  		Notes:	1967. Gun. Smoke. AN/APQ-120 rdr «I». Export F-4E. Likes to be fast. No grnd N/I.	Turn Rate °/sec:	10 - 13/ Instant: 17 (0.4 nm Ø)	
				Roll:	Very Good/ very bad with α	
F-5E Tiger II  	5	Type:	Fighter (Tiger II)	Max Vel. Mach	1.09	MAR:07
	5	Armament:	AIM-9M/ P	Hard Points:	7/6AA	
F-5E Tiger II  	5	RWR:	29 nm AN/ALR-46 Radar:AN/APQ-153«I»	CMDs/ ECM:	Yes/ No	
	5	Radar Range:	Up:15 nm Down:N/A ECM:9 nm	Vertical:	Med J85-GE-21 (10k)	
F-5E Tiger II  		Notes:	1964. IDM.	Turn Rate °/sec:	9 - 13 / Instant: 16 (0.3 nm Ø)	
				Roll:	Very Good	
F-14A Tomcat  	14	Type:	Fighter	Max Vel. Mach	1.55	MAR:40
	14	Armament:	AIM-7M, AIM-9M, AIM-54A	Hard Points:	8/8AA	
F-14A Tomcat  	14	RWR:	49 nm ALR-45 Radar:AN/AWG-9 «I»	CMDs/ ECM:	Yes/ Int ECM	
	14	Radar Range:	Up:160 nm Down:160 nm ECM:80 nm	Vertical:	Medium TF30-PW-412 (41.8k)	
F-14A Tomcat  		Notes:	1973. Smoke exhaust. VG wings. IDM.	Turn Rate °/sec:	12 - 18/ Instant: 20	
				Roll:	Medium	
F-14B Tomcat  	14	Type:	Fighter	Max Vel. Mach	1.41	MAR:40
	14	Armament:	AIM-7M, AIM-9M, AIM-54A/ C	Hard Points:	8/8AA	
F-14B Tomcat  	14	RWR:	49 nm ALR-67 Radar: AN/AWG-9 «I»	CMDs/ ECM:	Yes/ Int ECM	
	14	Radar Range:	Up:160 nm Down:160 nm ECM:80 nm	Vertical:	Medium F110-GE-400 (52.1k)	
F-14B Tomcat  		Notes:	1988. Smoke exhaust. VG wings. IDM.	Turn Rate °/sec:	11 - 18/ Instant: 18	
				Roll:	Medium	
F-14D Tomcat  	14	Type:	Fighter	Max Vel. Mach	1.32	MAR:40
	14	Armament:	AIM-7M, AIM-9M, AIM-54C	Hard Points:	8/8AA	
F-14D Tomcat  	14	RWR:	49 nm ALR-67 Radar: AN/APG-71 «I»	CMDs/ ECM:	Yes/ Int ECM	
	14	Radar Range:	Up:160 nm Down:160 nm ECM:80 nm	Vertical:	Medium F110-GE-400 (52.1k)	
F-14D Tomcat  		Notes:	1990. No smoke. VG wings. IDM. TDL.	Turn Rate °/sec:	10 - 16/ Instant: 18	
				Roll:	Medium	
F-15A Eagle  	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:13
	15	Armament:	AIM-7F/ M, AIM-9M/ P	Hard Points:	11/8AA	
F-15A Eagle  	15	RWR:	44 nm AN/ALR-56C Rdr:AN/APG-63 «I»	CMDs/ ECM:	Yes/ Int ECM	
	15	Radar Range:	Up:60 nm Down:60 nm ECM:40 nm	Vertical:	Very Gd F-100-PW-100 (47.7k)	
F-15A Eagle  		Notes:	1976. Smoke exhaust.	Turn Rate °/sec:	13 - 17/ Instant: 21	
				Roll:	Very Good	
F-15C Eagle  	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:20
	15	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/8AA	
F-15C Eagle  	15	RWR:	56 nm AN/ALR-56C Rdr:APG-63PSP«J»	CMDs/ ECM:	Yes/ Int ECM	
	15	Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Very Gd F-100-PW-220 (47.7k)	
F-15C Eagle  		Notes:	1979. No smoke. 1985:MSIP II APG-70 rdr, AIM-120. IDM. TDL. 2008: HMCS.	Turn Rate °/sec:	13 - 17/ Instant: 21	
				Roll:	Very Good	
F-15C 65th AS  	27	Type:	Fighter (Aggressor Squadron)	Max Vel. Mach	1.88	MAR:20
	27	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/8AA	
F-15C 65th AS  	27	RWR:	56 nm AN/ALR-56C Rdr:APG-63PSP«J»	CMDs/ ECM:	Yes/ Int ECM	
	27	Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Very Gd F-100-PW-220 (47.7k)	
F-15C 65th AS  		Notes:	1980. No smoke. 1985:MSIP II APG-70 rdr, AIM-120. IDM. TDL. 2008: HMCS.	Turn Rate °/sec:	10 - 13/ Instant: 18	
				Roll:	Very Good	

	15	Type:	Fighter (Israel)	Max Vel. Mach	1.88	MAR:20
	15	Armament:	AIM-7M, AIM-9M/ P, AIM-120B/ C, Python 3/ 4/ 5	Hard Points:	11/ 8AA	
		RWR:	56 nm AN/ALR-56C Rdr:APG-63PSP«J»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Very Gd F-100-PW-220 (47.7k)	
		Notes:	1980: Akef, CFT. IDM. 1998: Baz DASH.	Turn Rate °/sec:	10 - 13/ Instant: 18	
				Roll:	Very Good	
	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:20
	15	Armament:	AIM-7M, AAM-3/ 4, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
		RWR:	44 nm J/APR-4 Rdr:APG-63PSP«J»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Very Gd F-100-PW-220 (47.7k)	
		Notes:	1981. HMCS. IDM.	Turn Rate °/sec:	11 - 17/ Instant: 18	
				Roll:	Very Good	
	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:20
	15	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
		RWR:	56 nm AN/ALR-56C Rdr:APG-63PSP«J»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Very Gd F-100-PW-220 (47.7k)	
		Notes:	1979. 2 seats. No smoke. HMCS. IDM. TDL.	Turn Rate °/sec:	10 - 13/ Instant: 18	
				Roll:	Very Good	
	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:20
	15	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
		RWR:	56 nm J/APR-4 Rdr:APG-63PSP«J»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Very Gd F-100-PW-220 (47.7k)	
		Notes:	1980. 2 seats. No smoke. IDM.	Turn Rate °/sec:	11 - 17/ Instant: 18	
				Roll:	Very Good	
	15	Type:	Multi-role Fighter (Strike Eagle, Mud Hen)	Max Vel. Mach	1.88	MAR:20
	15	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
		RWR:	56 nm AN/ALR-56C Rdr:AN/APG-70«J»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Med F-100-PW-220 (47.7k)	
		Notes:	1989. 2 seats. FLIR, nav pod, tgt pod. IDM. TDL.	Turn Rate °/sec:	8 - 11/ Instant: 15 (0.2 nm Ø)	
				Vert/ Roll:	Very Good	
	15	Type:	Multi-role Fighter (Strike Eagle, Mud Hen)	Max Vel. Mach	1.88	MAR:20
	15	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
		RWR:	56 nm AN/ALR-56C Rdr:AN/APG-70«J»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Med F-100-PW-229 (58.2k)	
		Notes:	1991. 2 seats. FLIR, nav pod, tgt pod. IDM. TDL.	Turn Rate °/sec:	8 - 11/ Instant: 15 (0.2 nm Ø)	
				Roll:	Very Good	
	15	Type:	Fighter (Israel, Thunder)	Max Vel. Mach	2.00	MAR:20
	15	Armament:	AIM-7M, AIM-9M/ P, AIM-120B/ C, Python 3/ 4/ 5	Hard Points:	11/ 8AA	
		RWR:	56 nm Elisra SPS-2110 Rdr:AN/APG-70I«J»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Med F-100-PW-229 (58.2k)	
		Notes:	1999. 2 seats. DASH. CFT.	Turn Rate °/sec:	8-11/ Instant: 15	
				Roll:	Very Good	
	15	Type:	Fighter (Slam Eagle, ROKAF)	Max Vel. Mach	2.06	MAR:20
	15	Armament:	AIM-9X, AIM-120C	Hard Points:	11/ 8AA	
		RWR:	56 nm ALR-56C(V)1 Rdr:APG-63(V)1«J»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:62 nm Down:62 nm ECM:46 nm	Vertical:	Good F-110-GE-129 (58k)	
		Notes:	2007. 2 seats. HMCS. CFT. IRST. IDM. TDL.	Turn Rate °/sec:	8 - 11/ Instant: 15	
				Roll:	Very Good	



	16	Type:	Multi-role Fighter	Max Vel. Mach	1.64	MAR:17
	6	Armament:	AIM-7M, AIM-9M/ P, AIM-120B	Hard Points:	9/6AA	
	16	RWR:	44 nm ALR-69(V) Radar:AN/APG-66«I»	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
	6	Radar Range:	Up:32 nm Down:32 nm ECM:10 nm	Vertical:	Good F-100-PW-200 (23.8k)	
	16	Notes:	1981. Green MFDs. No HMCS. Slower radar. Tracks not as stable. CMDs 30/15.	Turn Rate °/sec:	15 - 20/ Instant: 26	
	6			Roll:	Very Good	
	16	Type:	Multi-role Fighter (BAF)	Max Vel. Mach	1.77	MAR:17
	6	Armament:	AIM-9M/ P/ X, AIM-120B	Hard Points:	9/6AA	
	16	RWR:	44 nm TASC Radar:APG-66(V)2«I»	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
	6	Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-220 (23.8k)	
	16	Notes:	1995. HMCS. IDM. TDL.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6			Roll:	Very Good	
	16	Type:	Multi-role Fighter (RDAF)	Max Vel. Mach	1.64	MAR:17
	6	Armament:	AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	9/6AA	
	16	RWR:	44 nm ALR-69(V) Radar:APG-66(V)2«I»	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
	6	Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-200 (23.8k)	
	16	Notes:	1995. HMCS. IDM. TDL.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6			Roll:	Very Good	
	16	Type:	Multi-role Fighter (RNoAF)	Max Vel. Mach	1.77	MAR:17
	6	Armament:	AIM-9M/ P/ X, AIM-120B, IRIS-T	Hard Points:	9/6AA	
	16	RWR:	44 nm ALR-69(V) Radar:APG-66(V)2«I»	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
	6	Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-220 (23.8k)	
	16	Notes:	1995. HMCS. IDM. TDL.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6			Roll:	Very Good	
	16	Type:	Multi-role Fighter (MSIP Stage I)	Max Vel. Mach	1.64	MAR:17
	6	Armament:	AIM-7M, AIM-9M/ P, AIM-120B	Hard Points:	9/6AA	
	16	RWR:	44 nm ALR-69(V) Radar:APG-66 «I»	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
	6	Radar Range:	Up:32 nm Down:32 nm ECM:10 nm	Vertical:	Good F-100-PW-200 (23.8k)	
	16	Notes:	1981. 2 Seats. Green MFDs. Less CMDs 30/15.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6			Roll:	Very Good	
	16	Type:	Multi-role Fighter (MSIP Stage II)	Max Vel. Mach	1.64	MAR:17
	6	Armament:	AIM-7M, AIM-9M/ P, AIM-120B	Hard Points:	9/6AA	
	16	RWR:	44 nm ALR-69(V) Radar:APG-68(V) «I»	CMDs/ ECM:	Yes / ALQ-131(V), ALQ-184	
	6	Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-220 (23.8k)	
	16	Notes:	1984. Green MFDs. 1986 TFR. FLIR. IDM.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6			Roll:	Very Good	
	16	Type:	Multi-role Fighter (MSIP Stage III)	Max Vel. Mach	1.8	MAR:17
	6	Armament:	AIM-7M, AIM-9M/ P, AIM-120B	Hard Points:	9/6AA	
	16	RWR:	44 nm ALR-69(V) Radar:APG-68 «I»	CMDs/ ECM:	Yes/ ALQ-131(V), ALQ-184	
	6	Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Very Gd F-110-GE-100 (28k)	
	16	Notes:	1987. Green MFDs. TFR. FLIR. IDM.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6			Roll:	Very Good	
	16	Type:	Multi-role Fighter (MSIP Stage III)	Max Vel. Mach	1.76	MAR:17
	6	Armament:	AIM-7M, AIM-9M/ P, AIM-120B	Hard Points:	9/6AA	
	16	RWR:	44 nm ALR-69(V) Radar:APG-68 «I»	CMDs/ ECM:	Yes / ALQ-131(V), ALQ-184	
	6	Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-220 (23.8k)	
	16	Notes:	1987. Green MFDs. TFR. FLIR. IDM.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6			Roll:	Very Good	
	29	Type:	Multi-role Fighter (64th Aggressor)	Max Vel. Mach	1.76	MAR:17
	9	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	9/6AA	
	9	RWR:	44 nm ALR-69(V) Radar:APG-63 «I»	CMDs/ ECM:	Yes/ ALQ-131(V), ALQ-184	
	9	Radar Range:	Up:40 nm Down:40 nm ECM:27 nm	Vertical:	Good F-100-PW-220 (23.8k)	
	9	Notes:	1987. HMCS. IDM. F-16C-32.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	9			Roll:	Very Good	

F-16CM Blk 40 	16	Type:	Multi-role Fighter (MSIP Stage III)	Max Vel. Mach	1.80	MAR:17
	6	Armament:	AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	9/6AA	
F-16CM Blk 42 	16	RWR:	44 nm ALR-56M Radar:APG-68(V)5 «I»	CMDs/ ECM:	Yes / ALQ-131, ALQ-184	
	6	Radar Range:	Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u>	Vertical:	Very Gd F-110-GE-100 (28k)	
F-16CM Blk 50 	16	Notes:	1989. HMCS. Big black HUD frame. TFR. FLIR. IDM. TDL.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6	Type:	Multi-role Fighter (MSIP Stage III)	Roll:	Very Good	
F-16CM Blk 52 	16	Armament:	AIM-9M/ P/ X, AIM-120B/ C	Max Vel. Mach	1.86	MAR:17
	6	RWR:	44 nm ALR-56M Radar:APG-68(V)5 «I»	Hard Points:	9/6AA	
F-16C Blk 52+PXIV 	16	Radar Range:	Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u>	CMDs/ ECM:	Yes / ALQ-131, ALQ-184	
	6	Notes:	1991. HMCS. IDM. TDL.	Vertical:	Very Gd F-110-GE-129 (29k)	
F-16DM Blk 40 	16	Type:	Multi-role Fighter (HAF CFT)	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	6	Armament:	AIM-9M, AIM-120B/ C, IRIS-T	Roll:	Very Good	
F-16DM Blk 52 	16	RWR:	44 nm ALR-93(V)1 Rdr:APG-68(V)XM«I»	Max Vel. Mach	1.85	MAR:17
	6	Radar Range:	Up: <u>55 nm</u> Down: <u>55 nm</u> ECM: <u>20 nm</u>	Hard Points:	9/6AA	
F/A-18A Hornet 	18	Notes:	2008. HMCS. RWR with Different #'s and symbology F-16=6. IDM. TDL.	CMDs/ ECM:	Yes / Int ECM	
	18	Type:	Multi-role Fighter (MSIP Stage III)	Vertical:	Good F-100-PW-229 (28.5k)	
F/A-18B Hornet 	18	Armament:	AIM-9M/ P/ X, AIM-120B/ C	Turn Rate °/sec:	11 - 17/ Instant: 21 (0.3 nm Ø)	
	18	RWR:	44 nm ALR-56M Radar:APG-68(V)5 «I»	Roll:	Very Good	
F/A-18C Hornet 	18	Radar Range:	Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u>	Max Vel. Mach	1.86	MAR:17
	18	Notes:	1991. 2 Seats. HMCS. IDM. TDL.	Hard Points:	9/6AA	
F/A-18A Hornet 	18	Type:	Multi-role Fighter	CMDs/ ECM:	Yes / ALQ-131, ALQ-184	
	18	Armament:	AIM-7F/ M, AIM-9H/ J/ M/ P, AIM-120B	Vertical:	Very Gd F-110-GE-100 (28k)	
F/A-18B Hornet 	18	RWR:	49 nm AN/ALR-67 Radar:AN/APG-65 «I»	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	18	Radar Range:	Up: <u>51 nm</u> Down: <u>51 nm</u> ECM: <u>20 nm</u>	Roll:	Very Good	
F/A-18C Hornet 	18	Notes:	1983. Green MFDs.	Max Vel. Mach	1.6	MAR:17
	18	Type:	Multi-role Fighter	Hard Points:	9/8AA + 4 AIM-9 or 120	
F/A-18B Hornet 	18	Armament:	AIM-7F/ M, AIM-9H/ J/ M/ P, AIM-120B	CMDs/ ECM:	Yes/ Int ECM	
	18	RWR:	49 nm AN/ALR-67 Radar:AN/APG-65 «I»	Vertical:	Very Gd F404-GE-400 (31.6K)	
F/A-18C Hornet 	18	Radar Range:	Up: <u>51 nm</u> Down: <u>51 nm</u> ECM: <u>20 nm</u>	Turn Rate °/sec:	14 - 17/ Instant: 22 (0.2 nm Ø)	
	18	Notes:	1983. 2 Seats. Green MFDs.	Roll:	Very Good	
F/A-18C Hornet 	18	Type:	Multi-role Fighter	Max Vel. Mach	1.6	MAR:17
	18	Armament:	AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	9/8AA + 4 AIM-9 or 120	
F/A-18C Hornet 	18	RWR:	49 nm AN/ALR-67 Radar:AN/APG-65 «I»	CMDs/ ECM:	Yes/ Int ECM	
	18	Radar Range:	Up: <u>51 nm</u> Down: <u>51 nm</u> ECM: <u>20 nm</u>	Vertical:	Very Gd F404-GE-402 (35k)	
F/A-18C Hornet 	18	Notes:	1987. 1992 upgraded to APG-73. HMCS. IDML. TDL.	Turn Rate °/sec:	14 - 17/ Instant: 22 (0.2 nm Ø)	
	18	Type:	Multi-role Fighter	Roll:	Very Good	

F/A-18D Hornet 	18	Type:	Multi-role Fighter	Max Vel. Mach	1.6	MAR:17
	18	Armament:	AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	9/ 8AA + 4 AIM-9 or 120	
	18	RWR:	49 nm AN/ALR-67 Radar:AN/APG-65 «I»	CMDs/ ECM:	Yes/ Int ECM	
	18	Radar Range:	Up:51 nm Down:51 nm ECM:20 nm	Vertical:	Very Gd F404-GE-402 (35k)	
F/A-18F 	18	Notes:	1987. 2 Seats. HMCS. IDM. TDL.	Turn Rate °/sec:	14 - 17/ Instant: 22 (0.2 nm Ø)	
	18	Type:	Multi-role Fighter (Super Hornet)	Roll:	Very Good	
F/A-18E 	18	Armament:	AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C	Max Vel. Mach	1.54	MAR:17
	18	RWR:	49 nm ALR-67(V)3 Radar:AN/APG-73 «I»	Hard Points:	11/ 10AA + 6 AIM-9 or 120	
F/A-18F 	18	Radar Range:	Up:51 nm Down:51 nm ECM:20 nm	CMDs/ ECM:	Yes/ Int ECM	
	18	Notes:	1995. 2 Seats. AESA rdr N/I. HMCS. IDM. TDL.	Vertical:	Medium F414-GE-400 (44k)	
F-22A Raptor 	22	Type:	Fighter	Max Vel. Mach	1.83	MAR:20
	22	Armament:	AIM-9M, AIM-120C	Hard Points:	6/ 6AA + 2 AIM-9	
F-100D Super Sabre 	43	RWR:	49 nm ALR-94 Radar: AN/APG-77 «I»	CMDs/ ECM:	Yes/ Stealth 6.5 nm	
	43	Radar Range:	Up:75 nm Down:75 nm ECM:60 nm	Vertical:	Very Good F119-PW-100 (70k)	
F-104DJ Starfighter 	43	Notes:	2005. AESA rdr N/I. AN/ALR-56 MLD. Super cruise 1.35. TV. IDM. TDL.	Turn Rate °/sec:	14 - 26/ Instant: 32 (0.1 nm Ø)	
	43	Type:	Fighter Bomber (The Hun)	Roll:	Very Good	
F-104DJ Starfighter 	43	Armament:	4x 20mm Cannons	Max Vel. Mach	1.43	MAR:02
	43	RWR:	15 nm APR-126 Radar:APR-25V	Hard Points:	6/ 0AA	
F-105D Thud 	4	Radar Range:	Up:8 nm Down:8 nm ECM:6 nm	CMDs/ ECM:	No / No	
	4	Notes:	1956. Gun tracking radar. Slow pitch.	Vertical:	Medium J57-P-21/21A (16k)	
F-104DJ Starfighter 	4	Type:	Fighter	Turn Rate °/sec:	8 - 15/ Instant:23	
	4	Armament:	AIM-9B, 20mm cannon	Roll:	Very Good	
F-105D Thud 	4	RWR:	29 nm APR-25/26 Radar:ASG-14T «I»	Max Vel. Mach	1.89	MAR:05
	4	Radar Range:	Up:5 nm Down:N/A ECM:2 nm	Hard Points:	4AA	
F-105D Thud 	4	Notes:	1958.	CMDs/ ECM:	No / No	
	4	Type:	Fighter Bomber (Thunderchief)	Vertical:	Medium J79-GE-11A (15.6k)	
F-105D Thud 	4	Armament:	AIM-9B, 20mm cannon	Turn Rate °/sec:	6 - 9/ Instant: 12 (0.5 nm Ø)	
	4	RWR:	15 nm APR-25/26 Radar: NASARR R-14A	Roll:	Very Good	
F-105D Thud 	4	Radar Range:	Up:14 nm Down:14 nm ECM:10 nm	Max Vel. Mach	1.97	MAR:05
	4	Notes:	1960. RWR Vector.	Hard Points:	5/ 2AA +2 AIM-9	
F-105D Thud 	4	Type:	Fighter Bomber (Thunderchief)	CMDs/ ECM:	No / No, AN/ALQ-72 pod N/I.	
	4	Armament:	AIM-9B, 20mm cannon	Vertical:	Bad J75-P-19W (26.5k)	
F-105D Thud 	4	RWR:	15 nm APR-25/26 Radar: NASARR R-14A	Turn Rate °/sec:	11 - 16/ Instant: 24 (0.3 nm Ø)	
	4	Radar Range:	Up:14 nm Down:14 nm ECM:10 nm	Roll:	Very Good	
F-105D Thud 	4	Notes:	1960. RWR Vector.	Max Vel. Mach	1.97	MAR:05
	4	Type:	Fighter Bomber (Thunderchief)	Hard Points:	5/ 2AA +2 AIM-9	
F-105D Thud 	4	Armament:	AIM-9B, 20mm cannon	CMDs/ ECM:	No / No, AN/ALQ-72 pod N/I.	
	4	RWR:	15 nm APR-25/26 Radar: NASARR R-14A	Vertical:	Bad J75-P-19W (26.5k)	
F-105D Thud 	4	Radar Range:	Up:14 nm Down:14 nm ECM:10 nm	Turn Rate °/sec:	11 - 16/ Instant: 24 (0.3 nm Ø)	
	4	Notes:	1960. RWR Vector.	Roll:	Very Good	



F-111E Aardvark  	$\hat{A}$ $\hat{T}$	Type: Attack (Mark I) Armament: No AA missiles. No gun. RWR: 49 nm AN/APQ-109 Rdr:AN/APQ-113 «I» Radar Range: Up: <u>15 nm</u> Down: <u>15 nm</u> ECM: <u>8 nm</u> Notes: 1969. 2 Seats. Smoke. IDM. Direct successor to A. Can accelerate in turn.	Max Vel. Mach <u>1.45</u> MAR:00 Hard Points: 4/0AA CMDS/ ECM: Yes / Int ECM Vertical: Medium TF30-P-3 (37k) Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø) Roll: Medium
F-111F Aardvark  	$\hat{A}$ $\hat{T}$	Type: Attack (Mark IIB) Armament: No AA missiles. No gun. RWR: 49 nm AN/ALR-62 Rdr:AN/APQ-144 «I» Radar Range: Up: <u>15 nm</u> Down: <u>15 nm</u> ECM: <u>8 nm</u> Notes: 1970. 2 Seats. IDM. Can accelerate in turn with low burner or mil power. Smoke.	Max Vel. Mach <u>1.56</u> MAR:00 Hard Points: 4/0AA CMDS/ ECM: Yes / Int ECM Vertical: Medium TF30-P-100 (50k) Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø) Roll: Medium
F-117A Nighthawk  		Type: Attack Armament: No AA missiles. No gun. RWR: 44 nm Classified Radar Locator System Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1983. IDM. TDL. Not detected by AWACS. Avoids F16 rdr. to about 1.7nm.	Max Vel. Mach <u>0.78</u> MAR:00 Hard Points: 2/0AA CMDS/ ECM: Yes/ No, Stealth 1.7 nm Vertical: Bad F404-GE-F1D2 (21k) Turn Rate °/sec: 10 - 14/ Instant: 20 Roll: Good
F-CK-1C Ching-Kuo  	$\hat{16}$ $\hat{F}$	Type: Multi-role Fighter (ROCAF) Armament: Tien Chien I, Tien Chien II RWR: 44 nm AN/ALR-93(V) Radar: GD-53«I» Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u> Notes: 1997. Indigenous Defense Fighter (IDF).	Max Vel. Mach <u>1.37</u> MAR:17 Hard Points: 7/6AA CMDS/ ECM: AN/ALE-47/ No Vertical: Very Good F125-70 (19k) Turn Rate °/sec: 15 - 20/ Instant: 24 (0.2 nm Ø) Roll: Good
JA 37 Viggen  	$\hat{16}$ $\hat{37}$	Type: Interceptor (Jakt)(SAF) Armament: AIM-9M, AIM-120B, Skyflash , 30 mm RWR: 29 nm SATT Radar: PS46/A «I» Radar Range: Up: <u>30 nm</u> Down: <u>30 nm</u> ECM: <u>15 nm</u> Notes: 1978. IDM. AA only.	Max Vel. Mach <u>1.66</u> MAR:17 Hard Points: 6AA CMDS/ ECM: Yes/ No Vertical: Medium Volvo RM8B (26k) Turn Rate °/sec: 8 - 11/ Instant: 16 Roll: Good
Jaguar GR3 RAF  		Type: Fighter Bomber Armament: AIM-9M RWR: 44 nm CFTH Radar:Decca N/I Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1973. IDM.	Max Vel. Mach <u>1.17</u> MAR:07 Hard Points: 7/2AA CMDS/ ECM: Yes/ AN/ALQ-101 pod Vertical: Medium Adour 102 (14.6k) Turn Rate °/sec: 15 - 20/ Instant: 29 Roll: Very Good
KF-16C Blk 32  	$\hat{16}$ $\hat{6}$	Type: Multi-role Fighter (Korean Peace Bridge 1) Armament: AIM-7M, AIM-9M/ P, AIM-120B RWR: 44 nm ALR-56M Radar:AN/APG-68 «I» Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u> Notes: 1986. Green MFDs. IDM.	Max Vel. Mach <u>1.2</u> MAR:17 Hard Points: 9/6AA CMDS/ ECM: Yes/ Int ECM, ALQ-131(V) Vertical: Good F-100-PW-220 (23.8k) Turn Rate °/sec: 14 - 18/ Instant: 24 (0.3 nm Ø) Roll: Very Good
KF-16C Blk 52  	$\hat{16}$ $\hat{6}$	Type: Multi-role Fighter (Korean Peace Bridge II) Armament: AIM-7M, AIM-9M/ P, AIM-120B/ C RWR: 44 nm ALR-56M Radar:APG-68(V)7 «I» Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u> Notes: 1994. HMCS. TFR. FLIR. IDM. TDL.	Max Vel. Mach <u>1.85</u> MAR:17 Hard Points: 9/6AA CMDS/ ECM: Yes/ Int ECM Vertical: Very Gd F-100-PW-229 (28.5k) Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø) Roll: Very Good
MB-339  		Type: Attack (Aermachi, ITAF) Armament: AIM-9M, R.550 Magic , 30mm RWR: 29 nm ELT-156 Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1976. 2 Seats. Performs best low and slow.	Max Vel. Mach <u>0.84</u> MAR:08 Hard Points: 6/2AA CMDS/ ECM: Yes/ Int ECM, ELT-5 Pod N/I Vertical: Bad RR Viper MK.680-43(4.4k) Turn Rate °/sec: 12 - 23/ Instant: 32 Roll: Good
Mirage 2000C  	$\hat{20}$ $\hat{2}$	Type: Fighter Armament: R.550 Magic II, R.530D RWR: 44 nm SERVAL Radar:CSF-RDI «I» Radar Range: Up: <u>47 nm</u> Down: <u>42 nm</u> ECM: <u>10 nm</u> Notes: 1984. x<10nm to keep radar lock. Limits effective range of R530D. TDL.	Max Vel. Mach <u>1.74</u> MAR:17 Hard Points: 9/4AA CMDS/ ECM: Yes/ Int ECM Vertical: Good M53-P2 (21.4k) Turn Rate °/sec: 11 - 16/ Instant: 21 (0.2 nm Ø) Roll: Very Good

	20	Type:	Fighter	Max Vel. Mach	1.44	MAR:14
	2	Armament:	R.550 Magic II, MICA IR	Hard Points:	9/2AA	
		RWR:	49 nm SERVAL Radar:Antelope 50 «I»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:15 nm Down:15 nm ECM:8 nm	Vertical:	Good M53-P2 (21.4k)	
		Notes:	1995. 2 Seats. IDM. TDL.	Turn Rate %/sec:	11 - 16/ Instant: 21 (0.2 nm Ø)	
				Roll:	Very Good	
	20	Type:	Fighter	Max Vel. Mach	1.87	MAR:14
	2	Armament:	R.550 Magic II, MICA EM, MICA IR	Hard Points:	9/6AA	
		RWR:	49 nm SERVAL Radar:Thales RDY«I»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:60 nm Down:60 nm ECM:26 nm	Vertical:	Good M53-P2 (21.4k)	
		Notes:	2000. IDM. TDL. Updated Mirage 2000C.	Turn Rate %/sec:	11 - 16/ Instant: 21 (0.2 nm Ø)	
				Roll:	Very Good	
	20	Type:	Fighter (EGM HAF)	Max Vel. Mach	1.87	MAR:14
	2	Armament:	R.550 Magic II, MICA EM, MICA IR	Hard Points:	9/8AA	
		RWR:	49 nm Samir DDM Radar:Thales RDY«I»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:60 nm Down:60 nm ECM:26 nm	Vertical:	Good M53-P2 (21.4k)	
		Notes:	2000. IDM. TDL. Updated Mirage 2000-5.	Turn Rate %/sec:	11 - 16/ Instant: 21 (0.2 nm Ø)	
				Roll:	Very Good	
	20	Type:	Fighter	Max Vel. Mach	1.44	MAR:08
	2	Armament:	R.550 Magic II	Hard Points:	9/2AA	
		RWR:	49 nm SERVAL Radar:Antelope 5 «I»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:15 nm Down:15 nm ECM:8 nm	Vertical:	Good M53-P2 (21.4k)	
		Notes:	1988. 2 Seats. TDL. Nuclear strike version. No gun.	Turn Rate %/sec:	11 - 16/ Instant: 21 (0.2 nm Ø)	
				Roll:	Very Good	
	P	Type:	Fighter	Max Vel. Mach	1.96	MAR:17
	44	Armament:	R.550 Magic, R.550 Magic II, R.530D	Hard Points:	5/4AA	
		RWR:	29 nm CSF-BF Radar:CSF-Cyrano IV-1«I»	CMDs/ ECM:	Matra Corail/ No Desault Barax	
		Radar Range:	Up:35 nm Down:35 nm ECM:19 nm	Vertical:	Medium ATAR 9K-50 (15.9k)	
		Notes:	1974. x<10nm to keep radar lock. Limits effective range of R530D.	Turn Rate %/sec:	9 - 12/ Instant: 12	
				Roll:	Very Good	
	P	Type:	Fighter	Max Vel. Mach	1.4	MAR:08
	3	Armament:	AIM-9B, R.550 Magic, 2x 30mm	Hard Points:	5/2AA	
		RWR:	29 nm Radar:CSF-Cyrano II «I»	CMDs/ ECM:	No/ No	
		Radar Range:	Up:30 nm Down:30 nm ECM:15 nm	Vertical:	Medium ATAR 9C (13.7k)	
		Notes:	1964.	Turn Rate %/sec:	8 - 11/ Instant: 16	
				Roll:	Very Good	
	S	Type:	Attack/ Unmanned Aerial Vehicle	Max Vel. Mach	0.40	MAR:00
	41	Armament:	No AA Missiles. No Gun.	Hard Points:	7/0AA	
		RWR:	N/A Radar:N/A	CMDs/ ECM:	No/ No	
		Radar Range:	Up:0 nm Down:0 nm ECM:0 nm	Vertical:	Bad TPE331-10 (2.3k)	
		Notes:	2007. AIM-9x capable. AN/APY-8 grnd radar. IDM. TDL. RWR/ CMDs 2017.	Turn Rate %/sec:	5 - 8/ Instant: 10	
				Roll:	Bad	
		Type:	Foward Air Control/ Attack	Max Vel. Mach	0.38	MAR:07
		Armament:	AIM-9M	Hard Points:	7/2AA	
		RWR:	44 nm AN/APR-39 Radar:N/A	CMDs/ ECM:	Yes/ No	
		Radar Range:	Up:N/A Down:N/A ECM:N/A	Vertical:	Bad GarrettT76-G-420/421(2.1k)	
		Notes:	1969. IDM.	Turn Rate %/sec:	7 - 10/ Instant: 11	
				Roll:	Good	
	22	Type:	Multi-role Fighter (FAF)	Max Vel. Mach	1.62	MAR:56
	R	Armament:	Mica IR, Mica EM, Meteor	Hard Points:	12/10AA	
		RWR:	49 nm SPECTRA Radar:Thales RBE2 «I»	CMDs/ ECM:	Yes/ Thales SPECTRA	
		Radar Range:	Up:72 nm Down:72 nm ECM:50 nm	Vertical:	Very Good Snecma M88-2(34k)	
		Notes:	2006. 2012 AESA. OSF/IRST. RAM. DVI. HMCS. FLIR. IDM. TDL. Suprcrs. m1.14.	Turn Rate %/sec:	15 - 20/ Instant: 21	
				Roll:	Very Good	
	T	Type:	Interceptor (Air Defense Variant)	Max Vel. Mach	1.75	MAR:17
	T	Armament:	AIM-9M, Skyflash, AIM-120B/C, AIM-132	Hard Points:	10/8AA	
		RWR:	44 nm ELS Radar:AI24 Foxhunter «I»	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:54 nm Down:54 nm ECM:25 nm	Vertical:	Good RB.199-34 Mk 104 (33k)	
		Notes:	1986. 2 Seats. IDM. TDL. Can accelerate in turn.	Turn Rate %/sec:	14 - 22/ Instant: 24 (0.2 nm Ø)	
				Roll:	Very Good	

Tornado ECR AMI 	⌒	Type:	Attack (Wild Weasel, ITAF)	Max Vel. Mach	1.75	MAR:07
	⌒	Armament:	AIM-9M	Hard Points:	9/2AA	
	⌒	RWR:	44 nm ELS Radar: Decca 72 «I»	CMDS/ ECM:	Yes/ Int ECM, BOZ-107	
	⌒	Radar Range:	Up: 15 nm Down: 15 nm ECM: 10 nm	Vertical:	Good RB.199-34R Mk101(30k)	
	⌒	Notes:	1990. IDM. Uses BOZ-107 pod to dispense chaff. Can accelerate in turn.	Turn Rate °/sec:	14 - 22/ Instant:24 (0.2 nm Ø)	
	⌒			Roll:	Very Good	
Tornado ECR GAF 	⌒	Type:	Attack (Wild Weasel, GAF)	Max Vel. Mach	1.75	MAR:07
	⌒	Armament:	AIM-9M	Hard Points:	9/2AA	
	⌒	RWR:	44 nm ELS Radar: Decca 72 «I»	CMDS/ ECM:	Yes/ Int ECM, BOZ, Cerberus	
	⌒	Radar Range:	Up: 15 nm Down: 15 nm ECM: 10 nm	Vertical:	Good RB.199-34R Mk101(30k)	
	⌒	Notes:	1990. IDM. Uses BOZ-107 pod to dispense chaff. Can accelerate in turn.	Turn Rate °/sec:	14 - 22/ Instant:24 (0.2 nm Ø)	
	⌒			Roll:	Very Good	
Tornado IDS AMI 	⌒	Type:	Attack (InterDiction Strike, ITAF)	Max Vel. Mach	1.75	MAR:07
	⌒	Armament:	AIM-9M	Hard Points:	9/2AA	
	⌒	RWR:	44 nm ELS Radar: Decca 72 «I»	CMDS/ ECM:	Yes/ Int ECM, BOZ-107	
	⌒	Radar Range:	Up: 15 nm Down: 15 nm ECM: 10 nm	Vertical:	Good RB.199-34R Mk101(30k)	
	⌒	Notes:	1979. IDM. Uses BOZ-107 pod to dispense chaff. Can accelerate in turn.	Turn Rate °/sec:	14 - 22/ Instant:24 (0.2 nm Ø)	
	⌒			Roll:	Very Good	
Tornado IDS GAF 	⌒	Type:	Attack (InterDiction Strike, GAF)	Max Vel. Mach	1.75	MAR:07
	⌒	Armament:	AIM-9M, IRIS-T	Hard Points:	9/2AA	
	⌒	RWR:	44 nm ELS Radar: Decca 72 «I»	CMDS/ ECM:	Yes/ Int ECM, BOZ, Cerberus	
	⌒	Radar Range:	Up: 15 nm Down: 15 nm ECM: 10 nm	Vertical:	Good RB.199-34R Mk101(30k)	
	⌒	Notes:	1979. IDM. Uses BOZ-107 pod to dispense chaff. Can accelerate in turn.	Turn Rate °/sec:	14 - 22/ Instant:24 (0.2 nm Ø)	
	⌒			Roll:	Very Good	
Tornado GR. 4 	⌒	Type:	Attack (RSAF, RAF)	Max Vel. Mach	1.75	MAR:14
	⌒	Armament:	AIM-9M, AIM-132	Hard Points:	9/4AA	
	⌒	RWR:	44 nm ELS Radar: Decca 72 «I»	CMDS/ ECM:	Yes/ Skyshadow, BOZ-107	
	⌒	Radar Range:	Up: 15 nm Down: 15 nm ECM: 10 nm	Vertical:	Good RB.199-34R Mk101(30k)	
	⌒	Notes:	1997. IDM. Uses BOZ-107 pod to disp. chaff. accelerate in turn. IDS upgrade.	Turn Rate °/sec:	14 - 22/ Instant:24 (0.2 nm Ø)	
	⌒			Roll:	Very Good	
Typhoon FGR.4 	⌒	Type:	Multi-role Fighter (RAF UK)	Max Vel. Mach	1.97	MAR:56
	⌒	Armament:	AIM-120C, AIM-132, Meteor	Hard Points:	13/6AA +2 AIM-132	
	⌒	RWR:	44 nm PIRATE Radar: CAPTOR-M «I»	CMDS/ ECM:	Yes/ Int ECM	
	⌒	Radar Range:	Up: 89 nm Down: 89 nm ECM: 57 nm	Vertical:	Very Gd Eurojet EJ200 (40.5k)	
	⌒	Notes:	2002. HMCS. IDM. TDL. Supercruise mach 1.29 in mil. 8.8g turn in mil. PIRATE IRST.	Turn Rate °/sec:	17-25 / Instant: 28 (0.2 nm Ø)	
	⌒			Roll:	Very Good	



General Notes

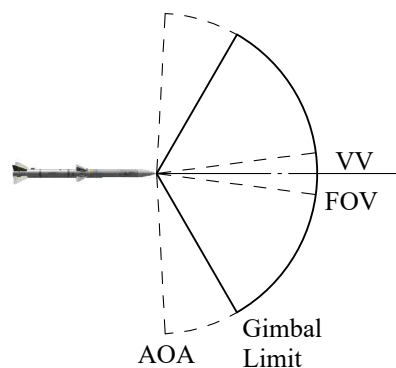
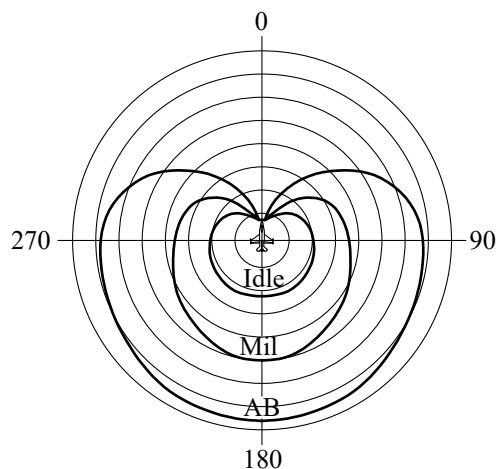
- Break turns should generally be into the missile. Turn AB off when defending against IR missiles.
- Radar missile range: the smaller range number is RTR, larger number is RPI. Longer ranges are possible for most missiles with greater altitude, speed and lofting.
- Ranges don't always match the WEZ on the HUD.
- IR seeker heads need to be cooled to get the seeker ranges indicated.
- IR range is increased and lock is easier when target is using AB.
- IR seekers tend to lock on to nearest hottest target even when slaved to radar. So make sure the diamond is on your intended target before you shoot!
- IR seeker range is for F-16C52 target in mil power during a clear day with target at or slightly above the horizon. Numbers inside () indicate the detection range while the target is in AB.
- Long range missiles can get the long range and high speeds indicated by lofting the missile.
- IR rear aspect missiles have front aspect ranges but the missiles usually miss front aspect targets unless the target is in AB and not maneuvering.
- SARH chaff effect is based on launch AC radar.
- Image right, example of how aspect and throttle state effect IR seeker range.
- IR seeker effected by clouds, fog, ground clutter, sun, sun reflection and distance.
- ARH seeker scans in FOV and tracks to gimbal limit but does not scan like FCR to gimbal limits so if target goes faster than tracking rate to get outside of FOV then lock is broken. AOA further increases how far off VV missile can track target.
- Some all aspect IR missiles can get a longer range than shown when shot between 125° and 100° angle off the tail.

CM Effect # Decoys

No Effect	-
Very Low	20-50
Low	6-17
Medium	4-6
High	2-4
Very High	1-2

Abbreviations

AB	Afterburner
ARH	Active Radar Homing
AOA	Angle of Attack α
ECCM	Electronic Counter Counter Measures
FOV	Field of View
HMCS	Helmet Mounted Cueing System
HOJ	Home on Jam
IR	Infra Red
IRCCM	Infra Red Counter Counter Measures
LOAL	Lock on After Launch N/I in BMS
MAR	Minimum Abort Range
Mil	Military Power, dry thrust
PB	Pit Bull When missile can track target autonomously
RPI	Range Probability of Intercept
RTR	Range Turn and Run
SARH	Semi Active Radar Homing
TVC	Thrust Vector Control
VV	Velocity Vector



AA-1 Alkali

Guidance: **SARH**
 Range Front: **3 - 4 nm**
 Range Rear: 1 - 2 nm
 Chaff Effect: Very High
 Max Target g: 3
 Max Vel.(mach): **1.8** (1,190 kts)

Names: K-5, (RS-1U/ RS-2), PL-1
 Aircraft: Mig-17PF, Mig-21F-13, Su-15
 Notes: 1957. USSR. Break turn 4g, chaff. (15g), Max AOA 14°, gimbal limit 25°, tracking rate 14°/sec, FOV 8°, 23 sec.

AA-2B Atoll

Guidance: **SARH**
 Range Front: **4 - 7 nm**
 Range Rear: 3 - 4 nm
 Chaff Effect: Very High
 Max Target g: 3
 Max Vel.(mach): **2.3** (1,533 kts)

Names: R-3R, K-13R, PL-2/ PL-3 / PL-5, AA-2R
 Aircraft: J-7G, Mig-19PM, Mig-21F-13/ bis/ MF, Mig-23ML, Su-15
 Notes: 1966. USSR. Brk turn 4g, chaff, bm. Get below horizon. (15g), Max AOA 16°, gmb limit 30°, trkg rate 12.5°/sec, FOV 2°, 35 sec.

AA-2C Adv. Atoll

Guidance: **IR Rear Aspect**
 Range Front: 1 nm
 Range Rear: **2 - (2.8) nm**
 Flare Effect: Very High
 Max Target g: 6
 Max Vel.(mach): **3.2** (2,133 kts)

Names: R-13M, K-13M, Obj 380, A-91, PL-2/ PL-3 / PL-5, AA-2
 Aircraft: Mig-19PM, Mig-21F-13/ bis/MF, Mig-23ML, Mig-27, Q-5, Su-15, Su-17, Su-20, Su-22
 Notes: 1967. USSR. Brk turn 4g/ flare. (20g, 33g), Max AOA 16°, gmb limit 25°, trkg rate 12.5°/sec, FOV 2°, 35 sec. Seeker Front 1-(1) nm, Rear **2-(2.8)**.

AA-6A Acrid

Guidance: **SARH**
 Range Front: **8 - 20 nm**
 Range Rear: 4 - 8 nm
 Chaff Effect: High
 Max Target g: 6
 Max Vel.(mach): **3.1** (2,050 kts)

Names: R-40RD
 Aircraft: Mig-25
 Notes: 1970. USSR. Brk turn 7g, chaff, beam. Low maneuverability. Weak radar past 10nm. (15g), Max AOA 27° 16°, gimbal limit 55°, tracking rate 18°/sec, FOV 8°, 75 sec.

AA-6B Acrid

Guidance: **IR Rear Aspect**
 Range Front: 5 - (5.5) nm
 Range Rear: **4 - 6 nm**
 Flare Effect: Medium
 Max Target g: 6
 Max Vel.(mach): **3.0** (1,984 kts)

Names: R-40TD
 Aircraft: Mig-25, Mig-31
 Notes: 1970. USSR. Break turn 7g, flare. Low maneuver. (15g), Max AOA 16°, gmb limit 25°, trkg rate 16°/sec, FOV 3°, 65 sec. Seeker Front 5-(5.5)nm, Rear **11.3-(13.3)nm**.

AA-7A Apex

Guidance: **SARH**
 Range Front: **12 - 16 nm**
 Range Rear: 6 - 8 nm
 Chaff Effect: High
 Max Target g: 7
 Max Vel.(mach): **3.2** (2,117 kts)

Names: R-23R, Object 340, AA-7A
 Aircraft: Mig-23ML, Mig-25
 Notes: 1974. USSR. Break turn 8g, chaff, beam. Low sensitivity seeker. Low maneuver. Loses speed rapidly in turns. (21g), Max AOA 16°, gimbal limit 55°, tracking rate 18°/sec, FOV 8°, 45 sec. Similar to the AIM-7.

AA-7B Apex

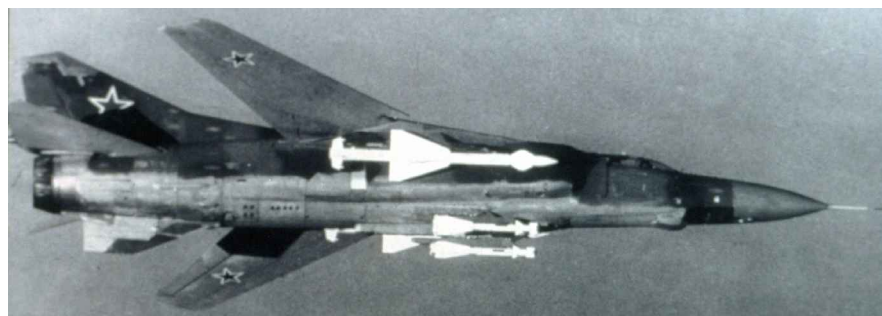
Guidance: **IR Rear Aspect**
 Range Front: 2.8 - (3) nm
 Range Rear: **4 - 5 nm**
 Flare Effect: Medium
 Max Target g: 7
 Max Vel.(mach): **2.9** (1,918 kts)

Names: R-23T, Object 360, AA-7B
 Aircraft: Mig-23ML, Mig-25, Mig-27
 Notes: 1974. USSR. Break turn 4g, flare. Low maneuverability. Loses speed rapidly in turns. (21g), Max AOA 16°, gimbal limit 25°, tracking rate 16°/sec, FOV 3°, 45 sec. Seeker Front 2.8-(3)nm, Rear **6.8-(8)nm**.

AA-8 Aphid

Guidance: **IR all aspect** (R-60)
 Range Front: 1 - (1.2) nm
 Range Rear: **2 nm**
 Flare Effect: Low
 Max Target g: 10
 Max Vel.(mach): **2.9** (1,918 kts)

Aircraft: G-4, J-11, Mig-21Mbis/MF/PFM/-93, Mig-23ML, -25, -27, -29A/ G/ M/ S, Mig-31, Su-17, -20, -22, -24M, -25, -27/UB, -39
 Notes: 1974. USSR. Head on break turn 9g, flare. Minor IRCCM. (30g), AOA 29° 17°, gmb limit 20°, tkg 35°/sec, FOV 3°, 23 sec. Seeker Front 1-(1.2)nm, Rear **2.8-(3.4)nm**.



AA-9 Amos

Guidance: **SARH**
 Range Front: **20 - 40 nm**
 Range Rear: 6 - 9 nm
 Chaff Effect: Medium
 Max Target g: 4
 Max Vel.(mach): **3.6** (2,400 kts)

Names: R-33
 Aircraft: Mig-31
 Notes: 1981. USSR. Break turn 5g, chaff, beam, weaving, dive and climb. Low maneuverability. (15g), Max AOA 13°, gimbal limit 60°, tracking rate 25°/sec, FOV 10°, 130 sec. Easy to break the Mig-31 radar lock over 14nm.

AA-10A Alamo

Guidance: **SARH**
 Range Front: **11 - 18 nm**
 Range Rear: 4 - 7 nm
 Chaff Effect: Med
 Max Target g: 9
 Max Vel.(mach): **3.4** 2/3.4 10/1.4 15/.83

Names: R-27R
 Aircraft: Jaguar, J-8, Mig-21-93, Mig-29A/ G/ M/ S, Su-27/ UB, Su-30M/ MKK, Su-32, Su-33, Su-35, Su-37
 Notes: 1983. USSR. Break turn 9g, chaff, beam x>15nm, weaving, dive & climb. Looses speed quickly in turns. (26g), Max AOA 20°, gmbl lmt 55°, trkg rate 25°/sec, FOV 8°, 55 sec.

AA-10B Alamo

Guidance: **IR all aspect**
 Range Front: 3.1 nm
 Range Rear: **5 - 7 nm**
 Flare Effect: Low
 Max Target g: 9
 Max Vel.(mach): **3.1** (2,050 kts)

Names: R-27T
 Aircraft: J-8/B/C/D, J-11, Mig-29G/ M, Mig-31, Su-27/UB, Su-30M/ MKK, Su-33, Su-34, Su-35, Su-37
 Notes: 1983. USSR. Brk turn 9g, 4-5 flares. IRCCM. (26g), Max AOA 20°, gmbl lmt 40°, trkg rate 22°/sec, FOV 3°, 55 sec. Seeker Front 3.1-(3.1)nm, Rear **6.8-(8.1)nm**.

AA-10C Alamo

Guidance: **SARH**
 Range Front: **15 - 25 nm**
 Range Rear: 8 - 10 nm
 Chaff Effect: Med
 Max Target g: 9
 Max Vel.(mach): **3.9** (2,579 kts)

Names: R-27ER
 Aircraft: J-11, Mig-31, Su-27/ UB, Su-30M/ MKK, Su-33, Su-34, Su-35, Su-37
 Notes: 1983. USSR. Brk turn 9g, chaff, beam x>15nm, weave, dive & climb. (26g), Max AOA 20°, gmbl limit 55°, trkg rate 25°/sec, FOV 8°, 60 sec. Min. 1.2nm.

AA-10D Alamo

Guidance: **IR all aspect**
 Range Front: 4.5 - (4.9) nm
 Range Rear: **8 - 10 nm**
 Flare Effect: Low
 Max Target g: 9
 Max Vel.(mach): **3.6** (2,381 kts)

Names: R-27ET
 Aircraft: J-11, Su-27/ UB, Su-30M/ MKK, Su-33, Su-34, Su-35, Su-37
 Notes: 1983. USSR. Break turn 9g, 4-5flares. IRCCM. (26g), Max AOA 20°, 26°, gimbal limit 55°, trkg rate 25°/sec, FOV 8°, 60 sec. Skr Frnt 4.5-(4.9)nm, Rr **9.5-(11.2)nm**.

AA-11 Archer

Guidance: **IR all aspect**
 Range Front: 3.2 - (3.4)nm
 Range Rear: **5 - 6 nm**
 Flare Effect: Very Low
 Max Target g: 12
 Max Vel.(mach): **3.0** (1,984 kts)

Names: R-73
 Aircraft: J-11, Ka-50, Mi-24, -28, Mig-29A/G/M/S, Mig-31, Su-27/ UB, Su-30M/ MKK, Su-33, -34, -35, -37, -39
 Notes: 1984. USSR. Hd on, high spd, no AB brk turn. TVC. IRCCM. HMCS. (45g), Max AOA 56°, 25°, gmbl lmt 60°, trkg rate 60°/sec, FOV 3°, 40 sec. Seeker Front 3.2-(3.4), Rr **7.5-(9)nm**.

AA-12 Adder

Guidance: **ARH**
 Range Front: **14 - 23 nm**
 Range Rear: 5 - 8 nm
 Chaff Effect: Very Low
 Max Target g: 11
 Max Vel.(mach): **4.2** 10/2.0 15/1.3 20/0.6

Names: R-77, Amramski
 Aircraft: J-11, Mig-29S, Su-27/ UB, Su-30M/ MKK, Su-33, Su-34, Su-35, Su-37, Su-39
 Notes: 1994. USSR. HOJ. Break turn 9g, chaff, bm, weaving, dive & climb. Crank & pump. (35g), Max AOA 30°, gmbl limit 60°, tkg rate 40°/sec, FOV 10°, 70 sec, PB **8-13 nm**.



PL-7 Thunderbolt 	Guidance: IR Rear Aspect Range Front: 1.1 Range Rear: 2.9 - (3.4) nm Flare Effect: Very High Max Target g: 9 Max Vel.(mach): 2.8 (1,852 kts)	Names: N/A Aircraft: Chengdu J-7G, J-8I, Q-5 Notes: ~1982. PLAAF. Break turn 9g, flare. (30g), Max AOA 21°, gimbal limit 45°, tracking rate 16.5°/sec, FOV 3°, 27 sec. Reverse engineered R550 Magic I but not as good. Seeker front 1.1-(1.1)nm, rear 2.9-(3.4)nm .
PL-8 Thunderbolt 	Guidance: IR All Aspect Range Front: 3.4 nm Range Rear: 3 - 5 nm Flare Effect: Medium Max Target g: 9 Max Vel.(mach): 2.5 (1,654 kts)	Names: Licensed copy of Python-3 Aircraft: Chengdu J-7G, J-8I, J-15 Notes: ~1988. PLAAF. Break turn, flare. Rudimentary IRCCM. Bleeds speed in high g maneuver. (35g), Max AOA 20°, gimbal limit 40°, tracking rate 22°/sec, FOV 3°, 35 sec. IR seeker Front 3.4-(3.4)nm, Rear 7.4-(8.9)nm .
PL-10 Thunderbolt 	Guidance: IR All Aspect Range Front: 4.2 - (4.5) nm Range Rear: 5 - 7 nm Flare Effect: Very Low Max Target g: 15 Max Vel.(mach): 3.3 (2,183 kts)	Names: Luoyang PL-ASR, Institute 612 Aircraft: J-15 Notes: 2008. PLAAF. IRCCM. LOAL N/I . (50g), Max AOA 35° 47°, gimbal limit 90°, tracking rate 90°/sec, FOV 3°, 35 sec. IR seeker Front 4.2-(4.5)nm, Rear 9.5-(11.4)nm . Unable to test, estimated ranges.
PL-12 Thunderbolt 	Guidance: ARH Range Front: 15 - 35 nm Range Rear: 10 - 12 nm Chaff Effect: Very Low Max Target g: 11 Max Vel.(mach): 3.8 10/2.8 15/2.2 20/1.6	Names: Pen Lung, Air Dragon, SD-10, Project 129 or R129 Aircraft: JH-7, J-8F, J-10, J-11B, J-15, JF-17 Notes: 2005. PLAAF. HOJ. Break turn 9g, chaff, bm, weaving, dive & climb. Crank & pump. (35g), Max AOA 30°, gmb limit 60°, tkg rate 40°/sec, FOV 10°, 80 sec, PB 8-13 nm . Self lofting.
PL-15 Thunderbolt 	Guidance: ARH Range Front: 15 - 35 nm Range Rear: 10 - 12 nm Chaff Effect: Very Low Max Target g: 11 Max Vel.(mach): 3.5 10/2.5 15/1.8 20/1.2	Names: Aerial Trident Aircraft: J-20 Notes: 2016. PLAAF. HOJ. Break AC rdr lock prior to term phase. Crank & pump. (35g), Max AOA 29°, gmb limit 60°, tkg rate 40°/sec, FOV 15°, 120 sec. PB 9-14nm . Self lofting. Larger, heavier and a little slower than PL-12 in BMS.



AIM-4C Falcon		Guidance: IR Rear Aspect	Names: Falcon
		Range Front: N/A	Aircraft: F-89H, F102, F-101, F-106, SAAB Draken
AIM-4D Falcon		Range Rear: <u>1.1 nm</u>	Notes: USA. Break turn 5g, flares. (13g), Max AOA 15°, gimbal limit 20°, tracking rate 11°/sec, FOV 2°, 45 sec.
		Flare Effect: Very High	
AIM-4G Super Falcon		Max Target g: 3	
		Max Vel.(mach): <u>3.0</u> (1,984 kts)	
AIM-4D Falcon		Guidance: IR All Aspect	Names: Falcon
		Range Front: <u>1.4 nm</u>	Aircraft: F-101, F-102, F-106, F-4J, SAAB Draken
AIM-4G Super Falcon		Range Rear: <u>1.4 nm</u>	Notes: USA. Break turn 5g, flares. (15g), Max AOA 15°, gimbal limit 25°, tracking rate 12.5°/sec, FOV 2°, 50 sec.
		Flare Effect: Very High	
AIM-7D Sparrow		Max Target g: 4	
		Max Vel.(mach): <u>4.0</u> (2,646 kts)	
AIM-7E Sparrow		Guidance: IR All Aspect	Names: Super Falcon, GAR-4A
		Range Front: <u>1.4 nm</u>	Aircraft: F-101, F-102, F-106, F-4J, SAAB Draken
AIM-7E-2 Sea Sparrow		Range Rear: <u>1.4 nm</u>	Notes: USA. Break turn 5g, flares. (15g), Max AOA 15°, gimbal limit 25°, tracking rate 12.5°/sec, FOV 2°, 60 sec.
		Flare Effect: High	
AIM-7F Sparrow		Max Target g: 4	
		Max Vel.(mach): <u>4.0</u> (2,646 kts)	
AIM-7M Sparrow		Guidance: SARH	Names: Sparrow, AAM-N-6a, AIM-101
		Range Front: <u>6 - 7 nm</u>	Aircraft: F-4B/ C/ D/ J/ N/ S
AIM-7E Sparrow		Range Rear: <u>2 - 3 nm</u>	Notes: 1959. USA. Break turn 6g, chaff, beam, weaving, dive and climb. (15g), Max AOA 16°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 100 sec.
		Chaff Effect: Low	
AIM-7E-2 Sea Sparrow		Max Target g: 5	
		Max Vel.(mach): <u>2.1</u> (1,389 kts)	
AIM-7F Sparrow		Guidance: SARH	Names: Sparrow, AAM-N-6b
		Range Front: <u>6 - 10 nm</u>	Aircraft: F-4B/ C/ D/ J/ N/ S
AIM-7M Sparrow		Range Rear: <u>2 - 5 nm</u>	Notes: 1963. USA. Break turn 6g, chaff, beam, weaving, dive and climb.(20g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 100 sec. Bad performance 10% PK.
		Chaff Effect: Very High	
AIM-9B Sidewinder		Max Target g: 5	
		Max Vel.(mach): <u>3.0</u> (1,984 kts)	
AIM-9B Sidewinder		Guidance: SARH	Names: RIM-7E Sea Sparrow
		Range Front: <u>10 - 15 nm</u>	Ships: Basic Point Defense Missile System for ships, F-4B/ C/ D/ EJ/ E-IAF/ J/ K/ M/ N/ S
AIM-9D Sidewinder		Range Rear: <u>3 - 5 nm</u>	Notes: 1969. USN. Break turn 8g, chaff, beam, weaving, dive and climb.(23g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 100 sec. 13% PK.
		Chaff Effect: Very High	
AIM-9B Sidewinder		Max Target g: 7	
		Max Vel.(mach): <u>3.3</u> (2,183 kts) 10/1.5	
AIM-9D Sidewinder		Guidance: SARH	Names: Sparrow
		Range Front: <u>12 - 17 nm</u>	Aircraft: CF/A-18, F-15A, F-16C30 IAF, F-16-C32EAF, F/A-18A/ B/ C/ D/ E.
AIM-9B Sidewinder		Range Rear: <u>4 - 5 nm</u>	Notes: 1976. USA. Break turn 7g, chaff, beam, weaving, dive and climb. 24nm shots but low PK. Low energy >9nm. (23g), Max AOA 17°, GL 60°, 25°/sec, FOV 7.8°, 75s.
		Chaff Effect: High	
AIM-9B Sidewinder		Max Target g: 7	
		Max Vel.(mach): <u>3.5</u> (2,315 kts)	
AIM-9B Sidewinder		Guidance: SARH	Names: Sparrow
		Range Front: <u>11 - 18 nm</u>	Aircraft: CF/A-18, F-4D/ E/ EJ/ F/ G, F-14A/ B/ D, F-15A/ C/ D/ E/ J, F-16A15/ C25/ C30/ C32, F/A-18A/ B/ C/ D/ E
AIM-9B Sidewinder		Range Rear: <u>6 - 8 nm</u>	Notes: 1982. USA. Break turn 7g, chaff, beam, weaving, dive and climb. (23g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 75 sec.
		Chaff Effect: High	
AIM-9B Sidewinder		Max Target g: 7	
		Max Vel.(mach): <u>3.5</u> 10/2.4 15/1.3	
AIM-9B Sidewinder		Guidance: IR Rear Aspect	Names: GAR-8, AAM-N-7 Sidewinder IA,
		Range Front: <u>1.4 nm</u>	Aircraft: F-4, F-8E, F-104C/ DJ/ G/ J, F-105D, Mirage IIIE
AIM-9B Sidewinder		Range Rear: <u>2 - 3 nm</u>	Notes: 1956. USA. Break turn 5g, flare. No ground clutter recognition. No night time trkg. (12g, 23g), Max AOA 14°, 15°, gimbal limit 25°, tracking rate 11°/sec, FOV 2.5°, 20 sec. Seeker front 1.4-(1.4)nm, rear <u>3.7-(4.5)nm</u> .
		Flare Effect: Very High	
AIM-9B Sidewinder		Max Target g: 5	
		Max Vel.(mach): <u>2.6</u> (1,733 kts)	
AIM-9B Sidewinder		Guidance: IR Rear Aspect	Names: AAM-N-7 Sidewinder IC (IR)
		Range Front: <u>1.8 - (2) nm</u>	Aircraft: Navy only, F-4B/ J/ M/ N/ S, F-8E, F-104 DJ/ J/ M
AIM-9B Sidewinder		Range Rear: <u>2 - 3 nm</u>	Notes: 1965-1969. USN. Break turn 8g, flare. Better ground clutter recognition. (15g, 25g), Max AOA 16°, gimbal limit 30°, tracking rate 12°/sec, FOV 2.5°, 40 sec. Seeker front 1.8-(2)nm, rear <u>4.4 - (5.4)nm</u> .
		Flare Effect: Very High	
AIM-9B Sidewinder		Max Target g: 7	
		Max Vel.(mach): <u>2.9</u> (1,918 kts)	

	AIM-9E Sidewinder	Guidance: IR Rear Aspect Range Front: 1.8 nm Range Rear: 2.5 nm Flare Effect: Very High Max Target g: 6 Max Vel.(mach): 2.5 (1,654 kts)	Names: Sidewinder Aircraft: Airforce aircraft, F-4C/ D, F-104DJ/ J Notes: 1969, 1972. USAF. Break turn 5g, flare. Easy to evade. (15g), Max AOA 16°, gimbal limit 25°, tracking rate 16.5°/sec, FOV 4°, 20 sec. Seeker Front 1.8-(1.8)nm, Rear 3.6-(4.4)nm .
	AIM-9G Sidewinder	Guidance: IR Rear Aspect Range Front: 1.8 nm Range Rear: 3 nm Flare Effect: Very High Max Target g: 6 Max Vel.(mach): 2.5 (1,654 kts)	Names: Sidewinder Aircraft: Navy aircraft, F-4B/ J/ M/ N/ S, F-8E Notes: 1970. USN. Break turn 7g, flare. (15g, 28g), Max AOA 16°, gimbal limit 30°, tracking rate 12°/sec, FOV 2.5°, 40 sec. Seeker Front 1.8-(1.8)nm, Rear 3.6-(4.4)nm . Unable to test, estimated ranges.
	AIM-9H Sidewinder	Guidance: IR Rear Aspect Range Front: 1.2 nm Range Rear: 3.5 nm Flare Effect: Very High Max Target g: 7 Max Vel.(mach): 2.8 (1,852 kts)	Names: Sidewinder Aircraft: Navy only: CF/A-18, F-4B/ J/ N/ S, F-8E, F/A-18A/ B Notes: 1972-1974. Break turn 8g, flare. (18g, 32g), Max AOA 18°, gimbal limit 30°, tracking rate 15°/sec, FOV 2.5°, 40 sec. Seeker Front 1.2-(1.2)nm, Rear 5.6-(7.3)nm .
	AIM-9J Sidewinder	Guidance: IR Rear Aspect Range Front: 1.4 nm Range Rear: 2 - 2.5 nm Flare Effect: Very High Max Target g: 8 Max Vel.(mach): 2.6 (1,733 kts)	Names: Sidewinder Aircraft: A-4E/ PTM/ SU, CF/A-18, F-4C/ D, F/A-18A/ B Notes: 1972. USA. Break turn 8g, flare. Easy to evade. (18g, 27g), Max AOA 16°, gimbal limit 25°, tracking rate 16.5°/sec, FOV 3°, 40 sec. Seeker Front 1.4-(1.4)nm, Rear 3.7-(4.5)nm .
	AIM-9M Sidewinder	Guidance: IR All Aspect Range Front: 3 - (3.2) nm Range Rear: 5 - 6 nm Flare Effect: Low Max Target g: 12 Max Vel.(mach): 3.2 (2,134 kts)	Aircraft: A-4E/ PTM/ M/ SU, A-7D/ E, A-10, AJ 37, AMX, AV-8B, CF/A-18, F-4D/ E/ EJ/ F/ G/ K, F-5A/ E, F-14, F-15, F-16, F/A-18, F-111C/ G, JA 37, Jaguar GR3 GAF, Tornado Notes: 1983. USA. Brk 9g, flare. IRCCM. Smokeless. (30g), Max AOA 30° 20°, gimbal limit 40°, tkg rate 25°/sec, FOV 3°, 40 sec. Seeker range Front 3-(3.2)nm, Rear 6.8-(8.1)nm .
	AIM-9P Sidewinder	Guidance: IR Rear Aspect Range Front: 0.5 - (1) nm Range Rear: 2.3 - (2.8) nm Flare Effect: High Max Target g: 9 Max Vel.(mach): 2.3 (1,520 kts)	Names: Sidewinder Aircraft: A-4E/ PTM/ M/ SU, A-7D/ E, A-10, CF/A-18, F-4D/ E/ F/ G, F-5A/ E, F-14, F-15, F-16, F/A-18, F-104DJ/ J Notes: 1978. USA. Break turn 9g, flare. (25g), Max AOA 17°, 30°, gimbal limit 40°, tracking rate 16.5°/sec, FOV 3°, 40 sec. IR seeker Front 0.5-(1)nm, Rear 2.3-(2.8)nm .
	AIM-9X Sidewinder	Guidance: IR All Aspect Range Front: 4.2 - (4.5) nm Range Rear: 5 - 7 nm Flare Effect: Very Low Max Target g: 13 Max Vel.(mach): 3.3 (2,183 kts)	Names: Sidewinder Aircraft: CF/A-18, F-15C/ D/ E/ J/ K, F-16AM MLU/ C/ D, F/A-18C/ D/ E/ F Notes: 2004. USA. IRCCM. LOAL. (40g), Max AOA 51°, 35°, gimbal limit 90°, tracking rate 90°/sec, FOV 4°, 40 sec. IR seeker Front 4.2-(4.5)nm, Rear 9.5-(11.4)nm .
	AIM-54A Phoenix	Guidance: ARH Range Front: 20 - 50 nm Range Rear: 12 - 16 nm Chaff Effect: Very Low Max Target g: 7 Max Vel.(mach): 4.0 10/4 20/3.2 30/2.5	Names: Phoenix Aircraft: F-14A/ B/ D Notes: 1974. USA. HOJ. Break turn 8g, chaff, beam, weaving, dive and climb. (17g), Max AOA 15°, gimbal limit 60°, tracking rate 25°/sec, FOV 10°, 150 sec. PB 17-21nm . Self lofting.
	AIM-54C Phoenix	Guidance: ARH Range Front: 20 - 50 nm Range Rear: 12 - 16 nm Chaff Effect: Very Low Max Target g: 7 Max Vel.(mach): 4.0 10/4 20/3.2 30/2.5	Names: Phoenix Aircraft: F-14A/ B/ D Notes: 1986. USA. HOJ. Break turn 8g, chaff, beam, weaving, dive and climb. (17g), Max AOA 15°, gimbal limit 60°, tracking rate 25°/sec, FOV 10°, 150 sec. PB 20-24nm . Self lofting.



**AIM-120B
AMRAAM**

Guidance: **ARH**
 Range Front: **17 - 30 nm**
 Range Rear: 12 - 16 nm
 Chaff Effect: Very Low
 Max Target g:
 Max Vel.(mach): **3.3** 10/2.6 15/2.0 20/1.2

Names: Slammer
 Aircraft: AJ 37, CF/A-18, F-15C/ D/ E/ I/ J/ , F-16, F/A-18, JA 37, Tornado F3
 Notes: 1994. USA. HOJ. Break AC radar lock prior to terminal phase. Crank & pump. (35g), AOA 27°, gmb lmt 60°, tkg rate 40°/sec, FOV 15°, 80 sec. PB **8-13nm**. Lofted numbers.

**AIM-120C
AMRAAM**

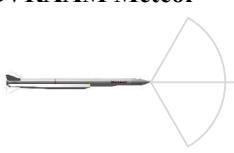
Guidance: **ARH**
 Range Front: **17 - 30 nm**
 Range Rear: 12 - 16 nm
 Chaff Effect: Very Low
 Max Target g:
 Max Vel.(mach): **3.5** 10/3.0 15/2.1 20/1.2

Names: Slammer
 Aircraft: Eurofighter GAF, F-15C/ D/ I/ J/ K, F-16AM MLU RDAF/ C/ D, F/A-18, F-22, KF16C52, Tornado F3, Typhoon FGR.4
 Notes: 1996. USA. HOJ. Break AC rdr lock prior to term phase. Crank & pump. (35g), Max AOA 29°, gmb lmt 60°, tkg rate 40°/sec, FOV 15°, 120 sec. PB **9-14nm**. Lofted numbers.

AIM-132 ASRAAM

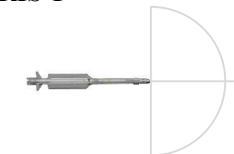
Guidance: **IR All Aspect**
 Range Front: 4.1 - (4.3) nm
 Range Rear: **6 - 8 nm**
 Flare Effect: Very Low
 Max Target g: 15
 Max Vel.(mach): **3.5** (2,315 kts)

Names: Advanced Short Range Air to Air Missile
 Aircraft: Tornado F3/ GR4, Typhoon FGR.4
 Notes: 1998. RAF, RAAF. IRCCM. **LOAL N/I**. (50g), Max AOA 35° 47°, gimbal limit 90°, tracking rate 90°/sec, FOV 3°, 40 sec. IR seeker Front 4.1-(4.3)nm, Rear **8.8-(11.2)nm**.

BVRAAM Meteor

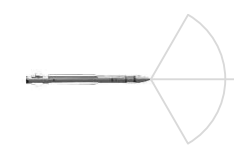
Guidance: **ARH**
 Range Front: **75 - 80 nm**
 Range Rear: 40 - 45 nm
 Chaff Effect: Very Low
 Max Target g:
 Max Vel.(mach): **4.2** (2,800 kts)

Names: Meteor
 Aircraft: Eurofighter GAF, F-35 (2024), Gripen, Rafale, Typhoon FGR.4
 Notes: 2016. ECCM. HOJ. **LOAL N/I**. (28g), Max AOA 20°, gimbal limit 60°, tracking rate 40°/sec, FOV 40°, 120 sec, PB **20 - 24nm**.

IRIS T

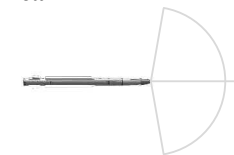
Guidance: **IR All Aspect**
 Range Front: 4.2 - 4.6 nm
 Range Rear: **5 nm**
 Flare Effect: Very Low
 Max Target g:
 Max Vel.(mach): **2.4** (1,588 kts)

Names: IRIS T
 Aircraft: Eurofighter GAF, F-16AM MLU RDAF, F16C52+PXII/ III/ IV, Tornado IDS GAF
 Notes: 2005. GAF. IRCCM. TVC. HMCS. **LOAL**. (50g), Max AOA 35°, 52°, gimbal limit 90°, tracking rate 90°/sec, FOV 3°, 35 sec. IR seeker range Front 4.2-(4.6), Rear **9.5-(11.2)nm**.

Mica EM

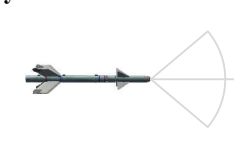
Guidance: **ARH**
 Range Front: **14 - 22 nm**
 Range Rear: 6 - 8 nm
 Chaff Effect: Very Low
 Max Target g: 13
 Max Vel.(mach): **3.9** 5/3.2 10/2.0 15/1.0

Names: Mica RF
 Aircraft: Mirage 2000SF/ EGM
 Notes: 2007. FAF. 360° launch envelope. HOJ. Link 16 targeting. **LOAL**, ECCM, TVC, HMCS. (40g), Max AOA 30°, gimbal limit 60°, tracking rate 40°/sec, FOV 10°, 65 sec. PB **7nm**.

Mica IR

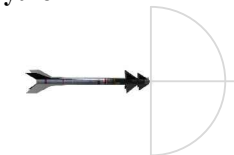
Guidance: **IR All Aspect**
 Range Front: **14 - 22 nm**
 Range Rear: 6 - 8 nm
 Flare Effect: Very Low
 Max Target g: 13
 Max Vel.(mach): **3.8** (2,514 kts)

Names: Mica
 Aircraft: Mirage 2000SF/ 9/ D/ EGM, Rafale C
 Notes: 2007. FAF. 360° launch envelope. Link 16 targeting. ~**LOAL**, IRCCM, TVC, HMCS. (40g), Max AOA 43°, 30°, gimbal limit 80°, tracking rate 40°/sec, FOV 10°, 65 sec. IR seeker Front 5.1-(5.3), Rear **11.4-(13.4)**.

Python 3

Guidance: **IR All Aspect**
 Range Front: 1.1 - (1.2) nm
 Range Rear: **2.7 - (3.4) nm**
 Flare Effect: Very High
 Max Target g:
 Max Vel.(mach): **2.7** (1,786 kts)

Names: Python-3
 Aircraft: F-15C Baz IDF, F-15I Ra'am IDF
 Notes: 1985. IAF. (35g), Max AOA 20°, 26°, gimbal limit 40°, tracking rate 25°/sec, FOV 3°, 40 sec. Seeker range Front 1.1-(1.2)nm, Rear **2.7-(3.4)nm**.

Python 4

Guidance: **IR All Aspect**
 Range Front: 3.4 - (3.8) nm
 Range Rear: **5 - 7 nm**
 Flare Effect: Low
 Max Target g:
 Max Vel.(mach): **3.3** (2,183 kts)

Names: Python-4
 Aircraft: F-15C Baz IDF, F-15I Ra'am IDF, F-16C-30 IAF/ D-30 IAF/ C-40 IAF/ D-40 IAF, F-16I-52-CFT
 Notes: 1990. IAF. IRCCM. HMCS. (50g), Max AOA 30°, gimbal limit 90°, tracking rate 90°/sec, FOV 4°, 30 sec. IR seeker Front 3.4-(3.8)nm, Rear **7.3-(9.7)nm**.

Python 5

Guidance: **IR All Aspect**
 Range Front: 4.6 - (4.7) nm
 Range Rear: **5 - 7 nm**
 Flare Effect: Very Low
 Max Target g:
 Max Vel.(mach): **3.3** (2,183 kts)

Names: Python-5
 Aircraft: F-15C Baz IDF, F-15I Ra'am IDF, F-16C-30 IAF/ D-30 IAF/ C-40 IAF/ D-40 IAF, F-16I-52-CFT
 Notes: 2003. IAF. IRCCM. HMCS. **LOAL**. (50g), Max AOA 30°, gimbal limit 90°, tracking rate 90°/sec, FOV 4°, 45 sec. IR seeker Front 4.6-(4.7)nm, Rear **10.1-(12)nm**.

R.530D Super Matra

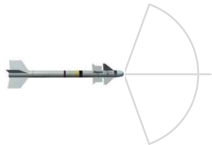
Guidance: **SARH**
 Range Front: **20 - 25 nm**
 Range Rear: **6 - 10 nm**
 Chaff Effect:
 Max Target g: 13
 Max Vel.(mach): **3.8** (2,513 kts)

Names: Super Matra
 Aircraft: Mirage 2000C, Mirage F1
 Notes: 1988. FAF. ECCM. (23g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 100 sec. Limited by supporting AC radar. Hard to keep lock over 10 nm.

R.550 Magic

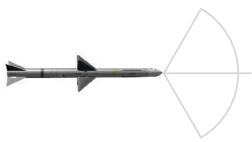
Guidance: **IR All Aspect**
 Range Front: **3.3 - (3.8) nm**
 Range Rear: **3 - 4 nm**
 Flare Effect: High
 Max Target g:
 Max Vel.(mach): **2.6** (1,178 kts)

Names: R550 Magic.
 Aircraft: Jaguar A, MB-339, Mirage IIIE/ F-1
 Notes: 1975. FAF. (35g), Max AOA 23°, 35°, gimbal limit 50°, tracking rate 25°/sec, FOV 3°, 30 sec. IR seeker Front 3.3-(3.8)nm, Rear **7.4-(8.9)nm**.

R.550 Magic II

Guidance: **IR All Aspect**
 Range Front: **3.2 - (3.4) nm**
 Range Rear: **3 - 4 nm**
 Flare Effect: Low
 Max Target g:
 Max Vel.(mach): **2.9** (1,918 kts)

Names: R550 Magic II.
 Aircraft: Jaguar A, Mirage 2000C/ D/ 5F/ EGM/ N, Mirage F-1
 Notes: 1986. FAF. (35g), Max AOA 23°, 35°, gimbal limit 70°, tracking rate 25°/sec, FOV 3°, 30 sec. IR seeker Front 3.2-(3.4)nm, Rear **6.7-(8.1)nm**.

Skyflash

Guidance: **SARH**
 Range Front: **10 - 17 nm**
 Range Rear: **4 - 7 nm**
 Chaff Effect: Medium
 Max Target g: 7
 Max Vel.(mach): **4.0** 10/1.58 15/1.03

Names: Skyflash
 Aircraft: AJ 37, EF-2000 RAF, F-4K/ M, JA 37, Tornado ADV
 Notes: 1978. RAF. (23g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 100 sec. Maneuver to break lock of launching AC.

Tien Chien I

Guidance: **IR All Aspect**
 Range Front: **2.8 - (3.0) nm**
 Range Rear: **4 - 5 nm**
 Flare Effect: Low
 Max Target g: 12
 Max Vel.(mach): **2.9** (1,918 kts)

Names: Sky Sword I, TC-1
 Aircraft: F-CK-1C/ D
 Notes: 1993. ROCAF. Brk 9g, flare. IRCCM. Smokeless. (30g), Max AOA 30° 20°, gimbal limit 40°, tkg rate 25°/sec, FOV 3°, 40 sec. Seeker range Front 2.8-(3.0)nm, Rear **6.7-(8.1)nm**.

Tien Chien II

Guidance: **ARH**
 Range Front: **17 - 30 nm**
 Range Rear: **12 - 16 nm**
 Chaff Effect: Very Low
 Max Target g:
 Max Vel.(mach): **3.3** 10/2.6 15/2.0 20/1.2

Names: Sky Sword II, TC-2
 Aircraft: F-CK-1C/ D
 Notes: 1999. ROCAF. HOJ. ECCM. Break AC radar lock prior to terminal phase. Crank & pump. (35g), AOA 27°, gmb lmt 60°, tkg rate 40°/sec, FOV 15°, 80 sec. PB **8-13nm**. Lofted numbers.



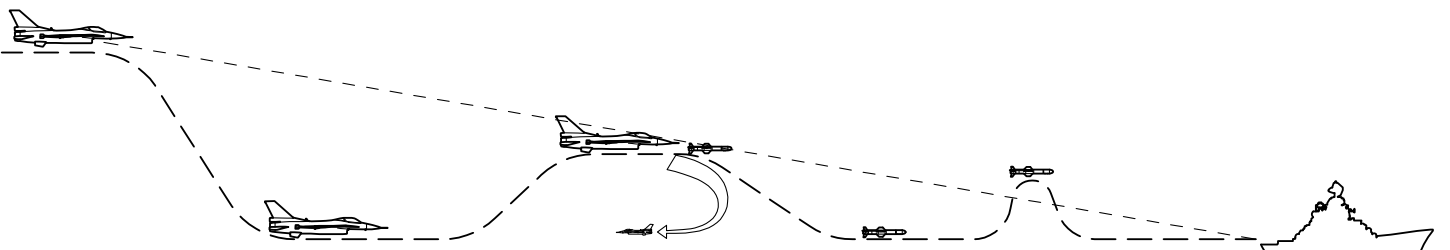
f-16.net

General Notes

- Statistics for ships focus on their anti aircraft capabilities.
- Items that are in gray are not implemented in BMS.
- Modern ships, especially guided missile type ships, can be extremely dangerous for aircraft. Stay out of their engagement zones.
- CIWS systems are capable of destroying missiles N/I in BMS.
- #x Indicates number of launching systems, not the amount of ammunition or individual weapons in the system. One launching system could have 2 guns on a turret or 4 tubes for launching missiles for example. If the launching system can launch different types of missiles such as Harpoons, Tomahawks and Standards then the total number of systems will be in the notes.
- Generally, a ship radar's blind zone gets higher the further one gets from the ship.
- Attack ships by staying low to the surface and use pop up attacks with long range anti-ship weapons such as the Harpoon.
- Knots are equal to nautical miles per hour. So a ship that can do 24 knots can move 24 nm in 1 hour.
- Increase ship threat ring sizes by approximately 25nm to compensate for possible ship movement in 1 hour.

Abbreviations

AA	Anti Aircraft
AAA	Anti Aircraft Artillery
ABM	Anti Ballistic Missile
AC	Aircraft
ASub	Anti Submarine
BB	Battleship
CIWS	Close-in Weapon System
CG	Cruiser Guided Missile
CVN	Carrier Fixed Wing Aircraft Nuclear
DDG	Guided Missile Destroyer
FC	Fire Control
FF	Frigate
FFG	Guided Missile Frigate
FIIA	Flight IIA ship version
FLIR	Foward Looking Infrared
GMLS	Guided Missile Launching System
JMDS	Japanese Maritime Self Defense Force(Japan)
KPN	Korean People's Navy (North Korea)
LAM	Land Attack Missile
LT	Launch Time, time between launches
PLAN	Peoples Liberation Army Navy (China)
RKN	Republic of Korea Navy (South Korea)
SA	Search and Acquisition
SAG	Surface Action Group
SAM	Surface to Air Missile
SSM	Surface to Ship Missile
SSG	Surface to Surface Gun
UAV	Unmanned Aerial Vehicle
USN	United States Navy (USA)
USSR	Russian Navy/ Voenno-Morskoi Flot (VMF)
VLS	Guided Missile Vertical Launching System



Kirov

Tracking: SAM: [Top Pair \(MR-800\)](#), [Top Dome](#)
CIWS: [Bass Tilt \(MR-123\)](#)

Rdr Lock Range: SAM: FC: 26 nm SA: 57nm (120nm)
CIWS: FC: 0 nm

Min Range: SAM: 0.8 nm / 6/0, 11/50, 14/100, 16/200

Typical Engagement: SAM: [23 nm / 35,000 ft](#) SA-N-6

Max Range: SAM: 48 nm / 290,000 ft

Typical Engagement: SAM: [4 nm / 16,000 ft](#) SA-N-4

Notes: 1980. USSR. No launch warning. No smoke. Names: Pyotr Velikiy.
Evade missiles by getting below radar. Max range SA-N-4 9nm.
SA-N-4 similar to SA-8. Top Dome Volna 3R41 naval version of Flap
Lid 36N85. SA-N-6 similar to SA-10. 2x PK-2 decoy disp. 3x helo.

Type: Guided Missile Cruiser

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA:C/D/E/F FC: J CIWS: K

Targets: 3 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: 20x SS-N-19 Shipwreck
SAM: 12x SA-N-6 Grumble
SAM: 2x SA-N-4 Gecko
AAA: 2x AK-100 100mm flak
CIWS: 8x AK-630 30mm
ASub: SS-N-14/15or10xType53,
2x RBU-1000, 1x RBU-12000

Kuznetsov

Tracking: SAM: [3R95 Cross Swords](#)
CIWS: [Bass Tilt \(MR-123\)](#)

Rdr Lock Range: SAM: FC: 9 nm SA: 57nm
CIWS: FC: 2.7 nm

Min Range: SAM: 0.5 nm / 35 ft

Typical Engagement: SAM: [6.5 nm / 20,000 ft](#) SA-N-9

Max Range: SAM: 7 nm / 42,500 ft
CIWS: [2.7nm / 10,000 ft](#)

Notes: 1995. USSR. Aircraft 33 + 12 helo. BMS unlimited AC. 3R95 has
secondary IR guidance.

Type: Aircraft Carrier/ Cruiser

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: G FC: K CIWS: K

Targets: 4 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: 12x SS-N-19 Shipwreck
SAM: 24x SA-N-9 Gauntlet aka
3K95 Kinzhal
SAM: 8x SA-N-11Grison9M311
CIWS: 8x GSh-30 30mm
CIWS: 6x AK-630 30mm
ASub: 1x Udav-1

Osa II

Tracking: SSM: Square Tie (MR-331 Rangout)
CIWS: Drum Tilt (MR-104)/ Optical

Rdr Range: SSM: FC: 40 nm
CIWS: FC: 12 nm

Min Range: SAM: None

Typical Engagement: SAM: None

Max Range: SAM: None
CIWS: 2nm

Type: Missile Boat

ECM BT Range: No Effect

Chaff Vuln.: No Effect

Bands (System): I

Targets: 1 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: 4x SS-N-2 Styx (P-15U)
CIWS: 2x AK-230 30mm

Notes: 1960. USSR. AK-230 CIWS gun at fore and aft with 2x 30mm guns each. Anti ship missiles only
no SAM. CIWS Doesn't shoot or use radar. This ship is no threat to BMS AC.

Sovremenny

Tracking: SAM: [Top Plate](#), [6x Font Dome\(MR-90\)](#)
CIWS: [2x Bass Tilt \(MR-123\)](#)

Rdr Range: SAM: FC:
CIWS: FC: 2 nm

Min Range: SAM: 1.6 nm / 140 ft launch / 50 ft trk

Typical Engagement: SAM: [16.5 nm / 112,000 ft](#) * SA-N-7

Max Range: SAM: 18.5 nm / 112,000 ft
CIWS: 2nm

Notes: 1980. USSR. Launch warning. Smoke. ECM, decoys. 1x Helo. In
Kuznetsov CSG. Names: Nastoychivyy, Admiral Ushakov,
Gremyashchiy, Bystryy. PLAN: CV-16 Liaoning CSG, Hangzhou,
Fuzhou, Taizhou, Ningbo. * PLAN typical engagement is [12nm](#).

Type: Guided Missile Destroyer

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA:D/E FC:H/I CIWS: K

Targets: 4 (40) AZ: 180 (180) EL: 90 (90)

Weapons: SSM: 2x SS-N-22 Sunburn
SAM: 2x SA-N-7 Gadfly
SSG: 4x AK-130 130mm
CIWS: 4x AK-630 30mm
ASub: 2x 533mm torpedos, 2x
RBU-1000 rockets

Type 053H3 CLS

Tracking: SAM: [Type 360 \(SR60\)](#), [Type 345](#)
AAG: [Type 347 G/EFR-1\(Rice Lamp\)](#)

Rdr Range: SAM: FC: 30 nm SA: 50
AAA: FC: 0 nm

Min Range: SAM: 0 nm / 0 ft

Typical Engagement: SAM: [8 nm / 15,000 ft](#) HQ-7

Max Range: SAM: 8 nm / 20,000 ft
AAA: 2.7 nm / 10,000 ft 37mm

Notes: 1996. PLAN. Jang Wei II. Launch warning. Smoke. ECM, decoys.
Aircraft: Harbin Z-9C. Type 345 radar (MR-35). HQ-7 similar to
RIM-7. Beam, chaff. Beam, split-s turn away.

Type: Frigate

ECM BT Range: No Effect

Chaff Vuln.: Low

Bands (System): SA:E/F FC:J Guns: I

Targets: 6 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: 2x YJ-83
SSG: 1x PJ33A 100mm
SAM: 1x HQ-7 (FM-80)
AAA: 4x Type 76A 37mm
ASub: 2x 3200 ASW

Belknap CLS

Tracking: SAM: [AN/SPS-48/ 49, AN/SPG-55](#)
 CIWS: Radar/ FLIR

Rdr Range: SAM: FC: 100 nm SA: 100
 CIWS: FC: 0 nm

Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500

Typical Engagement: SAM: [39 nm / 469,000 ft](#) SM-2ER

Max Range: SAM: 117 nm / 469,000 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1964. USN. Smoke. No launch warning. ECM, decoys. 1x Helo.
 SM-2ER upgrade late 1980s. 1x Mk 10 GMLS. RIM-2 Terrier prior to
 1980s with 17nm range. Use pop up attack stay under radar.

Type: Guided Missile Cruiser CG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA:E/F/L FC:G/H/I/J Guns:Ku

Targets: 6 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: RGM-84 Harpoon
 SSG: 1x Mk 42 127mm
 SAM: RIM-67 SM-2ER
 CIWS: 2x Phalanx 20 mm
 ASub: 20x RUR-5 ASROC, 2x Mk 46

Burke CLS FIHA

Tracking: SAM: [AN/SPY-1D, AN/SPG-62](#)
 CIWS: Radar / FLIR

Rdr Range: SAM: FC: 73 nm SA: 100 nm
 AAG: FC: 0 nm SA: 0

Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500

Typical Engagement: SAM: [39 nm / 469,000 ft](#) SM-2ER

Max Range: SAM: 117 nm / 469,000 ft

Typical Engagement: SAM: [35 nm / 469,000 ft](#) SM-2MR

Notes: 1991. FIHA 1998. USN. Arleigh Burke class destroyer. No smoke. No
 launch warning. ECM, decoys. Aegis system. VLS 96 cells. 2x Helo.
 ABM RIM-162 Evolved Sea Sparrow 2009. RIM-66C/D aka SM-2MR
 max rng 73nm. Use pop up attack stay under radar. 12s LT.

Type: Guided Missile Destroyer DDG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: D/E FC: I/J Guns: Ku

Targets: 7 (>100) AZ: 180 (180) EL: 90 (90)

Weapons: SSM: RGM-84 Harpoon
 LAM: BGM-109 Tomahawk
 SSG: Mk 45 127mm
 SAM: RIM-66C/D/ 67/161/162/
 174A
 CIWS: 2x Phalanx 20mm
 ASub: Mk 46/50/54, RUM-139A

California CLS

Tracking: SAM: [AN/SPS-48E 49, AN/SPG-51](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 29 nm SA: 29 nm (250 nm)
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 3 nm / 50 ft 17/100, 25/300

Typical Engagement: SAM: [15 nm / 78,300 ft](#) SM-1MR

Max Rng: SAM: 21 nm / 78,300 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1974. USN. Smoke. No launch warning. ECM, decoys. Mk 13 GMLS.
 2x Helo. Use pop up attack, stay under radar.

Type: Guided Missile Cruiser CG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: E/ F/ L FC: G Guns: Ku

Targets: 7 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: RGM-84 Harpoon
 SSG: 2x Mk 45 127mm
 SAM: RIM-66 (SM-1MR)
 CIWS: 2x Phalanx 20mm
 ASub: 6x Mark 46, RUM-139A

Chamsuri

Tracking: AAA: STX Radar
 CIWS:Ku Band Radar, FLIR

Rdr Range: AAA: FC: 0 nm SA: 0nm
 CIWS: FC: 0 nm

Min Range: CIWS: 0 nm / 0 ft

Typical Engagement: CIWS: [2.7nm / 10,000 ft](#) 20mm

Max Range: CIWS: 2.7 nm / 10,000 ft

Type: Patrol Boat

ECM BT Range: No Effect

Chaff Vuln.: No Effect

Bands (System): CIWS: Ku

Targets: 1 AZ: 180 (180) EL: 90 (90)

Weapons: SSG: 1x Bofors 40 mm
 AAA: 2x 12.7mm machine guns
 CIWS: 2x Sea Vulcan 20 mm

Notes: 1970. RKN. CIWS Doesn't shoot or use radar. This ship is no threat to
 BMS AC.

Nimitz CVN

Tracking: SAM: [AN/SPS-48E/ 49\(V\)5, AN/SPQ-9B](#)
 CIWS: [Radar / FLIR](#)

Rdr Lock Range: SAM: FC: 35 nm SA: 44 nm
 CIWS: FC: 2.5 nm SA: 37

Min Range: SAM: 0 nm / 0 ft

Typical Engagement: SAM: [8nm / 15,000 ft](#) RIM-7

Max Rng: SAM: 8 nm / 26,000 ft
 CIWS: [2.2 nm / 9,500 ft](#)

Notes: USN. USS Enterprise CVN-65 1961. USS Carl Vinson CVN-70 1982.
 USS Theodore Roosevelt CVN-71 1984. ECM, decoys. 4x Mk-57
 Mod3 VLS. Beam, chaff. Beam, split-s, turn away. 90 aircraft
 capacity. BMS unlimited AC.

Type: Nimitz Class Supercarrier

ECM BT Range: No Effect

Chaff Vuln.: Low

Bands (System): SA:E/ F/ L/ I FC: I/ J Guns:Ku

Targets: 7 (120) AZ: 180 (180) EL: 90 (90)

Weapons: SSM: None
 SSG: None
 SAM: RIM-7 Sea Sparrow,
 RIM-116
 CIWS: 3x Phalanx 20mm
 ASub: None

Farragut CLS

Tracking: SAM: [AN/SPS-48/ 49, AN/SPG-55](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 90 nm SA: 90 nm
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 3 nm / 600 ft launch, 100' track

Typical Engagement: SAM: [39 nm / 469,000 ft](#) SM-2ER

Max Range: SAM: 117 nm / 469,000 ft
 CIWS: None

Notes: 1959. USN. No launch warning. Smoke. ECM, decoys. 0x Helo. 2x Mk 10 Mod 0 GMLS. Little RWR wrng. 38nm = 37s impact. Mach 6.9. RIM-2 Terrier prior to 1981. RIM-67 (SM-2ER). Use pop up attack, stay under radar. 36/800, 30/600, 25/400, 21/200, 14/100.

Type: Guided Missile Destroyer DDG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: E/F/L FC: G/H/I/J Guns: AZ: 180 (180) EL: 90 (90)

Targets: 7

Weapons: SSM: RGM-84 Harpoon 1981
 SSG: 1x Mk 42 127mm
 SAM: RIM-67 Stnd ER 1981
 Asub: 2x Mk 32, 1x RUR-5 ASROC

Iowa CLS BB

Tracking: SAM: [AN/SPS-49](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 25 nm SA: 36 nm
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: None

Typical Engagement: SAM: None

Max Range: SAM: None
 CIWS: 2.7 nm / 10,000 ft

Notes: 1944. USN. 1986 for weapons listed. ECM, decoys. 5x UAV. Mk 141 GMLS. USS Missouri (Mighty Mo, Big Mo). Ship doesn't have any SAMs and doesn't shoot guns, no threat in BMS.

Type: Fast Battleship BB

ECM BT Range: No Effect

Chaff Vuln.: No Effect

Bands (System): SA: L FC: Guns: Ku AZ: 180 (180) EL: 90 (90)

Targets: 6

Weapons: SSM: RGM-84 Harpoon
 LAM: BGM-109 Tomahawk
 SSG: 9x 406 mm
 SSG: 12x 127 mm
 CIWS: 4x Phalanx 20mm
 Asub: None

Kidd CLS

Tracking: SAM: [AN/SPS-48E, AN/SPG-51D](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 45 nm SA: 45 nm
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 3 nm / 100 ft launch, 50' track

Typical Engagement: SAM: [24 nm / 469,000 ft](#) SM-1ER

Max Range: SAM: 90 nm / 469,000 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1981. USN. No launch warning. Smoke. ECM, decoys. 2x Helo. 2x Mk 26 GMLS. RIM-2 Terrier prior to 1981. RIM-67 (SM-1ER). Use pop up attack, stay under radar. 28/500, 25/400, 22/300, 21/200, 14/100

Type: Guided Missile Destroyer DDG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: E/F FC: G Guns: Ku AZ: 180 (180) EL: 90 (90)

Targets: 1

Weapons: SSM: RGM-84 Harpoon 1981
 SSG: 2x Mk 45 127mm
 SAM: 2x RIM-67 Stnd ER
 CIWS: 2x Phalanx 20mm
 Asub: 6x Mk 32, 1x RUR-5 ASROC

Knox CLS

Tracking: SAM: [AN/SPS-40](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 35 nm SA: 44 nm
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 0 nm / 0 ft

Typical Engagement: SAM: [8nm / 15,000 ft](#) RIM-7

Max Range: SAM: 8 nm / 26,000 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1969. USN. Launch warning. Smoke. ECM, decoys. 1x Helo. 1x Mk-25, 29, 16 GMLS. Radar detection 18/200, 12/100, 9/50. Beam, chaff. Beam, split-s, turn away. Primarily an anti-submarine ship.

Type: Frigate FF

ECM BT Range: No Effect

Chaff Vuln.: Low

Bands (System): SA: B FC: Guns: Ku AZ: 180 (180) EL: 90 (90)

Targets: 7

Weapons: SSM: RGM-84 Harpoon
 SSG: 2x Mk 45 127 mm
 SAM: 1x RIM-7 Sea Sparrow
 CIWS: 1x Phalanx 20mm
 Asub: 1x RUR-5 ASROC, 2x Mk 32/ 46

Leahy CLS

Tracking: SAM: [AN/SPS-48/ 49, AN/SPG-55](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 90 nm SA: 90 nm
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 3 nm / 600 ft launch, 100' track

Typical Engagement: SAM: [39 nm / 469,000 ft](#) SM-2ER

Max Range: SAM: 117 nm / 469,000 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1962, 1981. USN. No launch wrng. Smoke. ECM, decoys. 0x Helo. 2x Mk 10 GMLS. Little RWR wrng. 38nm = 37s impact. Mach 6.9. RIM-2 Terrier prior to 1981. RIM-67 (SM-2ER). Use pop up attack, stay under radar. 36/800, 30/600, 25/400, 22/300, 14/100

Type: Guided Missile Cruiser CG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: E/F/L FC: G/H/I/J Guns: Ku AZ: 180 (180) EL: 90 (90)

Targets: 1

Weapons: SSM: RGM-84 Harpoon 1981
 SSG: 4x 76mm prior to 1981
 SAM: 2x RIM-67 Stnd ER 1981
 CIWS: 2x Phalanx 20mm
 Asub: 6x Mk 32, 1x RUR-5 ASROC

Newport CLS

Tracking: SA: [AN/SPS-10](#)
 CIWS: N/A
 Rdr Lock Range: SAM: FC: 0 nm SA: 0 nm
 AAA: FC: 50 nm SA: 50
 Min Range: SAM: None
 Typical Engagement: SAM: None
 Max Range: SAM: None
 AAA: [2 nm / 10,000 ft](#)
 Notes: 1969. USN.

Type: Tank Landing Ship LST
 ECM BT Range: No Effect
 Chaff Vuln.: Very Low
 Bands (System): SA: G FC: Guns:
 Targets: 7 AZ: 180 (180) EL: 90 (90)
 Weapons: SSM: None
 SSG: None
 SAM: None
 AAA: 2x twin 76 mm
 Asub: None

Osumi

Tracking: SAM: [OPS-14C](#)
 CIWS: Radar / FLIR
 Rdr Lock Range: SAM: SA: 50 nm
 CIWS: FC: 0 nm SA: 0
 Min Range: SAM: None
 Typical Engagement: SAM: None
 Max Range: SAM: None
 CIWS: 2.7 nm / 10,000 ft
 Notes: 1998. JMDF. Amphibious assault ship. ECM, decoys. 8 Helos. Ship doesn't have any SAMs and doesn't shoot guns, no threat in BMS.

Type: Amphibious Transport Dock LST
 ECM BT Range: No Effect
 Chaff Vuln.: No Effect
 Bands (System): SA: FC: Guns: Ku
 Targets: 6 AZ: 180 (180) EL: 90 (90)
 Weapons: SSM: None
 SSG: None
 AAA: 2x M2 12.7mm
 SAM: None
 CIWS: 2x Phalanx 20mm
 Asub: None

Perry CLS

Tracking: SAM: [AN/SPS-49/ 55, Mk 92](#)
 CIWS: Radar / FLIR
 Rdr Lock Range: SAM: FC: 33 nm SA: 43 nm
 CIWS: FC: 0 nm SA: 0
 Min Range: SAM: 3 nm / 50 ft 17/100, 25/300
 Typical Engagement: SAM: [15 nm / 78,300 ft](#) SM-1MR
 Max Range: SAM: 21 nm / 78,300 ft
 CIWS: 2.7 nm / 10,000 ft
 Notes: 1977. USN. Smoke. No launch warning. Oliver Hazard Perry-class Frigate. ECM, decoys. 2x Helo. 1x Mk 13 GMLS. SM-1MR 1967. At 12nm takes 26s to impact. Use pop up attack stay under radar. Change direction chaff. 12s launch time.

Type: Guided Missile Frigate FFG
 ECM BT Range: No Effect
 Chaff Vuln.: Very Low
 Bands (System): SA: C FC: I/J Guns: Ku
 Targets: 7 AZ: 180 (180) EL: 90 (90)
 Weapons: SSM: RGM-84 Harpoon
 SSG: 1x OTO Melara 76 mm
 AAA: 2x Mk38 Mod 2 25 mm
 SAM: 1xRIM-66A/B(SM-1MR)
 CIWS: 1x Phalanx 20mm
 Asub: 2x Mark 32 system

Shirane CLS

Tracking: SAM: [OPS-12](#)
 CIWS: Radar / FLIR
 Rdr Lock Range: SAM: FC: 35 nm SA: 44 nm
 CIWS: FC: 0 nm SA: 0
 Min Range: SAM: 0 nm / 0 ft
 Typical Engagement: SAM: [8nm / 15,000 ft](#) RIM-7
 Max Range: SAM: 8 nm / 26,000 ft
 CIWS: 2.7 nm / 10,000 ft
 Notes: 1980. JMDF. Launch warning. Smoke. ECM, decoys. 3x Helo. Radar detection 9/50, 12/100, 18/200. Beam, chaff. Beam, split-s, turn away.

Type: Destroyer DDH
 ECM BT Range: No Effect
 Chaff Vuln.: Low
 Bands (System): SA: FC: Guns: Ku
 Targets: 7 AZ: 180 (180) EL: 90 (90)
 Weapons: SSG: 2x Mk 42 127 mm
 SAM: 1x RIM-7 Sea Sparrow
 CIWS: 2x Phalanx 20mm
 Asub: 1x Mk 112 ASROC, 2x Mk 32/ 46

Spruance CLS

Tracking: SAM: [AN/SPS-40, AN/SPG-60](#)
 CIWS: Radar / FLIR
 Rdr Lock Range: SAM: FC: 35 nm SA: 44 nm
 CIWS: FC: 0 nm SA: 0
 Min Range: SAM: 0 nm / 0 ft
 Typical Engagement: SAM: [8nm / 15,000 ft](#) RIM-7
 Max Range: SAM: 8 nm / 26,000 ft
 CIWS: 2.7 nm / 10,000 ft
 Notes: 1975. USN. Launch warning. Smoke. ECM, decoys. 2x Helo. 1x Mk 29 GMLS. Radar detection 9/50, 12/100, 18/200. Beam, chaff. Beam, split-s, turn away. Later fitted with vertical launch system 61 cells.

Type: Destroyer DD
 ECM BT Range: No Effect
 Chaff Vuln.: Low
 Bands (System): SA: B FC: I/J Guns: Ku
 Targets: 7 AZ: 180 (180) EL: 90 (90)
 Weapons: SSM: RGM-84 Harpoon
 LAM: BGM-109 Tomahawk
 SSG: 2x Mk 45 127 mm
 SAM: 1x RIM-7 Sea Sparrow
 CIWS: 2x Phalanx 20mm
 Asub: 1x RUR-5 ASROC

Ticon Mk 26 GMLS

Tracking: SAM: [AN/SPY-1D](#), [AN/SPG-62](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 73 nm SA: 100 nm
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500

Typical Engagement: SAM: [35 nm / 469,000 ft](#) SM-2MR

Max Range: SAM: 73 nm / 469,000 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1983-87. USN. Ticonderoga. Smoke. No launch warning. ECM, decoys. Aegis system. 2x Mk 26 GMLS. 2x Helo. ABM RIM-162 Evolved Sea Sparrow 2009. RIM-66C/D aka SM-2MR 1979. At 34nm takes 35s to impact. 12s LT. Use pop up attack, stay under radar.

Type: Guided Missile Cruiser CG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: D/E FC: I/J Guns: Ku

Targets: 7 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: RGM-84 Harpoon
 SSG: 2x Mk 45 127mm
 SAM: RIM-66C/D
 CIWS: 2x Phalanx 20mm
 ASub: 2x Mark 32, 20x RUR-5 ASROC

Ticon Mk41 VLS

Tracking: SAM: [AN/SPY-1D](#), [AN/SPG-62](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 73 nm SA: 100 nm
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500

Typical Engagement: SAM: [35 nm / 469,000 ft](#) SM-2MR

Max Range: SAM: 73 nm / 469,000 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1985-92. USN. Ticonderoga. Smoke. No launch warning. ECM, decoys. Aegis system. Mk 41 VLS 122 cells. 2x Helo. ABM RIM-162 Evolved Sea Sparrow 2009. RIM-66C/D aka SM-2MR 1979. 34nm = 35s impact. 12s LT. Use pop up attack, stay under radar.

Type: Guided Missile Cruiser CG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: D/E FC: I/J Guns: Ku

Targets: 7 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: RGM-84 Harpoon
 LAM: BGM-109 Tomahawk
 SSG: 2x Mk 45 127mm
 SAM: RIM-66C/D/ 156A/ 161/ 162/ 174A
 CIWS: 2x Phalanx 20mm
 ASub: 2x Mark 32, RUM-139A

Ulsan CLS

Tracking: SA: Signaal DA-08
 CIWS: RTN-10X Orion

Rdr Range: SAM: None
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: None

Typical Engagement: SAM: None

Max Range: SAM: None
 CIWS: 4.5 nm / 25,000 ft

Notes: 1980. RKN. ECM. 2x Mk 141 GMLS. Ship doesn't shoot guns and has no SAMs, no threat in BMS.

Type: Frigate FF

ECM BT Range: No Effect

Chaff Vuln.: No Effect

Bands (System): SA: F FC: I Guns: I

Targets: 1 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: 2x RGM-84 Harpoon
 SSG: 2x Otobreda 76 mm
 SAM: None
 CIWS: 3x DARTO 40mm
 ASub: 2x Blue Shark Torpedo

Virginia CLS

Tracking: SAM: [AN/ASP-48E/ 49](#), [AN/SPG-51](#)
 CIWS: Radar/ FLIR

Rdr Range: SAM: FC: 95 nm SA: 95
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500

Typical Engagement: SAM: [35 nm / 469,000 ft](#) SM-2MR

Max Range: SAM: 73 nm / 469,000 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1976. USN. No launch warning. Smoke. ECM, decoys. 2x Mk 26 GMLS. 1x helo. Use pop up attack, stay under radar.

Type: Guided Missile Cruiser CGN

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: E/F FC: G Guns: Ku

Targets: 7 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: RGM-84 Harpoon 1981
 LAM: BGM-109 Tomahawk
 SSG: 2x 127mm
 SAM: RIM-66 Stnd MR
 AAA: 2x Mk 38 25mm
 CIWS: 2x Phalanx 20mm
 ASub: 4x Mk 46

Wasp LHD

Tracking: SAM: [AN/SPS-48/ 49](#), [Mk 23](#)
 CIWS: Radar / FLIR

Rdr Lock Range: SAM: FC: 29 nm SA: 51 nm
 CIWS: FC: 0 nm SA: 0

Min Range: SAM: 0 nm / 0 ft 11/50, 15/100, 19/200

Typical Engagement: SAM: [8 nm / 15,000 ft](#) RIM-7

Max Range: SAM: 8 nm / 26,000 ft
 CIWS: 2.7 nm / 10,000 ft

Notes: 1989. USN. Amphibious assault ship. No launch warning. Smoke. ECM, decoys. 20-22 aircraft. BMS unlimited aircraft. Aircraft types: AV-8B, F-35B, MV-22B, CH-53E, UH-1Y, SH-60F/HH-60H ASW.

Type: Landing Helicopter Dock LHD

ECM BT Range: No Effect

Chaff Vuln.: Very Low

Bands (System): SA: E/F FC: D Guns: Ku

Targets: 6 AZ: 180 (180) EL: 90 (90)

Weapons: SSM: None
 SSG: None
 AAA: 4x Mk38 Mod 2 25 mm
 SAM: 2x RIM-116 RAM IR
 SAM: 2x RIM-7 Sea Sparrow
 CIWS: 3x Phalanx 20mm
 ASub: None

AIR DEFENSE VEHICLE THREAT GUIDE - OPFOR - AN/ALR-69(V), AN/ALR-56M													
	RWR		HARM		ALIC								
SAM	S A	F C	S A	F C	S A	F C	SA/ EWR	Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	ECM	CM
SA-2	---	2	2A	2T	402	202	Spoon Rest	Fan Song E/ F	4nm/ 300ft	16nm/ 73,000ft	38nm/ 198,000ft	E12-F9nm	Med
SA-3	F	3	F	3T	403	203	Flat Face	Low Blow	2.7nm/ 150ft	9nm/ 45,000ft	11nm/ 67,000ft	6nm	Med
SA-4	L	4	4A	4T	404	204	Long Track	Pat Hand	4nm/ 500ft	18nm/ 60,000ft	22nm/ 80,000ft	14nm	Med
SA-5	B B	5 ---	5A 5A	5T ---	405 ---	205 ---	Bar Lock Odd Group	Square Pair ---	7nm/ 1,000ft	53nm/ 123,000ft	190nm/ 327,000ft	26nm	Med
SA-6	F	6	F	6T	403	206	Flat Face	Straight Flush	2nm/ 550ft	10nm/ 36,000ft	20nm/ 101,500ft	4nm HOJ	Med
HN-5A								Rear Aspect IR	0nm/ 60ft	1.6nm/ 8,000ft	2nm/ 10,500ft	N/A	Very High
SA-7								Rear Aspect IR	0.2nm/ 50ft	1.5nm/ 5,000ft	2nm/ 12,000ft	N/A	Very High
SA-8	---	8	---	8T	---	608	---	OB Land Roll	0.8nm/ 80ft	4nm/ 16,000ft	8.5nm/ 50,000ft	14nm	Med
SA-9	O	---	D	---	609	---	Dog Ear	Rear Aspect IR	0.3nm/ 50ft	2nm/ 14,500ft	3.2nm/ 14,500ft	N/A	Very High
SA-10	10	10	10A	10T	410	210	Big Bird	Flap Lid	3nm/ 60ft	48nm/ 123,000ft	54nm/ 276,000ft	36nm HOJ	No Effect
SA-11	D	11	11A	11T	411	211	Snow Drift	OB Fire Dome	1.5nm/ 180ft	12nm/ 54,000ft	20nm/ 90,000ft	19nm HOJ	Very Low
SA-13 ∞	O	---	D	---	609	---	Dog Ear	OB Snap Shot/ IR	0.1nm/ 30ft	2nm/ 9,000ft	5nm/ 26,800ft	4nm	Very Low
SA-14								All Aspect IR	0nm/ 50ft	1.6nm/ 10,000ft	3nm/ 12,100ft	N/A	Very High
SA-15	---	15/M	---	15T	---	615	---	OB Scrum Half	0.5nm/ 35ft	6.5nm/ 20,000ft	7nm/ 42,500ft	13nm	Med
SA-16								All Aspect IR	0.2nm/ 60ft	3nm/ 10,000ft	3.5nm/ 19,400ft	N/A	Very Low
SA-17	D	17	17A	17T	417	217	Snow Drift	OB Chair Back	1.6nm/ 140ft	16.5nm/ 81,000ft	18.5nm/ 115,000ft	30nm HOJ	No Effect
SA-19/ 2S6 ∞	---	A	---	19T	---	619	---	OB Hot Shot/ IR	0nm/ 0ft	6.5nm/ 10,200ft	5.7nm/ 33,000ft	7nm HOJ	Med
SA-20	BB	20	20A	20T	420	220	Big Bird	Tombstone	4.8nm/ 125ft	81nm/ 450,000ft	95nm/ 450,000ft	72nm HOJ	Low

	RWR		HARM		ALIC		SA/ EWR						
AAA	S A	F C	S A	F C	S A	F C		Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	Caliber	CM
KS-12		A/S	---	AAA	---	692		Fire Can/ Optical	0nm/ 2,000ft	5nm/ 28,000ft	5nm/ 28,000ft	85mm Flak	Med
KS-19		A/S	---	AAA	---	692		Fire Can/ Optical	0nm/ 2,000ft	5nm/ 33,500ft	5nm/ 33,500ft	100mm Flak	Med
S-60		A/S	---	AAA	---	692		Fire Can/ Optical	0nm/ 2,000ft	3nm/ 20,900ft	3nm/ 20,900ft	57mm Flak	Med
M-1939								Optical	0nm/ 2,000ft	1.3nm/ 8,600ft	1.3nm/ 8,600ft	37mm Flak	No Effect
M-1992		A	---	---	---	---		OB Gun Dish	0nm/ 0ft	2.5nm/ 10,000ft	2.5nm/ 14,000ft	30mm	Med
ZU-23								Optical	0nm/ 0ft	2.0nm/ 9,900ft	2.0nm/ 9,900ft	23mm	No Effect
ZPU-2								Optical	0nm/ 0ft	1.8nm/ 9,800ft	1.8nm/ 9,800ft	14.5mm	No Effect
ZSU-23-4	O	A	---	---	---	---	Dog Ear	OB Gun Dish	0nm/ 0ft	2nm/ 10,000ft	3nm/ 16,000ft	23mm	Med
ZSU-57-2								Optical	0nm/ 2,000ft	3nm/ 20,800ft	3nm/ 20,800ft	57mm Flak	No Effect

A/S Alternating A and S flashing on RWR

HOJ Home on jam

OB On board radar

15/M Alternating 15 and M Flashing on RWR

∞ Impossible to evade/ drag missile

AIR DEFENSE VEHICLE THREAT GUIDE - OPFOR - AN/ ALR-93(V)1								
	RWR							
SAM	S A	F C	Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	ECM	CM
SA-2		72	Fan Song E/ F	4nm/ 300ft	16nm/ 73,000ft	38nm/ 198,000ft	E12-F9nm	Med
SA-3	1F	73	Low Blow	2.7nm/ 150ft	9nm/ 45,000ft	11nm/ 67,000ft	6nm	Med
SA-4	1L	74	Pat Hand	4nm/ 500ft	18nm/ 60,000ft	22nm/ 80,000ft	14nm	Med
SA-5	15 15	75	Square Pair	7nm/ 1,000ft	53nm/ 123,000ft	190nm/ 327,000ft	26nm	Med
SA-6	1F	76	Straight Flush	2nm/ 550ft	10nm/ 36,000ft	20nm/ 101,500ft	4nm HOJ	Med
HN-5A			Rear Aspect IR	0nm/ 60ft	1.6nm/ 8,000ft	2nm/ 10,500ft	N/A	Very High
SA-7			Rear Aspect IR	0.2nm/ 50ft	1.5nm/ 5,000ft	2nm/ 12,000ft	N/A	Very High
SA-8		78	OB Land Roll	0.8nm/ 80ft	4nm/ 16,000ft	8.5nm/ 50,000ft	14nm	Med
SA-9	113		Rear Aspect IR	0.3nm/ 50ft	2nm/ 14,500ft	3.2nm/ 14,500ft	N/A	Very High
SA-10	110	710	Flap Lid	3nm/ 60ft	48nm/ 123,000ft	54nm/ 276,000ft	36nm HOJ	No Effect
SA-11	1D	711	OB Fire Dome	1.5nm/ 180ft	12nm/ 54,000ft	20nm/ 90,000ft	19nm HOJ	Very Low
SA-13 ∞	113		OB Snap Shot/ IR	0.1nm/ 30ft	2nm/ 9,000ft	5nm/ 26,800ft	4nm	Very Low
SA-14			All Aspect IR	0nm/ 50ft	1.6nm/ 10,000ft	3nm/ 12,100ft	N/A	Very High
SA-15		715	OB Scrum Half	0.5nm/ 35ft	6.5nm/ 20,000ft	7nm/ 42,500ft	13nm	Med
SA-16			All Aspect IR	0.2nm/ 60ft	3nm/ 10,000ft	3.5nm/ 19,400ft	N/A	Very Low
SA-17	1D	717	OB Chair Back	1.6nm/ 140ft	16.5nm/ 81,000ft	18.5nm/ 115,000ft	30nm HOJ	No Effect
SA-19/ 2S6 ∞		19	OB Hot Shot/ IR	0nm/ 0ft	6.5nm/ 10,200ft	5.7nm/ 33,000ft	7nm HOJ	Med
SA-20	7BB	720	Tombstone	4.8nm/ 125ft	81nm/ 450,000ft	95nm/ 450,000ft	72nm HOJ	Low

	RWR							
AAA	S A	F C	Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	Caliber	CM
KS-12		K	Fire Can/ Optical	0nm/ 2,000ft	5nm/ 28,000ft	5nm/ 28,000ft	85mm Flak	Med
KS-19		K	Fire Can/ Optical	0nm/ 2,000ft	5nm/ 33,500ft	5nm/ 33,500ft	100mm Flak	Med
S-60		K	Fire Can/ Optical	0nm/ 2,000ft	3nm/ 20,900ft	3nm/ 20,900ft	57mm Flak	Med
M-1939			Optical	0nm/ 2,000ft	1.3nm/ 8,600ft	1.3nm/ 8,600ft	37mm Flak	No Effect
M-1992		23	OB Gun Dish	0nm/ 0ft	2.5nm/ 10,000ft	2.5nm/ 14,000ft	30mm	Med
ZU-23			Optical	0nm/ 0ft	2.0nm/ 9,900ft	2.0nm/ 9,900ft	23mm	No Effect
ZPU-2			Optical	0nm/ 0ft	1.8nm/ 9,800ft	1.8nm/ 9,800ft	14.5mm	No Effect
ZSU-23-4	113	23	OB Gun Dish	0nm/ 0ft	2nm/ 10,000ft	3nm/ 16,000ft	23mm	Med
ZSU-57-2			Optical	0nm/ 2,000ft	3nm/ 20,800ft	3nm/ 20,800ft	57mm Flak	No Effect

CM Counter measure effectiveness

HOJ Home on jam

OB On board radar

∞ Impossible to evade/ drag missile

SA Symbols

- 1 D Snow Drift
- 1 F Flat Face
- 1 L Long Track
- 1 5 Bar Lock
- 1 5 Odd Group
- 110 Big Bird 5N64S
- 113 Dog Ear
- 7BB Big Bird 64N6E

AIR DEFENSE VEHICLE THREAT GUIDE - BLUEFOR - AN/ALR-69(V), AN/ALR-56M													
	RWR		HARM		ALIC								
SAM	S A	F C	S A	F C	S A	F C	SA/ EWR	Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	ECM	CM
Avenger								All Aspect IR	0nm/ 50ft	4nm/ 10,000 ft	4.1nm/ 20,000ft	N/A	Very Low
Chaparral								Rear Aspect IR	0nm/ 0ft	0.2nm/ 100ft	1.4nm/ 3,100ft	N/A	High
Hawk	50 55	H ---	HA HA	HT ---	430 ---	230 ---	AN/MPQ-50 AN/MPQ-55	AN/MPQ-46 ---	0.5nm/ 200ft	9-12nm/ 44,000ft	18-39nm/ 62000ft	8-10nm HOJ	Med
KSAM	---	C	---	---	---	---	---	OB Daewoo	0nm/ 0ft	5nm/ 10,000ft	8nm/ 27,000ft	7nm	Med
LAV-AD								All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	41.nm/ 20,000ft	N/A	Very Low
M2A2/ ADATS								All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	41.nm/ 20,000ft	N/A	Very Low
BSFV-AD/M6 BL								All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	41.nm/ 20,000ft	N/A	Very Low
Mistral								All Aspect IR	0nm/ 0ft	3nm/ 10,000ft	3nm/ 18,000ft	N/A	Very Low
Nike Hercules	---	N P	---	N ---	---	696 ---	---	AN/MPQ-43 ---	3nm/ 3,400ft	46nm/ 150,000ft	70nm/ 259,000ft	15nm	Med
Patriot	---	P	---	P	---	693	---	AN/MPQ-53	2nm/ 160ft	49nm/ 80,000ft	91nm/ 80,000ft	63nm HOJ	No Effect
Sky Guard	---	P	---	SKY	---	695	---	Sky Guard	0nm/ 0ft	8nm/ 20,000ft	11nm/ 23,000ft	4nm	Med
Stinger								All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	41.nm/ 20,000ft	N/A	Very Low

	RWR		HARM		ALIC								
AAA	S A	F C	S A	F C	S A	F C		Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	Caliber	CM
K263		A	---	---	---	---		OB Radar	0nm/ 0ft	2nm/ 9,900ft	2nm/9,900ft	20mm	Very Low
M-163/ -167			---	---	---	---		OB Radar	0nm/ 0ft	2nm/ 9,900ft	2nm/9,900ft	20mm	Very Low

CM Counter measure effectiveness
HOJ Home on jam
OB On board radar
∞ Impossible to evade/ drag missile

AIR DEFENSE VEHICLE THREAT GUIDE - BLUEFOR - AN/ ALR-93(V)1								
	RWR							
SAM	S A	F C	Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	ECM	CM
Avenger			All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	4.1nm/ 20,000ft	N/A	Very Low
Chaparral			Rear Aspect IR	0nm/ 0ft	0.2nm/ 100ft	1.4nm/ 3,100ft	N/A	High
Hawk	1H 1H	7MQ	AN/ MPQ-46	0.5nm/ 200ft	9-12nm/ 44,000ft	18-39nm/ 62,000ft	8-10nm HOJ	Med
KSAM		7C	OB Daewoo	0nm/ 0ft	5nm/ 10,000ft	8nm/ 27,000ft	7nm	Med
LAV-AD			All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	4.1nm/ 20,000ft	N/A	Very Low
M2A2/ ADATS			All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	4.1nm/ 20,000ft	N/A	Very Low
BSFV-AD/ M6 BL			All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	4.1nm/ 20,000ft	N/A	Very Low
Mistral			All Aspect IR	0nm/ 0ft	3nm/ 10,000ft	3nm/ 18,000ft	N/A	Very Low
Nike Hercules		7N	AN/ MPQ-43	3nm/ 3,400ft	46nm/ 150,000ft	70nm/ 259,000ft	15nm	Med
Patriot		7P	AN/ MPQ-53	2nm/ 160ft	49nm/ 80,000ft	91nm/ 80,000ft	63nm HOJ	No Effect
Sky Guard		7R	Sky Guard	0nm/ 0ft	8nm/ 20,000ft	11nm/ 23,000ft	4nm	Med
Stinger			All Aspect IR	0nm/ 50ft	4nm/ 10,000ft	4.1nm/ 20,000ft	N/A	Very Low

	RWR							
AAA	S A	F C	Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	Caliber	CM
K263 Cheongoon		63	OB Radar	0nm/ 0ft	2nm/ 9,900ft	2nm/ 9,900ft	20mm	Very Low
M-163/ -167			OB Radar	0nm/ 0ft	2nm/ 9,900ft	2nm/ 9,900ft	20mm	Very Low

CM Counter measure effectiveness
 HOJ Home on jam
 OB On board radar
 ∞ Impossible to evade/ drag missile

SA Symbols
 1H AN/ MPQ-50
 1H AN/ MPQ-55

AIRCRAFT THREAT GUIDE - OPFOR

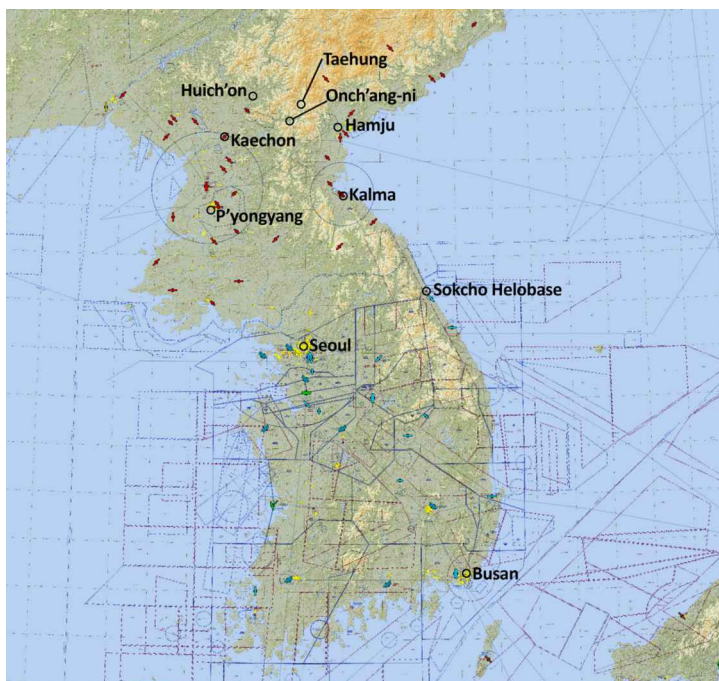
Aircraft	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR
G-4	Attack	7	2		AA-8			
J-5	Attack	2	0					
J-6	Fighter	2	0					
J-6B	Fighter	7	4	AA-2B	AA-2C			
J-7G	Fighter	8	4	AA-2B	AA-2C, PL-7, PL-8			
J-8I	Interceptor	8	4		PL-7, PL-8			
J-11	Multi	15	10		AA-8, A-11	AA-10A/ C	AA-10B/ D	AA-12
J-15	Multi	17	8		PL-8, PL-10			PL-12
J-16	Multi	17	12-22		PL-10E			PL-12/ 15/ 17
J-20	Fighter	17	6		PL-10			PL-12/ 15
Ka-50	Helo Attack	9			AA-11			
Mi-24	Helo Attack	9			AA-11			
Mi-28	Helo Attack	9			AA-11			
Mig-17PF	Multi	4	4	AA-1				
Mig-19PM	Fighter	7	4	AA-2B	AA-2C			
Mig-19SF	Attack	2	0					
Mig-21F-13	Multi	7	2	AA-1	AA-2C			
Mig-21bis	Multi	8	4-6	AA-2B	AA-2C, AA-8			
Mig-21MF	Multi	8	4	AA-2B	AA-2C, AA-8			
Mig-23ML	Multi	12	4-6	AA-2B, AA-7A	AA-2C, AA-7B, AA-8			
Mig-25	Interceptor	12	4-6	AA-7A	AA-7B, AA-8	AA-6A	AA-6B	
Mig-27	Attack	8	4-6		AA-2C, AA-7B, AA-8			
Mig-29A	Multi	12	6		AA-8, A-11	AA-10A		
Mig-29G	Multi	12	6		AA-8, A-11	AA-10A		
Mig-29M	Multi	15	8		AA-8, A-11	AA-10A/ C	AA-10B/ D	AA-12
Mig-29S	Multi	15	6		AA-8, A-11	AA-10A		AA-12
Mig-31	Interceptor	20	8-10		AA-8, A-11	AA-9, AA-10C	AA-6B, AA-10B	
Q-5III/ N	Attack	5	4		AA-2C, PL-7			
Su-7BMK	Multi	2	0					
Su-15	Interceptor	7	4	AA-1	AA-2C			
Su-17	Attack	7	4		AA-2C, AA-8			
Su-20	Attack	7	4		AA-2C, AA-8			
Su-22	Attack	7	4		AA-2C, AA-8			
Su-24	Attack	7	2		AA-8			
Su-25	Attack	7	2		AA-8			
Su-27	Multi	15	10		AA-8, AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-27UB	Multi	15	10		AA-8, A-11	AA-10A/ C	AA-10B/ D	AA-12
Su-30M	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-30MCK	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-33	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-34	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-35S	Multi	15	8		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-35SK	Multi	17	10		PL-10			PL-12
Su-39	Attack	15	6	AA-2B	AA-2C, AA-8, A-11			AA-12

AIRCRAFT THREAT GUIDE - BLUEFOR									
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR
A-1H		Attack	2	0					
A-4E	USN	Attack	7	4		AIM-9J/ M/ P			
A-4E Agressor	USN	Attack	7	4		AIM-9J/ M/ P			
A-4PTM	RMAF	Attack	7	4		AIM-9J/ M/ P			
A-4SU	RSAF	Attack	7	4		AIM-9J/ M/ P			
A-6E	USN	Attack	0	0					
A-7E	USN	Attack	8	2		AIM-9M/ P			
A-10A/ C	USAF	Attack	7	2		AIM-9M/ P			
AJ 37	SAF	Multi	17	6		AIM-9M	Skyflash		AIM-120B
AMX	ITAF	Attack	7	2		AIM-9M			
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M			
AV-8B Harrier II+	USMC	Attack	17	4		AIM-9M			AIM-120B
CF-188A	RCAF	Multi	17	12		AIM-9H/ J/ M/ P	AIM-7F/ M		AIM-120B
EA-6B	USN	EW	0	0					
EA-18G	USN	EW	20	2					AIM-120C
Eurofighter GAF	GAF	Multi	56	6-8		IRIS-T			120C, Meteor
F-4D ROKAF	ROKAF	Multi	13	4-8		AIM-9M/ P	AIM-7M		
F-4E IAF	IAF	Multi	13	4-8		AIM-9M	AIM-7E-2/ M		
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9M/ P	AIM-7M		
F-4EJ	JASDF	Multi	13	4-8		AAM-3, AIM-9M	AIM-7E-2/ M		
F-4F	GAF	Multi	17	5-9		AIM-9M/ P	AIM-7M		AIM-120B
F-4G Wild Weasel	USAF	Multi	13	4-8		AIM-9M/ P	AIM-7M		
F-5A	USAF	Fighter	7	6		AIM-9M/ P			
F-5E	USAF	Fighter	7	6		AIM-9M/ P			
F-14A	USN	Fighter	40	8		AIM-9M	AIM-7M		AIM-54A
F-14B	USN	Fighter	40	8		AIM-9M	AIM-7M		AIM-54A/ C
F-14D	USN	Fighter	40	8		AIM-9M	AIM-7M		AIM-54A/ C
F-15A	USAF	Fighter	13	8		AIM-9M/ P	AIM-7F/ M		
F-15C	USAF	Fighter	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-15C 65th AS	USAF	Fighter	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-15C Baz IDF	IAF	Fighter	20	8		AIM-9M/ P, Python 3/ 4/ 5	AIM-7M		AIM-120B/ C
F-15CJ	JASDF	Fighter	20	8		AAM-3, AIM-9M/ P/ X	AIM-7M		AAM-4, 120B/ C
F-15D	USAF	Fighter	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-15DJ	JASDF	Fighter	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-15E-220	USAF	Multi	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-15E-229	USAF	Multi	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-15I Ra'am IDF	IAF	Fighter	20	8		AIM-9M/ P, Python 3/ 4/ 5	AIM-7M		AIM-120B/ C
F-15J	JASDF	Fighter	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-15K	ROKAF	Fighter	20	8		AIM-9X			AIM-120C
F-16A Blk 15	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16AM BAF	BAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B
F-16AM RDAF	RDAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C
F-16AM RNLAf	RNLAf	Multi	17	6		AIM-9M/ P/ X			AIM-120B
F-16AM RNoAF	RNoAF	Multi	17	6		AIM-9M/ P, IRIS-T			AIM-120B
F-16B Blk 15	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16C Blk 30 AGRS	USAF	Multi	17	6		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-16C Blk 32 AGRS	USAF	Multi	17	6		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-16C Blk 25	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16C Blk 30	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16C Blk 30 IAF	BfS IAF	Multi	13	6		AIM-9P	AIM-7F, M		
F-16C Blk 32	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16C Blk 32 EAF	BfS EAF	Multi	13	6			AIM-7F, M		
F-16C Blk 32 ROKAF	ROKAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16CM Blk 40	USAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C
F-16CM Blk 42	USAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C
F-16CM Blk 50	USAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C

F-16CM Blk 52	USAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C
F-16C Blk 52 CFT	HAF	Multi	17	6		AIM-9M, IRIS-T			AIM-120B/ C
KF-16C Blk 52 ROKAF	ROKAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B/ C
F-16DM Blk 40	USAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C
F-16DM Blk 52	USAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C
F/A-18A	USN	Multi	17	8-12		AIM-9H/ J/ M/ P	AIM-7F/ M		AIM-120B
F/A-18B	USN	Multi	17	8-12		AIM-9H/ J/ M/ P	AIM-7F/ M		AIM-120B
F/A-18C	USN	Multi	17	8-12		AIM-9M/ P/ X	AIM-7F/ M		AIM-120B/ C
F/A-18D	USN	Multi	17	8-12		AIM-9M/ P/ X	AIM-7F/ M		AIM-120B/ C
F/A-18E	USN	Multi	17	10-16		AIM-9M/ P/ X	AIM-7F/ M		AIM-120B/ C
F/A-18F	USN	Multi	17	10-16		AIM-9M/ P/ X	AIM-7F/ M		AIM-120B/ C
F-22A	USAF	Fighter	20	6-8		AIM-9M/ X			AIM-120C
F-100D	USAF	Multi	2	0					
F-104DJ	USAF	Fighter	5	4		AIM-9B/ D/ E/ L/ P			
F-104J	JASDF	Fighter	5	4		AIM-9B/ D/ E/ L/ P			
F-105D	USAF	Multi	5	2-4		AIM-9B			
F-111E	USAF	Attack	0	0					
F-111F	USAF	Attack	0	0					
F-117A	USAF	Attack	0	0					
F-CK-1C	ROCAF	Multi	17	6		Tien Chien I			Tien Chien II
JA 37	SAF	Fighter	17	6		AIM-9M	Skyflash		AIM-120B
MB-339	ITAF	Attack	8	2		AIM-9M, R.550			
Mirage 2000C	FAF	Fighter	17	4		R.550-II	R.530D		
Mirage 2000D	FAF	Fighter	14	2		R.550-II		MICA IR	
Mirage 2000-5F	FAF	Fighter	14	6		R.550-II		MICA IR	MICA EM
Mirage 2000EGM	HAF	Fighter	14	8		R.550-II		MICA IR	MICA EM
Mirage 2000N	FAF	Fighter	8	2		R.550-II			
Mirage F-1CT	FAF	Fighter	17	4		R.550/ -II	R.530D		
Mirage IIIE	FAF	Fighter	8	2		AIM-9B, R.550			
MQ-9	USAF	UAV	0	0					
OV-10A	USAF	FAC	7	2		AIM-9M			
Rafale C	FAF	Multi	14	10				MICA IR	MICA EM
S-3B	USN	Attack	0	0					
SEPECAT Jaguar	FAF	Multi	7	2		AIM-9M			
Tornado F3	RAF	Fighter	17	8		AIM-9M	Skyflash	AIM-132	AIM-120B/ C
Tornado ECR AMI	ITAF	Attack	7	2		AIM-9M			
Tornado ECR GAF	GAF	Attack	7	2		AIM-9M			
Tornado IDS AMI	ITAF	Attack	7	2		AIM-9M			
Tornado IDS GAF	GAF	Attack	7	2		AIM-9M, IRIS-T			
Tornado GR.4	RAF	Attack	14	2		AIM-9M		AIM-132	
Typhoon FRG.4 RAF	RAF	Multi	56	6-8				AIM-132	120-C, Meteor

AV-MF: Russian Naval Aviation (Aviatsiya Voenno Morskogo Flota)
 BAF: Belgium Air Force (Belgische Luchtmacht/Force Aérienne Belge)
 EAF: Egyptian Air Force
 EAPAF: European Participating Air Forces
 FAF: French Air Force (Armée de l'Air) (Army of the Air)
 GAF: German Air Force (LW: Luftwaffe)
 HAF: Hellenic Air Force (Greece) (Polemikí Aeroporía)
 IAF: Israeli Air Force
 ITAF: Italian Air Force (AM: Aeronautica Militare)
 JASDF: Japanese Air Self Defense Force (Kōkū Jieitai)
 PLAAF: Peoples Liberation Army Air Force (China)
 RAF: Royal Air Force (England)
 RAAF: Royal Australian Air Force
 RCAF: Royal Canadian Air Force
 RDAF: Royal Danish Air Force (Denmark) (Flyvevåbnet)
 RMAF: Royal Malaysian Air Force
 RN: British Royal Navy aka FAA
 RNLAf: Royal Netherlands Air Force (Koninklijke Luchtmacht)

RNoAF: Royal Norwegian Air Force (Luftforsvaret)
 ROCAF: Republic of China Air Force (Taiwanese Air Force)
 ROKAF: Republic of Korea Air Force (South Korea)
 RSAF: Republic of Singapore Air Force
 SAF: Swedish Air Force (Flygvapnet)
 TuAF: Turkish Air Force (Türk Hava Kuvvetleri)
 USAF: United States Air Force
 USN: United States Navy
 USMC: United States Marine Corps
 VVS: Russian Air Force (Voenno-Vozdushnye Sily Rossii)



KTO-Tiger Spirit

Objectives

ROK/ US wins if:

Kalma, P'yongyang, Onch'ang-ni, Hamju, Huich'on, Kaechon and Taehung are controlled in less than 5 days, or....

Kalma and P'yongyang are controlled in less than 5 days and DPRK strength is less than 1/10th that of allied forces.

DPRK wins if:

Either Kalma or P'yongyang are controlled in less than 5 campaign days and DPRK maintains 1:1 force ratio.

If none of these conditions are met in 5 days then the outcome will be a stalemate.

KTO-Rolling Fire

Objectives

ROK/ US wins if:

Kalma and P'yongyang are controlled in less than 30 days.

DPRK wins if:

Seoul and Busan are controlled in less than 30 days.

If none of these conditions are met in 30 days then the outcome will be a peace treaty. If no major objective is captured in 20 days then the outcome will be a stalemate.

KTO-Iron Fortress

Objectives

ROK/ US wins if:

Busan and Seoul are controlled in less than 5 days.

DPRK wins if:

Seoul and Busan are controlled in less than 5 days.

If none of these conditions are met in 5 days then the outcome will be a peace treaty.

KTO-Bear Trap

Objectives

ROK wins if:

Busan and Sokcho are controlled in less than 8 days.

CIS wins if:

Not pushed out of South Korea within 8 days.



Balkans-Balance of Power

Objectives

Blueforce wins if:

Zagreb, Zadar, Banja Luka, Split, Mostar, Tuzla, Osijek, Sarajevo, Gornji Vakuf and Bihac are controlled.

Opfor wins if:

Rijeka, Kranj and Ljubljana are controlled.

Balkans-Under Siege

Objectives

Blueforce wins if:

Vranje, Medveda, Podujevo, Raska, Novi Pazar, Rozaje Town and Kosovo are controlled.

Opfor wins if:

Fushe Arrez, Tamare, Leze, Kukes Town, Shkoder City and North Albania are controlled.

Balkans-Powderkeg

Objectives

Blueforce wins if:

Bijeljina City, Vlasencia City, Novi Sad City, Zrenjanin City, Stepojevac City, Sabac City OR just Beograd City OR get Fry supply to less than or equal to 20%.

Opfor wins if:

Banja Luka City, Gornji Vakuf City, Mostar City, Sarajevo City, Tuzla City, Gruda City, Split City, Zadar City, Rijeka City, Zagreb City and Osijek City are controlled.

AIRCRAFT THREAT GUIDE - OPFOR (KTO-Tiger Spirit)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
J-5	DPRK	Attack	2	0						Hwangsuwon
J-6	DPRK	Attack	2	0						Puckchang-up
J-8I	DPRK	Interceptor	8	4	AA-2B	AA-2C, PL-7, PL-8				Laochutun
J-11B	PLAAF	Multi	15	10		AA-11, PL-8			AA-12, PL-12	Yanj, Dandong
J-15	PLANAF	Multi	17	8		PL-8, PL-10E			PL-12	Liaoning CSG
J-16	PLAAF	Multi	17	12-22		PL-10E			PL-12	Dalian, Shenyang, *1
J-20	PLAAF	Fighter	17	4-6		PL-10E			PL-12	Fuxin
Mig-21MF	DPRK	Multi	8	4	AA-2B	AA-2C, AA-8				Taechon, Samjiyon
Mig-23ML	DPRK	Multi	12	4-6	AA-2B, AA-7A	AA-2C, AA-7B, AA-8				Chanin-up, Orang, *2
Mig-29A	DPRK	Multi	12	6		AA-8, AA-11	AA-10A			Kaechon, Kalma, *3
Mig-29S	VVS	Multi	15	6		AA-8, AA-11	AA-10A		AA-12	Off Map
Mig-31	VVS	Interceptor	20	8-10		AA-8, A-11	AA-9, AA-10C	AA-6B, AA-10B		Off Map
Q-5N	PLAAF	Attack	5	4		AA-2C, PL-7				Liaoyang
Su-25	DPRK	Attack	7	2		AA-8				Iwon, Kalma
Su-27	VVS	Multi	15	10		AA-11	AA-10C	AA-10D	AA-12	Off Map
Su-33	VVS	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kuznetsov CSG
Su-35S	VVS	Multi	15	8		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Off Map
Su-35SK	PLAAF	Multi	17	10		PL-10E			PL-12	Anshan

AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Tiger Spirit)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
A-10C	USAF	Attack	7	2		AIM-9P/ M				Gunsan
AV-8B Harrier II+	USMC	Attack	17	4		AIM-9M			AIM-120B	Wasp LHD-1
EA-6B	USAF	EW	0	0						Iwakuni
EA-18G	USN	EW	17	2					AIM-120C	CVN-70
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Songwhan
F-5E	ROKAF	Fighter	7	6		AIM-9M				Gangneung, Gimpo
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Gunsan, Osan
F-15K	ROKAF	Multi	20	8		AIM-9X			AIM-120C	Daegu
F-16C Blk 32	ROKAF	Multi	17	6		AIM-9M			AIM-120B	Wonju
F-16C Blk 52	ROKAF	Multi	17	6		AIM-9M			AIM-120B/ C	Gwangju, Jungwon,*4
F-16CM Blk 40	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Gunsan, Osan
F-16CM Blk 50	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Gunsan
F/A-18C	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	CVN-70
F/A-18D	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	Iwakuni
F/A-18E	USN	Multi	17	10-16		AIM-9M/ X			AIM-120B/ C	CVN-70
F/A-18F	USN	Multi	17	10-16		AIM-9M/ X			AIM-120B/ C	CVN-70
MQ-9	USAF	Drone	0	0						Yeongju

DPRK: Democratic People's Republic of Korea (North Korea)
 PLAAF: Peoples Liberation Army Air Force (China) (PRC)
 PLANAF: Peoples Liberation Army Naval Air Force (China) (PRC)
 ROKAF: Republic of Korea Air Force (South Korea)
 USAF: United States Air Force
 USN: United States Navy
 VVS: Russian Air Force (Voyenno-Vozdushnye Sily Rossii) (CIS)

1: Taosian
 2: Sugamni, Sunchon
 3: Kwaksan
 4: Seosan

BOMBERS AND SUPPORT AC

A-50 Fuxin, Off Map
 AH-15 28th Inf., G414 Ipeyong-ro, Tsushima
 AH-64D Osan, Yangyang
 AH-64E G-501 Yangin
 An-2 Sunchon
 An-24 Sondock, Kwaksan, Dalian
 An-124 Off Map
 C-17 Misawa
 C-130H Gimhae, Gimpo, Yokota
 CH-47 C.Humphreys,Kwail,G-501 Yangin,C.Carroll,G-813 Jinhae
 E-2C CVN-70
 E-3 Yokota Off Map
 E-8C Yokota Off Map
 IL-28 Sunan
 IL-76M Kwaksan
 IL-78M Fuxin, Off Map
 Ka-52K Kuznetsov

KC-130 Iwakuni
 KC-135R Misawa Off Map
 MD-500 425th, Hwangsuwon, G107 Tongjin, Kangdong, 806, G307 Chuncheon, Kianadong, 28th Inf.
 MH-60R CVN-70 Vinson, Wasp LHD-1
 Mi-8 Sunan, 191st CAB 2, 116th CAB2
 Mi-26 Tangch'on
 MV-22 Wasp LHD-1
 RC-135W Yokota Off Map
 Tu-16 Pulandian
 U-2 Iwakuni
 UH-1H G307 Chuncheon, Suwon, G419 Honcheon
 UH-1J Iwami
 UH-60L G505 Jochiwon, Camp Mercer, 28 Inf., Koksan, Suwan

AIRCRAFT THREAT GUIDE - OPFOR (KTO-Rolling Fire)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
J-5	DPRK	Attack	2	0						Kuum-ni, Onchon,*1
J-6	DPRK	Attack	2	0						Kangdong, Koksan,*2
J-8I	DPRK	Interceptor	8	4		PL-7, PL-8				Laoohutun
J-11B	PLAAF	Multi	15	10		A-11, PL-8			AA-12, PL-12	Dangdong, Yanji
J-15	PLANAF	Multi	17	8		PL-8, PL-10E			PL-12	Liaoning
J-16	PLAAF	Multi	17	12-22		PL-8, PL-10E			PL-12	Dalian, Shenyang, *3
J-20	PLAAF	Fighter	17	6		PL-10			PL-12/ 15	Fuxin
Mig-21MF	DPRK	Multi	8	4	AA-2B	AA-2C, AA-8				Hyon-ni, Kwall, *4
Mig-23ML	DPRK	Multi	12	4-6	AA-2B, AA-7A	AA-2C, AA-7B, AA-8				Sangwon, Sunchon, *5
Mig-29A	DPRK	Multi	12	6		AA-8, AA-11	AA-10A			Kaechon, Kalma, *6
Mig-29S	VVS	Multi	15	6		AA-8, A-11	AA-10A		AA-12	Off Map
Mig-31	VVS	Interceptor	20	8-10		AA-8, A-11	AA-9, AA-10C	AA-6B, AA-10B		Off Map
Q-5N	PLAAF	Attack	5	4		AA-2C, PL-7				Liaoyang
Su-25	DPRK	Attack	7	2		AA-8				Kalma, Kum-ni, *7
Su-27	VVS	Multi	15	10		AA-11	AA-10C	AA-10D	AA-12	Off Map
Su-33	VVS	Multi	15	10		AA-11	AA-10C	AA-10D	AA-12	Kuznetsov
Su-35S	VVS	Multi	15	8		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Off Map
Su-35SK	PLAAF	Multi	17	10		PL-10E			PL-12	Anshan

AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Rolling Fire)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
A-10C	USAF	Attack	7	2		AIM-9P/ M				Gunsan
AV-8B Harrier II+	USMC	Attack	17	4		AIM-9M			AIM-120B	Wasp LHD-1
EA-6B	USAF	EW	0	0						Iwakuni
EA-18G	USN	EW	20	2					AIM-120C	CVN-70 Vinson
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Songwhan
F-5E	ROKAF	Fighter	7	6		AIM-9M				Gangneung, Gimpo
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Osan
F-15K	ROKAF	Multi	20	8		AIM-9X			AIM-120C	Daegu
F-16C Blk 32	ROKAF	Multi	17	6		AIM-9M			AIM-120B	Wonju
F-16C Blk 52	ROKAF	Multi	17	6		AIM-9M			AIM-120B/ C	Seosan
F-16CM Blk 40	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Gunsan, Osan
F-16CM Blk 50	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Gunsan
F/A-18C	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	CVN-70 Vinson
F/A-18D	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	Iwakuni
F/A-18E	USN	Multi	17	10-16		AIM-9M/ X			AIM-120B/ C	CVN-70 Vinson
F/A-18F	USN	Multi	17	10-16		AIM-9M/ X			AIM-120B/ C	CVN-70 Vinson
MQ-9	USAF	Drone	0	0						Yeongju

DPRK: Democratic People's Republic of Korea (North Korea)
FRAB: Forward Reserve Air Base
PLAAF: Peoples Liberation Army Air Force (China) (PRC)
ROKAF: Republic of Korea Air Force (South Korea)
USAF: United States Air Force
USN: United States Navy
USMC: United States Marine Corps
VVS: Russian Air Force (Voyenno-Vozdushnye Sily Rossii) (CIS)

*1: Taetan
*2: Nuchon-ni, Sangwon
*3: Taoxian
*4: Sangwon, Taetan
*5: Taetan
*6: Kwaksan
*7: Sangwon

BOMBERS AND SUPPORT AC

A-50 Fuxin
AH-15 G-414 Tpeyong-ro, Tsushima, 28 Inf.
AH-64D Yangyang, Osan
AH-64E G-501 Yangin
An-2 Nuch'on-ni
An-124 Off Map
An-24 Dalian Sanshilipu, Kwaksan, Sondok
C-17 Yokota Off Map
C-130H Gimhae, Yokota Off Map
CH-47 G-813 Jinhae, Camp Carroll, G-501
CH-47 Yangin, Cmp Casey, Cmp Humphreys
E-2C CVN-70 Vinson
E-3 Kadena Off Map
E-8C Kadena Off Map
IL-28 Kuumni, Onchon, Sunan
IL-76M Kwaksan
IL-78M Fuxin, Off Map

Ka-52K
KC-130
KC-135R
MD-500
MD-500
MH-60R
Mi-8
Mi-26
MV-22
RC-135W
Tu-16
U-2
UH-1H
UH-1J
UH-60L
Kuznetsov
Iwakuni
Kadena Off Map
22nd Arty, 28th Inv, G-107 Yongjin,
Hyon-Ni, Yangyang
CVN-70 Vinson, Wasp LHD-1
22nd Arty, 116 CAB 2, 191 CAB 2, 329 BDR, Hyon-Ni
329 BDR
Wasp LHD-1
Kadena Off Map
Pulandian
Iwakuni
G-307 Chuncheon, G-419 Honcheon, Suwon
Iwami
28th Inf., Camp Mercer, G-505 Jochiwon,
G-510 Icheon, Suwon,

AIRCRAFT THREAT GUIDE - OPFOR (KTO-Iron Fortress)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
J-5	DPRK	Attack	2	0						Kuum-ni, Onchon, Taetan
J-6	DPRK	Attack	2	0						Kangdong, Koksan, *1
J-8I	PLAAF	Interceptor	8	4		PL-7, PL-8				Laoohutun
J-11B	PLAAF	Multi	15	10		A-11, PL-8			AA-12, PL-12	Dangdong L., Yanji
J-15	PLANAF	Multi	17	8		PL-8, PL-10E			PL-12	CV-16 Liaoning
J-16	PLAAF	Multi	17	12-22		PL-10E			PL-12	Dalian, Shenyang, *2
J-20	PLAAF	Fighter	17	6		PL-10E			PL-12	Fuxin
Mig-21MF	DPRK	Multi	8	4	AA-2B	AA-2C, AA-8				Hyon-ni, Kwail, *3
Mig-23ML	DPRK	Multi	12	4-6	AA-2B, AA-7A	AA-2C, AA-7B, AA-8				Changjin-up, *4
Mig-29A	DPRK	Multi	12	6		AA-8, AA-11	AA-10A			Kaechon, Kalma, Kwaksan
Mig-29S	VVS	Multi	15	6		AA-8, AA-11	AA-10A		AA-12	Off Map
Mig-31	VVS	Interceptor	20	8-10		AA-8, A-11	AA-9, AA-10C	AA-6B, AA-10B		Off Map
Q-5N	PLAAF	Attack	5	4		AA-2C, PL-7				Liaoyang
Su-25	DPRK	Attack	7	2		AA-8				Kalma, Kum-ni, Sangwon
Su-27	VVS	Multi	15	10		AA-11	AA-10C	AA-10D	AA-12	Off Map
Su-33	VVS	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kuznetsov
Su-35S	VVS	Multi	15	8		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Off Map
Su-35SK	PLAAF	Multi	17	10		PL-10E			PL-12	Anshan

AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Iron Fortress)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
A-10C	USAF	Attack	7	2		AIM-9P/ M				Gunsan
AV-8B Harrier II+	USMC	Attack	17	4		AIM-9M			AIM-120B	Wasp LHD-1
EA-6B	USAF	EW	0	0						CVN-71
EA-18G	USN	Multi	20	2					AIM-120C	CVN-70
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Gwangju, Tsushima
F-5E	ROKAF	Fighter	7	6		AIM-9M				Gimhae
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Gunsan, Iwakuni
F-15K	ROKAF	Multi	20	8		AIM-9X			AIM-120C	Daegu
F-16C Blk 52	ROKAF	Multi	17	6		AIM-9M			AIM-120B/ C	Daegu, Gwangju, *5
F-16CM Blk 40	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Gunsan, Iwakuni
F/A-18C	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	CVN-70, CVN-71
F/A-18D	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	CVN-71
F/A-18E	USN	Multi	17	10-16		AIM-9M/ X			AIM-120B/ C	CVN-70, CVN-71
F/A-18F	USN	Multi	17	10-16		AIM-9M/ X			AIM-120B/ C	CVN-70
MQ-9	USAF	Drone	0	0						Gumi

DPRK: Democratic People's Republic of Korea (North Korea)

FRAB: Forward Reserve Air Base

PLAAF: Peoples Liberation Army Air Force (China) (PRC)

PLANAF: Peoples Liberation Army Naval Air Force (China) (PRC)

ROKAF: Repupic of Korea Air Force (South Korea)

USAF: United States Air Force

USN: United States Navy

USMC: United States Marine Corps

VVS: Russian Air Force (Voyenno-Vozdushnye Sily Rossii) (CIS)

*1: Nuchon-ni, Sangwon

*2: Taoxian

*3: Sangwon, Taetan

*4: Sangwon, Sunchon, Taetan

*5: Maun, Pohan, Sacheon

BOMBERS AND SUPPORT AC

A-50	Fuxin, Off Map
AH-1S	Tsushima
AH-64D	Pohang, Sacheon
AH-64E	Camp Carroll
An-2	Nuchon-ni
An-24	Dalian, Kwaksan, Sanshilipu, Sondok
An-124	Off Map
C-17	Yokota
C-130H	Gimhae, Sacheon, Yokota
CH-47	35 Inf, Camp Carroll, G-813 Jinhae, Gunsan, Gwangju
E-2C	CVN-70
E-3	Misawa
E-8C	Yakota
IL-28	Kuum-ni, Onchon, Sunan
IL-76M	Kwaksan

IL-78M	Fuxin, Off Map
Ka-52K	Kuznetsov
KC-135R	Misawa
MD-500	620 Arty, Gangneung, Osan, Yeongju
M-60R	CVN-70, Wasp LHD
Mi-8	116 CAB2, 191 CAB2, Hyon-ni, Osan
Mi-26	329 BDR
MV-22	Wasp LHD-1
RC-135W	Misawa
Tu-16	Palundian
U-2	Iwakumi
UH-1H	Muon
UH-1J	Iwami
UH-60L	35 Inf, Gumi

AIRCRAFT THREAT GUIDE - OPFOR (KTO-Bear Trap)										
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
Mig-27	VVS	Attack	8	4-6		AA-2C, AA-8				Gimhae
Mig-29S	VVS	Multi	15	6		AA-8, AA-11	AA-10A		AA-12	Gimhae
Mig-31	VVS	Interceptor	20	8-10		AA-8, AA-11	AA-9, AA-10C	AA-6B, AA-10B		Gimhae
Su-24M	VVS	Attack	7	2		AA-8				Off Map
Su-25	VVS	Attack	7	2		AA-8				Yangyang
Su-27	VVS	Multi	15	10		AA-11	AA-10C	AA-10D	AA-12	Off Map
Su-33	VVS	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kuznetsov
Su-35S	VVS	Multi	15	8		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Yangyang, Pohang
Su-39	VVS	Attack	15	6		AA-8			AA-12	Kusnetsov

AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Bear Trap)										
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
A-10A	USAF	Attack	7	2		AIM-9P/ M				Osan
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Pyeongtaek, Seosan
F-5E ROKAF	ROKAF	Fighter	7	6		AIM-9M				Suwon, Wonju
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Gunsan
F-16C Blk 32	ROKAF	Multi	17	6		AIM-9M			AIM-120B	Gwangju, Seoul, Suwon
F-16C Blk 52	ROKAF	Multi	17	6		AIM-9M			AIM-120B	Gwangju, Suwon
F-16CM Blk 50	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Gunsan

ROKAF: Republic of Korea Air Force/ South Korea

USAF: United States Air Force

VVS: Russian Air Force (Voyenno-Vozdushnye Sily Rossii) (CIS)

BOMBERS AND SUPPORT AC

A-50	Off Map
AH-64A	Camp Humphreys
C-17	Sacheon
C-130H	Incheon
E-3	Gimpo
E-8C	Gimpo
IL-76M	Gangneung
IL-78M	Gangneung
Ka-52	102 Armored
Ka-52K	53 Inf
KC-135E	Seosan
KC-135R	Incheon
Mi-8	Camp Hialeah
Mi-26	Daegu
Mi-28	53 Inf
RC-135W	Gimpo
Tu-95MS	Off Map
Tu-160	Off Map
UH-60L	Osan

AIRCRAFT THREAT GUIDE - OPFOR (Balkans Balance of Power)										
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
G-4	FRY	Attack	7	2		AA-8				Banja Luka, Dubrave, Ladevci, *1
J-22	FRY	Attack	7		AA-2B	AA-8				Dubrave, Ladevci, Mostar, Ponikve, *2
Mig-21bis	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Batajnica, Dolac, Kastela, Pristina, *3
Mig-21MF	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Kastela, Mostar, Pristina, Zeljava, *4
Mig-29A	FRY	Fighter	12	6		AA-8, AA-11	AA-10A			Banja Luka, Batajnica, Nis, Ponikve
Su-25	FRY	Attack	7	2		AA-8				St. Paul, Sjenica
Su-33	FRY	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kuznetsov
Su-39	FRY	Attack	15	6	AA-2B	AA-2C, AA-8, A-11			AA-12	Kuznetsov

AIRCRAFT THREAT GUIDE - BLUEFOR (Balkans Balance of Power)										
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
A-10A	USAF	Attack	7	2		AIM-9M/ P				Brnik, Cerklje, Mattei, Pula, Ronchi d. L.
AMX	ITAF	Attack	7	2		AIM-9M				Istrana
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M				Rijeka, Wasp LHD-1, Grobnicko Polje
CF-188A	RCAF	Multi	17	12		AIM-9M	AIM-7M		AIM-120B	S. Angelo
EA-6B	USN	EW	0	0						Casale, CVN-71, Tesserà, Guidonia, *5
F-14B	USN	Fighter	40	8		AIM-9M	AIM-7M		AIM-54A/ C	CVN-71
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Cervia Rivolto, S. Angelo, Villafranco
F-15E-229	USAF	Multi	20	8		AIM-9M/ X			AIM-120B/ C	Miramare, Tesserà
F-16AM RDAF	RDAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B	Amendola
F-16AM RNLAf	RNLAf	Multi	17	6		AIM-9M			AIM-120B	Amendola
F-16CG BIK 40	USAF	Multi	17	6		AIM-9M			AIM-120B/ C	Aviano
F-16CJ BIK 50	USAF	Multi	17	6		AIM-9M			AIM-120B/ C	Brnik, Falconara, Gino Lisa, Palese
F-18C	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	CVN-71
F-18D	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	Brescia, Tesserà
F-104S	ITAF	Fighter	13	6		AIM-9M/ P	AIM-7E-2, ASPIDE			Amendola, Cervia
F-117A	USAF	Attack	0	0						Aviano
G-4	BIH	Attack	7	2		AA-8				Varazdin
Jaguar Gr.3	FAF	Multi	7	2		AIM-9M				S. Angelo
Mig-19PM	FUAS	Fighter	7	4	AA-2B	AA-2C				Gjader, Kucova
Mig-21bis	HRZ	Multi	8	4-6	AA-2B	AA-2C, AA-8				Banja Luka, Rijeka, Pula, Varazdin
Mig-21MF	FUAS	Multi	8	4	AA-2B	AA-2C, AA-8				Crotone, Gjader
Mig-29A Neutral	ML	Fighter	12	6		AA-8, A-11	AA-10A			Taszar
Mirage 2000-5F	FAF	Fighter	14	6		R.550-II		MICA IR	MICA EM	Latina
Mirage 2000C	FAF	Fighter	17	4		R.550-II	R.530D			Grosseto
Mirage 2000D	FAF	Fighter	14	2		R.550-II				Latina
S-3B	USN	Attack	0	0						CVN-71
Tornado F3	RAF	Fighter	17	8		AIM-9M	Skyflash	AIM-132	AIM-120C	Gioia del Colle
Tornado IDS AMI	ITAF	Attack	7	2		AIM-9M				Forlì, Gioia del Colle, Ronchi d. L.
Tornado IDS GAF	GAF	Attack	7	2		AIM-9M				Brescia

BAF: Belgium Air Force (Belgische Luchtmacht/Force Aérienne Belge)

BIH: Air Force of Bosnia and Herzegovina

EPAF: European Participating Air Forces

FAF: French Air Force (Armée de l'Air) (Army of the Air)

FRY: Federal Republic of Yugoslavia

FUAS: Forcat Ushtrake Ajore Shqiptare (Albanian Air Force)

HAF: Hellenic Air Force (Greece) (Polemiki Aeroporía)

HRZ: Hrvatsko Ratno Zrakoplovstvo (Croatia)

ITAF: Italian Air Force (AM: Aeronautica Militare)

ML: Magyar Legiero (Hungarian Air Force)

RAF: Royal Air Force (England)

RCAF: Royal Canadian Air Force

RDAF: Royal Danish Air Force (Denmark) (Flyvevåbnet)

RNLAf: Royal Netherlands Air Force (Koninklijke Luchtmacht)

RNoAF: Royal Norwegian Air Force (Luftforsvaret)

USA: United States Army

USAF: United States Air Force

USN: United States Navy

USMC: United States Marine Corps

*1: Podgorica, Sjenica, Ubdina, Zemunik

*2: Varazdin

*3: Skopski, Zeljava

*4: Zemunik

*5: Urbe

BOMBERS AND SUPPORT AC

AH-1S	Casale, Grottaglie, Milovan S., Rivolto, Tesserà, Varazdin
AH-64A	Milan Majcen
AN-2	Batajnica, Djakovika, Krusevac, Pristina, Sombor
AN-24	Batajnica, Kilsa, Nikola Tesla, Nis, Sarajevo, Skopski, Szeged
B-1B	Amendola
B-2A	Villafranca
B-52H	Casale, Forlì
CH-47	Aviano, Casale, Ghedi, Milan, Miramare, Ogulin, Palese...
C-5	Ampugnano, S. Francesco
C-17	Bologna, Borgo Panigale, Fiumicino, Ghedi, Grazzanise, Guidonia, Peretola, Reggio Calabria, S. Francesco
C-130H	Ciampino
E-2C	CVN-71 Roosevelt
E-3	Villifranca
E-8C	Parma
IL-28	Tirana
KC-10	Ghedi
KC-135R	Aviano, Capodichino, Galatina, Ghedi, Istrana, Pescara, S. Angelo, S. Guisto, Ronchi d. L.
Mi-8	Kaposujlak, Kovin, Ladevci, Niksik, Ogulin, Podgor., Ralovak...
Mi-24	Kaposujlak, Rijeka, Varazdin Army Base
OH-58D	Amendola, Lagoriste, Rijeka, Varazdin
UH-1H	Cerklje, Mattei, Pescara, Seclovlje, Verazdin
UH-60L	Brnik, Gioia d. C., Gino L., Latina, Logoriste, Milovan S....

AIRCRAFT THREAT GUIDE - OPFOR (Balkans Under Siege)										
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
G-4	FRY	Attack	7	2		AA-8				Ladevci, Podgorica, Ponikve
J-22	FRY	Attack	8	4	AA-2B	AA-8				Ladevci
Mig-21bis	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Nikola Tesla, St. Paul
Mig-21F-13	FRY	Fighter	7	2	AA-1	AA-2C				Ladevci, Sombor
Mig-21MF	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Dolac, Nis
Mig-29A	FRY	Fighter	12	6		AA-8, AA-11	AA-10A			Tivat, Batajnica
Su-25	FRY	Attack	7	2		AA-8				St. Paul
Su-33	FRY	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kuznetsov
Su-39	FRY	Attack	15	6	AA-2B	AA-2C, AA-8, A-11			AA-12	Kuznetsov

AIRCRAFT THREAT GUIDE - BLUEFOR (Balkans Under Siege)										
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
A-10A	USAF	Attack	7	2		AIM-9M/ P				Galatina, Gioia del Colle, Kukes *1
AMX	ITAF	Attack	7	2		AIM-9M				Istrana
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M				LHD-1 Wasp, Falconara
EA-6B	USN	EW	0	0						CVN-71, Palese, Tesserà
F-14B	USN	Fighter	40	8		AIM-9M	AIM-7M		AIM-54A/ C	CVN-71
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Forlì, Palese, Ronchi d. L., Villafranca
F-15E-229	USAF	Multi	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C	Miramare, Rivolto, Tesserà
F-16AM RDAF	RDAF	Multi	17	6		AIM-9M/ X			AIM-120B	Gino Lisa
F-16AM RNLAf	RNLAf	Multi	17	6		AIM-9M			AIM-120B	Amendola
F-16CG Bk 40	USAF	Multi	17	6		AIM-9M			AIM-120B/ C	Aviano, Forlì
F-16CJ Bk 50	USAF	Multi	17	6		AIM-9M			AIM-120B/ C	Casale, Falconara, Galitana, Pescara
F/A-18C	USN	Multi	17	8-12		AIM-9M/ X			AIM-120B/ C	CVN-71
F/A-18D	USN	Multi	17	8-12		AIM-9M/ P/ X	AIM-7F/ M		AIM-120B/ C	Tesserà
F-104S	ITAF	Fighter	13	6		AIM-9M/ P	AIM-7E-2, ASPIDE			Amendola, Cervia
F-117A	USAF	Attack	0	0						Lamezia Terme
Jaguar Gr.3	FAF	Multi	7	2		AIM-9M				Bolagna B. P.
Mig-19PM	FUAS	Attack	2	0	AA-2B	AA-2C				Kucova, Kukes
Mig-21bis	HRZ	Multi	8	4	AA-2B	AA-2C, AA-8				Dubrovnik, Pleso, Pula
Mig-29A Neutral	ML	Fighter	12	6		AA-8, A-11	AA-10A			Satorhely, Taszar
Mirage F-1CT	FAF	Fighter	17	4		R.550/ -II	R.530D			Casale
S-3B	USN	Attack	0	0						CVN-71
Tornado IDS AMI	ITAF	Attack	7	2		AIM-9M				Aviano, Gioia del Colle

BAF: Belgium Air Force (Belgische Luchtmacht/Force Aérienne Belge)

BIH: Air Force of Bosnia and Herzegovina

EPAF: European Participating Air Forces

FAF: French Air Force (Armée de l'Air) (Army of the Air)

FRY: Federal Republic of Yugoslavia

FUAS: Forcat Ushtarake Ajore Shqiptare (Albanian Air Force)

HAF: Hellenic Air Force (Greece) (Polemiki Aeroporía)

HRZ: Hrvatsko Ratno Zrakoplovstvo i Protu Zračna Obrana (Croatian Air Force)

ITAF: Italian Air Force (AM: Aeronautica Militare)

ML: Magyar Legiero (Hungarian Air Force)

RAF: Royal Air Force (England)

RCAF: Royal Canadian Air Force

RDAF: Royal Danish Air Force (Denmark) (Flyvevåbnet)

RNLAf: Royal Netherlands Air Force (Koninklijke Luchtmacht)

RNoAF: Royal Norwegian Air Force (Luftforsvaret)

USA: United States Army

USAF: United States Air Force

USN: United States Navy

USMC: United States Marine Corps

*1: Mattei, Palese

BOMBERS AND SUPPORT AC

AH-1S	Grottaglie, Korce
AH-64A	Casale, Tirana
AN-2	Sjenica
AN-24	Batajnica, Kovin, Nikola Tesla, Sombor, Szeged
B-1B	Birgi
B-2A	Birgi
B-52H	Latina
C-5	Ampugnano
C-17	Brescia, Cervia, S. Francesco
C-130H	Ciampino
CH-47	Gioia del Colle, Kukes, Tirane
E-2C	CVN-71 Roosevelt
E-3	Villafranca
E-8C	Pama
IL-28	Tirana
KC-10	Ghedi
KC-135R	Capodichino, Ghedi, Guidonia
Mi-8	Cacac, Dretelj, IV Puk, Kovin, Ladevci, Pleso, Podgorica, Sjenica, S. Paul, Szeged,
Mi-24	Kaposujlak, Pleso
OH-58D	Korce, Galatina
UH-1H	Palese
UH-60L	Casale, Grottaglia, Korce, Viora
U-2	Crotone

AIRCRAFT THREAT GUIDE - OPFOR (Balkans Powder Keg)										
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
G-4	FRY	Attack	7	2		AA-8				Ladevci, Nikola Tesla, *1
J-22	FRY	Attack	7		AA-2B	AA-8				Batajnica, Ladevci
Mig-21F-13	FRY	Fighter	7	2	AA-1	AA-2C				Ponikve
Mig-21bis	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Nikola Tesla, Podgorica, Sombor, *2
Mig-21MF	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Tivat, Dolac
Mig-29A	FRY	Fighter	12	6		AA-8, AA-11	AA-10A			Batajnica, Kovin, Nikola Tesla
Su-25	FRY	Attack	7	2		AA-8				St. Paul
Su-33	FRY	Multi	15	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kuznetsov
Su-39	FRY	Attack	15	6	AA-2B	AA-2C, AA-8, A-11			AA-12	Kuznetsov

AIRCRAFT THREAT GUIDE - BLUEFOR (Balkans Powder Keg)										
Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
A-10A	USAF	Attack	7	2		AIM-9M/ P				Amendola, Cerklje Ob Krki, *3
AMX	ITAF	Attack	7	2		AIM-9M				Istrana
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M				LHD-1 Wasp, Cerklje, Latina
CF-188A	RCAF	Multi	17	12		AIM-9H/ J/ M/ P	AIM-7F/ M		AIM-120B	Reggio Calabria
EA-6B	USN	EW	0	0						CVN-71, Gino Lisa, Latina, *4
F-14B	USN	Fighter	40	8		AIM-9M	AIM-7M		AIM-54A/ C	CVN-71
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Gino Lisa, Latina, Villafranca, *5
F-15E-229	USAF	Multi	20	8		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C	Crotone, Lamezia T., Pratica d.M.
F-16AM RDAF	RDAF	Multi	17	6		AIM-9M/ P			AIM-120B	Crotone
F-16AM RNLAf	RNLAf	Multi	17	6		AIM-M			AIM-120B	Amendola
F-16CG Bk 40	USAF	Multi	17	6		AIM-9M			AIM-120B/ C	Cervia, Miramare
F-16CJ Bk 50	USAF	Multi	17	6		AIM-9M			AIM-120B/ C	Casale, Falconara, Galatina, *6
F/A-18C	USN	Multi	17	8-12		AIM-9M/ P/ X	AIM-7F/ M		AIM-120B/ C	CVN-71
F/A-18D	USN	Multi	17	8-12		AIM-9M			AIM-120B/ C	Grazzanise, Lamezia Terme
F-104S	ITAF	Fighter	13	6		AIM-9M/ P	AIM-7E-2, ASPIDE			Amendola, Cervia
F-117A	USAF	Attack	0	0						Birgi
G-4	BIH	Attack	7	2		AA-8				Banja Luka
J-22	BIH	Attack	8	4	AA-2B	AA-8				Banja Luka
Jaguar GR.3	FAF	Multi	7	2		AIM-9M				Palese
Mirage 2000-5F	FAF	Fighter	14	6				MICA IR	MICA EM	Guidonia
Mirage 2000C	FAF	Fighter	17	4		R.550-II	R.530D			Grosseto
Mirage 2000D	FAF	Fighter	14	2		R.550-II		MICA IR		Guidonia
Mig-17PFU	FUAS	Fighter	4	4	AA-1					Gjader
Mig-19PM	FUAS	Attack	2	0	AA-2B	AA-2C				Gjader, Kucova
Mig-21bis	HRZ	Multi	8	4	AA-2B	AA-2C, AA-8				Kastela, Pleso, Pula
Mig-21MF	FUAS	Multi	8	4	AA-2B	AA-2C, AA-8				Gjader
Mig-29A	ML	Fighter	12	6		AA-8, A-11	AA-10A			Taszar
S-3B	USN	Attack	0	0						CVN-71
Tornado F3	RAF	Fighter	17	8		AIM-9M	Skyflash	AIM-132	AIM-120C	Gioia del Colle
Tornado IDS AMI	ITAF	Attack	7	2		AIM-9M				Gioia del Colle, Grottaglie, *7
Tornado IDS GAF	GAF	Attack	7	2		AIM-9M				Galatina

BAF: Belgium Air Force (Belgische Luchtmacht/Force Aérienne Belge)

CAF: Croatia Air Force (Hrvatsko ratno zrakoplovstvo)

FAF: French Air Force (Armée de l'Air) (Army of the Air)

FRY: Federal Republic of Yugoslavia

FUAS: Forcat Ushtarake Ajore Shqiptare (Albanian Air Force)

HAF: Hellenic Air Force (Greece) (Polemiki Aeroporia)

ITAF: Italian Air Force (AM: Aeronautica Militare)

ML: Magyar Legiero (Hungarian Air Force)

RAF: Royal Air Force (England)

RCAF: Royal Canadian Air Force

RDAF: Royal Danish Air Force (Denmark) (Flyvevåbnet)

RNLAf: Royal Netherlands Air Force (Koninklijke Luchtmacht)

USA: United States Army

USAF: United States Air Force

USN: United States Navy

USMC: United States Marine Corps

*1: Podgorica, Ponikve, Sombor, Tivat

*2: Sjenica, Tivat

*3: Gioia del Colle, Grottaglie, Miramare

*4: Mattei, Urbe

*5: Zemunik

*6: Gioia del Colle

*7: Palese, Ronchi dei Legionari

BOMBERS AND SUPPORT AC

AH-1S	Casale, Falconara, Grottaglie, Miramare, Novo Mesto, Rivolto
AH-64A	Majcen, Milan
AN-2	Batajnica, Dolac, Kovin, Ladevci, Ponikve, S. Paul
AN-24	Batajnica, Dolac, Kovin, Ladevci, Ponikve, Sjenica, St. Paul...
B-1B	Birgi
B-2A	Signella
B-52H	Casale, Forlì
C-5	Ampugnano, S. Angelo
C-17	Bologna B. P., Fiumicino, Ghedi, Guidonia, Punta Raisi, S. Franc...
C-130H	Ciampino
CH-47	Casale, Gioia d. Colle, Lesce Bled, Milan Majcen, Palese, Ronchi...
E-2C	CVN-71
E-3	Punta Raisi
E-8C	Pama
IL-28	Tirana
KC-10	Brescia
KC-135R	Aviano, Capodichino, Ghedi, Grottaglie, Istrana, Pescara, Ronchi d. L., S. Angelo, S. Giusto
Mi-8	Kastela, Kovin, Ladevci, Mostar, Pleso, Podgorica, S. Paul, ...
Mi-24	Banja Luka, Kaposujlak, Pleso
OH-58D	Casale, Divaka, Mattei, Rijeka
UH-1H	Banja Luka, Cerklje O. K., Galatina, Mattei, Orehova V., Pescara...
UH-60L	Cerklje A.B., Gino Lisa, Gioia del Colle, Milan Majcen, Pula, Zagreb

[illegible]

* Varies 6 nm/ 0 ft, 11 nm/ 50 ft, 14 nm/ 100 ft, 16 nm/ 200 ft

SHIP THREAT GUIDE - BLUEFOR							
Name	Class	Weapon	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	ECM	CM
LHD-1 Wasp ARG	Amphibious Ready Group		0nm/ 0ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
LHD-1 Wasp	Wasp LHD	RIM-7	0nm/ 0ft	8nm/ 15,000ft	8nm/ 26,000ft	No Effect	Low
Burke CLS FIIA	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Burke CLS FIIA	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Burke CLS FIIA	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Perry CLS	Perry CLS	SM-1MR	3nm/ 50ft***	15nm/ 78,300ft	21nm/ 78,300ft	No Effect	Very Low
Perry CLS	Perry CLS	SM-1MR	3nm/ 50ft***	15nm/ 78,300ft	21nm/ 78,300ft	No Effect	Very Low
Supply CLS	Supply CLS	---	0nm/ 0ft	0nm/ 0ft	0nm/ 0ft	---	---
Osumi ARG	Amphibious Ready Group		0nm/ 0ft	8nm/ 15,000ft	8nm/ 26,000ft	No Effect	Low
Osumi LST-4001	Osumi CLS	CIWS	0nm/ 0ft	2.7nm/ 10,000ft	2.7nm/ 10,000ft	No Effect	No Effect
Shirane DDH-143	Shirane CLS	RIM-7	0nm/ 0ft	8nm/ 15,000ft	8nm/ 26,000ft	No Effect	Low
Kuruma DDH-144	Shirane CLS	RIM-7	0nm/ 0ft	8nm/ 15,000ft	8nm/ 26,000ft	No Effect	Low
SAG - Belknap CLS	Surface Action Group		3nm/ 50ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Belknap CLS	Belknap CLS	SM-2ER	3nm/ 50ft***	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Leahy CLS	Leahy CLS	SM-2ER	3nm/ 600ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Kidd CLS	Kidd CLS	SM-1ER	3nm/ 100ft	24nm/ 469,000ft	90nm/ 469,000ft	No Effect	Very Low
SAG - California CLS	Surface Action Group		3nm/ 50ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	No Effect
California CLS	California CLS	SM-1MR	3nm/ 50ft	15nm/ 78,300ft	21nm/ 78,300ft	No Effect	Very Low
Leahy CLS	Leahy CLS	SM-2ER	3nm/ 600ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Kidd CLS	Kidd CLS	SM-1ER	3nm/ 100ft	24nm/ 469,000ft	90nm/ 469,000ft	No Effect	Very Low
SAG - Chamsuri CLS	Surface Action Group		0nm/ 0ft	2.7nm/ 10,000ft	2.7nm/ 10,000ft	No Effect	No Effect
Chamsuri CLS x2	Chamsuri	CIWS	0nm/ 0ft	2.7nm/ 10,000ft	2.7nm/ 10,000ft	No Effect	No Effect
SAG - Missouri	Surface Action Group		0nm/ 0ft	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
USS Missouri BB-63	Iowa CLS	CIWS	0nm/ 0ft	2.7nm/ 10,000ft	2.7nm/ 10,000ft	No Effect	No Effect
Valley Forg CG-50	Ticon Mk 26	SM-2MR	3nm/ 50ft**	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
Paul F Foster DD-964	Spruance CLS	RIM-7	0nm/ 0ft	8nm/ 15,000ft	8nm/ 26,000ft	No Effect	Low
Jarrett FFG-23	Perry CLS	SM-1MR	3nm/ 50ft***	15nm/ 78,300ft	21nm/ 78,300ft	No Effect	Very Low
Francis Hammond FF-1067	Knox CLS	RIM-7	0nm/ 0ft	8nm/ 15,000ft	8nm/ 26,000ft	No Effect	Low
SAG - Newport CLS	Surface Action Group		0nm/ 0ft	2nm/ 10,000ft	2nm/ 10,000ft	No Effect	Very low
Newport CLS x2	Newport CLS	AAA	0nm/ 0ft	2nm/ 10,000ft	2nm/ 10,000ft	No Effect	Very Low
SAG - Perry CLS	Surface Action Group		3nm/ 50ft***	15nm/ 78,300ft	21nm/ 78,300ft	No Effect	Very Low
Perry FFG-7 x2	Perry CLS	SM-1MR	3nm/ 50ft***	15nm/ 78,300ft	21nm/ 78,300ft	No Effect	Very Low
SAG - Port Royal	Surface Action Group		3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Port Royal CG-73	Ticon Mk41 VLS	SM-2MR	3nm/ 50ft**	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
Momsen DDG-92	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
SAG - Task Force RKN	Surface Action Group		0nm/ 0ft	4.5nm/ 25,000ft	4.5nm/ 25,000ft	No Effect	No Effect
Ulsan CLS	Ulsan	CIWS	0nm/ 0ft	4.5nm/ 25,000ft	4.5nm/ 25,000ft	No Effect	No Effect

SHIP THREAT GUIDE - BLUEFOR							
Name	Class	Weapon	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	ECM	CM
SAG - Task Force USN	Surface Action Group		3nm/ 50ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Burke CLS FIIA	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
SAG - USS Dewey DDG-105	Surface Action Group		3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Dewey DDG-105	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Michael Murphy DDG-112	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Sterett DDG-104	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
SAG - Virginia CLS	Surface Action Group		0nm/ 0ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Virginia CLS	Virginia CLS	SM-2MR	0nm/ 0ft	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
Leahy CLS	Leahy CLS	SM-2ER	3nm/ 600ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Kidd CLS	Kidd CLS	SM-1ER	3nm/ 100ft	24nm/ 469,000ft	90nm/ 469,000ft	No Effect	Very Low
SAG - Wisconsin	Surface Action Group		0nm/ 0ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	No Effect
Wisconsin BB-64	Iowa CLS	CIWS	0nm/ 0ft****	2.7nm/ 10,000ft	2.7nm/ 10,000ft	No Effect	No Effect
Nicholas FFG-47	Perry CLS	SM-1MR	3nm/ 50ft***	15nm/ 78,300ft	21nm/ 78,300ft	No Effect	Very Low
MacDonough DDG-39	Farragut CLS	SM-2ER	3nm/ 600ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Marvin Shields FF-1066	Knox CLS	RIM-7	0nm/ 0ft****	8nm/ 15,000ft	8nm/ 26,000ft	No Effect	Low
Leftwich DD-984	Spruance CLS	RIM-7	0nm/ 0ft****	8nm/ 15,000ft	8nm/ 26,000ft	No Effect	Low
USS Enterprise CVN-65	Carrier Strike Group		0nm/ 0ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
USS Enterprise CVN-65	Nimitz CVN	RIM-7	0nm/ 0ft	8nm/ 15,000ft	8nm/ 16,000ft	No Effect	Low
Lake Erie CG-70	Ticon Mk41 VLS	SM-2MR	3nm/ 50ft**	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
Princeton CG-59	Ticon Mk41 VLS	SM-2MR	3nm/ 50ft**	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
Chafee DDG-90	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Gravelly DDG-107	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Nitze DDG-94	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Kidd DDG-100	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Pinckney DDG-91	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Shoup DDG-86	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
USS Carl Vinson CVN-70	Carrier Strike Group		0nm/ 0ft	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
USS Carl Vinson CVN-70	Nimitz CVN	RIM-7	0nm/ 0ft	8nm/ 15,000ft	8nm/ 16,000ft	No Effect	Low
Antietam CG-54	Ticon Mk41 VLS	SM-2MR	3nm/ 50ft**	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
Chancellorsville CG-62	Ticon Mk41 VLS	SM-2MR	3nm/ 50ft**	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
Shiloh CG-67	Ticon Mk41 VLS	SM-2MR	3nm/ 50ft**	35nm/ 469,000ft	73nm/ 469,000ft	No Effect	Very Low
Forrest Sherman DDG-98	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Truxtun DDG-103	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Farragut DDG-99	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
McC Campbell DDG-85	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
Mustin DDG-89	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low
William Lawrence DDG-110	Burke CLS FIIA	SM-2ER/ MR	3nm/ 50ft**	39nm/ 469,000ft	117nm/ 469,000ft	No Effect	Very Low

[illegible]

* Varies 6 nm/ 0 ft, 11 nm/ 50 ft, 14 nm/ 100 ft, 16 nm/ 200 ft
 ** Varies 3 nm / 50 ft, 8 nm/100 ft, 20 nm/ 300 ft, 26 nm/ 500 ft
 *** Varies 3 nm / 50 ft, 17 nm/100 ft, 25 nm/ 300 ft
 **** Varies 9 nm / 50 ft, 12 nm/100 ft, 18 nm/ 200 ft

Air to Ground Missiles

Name	Guidance	Alt/ Radius	Range (nm)	Warhead	Purpose	Origin	IOC
AGM-65A Maverick	TV	-	*10	126 lb WDU-20/B	Armor	USA	1972
AGM-65B Maverick	TV Magnify	-	*10	126 lb WDU-20/B	Armor	USA	1975
AGM-65D Maverick	IIR	-	*10	126 lb WDU-20/B	Armor	USA	1983
AGM-65E Maverick	Laser	-	*10	300 lb WDU-24/B	Bunker, Ship, Bridge	USMC	1985
AGM-65G Maverick	IIR	-	*10	300 lb WDU-24/B	Bunker, Ship, Bridge	USA	1988
AGM-84A Harpoon	ARH	-	70	488	Ship	USA	1979
AGM-119 Penguin	IR	-	70	250	Ship	RNoAF, USN	1972
AGM-154A JSOW	GPS/ INS	2,000/ 700	25	145 BLU-97 A/B CEM	Cluster Armor Med.	USA	1999
AGM-154C JSOW	GPS/ INS/ IR	0/ 275	25	Broach WDU-44/45	Penetration, Facility	USA	2005
AGM-158 JASSM	GPS/ INS/ DL/ IR	0/ 350	136	1k lbs WDU-42/B	Facility, Armor	USA	2009
Rampage IAI	GPS/INS	0/ 550	80	1,257	General, Facility	IAF	2019

Anti Radiation Missiles

Name	Guidance		Range (nm)	Warhead	Purpose	Origin	IOC
AGM-45 Shrike	Passive Radar		10-50	145	Radar	USA	1963
AGM-88 HARM	Passive Radar		25-70	145	Radar	USA	1984

Bombs

Name	Min. Rel. Alt./ Fuse	Radius (ft)	Range (nm)	Warhead	Purpose	IOC
BLU-107/B Duraland	100/ 5.3	100	High Drag	330	Runway	1971
BLU-109/B	-	80	5-6	2,000	Bunker Penetration	1985
MK-82 Air	350/ 5.3	300	High Drag	500	General, low altitude delivery	1973
MK-82 LDGP	1,700/ 9.7	300	5-6	500	General	1950
MK-82 SE (Snake Eye)	350/ 5.3	300	High Drag	500	General, low altitude delivery	1965
MK-83 Air	350/ 5.3	400	High Drag	1,000	General, low altitude delivery	1973
MK-83 LDGP	1,700/ 9.7	400	5-6	1,000	General	1950
MK-84 Air	350/ 5.3	450	High Drag	2,000	General, low altitude delivery	1973
MK-84 LDGP	1,700/ 9.7	450	5-6	2,000	General	1950

Cluster Bombs Units

Name	Burst Altitude (ft)	Radius (ft)	Range (nm)	Warhead	Purpose	IOC
CBU-52B/B	1,000	600	5-6	217 BLU-61A/B	Infantry, Light Armor, Trucks	
CBU-55A/B FAE	-	500	5-6	460 lbs FAE	Mines, Med Armor, AC, Bunkers	1960
CBU-58A/B	1,500	600	5-6	650 BLU-63A/B	Infantry, Light Armor, AC	
CBU-59/B APAM Rockeye II	-	-	5-6	717 BLU-77/B	Infantry, Medium Armor	1970
CBU-71/B	1,000	500	5-6	670 BLU-86/B	Infantry, Light Armor, AC	
CBU-72/B FAE	-	-	5-6	500 lbs FAE	Mines, Med Armor, AC, Bunkers	1960
CBU-87 CEM	2,500	800	5-6	202 BLU-97/B CEB	Medium Armor, Trucks	1986
CBU-94 Graphite	-	-	5-6	200 BLU-114/B-SUU-66/B	Power facility	1999
CBU-97/B SFW	1,500	300	5-6	10 BLU-108/B	Heavy Armor	1986
CBU-103 WCMD (CBU-87)	1,500	700	5-6	202 BLU-97/B CEB	Medium Armor, Trucks	1998
CBU-104 WCMD (CBU-89)	-	-	5-6	72 BLU-91/B 22 BLU-92B	Anti Armor and Infantry Mines	1998
CBU-105 WCMD (CBU-97)	1500	300	5-6	10 BLU-108/B	Heavy Armor	1998
Mk-20D Rockeye	1000	200	5-6	247 MK-118	Heavy Armor	1968

GPS Guided Bomb Units JDAM

Name	Min. Rel. Alt./Fuse	Radius (ft)	Range (nm)	Warhead	Purpose	Origin	IOC
GBU-31(V)1/B	1,500/ 14.5	550	8-10	MK-84 2,000	General	USA	1997
GBU-31(V)3/B	700/ 5	150	8-10	BLU-109 2,000	Penetration	USA	1997
GBU-32(V)1/B	1,500/ 14.5	450	8-10	MK-83 1,000	General	USA	1997
(Continued on Next Page)							

First number in range is NOE loft, second number is high altitude.

Blast fragmentation radius that can destroy your jet grows to a typical height of 3,100 feet over 9 seconds then fragments fall to ground for the next 15 seconds for a total of 24 seconds for most bombs. See Dash-34 for more information. Radius on chart is radius to destroy vehicles.

Minimum release heights are from level release at 450 KIAS. Different miniums may be possible with safe escape maneuvers.

* Maverick seeker may not be able to lock small targets such as tanks at max range. Tanks lock at approximately 8nm.

GPS Guided Bomb Units JDAM (continued)

Name	Min. Rel. Alt./Fuse	Radius (ft)	Range (nm)	Warhead	Purpose	Origin	IOC
GBU-38/B	1,500/ 14.5	550	8-10	MK-82 500	General	USA	1997
GBU-39/B SDB	-	200	*30	AFX-757 250	Medium Armor	USA	2006
GBU-54/B Laser JDAM	1,500/ 14.5	300	8-10	MK-82 500	General	USA	2008
SPICE 1000	-	450	30-40	MK-83 1,000	General	IAF	2003
SPICE 1000P	-	275	30-40	BLU-110 1,000	Penetration	IAF	2003
SPICE 2000	-	550	15-20	MK-84 2,000	General	IAF	2003
SPICE 2000P	-	174	15-20	BLU-109 2,000	Penetration	IAF	2003

Laser Guided Bomb Units

Name	Min. Rel. Alt./Fuse	Radius (ft)	Range (nm)	Warhead	Purpose	Origin	IOC
GBU-10I/B Paveway II	-	-	8	BLU-109 2,000	Penetration	USA	1970
GBU-10C/B Paveway II	-	550	8	MK-84 2,000	General	USA	1970
GBU-10G/B Paveway II	-	175	8	BLU-109/B 2,000	Penetration	USA	1970
GBU-12B/B Paveway II	-	300	8	MK-82 500	General	USA	1970
GBU-16 Paveway II	-	450	8	MK-83 1,000	General	USA	1970
GBU-22/B Paveway III	-	300	8-10	MK-82 500	General	USA	1996
GBU-24/B Paveway III	-	550	8-10	MK-84 2,000	General	USA	1983
GBU-24A/B Paveway III	-	175	8-10	BLU-109 2,000	Penetration	USA	1983
GBU-27/B Paveway III	-	175	8-10	BLU-109/B 2,000	Penetration	USA	1987

Man-in-the-Loop MITL

Name	Guidance		Range (nm)	Warhead	Purpose	Origin	IOC
AGM-62A Walleye (Pod 3)	TV	-	30	2,000	Facility	USA	1974
AGM-62B Walleye II (Pod 3)	TV	-	30	2,000	Facility	USA	1974
AGM-84E SLAM (Pod 3)	GPS/ IR/ DL	-	50	500	Facility, Ship	USA	1988
AGM-84H SLAM ER (Pod 3)	GPS/ IR/ DL	-	80	500	Facility, Ship	USA	2000
AGM-130 (Pod 1)	GPS/ INS/ DL/ IR	-	30	2000	Facility	USA	1994
AGM-142A Popeye (Pod 2)	INS/ DL/ TV IR	-	50	750	Facility	IAF, TuAF, USA	1985
Delilah (Pod 2)	IR & TV options	-	80	66	Light armor, Radar	IAF	1995
GBU-15 (Pod 1)	IR & TV options	-	16	MK-84 2,000	General	USA	1975

First number in range is NOE loft, second number is high altitude.

SPICE first number bomb can maneuver, second number straight in at 25kft altitude.

Blast fragmentation radius that can destroy your jet grows to a typical height of 3,100 feet over 9 seconds then fragments fall to ground for the next 15 seconds for a total of 24 seconds for most bombs. See Dash-34 for more information. Radius on chart is radius to destroy vehicles.

Recommended laser times Paveway II: 10 sec, Paveway III: Full Time.

* 36kft = 50nm

Pod 1: AN/AXQ-14

Pod 2: AN/ASW-55

Pod 3: AN/AWW-9 (AN/AWW-13)

Pod 4: APK-9

Low Level Timing Separation

450 kts = 8 sec/ nm 3nm trail

500 kts = 7.2 sec/ nm 3.4nm trail

CCIP Center of Ripple

CCRP Beginning of Ripple

AIRTAC AI Presets for Fighters

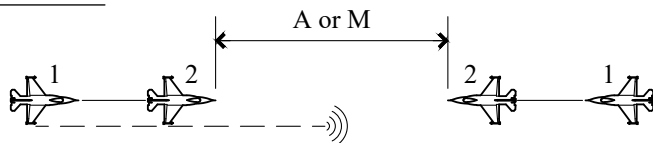
Flight1: 12, 22, 75, 85Y

Flight2: 13, 23, 76, 86Y

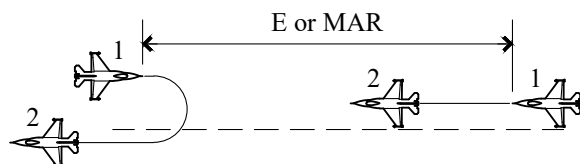
Flight3: 14, 24, 77, 87Y

Flight4: 15, 25, 78, 88Y

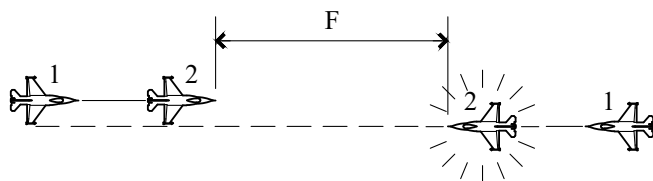
Fuel Tanks	Target	Range
No Tanks	150nm	300nm
Center	200nm	400nm
Wing Tanks	250nm	500nm

Pole Cues

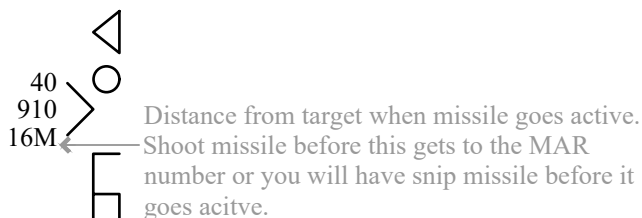
A/M Pole: Distance to target when missile goes active.



E Pole: Distance to target where you can drag and evade missile.



F Pole: Distance to target at missile impact.

AN/APG-68 Radar WEZ

10A TOF (Time of Flight) for missile on rail

M5 TOF for missile currently in air

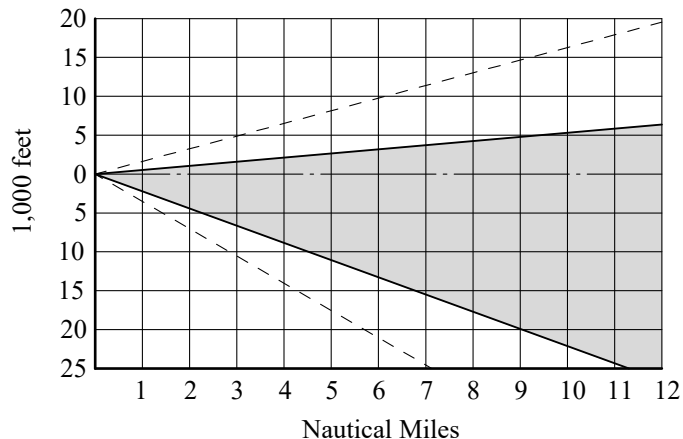
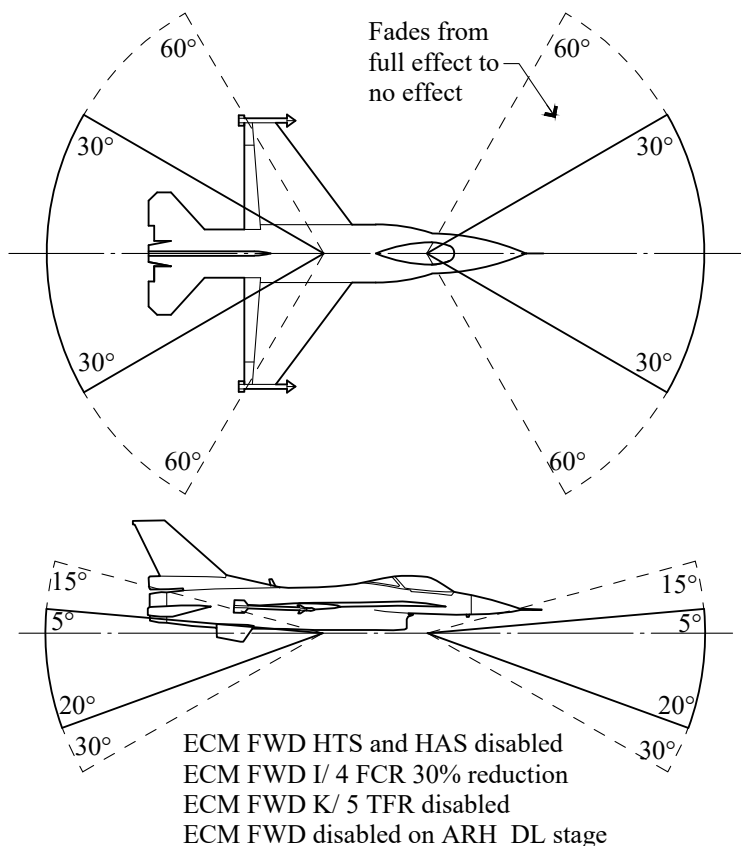
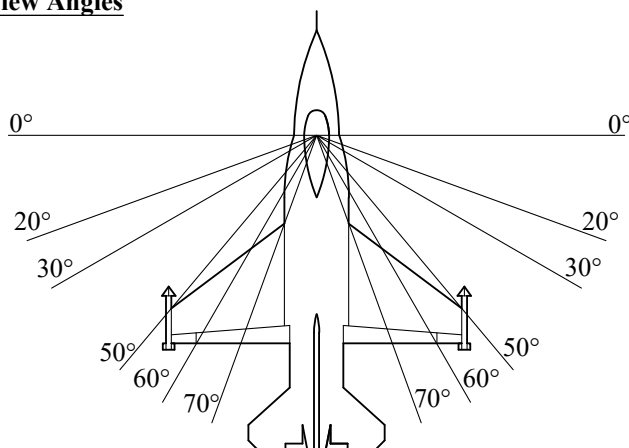
AR

TA21

F029.9 Distance to target, abort before MAR

100042

014>03

ECM Coverage**View Angles**

RWR Coverage



AN/ALR-69(V), AN/ALR-56M**Symbols**

 Highest priority when in diamond float mode.

 Aircraft

 ARH Missile

SAMs, AAA, SHORADs

Symbol	Threat
2	SA-2 Fan Song
3	SA-3 Low Blow
4	SA-4 Pat Hand
5	SA-5 Square Pair
6	SA-6 Straight Flush
8	SA-8 Land Roll
10	SA-10, Flap Lid, Big Bird
11	SA-11, Fire Dome
15/M	SA-15, Scrum Half
17	SA-17, Chair Back
20	SA-20, Tombstone
50	AN/MPQ-50 (Hawk)
55	AN/MPQ-55 (Hawk)
A/S	Fire Can (KS-12, KS-19, S-60)
À	M-1992, ZSU-23-4
Ä	K263, M-163/ -167, SA-19/ 2S6
B	Bar Lock, Odd Group (SA-5)
BB	Big Bird (SA-20)
C	KSAM Daewoo
CS	Clam Shell (SA-20)
D	Snow Drift (SA-11, SA-17)
E	Long Track and Flat Face Overlap (SA-4, SA-3, SA-6)
F	Flat Face (SA-3, SA-6)
H	Hawk AN/ MPQ-46
L	Long Track (SA-4)
N	Nike Hercules AN/ MPQ-43
O	Dog Ear (SA-9, SA-13, ZSU-23-4)
P	Patriot AN/ MPQ-53
Þ	Sky Guard

Aircraft

Symbol	Threat
	F-4
	F-5
	F-14
	F-15
	AJ 37, F-16, F-CK-1C, JA 37
	AV-8B, CF-188, EA-18G, F/A-18
	Mirage 2000
	J-7, J-8, Mig-21
	F-22, J-20, JSF, Rafale
	Mig-23
	Mig-25, Su-39
	F-15C AS, J-11, Su-27, Su-27UB, Su-33
	F-16C32 AS, Mig-29
	J-15, Su-30M, Su-30MKK, Su-34, Su-35
	Mig-31
	Attack, A-6E, AMX, F-104DJ, F-105D, F-111, J-6B, Mig-17PF, Mig-19PM
	Su-7BMK, Su-24, Tornado ECR/ IDS/ GR
	Eurofighter GAF, Typhoon FGR.4
	J-16
	A-7E, Mirage F-1CT, Mirage IIIE, Su-15
	EA-6B, AWACS, MQ-9
	Tornado F3

AN/ALR-93(V)1**Symbols**

	Highest threat
	Lethal threat
	Flashing=launch ## no flash=trk & search ## beeps=dedicated track
	Aircraft
	SAM
	Search radar
	Unknown
	AAA
	Tracking
	ARH missile
	SAM, SA-2, Tracking, Launch warning, Highest priority

SAMs

Symbol	Threat
	SA-2 Fan Song
	SA-3 Low Blow
	SA-4 Pat Hand
	SA-5 Square Pair
	SA-6 Straight Flush
	SA-8 Land Roll
	SA-10 Flap Lid
	SA-11 Fire Dome
	SA-15 Scrum Half
	SA-17 Chair Back
	SA-20 Tombstone
	Big Bird (SA-20)
	KSAM Daewoo
	Clam Shell (SA-20)
	Hawk AN/ MPQ-46
	Nike Hercules AN/ MPQ-43
	Patriot AN/ MPQ-53
	Skyguard
	Bar Lock, Odd Group (SA-5)
	Dog Ear (SA-9, SA-13, ZSU-23-4)
	Snow Drift (SA-11, SA-17)
	Flat Face (SA-3, SA-6)
	AN/ MPQ-50 (Hawk)
	AN/ MPQ-55 (Hawk)
	Long Track (SA-4)

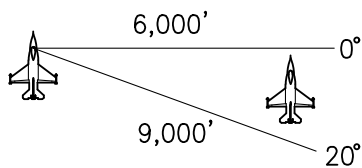
AAA, SHORADs

	SA-19 Hot Shot
	M-1992, ZSU-23-4
	K263 Cheongoon
	Fire Can

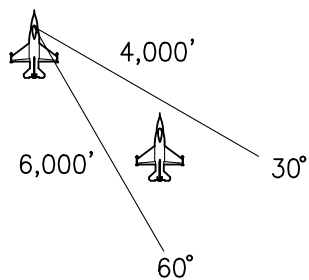
Aircraft

Symbol	Threat
	J-7, J-8
	Mirage 2000
	Mirage IIIE
	F-4
	F-5
	F-16
	F-16C32 AS
	F-14
	F-15
	AV-8B, CF-188, EA-18G, F/A-18
	J-6, Mig-17PF, Mig-19PM
	J-16, J-20
	Mig-21
	F-22
	Mig-23ML
	Mig-25
	F-15C AS, J-11, Su-27, Su-27UB, Su-33
	Mig-29
	J-15, Su-30M, Su-30MKK, Su-34, Su-35
	Mig-31
	AJ 37, JA 37
	Su-39
	Eurofighter GAF, Typhoon FGR.4
	F-CK-1C
	Rafale
	F-104, F-111, Tornado ECR/ IDS/ F3/ GR
	F-105
	A-6, A-7, EA-6B, MQ-9, Su-7, Su-24
	AMX, F-100D, Su-15
	Mirage F1CT

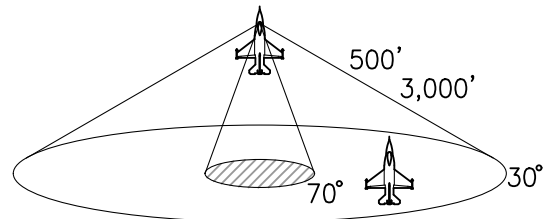
Line Abreast



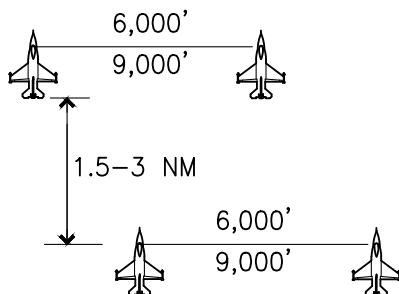
Wedge



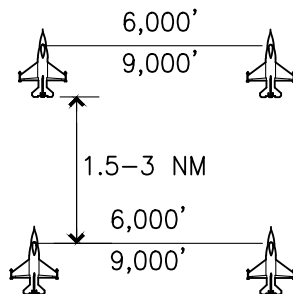
Fighting Wing



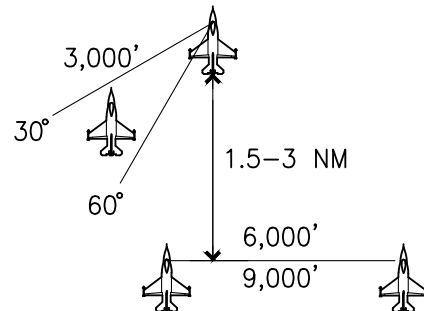
Four Ship Offset Box



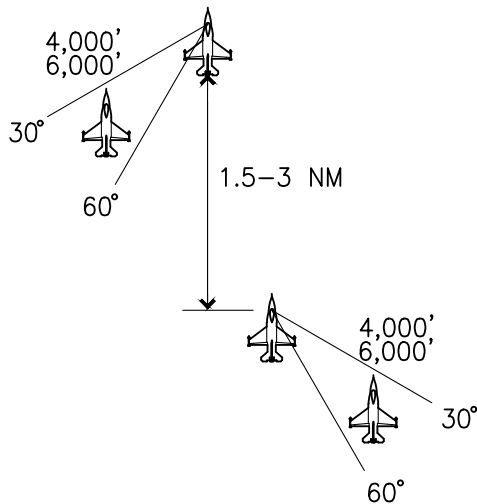
Four Ship Box



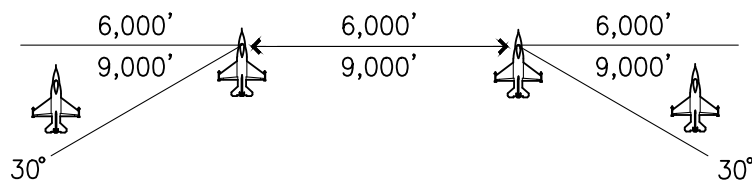
Arrowhead



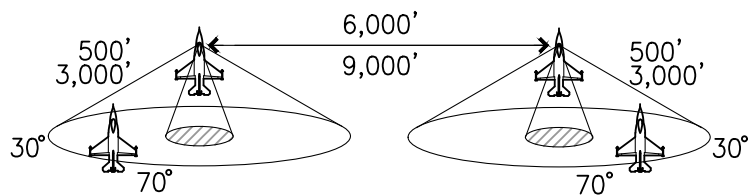
Wedge



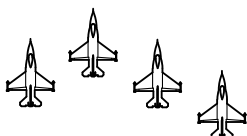
Spread Four



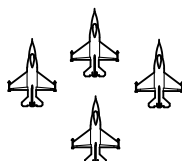
Fluid Four



Fingertip



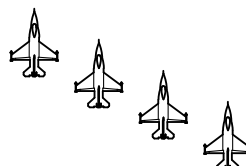
Diamond



Trail



Echelon Right



Spread

