

BMS THREAT GUIDE

“THE VAULT”



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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.





AIR DEFENSE VEHICLES

- 3.....General Air Defense Vehicle Notes
- 4.....Opfor Air Defense Vehicles
- 9.....Bluefor Air Defense Vehicles

AIRCRAFT

- 12.....General Aircraft Notes
- 13.....Opfor Aircraft
- 17.....Bluefor Aircraft

AIR TO AIR MISSILES

- 27.....General Air to Air Missile Notes
- 28.....Opfor Air to Air Missiles
- 31.....Bluefor Air to Air Missiles

SHIPS

- 35.....General Ship Notes
- 36.....Opfor Ships
- 37.....Bluefor Ships

CHARTS AND DIAGRAMS

- 41.....Chart: Opfor Air Defense Vehicles - AN/ALR-56M
- 42.....Chart: Opfor Air Defense Vehicles - AN/ALR-93(V)1
- 43.....Chart: Bluefor Air Defense Vehicles - AN/ALR-56M
- 44.....Chart: Opfor Air Defense Vehicles - AN/ALR-93(V)1
- 45.....Chart: Opfor Aircraft and AA Missile
- 46.....Chart: Bluefor Aircraft and AA Missile
- 48.....Chart: KTO
- 54.....Chart: Balkans
- 57.....Chart: Ships
- 61.....Chart: Air to Ground Weapons
- 63.....Sensors
- 66.....Aircraft Formations



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 AC 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

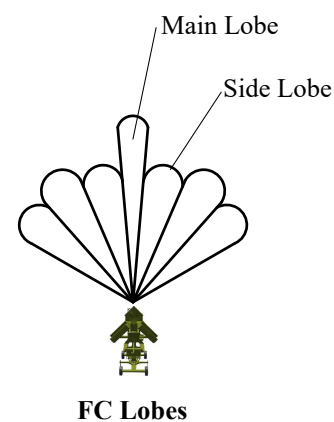
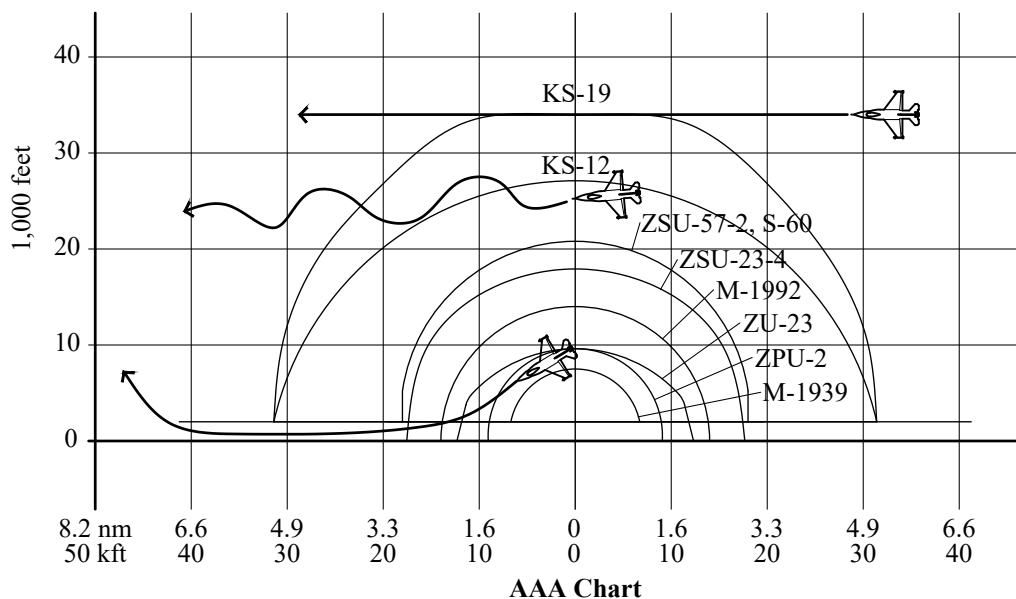
AA	Anti Air
ABM	Anti Ballistic Missile
AZ	Azimuth
BT	Burn Through
CM	Countermeasures (Chaff or Flare)
CW	Continuous Wave Radar
ECM	Electronic Counter Measures
ECCM	Electronic Counter Counter Measures
EL	Elevation
EOTS	Electro-Optical Tracking System
FC	Fire Control Radar
FTS	FLIR TV Sight System
HIMAD	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

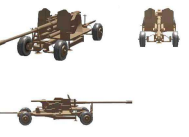
CM Effect # Decoys

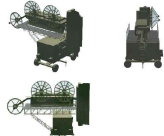
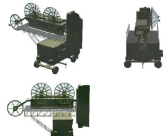
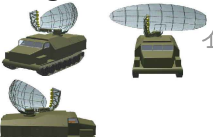
No Effect	-
Very Low	20-50
Low	6-17
Medium	4-6
High	2-4
Very High	1-2

RWR Symbols Diagram

SA	FC
D 11	AN/ALR-69(V), AN/ALR-56M
1D 42	AN/ALR-93(V)1



Fire Can Radar 	A-S- A 1	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 4	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 4	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
	1B	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/ 64N6	Type: Towed SA Radar
	710	Rdr Lock Range: SA: 170 nm Min Altitude: . Notes: 1992. SA radar for SA-10. 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
	O	Tracking/ Name: Search Radar/ 9S80 Ovod	Type: Mobile SA Radar
	92	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, 3 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, 3 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/ 5N66M/ 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): E (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
	3	Tracking/ Name: SA-3 SAM Radar/ SNR-125 Neva/	Type: Towed SAM Radar
	73	Rdr Lock Range: FC: 30 nm Pechora Minimum Altitude: Launch: 150 ft / Track: 60 ft 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.	ECM BT Range: 6 nm Chaff Vulnerability: Medium Band (System): I/ D (PD) Initial/ Terminal: Command/ Command Targets: 1 AZ: 120 (10) EL: 90 (10)
	2	Tracking/ Name: Search Radar/ PRV-17	Type: Towed Search Radar
	72	Rdr Lock Range: SA: 82 nm (325 nm) Minimum Altitude: . Notes: 1965. Height finding radar for SA-5.	ECM BT Range: 12 nm Chaff Vulnerability: Medium Band (System): E Initial/ Terminal: N/A

	Pat Hand	4	Tracking/ Name: SA-4 SAM Radar/ 1S32 Rdr Lock Range: FC: 50 nm Min Altitude: Launch: 500 ft / Track: 500 ft Notes: 1965. Destroy to neutralize SA-4 site. SA radar Long Track, Thin Skin N/I.	Type: Mobile SAM Radar ECM BT Range: 14 nm Chaff Vulnerability: Medium Band (System): H (PD/ CW) Initial/ Terminal: Command/ SARH Targets: 1 AZ: 120 (10) EL: 90 (10)
		74		
	Snow Drift	D	Tracking/ Name: Search Radar/ 9S18M1 Tube Arm Rdr Lock Range: SA: 86 nm Min Altitude: 60 ft Notes: 1979. SA radar for SA-11 and SA-17.	Type: Mobile SA Radar ECM BT Range: 52 nm Chaff Vulnerability: Very Low Band (System): F Initial/ Terminal: N/A
		1D		
	Spoon Rest		Tracking/ Name: Search Radar/ P-12 Yenisei Rdr Lock Range: SA: 145 nm Min. Altitude: . 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.	Type: Mobile SA Radar ECM BT Range: 65 nm Chaff Vulnerability: High Band (System): A (VHF PD) Initial/ Terminal: N/A
	Square Pair	5	Tracking/ Name: SA-5 SAM Radar/ 5N62 Rdr Lock Range: FC: 145 nm Min. Altitude: Launch: 1,000 ft / Track: 1,000 ft 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.	Type: Towed SAM Radar ECM BT Range: 26 nm Chaff Vulnerability: Medium Band (System): H (PD/ CW) Initial/ Terminal: Command/ SARH Targets: 1 AZ: 120 (10) EL: 90 (10)
		CW2		
	Straight Flush	6	Tracking/ Name: SA-6 SAM Radar/ 1S91 SURN Rdr Lock Range: FC: 30 nm Min Altitude: Launch: 550 ft / Track: 80 ft Notes: 1970. Destroy to neutralize SA-6 sites. SA radar Spoon Rest, Long Track, Flat Face, Thin Skin, Side Net, Score Board N/I.	Type: Mobile SAM Radar ECM BT Range: 4 nm HOJ Chaff Vulnerability: Medium Band (System): G/ H/ I (PD/ CW) Initial/ Terminal: Command/ SARH Targets: 1 AZ: 120 (10) EL: 90 (10)
		76		
	HN-5A Red Tassel		Tracking/ Name: Optical, IR Rear Aspect/ Hong Ying-5 Min. Rng Missiles: 0 nm / 60 ft Typical Engagement: 1.6 nm / 8,000 ft Max Rng Missiles: 2 nm / 10,500 ft 9M32M Notes: 1970. Maintain high speed, break turn, flare.	Type: MANPAD ECM BT Range: N/A Flare Vulnerability: Very High Init/ Term/ Pursuit: IR Rear Aspect/ Lead 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 Min Rng Missiles: 4 nm / 300 ft launch / 80 ft track Typical Engagement: 15 nm / 230,000 ft Max Rng Missiles: 38 nm / 230,000 ft V-750 Notes: 1957. Break turn 4g. Beam/ split-s/ turn away. SA Spoon Rest. 13nm pump bad. Pump/ nose up/ ECM.	Type: Towed SAM ECM BT Range: E:12 nm F:9 nm Chaff Vulnerability: Medium Init / Term/ Pursuit: Cmd/ Cmd / Lead Max Vel.(mach): 4.5 (2,997 kts) .83 nm/s Rdr Lock Range: SA: 108nm / FC: E82-F62nm
		72		



	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 Typical Engagement: 8 nm / 120,000 ft Max Rng Missiles: 11 nm / 120,000 ft 5V27/ D (V601/P) Notes: 1961. Break turn 6-7g (13g). Beam+ chaff. Beam/ split-s/ turn away. SA Flat Face, Squat Eye.	ECM BT Range: 6 nm Chaff Vulnerability:Medium Init/ Term/ Pursuit: Cmd/ Cmd/ Lead 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 Typical Engagement: 18 nm / 80,000 ft Max Rng Missiles: 22 nm / 80,000 ft 9M8, 9M8M1/ M2 Notes: 1967. Break turn 4g. Beam/ split-s/ turn away. SA Long Track. Missile can only pull 6g, weak turn.	ECM BT Range: 14 nm Chaff Vulnerability:Medium Init/ Term/ Pursuit: Cmd / SARH/ Lead 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
	2		Min Rng Missiles: 7 nm / 1,000 ft launch/ 1,000 ft track	ECM BT Range: 26 nm
	1B	CW2	Typical Engagement: 53 nm / 327,000 ft Max Rng Missiles: 190 nm / 327,000 ft 5V21, 5V28 Notes: 1967. Break turn 5-6g, chaff, beam. SA Bar Lock, Odd Pair.	Chaff Vulnerability:Medium Init/ Term/ Pursuit: Cmd / SARH/ Pure 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 Typical Engagement: 10 nm / 101,500 ft Max Rng Missiles: 20 nm / 101,500 ft 3M9 Notes: 1970. Beam/ chaff. Beam/ split-s/ turn away. Break turn 7-8g/ chaff. SA Flat Face.	ECM BT Range: 4 nm HOJ Chaff Vulnerability:Medium Init/ Term/ Pursuit: Cmd / SARH/ Lead 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 Typical Engagement: 1.5 nm / 5,000 ft Max Rng Missiles: 2 nm / 12,000 ft 9M32 Notes: 1968. Maintain high speed 4g turn to put missile on 3/9 line, flare. Carried by BMP-1, ACRV,	ECM BT Range: N/A Flare Vulnerability: Very High Init/ Term/ Pursuit: IR Rear Aspect/ Lead 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 Typical Engagement: 4 nm / 16,000 ft Max Rng Missiles: 8.5 nm / 50,000 ft 9M33/ M2/ M3 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.	ECM BT Range: 14 nm Chaff Vulnerability:Medium Init/ Term/ Pursuit: Cmd/ Cmd/ Lead 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
	92		Min Rng Missiles: 0.3 nm / 50 ft Typical Engagement: 2.0 nm / 14,500 ft Max Rng Missiles: 3.2 nm / 14,500 ft 9M31 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.	ECM BT Range: N/A Flare Vulnerability: Very High Init/ Term/ Pursuit: IR Rear Aspect / Lead 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
	710	710	Min Rng Missiles: 3 nm / 60 ft launch / 60 ft track Typical Engagement: 48 nm / 276,000 ft Max Rng Missiles: 54 nm / 276,000 ft 48N6 Notes: 1982. Very dangerous. No smoke or launch warning. Pump 45nm. 300'/25nm. ECM pump 32nm. SA Big Bird. Anti-missile capability.	ECM BT Range: 36 nm HOJ Chaff Vulnerability:No Effect Init/ Term/ Pursuit: Cmd/ TVM/ Lead 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	42	Min Rng Missiles: 1.5 nm / 180 ft launch / 100 ft track Typical Engagement: 12 nm / 90,000 ft Max Rng Missiles: 20 nm / 90,000 ft 9M38, 9M38M1, ... Notes: 1979. 2msl/tgt. No smoke. Pump/ weave x3/ pull up at 15nm. Some launch warning. SA rdr Snow Drift.	ECM BT Range: 19 nm HOJ Chaff Vulnerability:Very Low Init/ Term/ Pursuit: SARH / Lead 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)

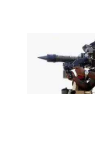
SA-13 Gopher 	O	Tracking/ Name: OB Snap Shot (K), *IR/ 9K35 Strela-10	Type: Mobile SHORAD
	92	Min Rng Missiles: 0.1 nm / 30 ft Typical Engagement: 2 nm / 12,000 ft Max Rng Missiles: 5 nm / 26,800 ft 9M37, 9M31 Notes: 1976. Very dangerous. Optical IR skr. 13 on Thales & ALR-67 . SA rdr LT, FF, Dog Ear, Squat Eye N/I.	ECM BT Range: 4 nm Flare Vulnerability: Very Low IRCCM Init/ Term/ Pursuit: IR All Aspect/ Lead Max Vel.(mach) 1.6 (1,058 kts) .29 nm/s Rdr Lock Range: SA: 43 nm / FC: 5 nm
SA-14 Gremlin 		Tracking/ Name: Optical, IR/ 9K34 Strela-3	Type: MANPAD
		Min Rng Missiles: 0 nm / 50 ft launch / 80 ft track Typical Engagement: 1.6 nm / 10,000 ft Max Rng Missiles: 3 nm / 12,100 ft 9M36 Notes: 1974. No smoke. Brk turn 5-7g/ flares. BMP-CMD, BMP-1.	ECM BT Range: N/A Flare Vulnerability: Very High Init/ Term/ Pursuit: IR All Aspect/ Pure Max Vel.(mach) 1.6 (1,058 kts) .29 nm/s Rdr Lock Range: SA: N/A / FC: N/A
SA-15 Gauntlet 	15-M-75, 12, 42	Tracking/ Name: OB Scrum Half(G/H/J)/ 9K331 Tor-M1	Type: Mobile SHORAD TLAR
		Min Rng Missiles: 0.5 nm / 35 ft Typical Engagement: 6.5 nm / 20,000 ft Max Rng Missiles: 7 nm / 42,500 ft 9M331 Notes: 1991. Very dangerous. 1 msl l/tgt. 2 tgts. 8 msls rdy. No smoke. No shoot and move. 6nm pump+chaff. 7-8g break+chaff. Anti-missile capability.	ECM BT Range: 13 nm Chaff Vulnerability: Medium Init/ Term/ Pursuit: Cmd / Lead Max Vel.(mach) 3.0 (1,984 kts) .63 nm/s Rdr Lock Range: FC: 16 nm Targets: 1 (2) AZ: 120 (10) EL: 90 (10)
SA-16 Gimlet 		Tracking/ Name: Optical, IR All Aspect/ 9K310 Igla-1	Type: MANPAD
		Min Rng Missiles: 0.2 nm / 60 ft Typical Engagement: 3 nm / 10,000 ft Max Rng Missiles: 3.5 nm / 19,400 ft 9M313 Notes: 1981. No smoke. 6-7g slice+flares. 9kft mach1 straight thru. Turn to keep missile on 3-9.	ECM BT Range: N/A Flare Vulnerability: Very Low IRCCM Init/ Term/ Pursuit: IR All Aspect/ Lead Max Vel.(mach) 1.6 (1,058 kts) .29 nm/s Rdr Lock Range: SA: N/A / FC: N/A
SA-17 Grizzly 	D 17 4D 23	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 Typical Engagement: 16.5 nm / 79,000 ft Max Rng Missiles: 18.5 nm / 79,000 ft 9M317, 9M38.... Notes: 1998. 2msl/tgt. No smoke. 14nm pump/ 2-3 weaves/ pull up. 9g slice. SA-7&14. SA Snow Drift. Anti-missile capability. Link to SA-6 N/I.	ECM BT Range: 30 nm HOJ Chaff Vulnerability: No Effect Init/ Term/ Pursuit: SARH/ Lead Max Vel.(mach) 2.7 (1,786 kts) .50 nm/s Rdr Lock Range: SA: 85 nm / FC: 40 nm Targets: 6 AZ: 120 (60) EL: 90 (60)
SA-19 Grison on 2S6 Tunguska 	A 4	Tracking/ Name: OB Hot Shot (E), Optcl, IR/ 2K22, 9K22	Type: Mobile SHORAD
		Max Rng Guns: 2.2 nm / 10,700 ft Typical Engagement: 6.5 nm / 10,200 ft Max Rng Missiles: 5.7 nm / 33,000 ft 9M311 Notes: 1982. Very Dangerous. 1msl/tgt 6 tgts. No smoke. SAM's stationary. Missiles min. launch 0.5nm, 20 ft.	ECM BT Range: 7 nm HOJ Chaff/ Flare Vuln: Medium Gun Caliber: 30mm 2A38 Max Vel.(mach): 2.7 (1,786 kts) .50 nm/s Rdr Lock Range: SA: N/A / FC: 10 nm Targets: 1 (6) EL: 120(10) EL: 90 (60)



AN/MPQ-43 	N	Tracking:	Nike Radar	Type:	Fixed Radar HIMAD
	PI	Rdr Lock Range:	SA: 76 nm / FC: 53 nm	ECM BT Range:	15 nm
	7N	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
	7MQ	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):	J
				Initial/ Terminal:	SARH
				Targets:	1
					AZ: 120 (10) EL: 90 (10)
AN/MPQ-50 PAR 	50	Tracking:	Search Radar	Type:	Towed Search Radar
	7	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
	7P	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
	CW3	Rdr Lock Range:	SA: 33 nm	ECM BT Range:	~11nm
	CW4	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):	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
	43	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/ Optel / 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 	H	Tracking:	OC AN/MPQ-46 Hawk Radar SARH	Type:	Towed SAM HIMAD
	7MQ	Min Rng Missiles:	0.5 nm / 200 ft launch / 0 ft track	ECM BT Range:	8 - 10 nm HOJ
		Typical Engagement:	9-12 nm / 44,000 ft	Chaff Vulnerability:	Medium
		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

K200-AD 	A 	Tracking/ Name: OB TPS-830K(I)/ K263 Cheongoong 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-K200-AD, AAA-K200AD	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/ 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. 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



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: Mobile 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
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 PI Tracking: OC Radar AN/MPQ-43 Min Rng Missiles: 3 nm / 3,400 ft launch / 50 ft track Typical Engagement: 46nm / 259,000 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		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. Pump 40nm, up 50, turn back 60. Stingers in group. 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 43 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: Low Init/ Term/ Pursuit: SARH/ Lead Max Vel.(mach) 1.6 (1,058 kts) .29 nm/s Rdr Lock Range: SA: 13nm / FC: 13nm





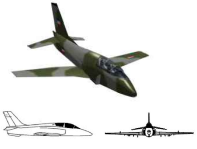
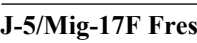
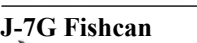
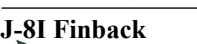
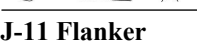
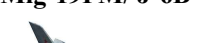
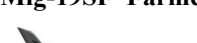
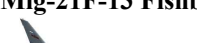
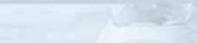
General Notes

- 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, 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.
- 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.

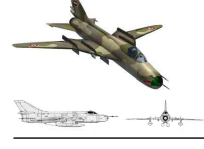
Abbreviations

AESA	Active Electronically Scanned Array
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
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
T/W	Thrust to weight ratio
TV	Thrust Vector
VG	Variable Geometry (Swing Wings)
VTAS	Helmet Mounted Visual Target Acquisition System



G4 Super Galeb 	 	43 	Type: Attack (Super Seagull) Armament: AA-8 RWR: 30 nm Iskra SD-1 Radar: AN/TPS-1D Radar Range: Up: <u>21 nm</u> Down: <u>21 nm</u> ECM: <u>6 nm</u> Notes: 1984. Slow attack aircraft.	Max Vel. Mach 0.81 Hard Points: 4/ 2-AA CMDS/ ECM: Yes/ No Vertical: Bad Viper MK-632 (3.9k) Turn Rate °/sec: 10 / Instant: 21 Roll: Very good	MAR:07
J-5/Mig-17F Fresco 	 	43 	Type: Attack (Shenyang J-5, PLAAF, Fresco-C) Armament: 37mm and 23mm guns only RWR: N/A Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1952. Smoke exhaust. Very good turn rate at slow speeds.	Max Vel. Mach 0.9 Hard Points: 4/ No AA CMDS/ ECM: No/ No Vertical: Bad VK-1F (14.9k) Turn Rate °/sec: 16 - 22/ Instant: 31 (0.2nm Ø) Roll: Good	MAR:02
J-7G Fishcan 	 	21 	Type: Multi-role Fighter (Chengdu, PLAAF) Armament: PL-7, PL-8, AA-2B, AA-2C, 30mm RWR: 18 nm RKL-204 Radar: SL-3 Radar Range: Up: <u>9 nm</u> Down: <u>9 nm</u> ECM: <u>4 nm</u> Notes: 2003.	Max Vel. Mach 1.77 Hard Points: 4/ 4AA CMDS/ ECM: Yes/ No ECM Vertical: Medium Liyang WP-7C (13.6K) Turn Rate °/sec: 10 - 13 / Instant: 18 (0.4nm Ø) Roll: Very Good	MAR:08
J-8I Finback 	 	21 	Type: Interceptor (Shenyang, PLAAF, Finback-A) Armament: PL-7, PL-8, 23 mm RWR: 20 nm RKL-204 Radar: SL-7A Radar Range: Up: <u>9 nm</u> Down: <u>9 nm</u> ECM: <u>4 nm</u> Notes: 1985. Smoke exhaust.	Max Vel. Mach 1.7 Hard Points: 5/ 4AA CMDS/ ECM: Yes/ No ECM Vertical: Good Liming WP-7A (26.4k) Turn Rate °/sec: 12-15/ Instant: 18 (0.3nm Ø) Roll: Very Good	MAR:08
J-11 Flanker 	 	27 	Type: Fighter / Attack (PLAAF, Flanker-L) Armament: AA-8, AA-10A/ B/ C/ D, AA-11, AA-12 RWR: 20 nm SPO-15 Radar: NIIP N001VE Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>35 nm</u> Notes: 1995. No smoke. Long range. DASH N/I. Chinese copy of Su-27SK.	Max Vel. Mach 1.68 Hard Points: 10/ 10AA CMDS/ ECM: Yes/ Sorbtsiya Vertical: Good Lyulka AL-31F (59.4k) Turn Rate °/sec: 13 - 17/ Instant: 24 (0.2nm Ø) Roll: Very Good	MAR:17
J-15 Flanker 	 	30 43 	Type: Fighter (Flying Shark, PLAAF, Flanker-X2) Armament: PL-8, PL-10E, PL-12 RWR: 20 nm SPO-15 Radar: NIIP N011 Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>30 nm</u> Notes: 2013. Naval. HMCS. No smoke exhaust. Long range. Copy of Su-33/ Su-27K.	Max Vel. Mach 1.6 Hard Points: 11/ 8AA CMDS/ ECM: Yes / Integrated ECM Vertical: Good Shenyang WS-10 (60k) Turn Rate °/sec: 13 - 18/ Instant: 24 (0.2nm Ø) Roll: Good	MAR:17
Mig-17PF Fresco 	 	17 43 	Type: Fighter (Fresco-D) Armament: AA-1, 23mm RWR: N/A Radar: RP-5 Izumrud-5 Radar Range: Up: <u>7 nm</u> Down: <u>N/A</u> ECM: <u>4 nm</u> Notes: 1955. Smoke exhaust.	Max Vel. Mach 0.9 Hard Points: 4/ 4AA CMDS/ ECM: No/ No Vertical: Bad VK-1F (14.8k) Turn Rate °/sec: 12 - 22/ Instant: 32 (0.2nm Ø) Roll: Good	MAR:04
Mig-19PM/ J-6B 	 	43 	Type: Fighter (Farmer-E) Armament: AA-2B, AA-2C RWR: N/A Radar: RP-ZU Izumrud-2 Radar Range: Up: <u>7 nm</u> Down: <u>N/A</u> ECM: <u>4 nm</u> Notes: 1957/ 1962. Smoke exhaust.	Max Vel. Mach 0.84 Hard Points: 6/ 4AA CMDS/ ECM: No/ No Vertical: Bad Tumansky RD-9B (14.4k) Turn Rate °/sec: 9 - 18/ Instant: 30 (0.2nm Ø) Roll: Medium	MAR:07
Mig-19SF Farmer 	 	43 	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: Fighter (Fishbed-E) Armament: AA-1, AA-2C Cannon 30mm RWR: N/A SPO-2 N/I Radar: SRD-5M Radar Range: Up: <u>10 nm</u> Down: <u>N/A</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

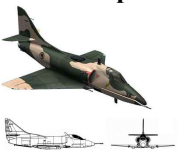
	21	Type:	Multi-Role Fighter (Fishbed-N)	Max Vel. Mach	1.38	MAR:08
	1	Armament:	AA-2B, AA-2C, AA-8	Hard Points:	5/4AA or +2 AA-8	
	21	RWR:	18 nm SPO-10 Radar: SOD-57M	CMDs/ ECM:	Yes / SPS-141 Pod	
	1	Radar Range:	Up:31 nm Down:N/A ECM:12 nm	Vertical:	Bad Tumansky R-25-300(15.7k)	
	23	Notes:	1958. Smoke exhaust.	Turn Rate %/sec:	8 - 13/ Instant: 18 (0.3nm Ø)	
	3			Roll:	Good	
	25	Type:	Multi-role Fighter (Fishbed-J)	Max Vel. Mach	1.46	MAR:08
	5	Armament:	AA-2B, AA-2C, AA-8	Hard Points:	5/4AA	
	25	RWR:	20 nm SPO-2 Radar: RP-21M	CMDs/ ECM:	No / SPS-141 Pod	
		Radar Range:	Up:9 nm Down:N/A ECM:4 nm	Vertical:	Bad T. R-11F2S-300 (13.6k)	
	23	Notes:	1958. Smoke exhaust. Easy to break lock. Samotsvet IR sight N/I.	Turn Rate %/sec:	9 - 11/ Instant: 17 (0.3nm Ø)	
				Roll:	Good	
	23	Type:	Multi-role Fighter (Flogger-G)	Max Vel. Mach	1.6	MAR:12
		Armament:	AA-2B, AA-2C, AA-7A, AA-7B, AA-8	Hard Points:	5/4AA or +2 AA-8's	
	23	RWR:	21 nm SPO-15 Radar: Sapfir 23ML	CMDs/ ECM:	Yes / SPS-141 Pod	
		Radar Range:	Up:29 nm Down:13 nm ECM:10-20 nm	Vertical:	Good R-35F-300 (28.7k)	
	23	Notes:	1978. Smoke. Accelerate in turn. IRST TP 23ML N/I. VG wings.	Turn Rate %/sec:	13 - 25/ Instant: 27 (0.1nm Ø)	
				Roll:	Medium	
	25	Type:	Interceptor	Max Vel. Mach	2.6	MAR:10
		Armament:	AA-6A, AA-6B, AA-7A, AA-7B, AA-8	Hard Points:	5/4AA or +2 AA-8's	
	25	RWR:	20 nm Sirena-3 Radar:RP-25 Smerch	CMDs/ ECM:	Yes / SPS-141 MWGE Pod	
		Radar Range:	Up:46 nm Down:18 nm ECM:8-12 nm	Vertical:	Bad R31-300 (54k)	
	25	Notes:	1967. Bad pitch. Smoke. Hard to lock low or bm AC. ECM uses AA slot. No gun.	Turn Rate %/sec:	9 - 14/ Instant: 17 (0.3nm Ø)	
				Roll:	Medium	
	27	Type:	Attack	Max Vel. Mach	1.74	MAR:08
		Armament:	AA-2C, AA-7B, AA-8	Hard Points:	7/4AA or +2 AA-8	
	27	RWR:	20 nm SG-1 Radar: N/A	CMDs/ ECM:	Yes / SPS-141 Pod	
		Radar Range:	Up:N/A Down:N/A ECM:N/A	Vertical:	Medium R-29B-300 (17.7k)	
	27	Notes:	1975. Smoke exhaust. VG wings 380.	Turn Rate %/sec:	13 - 25/ Instant: 28 (0.2nm Ø)	
				Roll:	Very Good	
	29	Type:	Fighter (Fulcrum-A)	Max Vel. Mach	2.0	MAR:15
	9	Armament:	AA-8, AA-10A, AA-11	Hard Points:	7/6AA	
	29	RWR:	21 nm SPO-15 Radar:N019 Sapfir 29	CMDs/ ECM:	Yes BVP-30-26M/ No	
		Radar Range:	Up:36 nm Down:36 nm ECM:12-14 nm	Vertical:	Very Gd Kilmov RD33 (36.6k)	
	29	Notes:	1983. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.	Turn Rate %/sec:	13 - 24 / Instant: 28 (0.2nm Ø)	
				Roll:	Good	
	29	Type:	Fighter (Fulcrum-B, GAF)	Max Vel. Mach	1.8	MAR:15
	9	Armament:	AA-8, AA-10A, AA-10B, AA-11	Hard Points:	7/6AA	
	29	RWR:	21 nm SPO-15 Radar:N019 Sapfir 29	CMDs/ ECM:	Yes/ No	
		Radar Range:	Up:36 nm Down:36 nm ECM:12-14 nm	Vertical:	Very Gd Kilmov RD33 (36.6k)	
	29	Notes:	1995. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.	Turn Rate %/sec:	13 - 24 / Instant: 28 (0.2nm Ø)	
				Roll:	Good	
	29	Type:	Fighter (Fulcrum-F, Super Fulcrum)	Max Vel. Mach	1.8	MAR:17
	9	Armament:	AA-8, AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	9/8AA Can carry 8 Adders	
	29	RWR:	21 nm SPO-15 Radar:N010 Zhuk-M	CMDs/ ECM:	Yes/ Int. ECM	
		Radar Range:	Up:36 nm Down:36 nm ECM:12-14 nm	Vertical:	Very Gd K. RD33K (38.6k)	
	29	Notes:	1989. HMCS. Not tested. IRST N/I. Target pod.	Turn Rate %/sec:	13 - 24 / Instant: 28 (0.2nm Ø)	
				Roll:	Good	
	29	Type:	Fighter (Fulcrum-C)	Max Vel. Mach	2.0	MAR:17
	9	Armament:	AA-8, AA-10A, AA-11, AA-12	Hard Points:	7/6AA Can carry 6 Adders	
	29	RWR:	21 nm SPO-15 Radar:N019M Topaz	CMDs/ ECM:	Yes/ Int. ECM L-203 Gardenya	
		Radar Range:	Up:36 nm Down:36 nm ECM:12-14 nm	Vertical:	Very Gd Kilmov RD33 (36.6k)	
	29	Notes:	1992. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.	Turn Rate %/sec:	13 - 24 / Instant: 28 (0.2nm Ø)	
				Roll:	Good	
	31	Type:	Interceptor	Max Vel. Mach	1.7	MAR:20
	44	Armament:	AA-6B, AA-8, AA-9, AA-10B /C, AA-11	Hard Points:	8AA +2 with AA-8's	
	44	RWR:	20 nm SPO-15 Radar: Zaslon RP-31	CMDs/ ECM:	Yes APP-50/ No	
		Radar Range:	Up:67 nm Down:65 nm ECM:12-14 nm	Vertical:	Med. Soloviev D-30 F6 (68.2k)	
	44	Notes:	1979. IRST N/I. Smoke. Brk lock bm. Long range AA-9 msls.	Turn Rate %/sec:	13 - 20/ Instant: 25 (0.2nm Ø)	
				Roll:	Good	

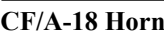
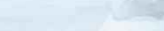
Q-5N Fantan 		Type: Attack (PLAAF)	Max Vel. Mach	0.78	MAR:05
		Armament: AA-2C, PL-7, 23 mm cannon	Hard Points:	10/ 4AA	
		RWR: 30 nm SPO-2, Sirena-2	CMDs/ ECM:	No/ No	
		Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>	Vertical:	Med. LW-6A or RD-9(16.4k)	
		Notes: 1970. Smoke exst. Chinese Mig-19 derivative.	Turn Rate °/sec:	11 - 18/ Instant: 24 (0.2 nm Ø)	
			Roll:	Medium	
Su-7BMK Fitter 	$\hat{A}$ 4	Type: Fighter Bomber	Max Vel. Mach	1.6	MAR:02
		Armament: 30mm cannon	Hard Points:	6/ No AA	
		RWR: 20 nm Kremniy-2 Radar:SRD-5M	CMDs/ ECM:	No / No	
		Radar Range: Up: <u>7 nm</u> Down: <u>N/A</u> ECM: <u>4 nm</u>	Vertical:	Good Lyulka AL-7F-1 (22.1k)	
		Notes: 1967. Ranging Radar. Easy to break lock. Smoke exhaust.	Turn Rate °/sec:	11 - 20/ Instant: 25 (0.2nm Ø)	
			Roll:	Good	
Su-15 Flagon-F 	$\hat{P}$ 43	Type: Interceptor (Su-15TM)	Max Vel. Mach	1.58	MAR:07
		Armament: AA-1, AA-2C, AA-8N/I	Hard Points:	4/4AA	
		RWR: N/A Sirena-3 N/I Radar:Taifun-M	CMDs/ ECM:	Yes/ Int. ECM	
		Radar Range: Up: <u>16 nm</u> Down: <u>16 nm</u> ECM: <u>8 nm</u>	Vertical:	Med Tumansky R13-300 (19k)	
		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-17 Fitter-C 		Type: Attack	Max Vel. Mach	2.0	MAR:07
		Armament: AA-2C, AA-8	Hard Points:	8/ 4AA	
		RWR: 20 nm SPO-3 Sir.-10 Radar:K.(1)/SRD-5M	CMDs/ ECM:	No / SPS-141 MWGE Pod	
		Radar Range: Up: <u>4 nm</u> Down: <u>4 nm</u> ECM: <u>2 nm</u>	Vertical:	Medium AL-7F-1 (22.1k)	
		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-20 Fitter-C 		Type: Attack (Su-17M)	Max Vel. Mach	2.0	MAR:07
		Armament: AA-2C, AA-8	Hard Points:	8/ 4AA	
		RWR: 20 nm SPO-3 Sir.-10 Radar:K.(1)/SRD-5M	CMDs/ ECM:	No/ SPS-141 MWGE Pod	
		Radar Range: Up: <u>4 nm</u> Down: <u>4 nm</u> ECM: <u>2 nm</u>	Vertical:	Medium AL-21F-3 (24.8k)	
		Notes: 1973. Short range. ECM uses AA slot. Smoke. VG wings.	Turn Rate °/sec:	15 - 23/ Instant: 28 (0.2nm Ø)	
			Roll:	Good	
Su-22 Fitter-F 		Type: Attack (Su-17M2)	Max Vel. Mach	2.0	MAR:07
		Armament: AA-2C, AA-8	Hard Points:	8/ 4AA	
		RWR: 20 nm SPO-3 Sirena-10 Radar: Komar	CMDs/ ECM:	Yes / SPS-141 MWGE Pod	
		Radar Range: Up: <u>4 nm</u> Down: <u>4 nm</u> ECM: <u>2 nm</u>	Vertical:	Good T. R29-BS300 (25.3k)	
		Notes: 1976. Short range. Smoke exhaust. VG wings. Export version.	Turn Rate °/sec:	14 - 23/ Instant: 30 (0.2nm Ø)	
			Roll:	Good	
Su-24 Fencer 	$\hat{A}$ 4	Type: Attack (Fencer-C)	Max Vel. Mach	2.19	MAR:07
		Armament: AA-8, 30mm gattling cannon	Hard Points:	7/ 2AA	
		RWR: 30 nm SPO-15 Radar:Orien	CMDs/ ECM:	SPS-5-2x/Int. ECM SPS161/162	
		Radar Range: Up: <u>16 nm</u> Down: <u>16 nm</u> ECM: <u>5 nm</u>	Vertical:	Med. Lyulka AL-21F-3 (49.6k)	
		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	
		RWR: 30 nm SPO-15 Radar:DISS-7 N/I	CMDs/ ECM:	Yes / SPS-141 MWGE Pod	
		Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>	Vertical:	Bad Tumansky R-95 (17.6k)	
		Notes: 1981. Faster at altitudes below 10kft. 25kft clng. Very tough.	Turn Rate °/sec:	9 - 15/ Instant: 21 (0.2nm Ø)	
			Roll:	Medium	
Su-27 Flanker 	$\hat{27}$ $\hat{7}$	Type: Fighter (Flanker-B, Crane, Azure Lightning)	Max Vel. Mach	1.8	MAR:17
		Armament: AA-8, AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	10/ 10AA Can carry 8 Adders	
		RWR: 20 nm SPO-15 Radar:NIIP N001	CMDs/ ECM:	Yes / Sorbtsiya Pod -2AA	
		Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>15 nm</u>	Vertical:	Good S./Lyulka AL-31F (55.2k)	
		Notes: 1986. HMCS. Use ECM, bm, chaff, mnvr to brk lock x>10nm. Long rng.IRST N/I.	Turn Rate °/sec:	15 - 17/ Instant: 23 (0.2nm Ø)	
			Roll:	Good	
Su-27UB Flanker 	$\hat{27}$ $\hat{7}$	Type: Fighter (2 seat version, Flanker-C)	Max Vel. Mach	1.8	MAR:17
		Armament: AA-8, AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	10/ 10AA	
		RWR: 20 nm SPO-15 Radar:NIIP N001	CMDs/ ECM:	Yes / Sorbtsiya Pod -2AA	
		Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>15 nm</u>	Vertical:	Med. S./Lyulka AL-31F(55.2k)	
		Notes: 1987. 2 seat trainer. HMCS. Use ECM, bm, chaff, mnvr to brk lock x>10nm. Long rng.	Turn Rate °/sec:	13 - 16/ Instant: 23 (0.3nm Ø)	
			Roll:	Good	

Su-30M Flanker  	30	Type:	Multi-role Fighter (Flanker-F2)	Max Vel. Mach	1.3	MAR:17
	43	Armament:	AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	11/ 10AA	Can carry 8 Adders
		RWR:	20 nm SPO-15 Radar:NIIP N011ME	CMDs/ ECM:	Yes / Sorbtsiya pod -2AA	
		Radar Range:	Up:50 nm Down:50 nm ECM:15 nm	Vertical:	Med. S./Lyulka AL-31F(55.2k)	
		Notes:	1992. HMCS. Use ECM, bm, chaff, mnvr to brk lock x>10nm. Long rng. Auto LEF.	Turn Rate °/sec:	12 - 17/ Instant: 23 (0.2nm Ø)	
				Roll:	Good	
Su-30MKK Flanker  	30	Type:	Multi-role Fighter (Flanker-G, PLAAF)	Max Vel. Mach	1.1	MAR:17
	43	Armament:	AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	11/ 10AA	
		RWR:	20 nm Pastel/ L150 Radar:NIIP N001VE	CMDs/ ECM:	Yes / Sorbtsiya pod -2AA	
		Radar Range:	Up:50 nm Down:50 nm ECM:15 nm	Vertical:	Good S./Lyulka AL-31F(55.2k)	
		Notes:	2000. HMCS. Use ECM, bm, chaff, mnvr to brk lock x>10nm. Long rng. Auto LEF.	Turn Rate °/sec:	12 - 17/ Instant: 22 (0.2nm Ø)	
				Roll:	Good	
Su-33 Flanker  	27	Type:	Fighter (Naval Flanker-D, Su-27K)	Max Vel. Mach	1.6	MAR:17
	7	Armament:	AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	11/ 8AA	
		RWR:	20 nm SPO-15 Radar:NIIP N011	CMDs/ ECM:	Yes / Sorbtsiya pod -2AA	
		Radar Range:	Up:50 nm Down:50 nm ECM:30 nm	Vertical:	Good S./Lyulka AL-31F(55.2k)	
		Notes:	1992. HMCS. No smoke exhaust. Long range.	Turn Rate °/sec:	13 - 18/ Instant: 24 (0.2nm Ø)	
				Roll:	Good	
Su-34 Fullback  	30	Type:	Fighter/ Bomber (Su-27TB)	Max Vel. Mach	1.5	MAR:17
	43	Armament:	AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	11/ 10AA	
		RWR:	20 nm Elint Radar:Leninets V004	CMDs/ ECM:	Yes / Sorbtsiya pod -2AA	
		Radar Range:	Up:50 nm Down:50 nm ECM:30 nm	Vertical:	Med. S./Lyulka AL-35F(59.8k)	
		Notes:	2011. Leninets V005 rear facing radar N/I.	Turn Rate °/sec:	11 - 15/ Instant: 22 (0.3nm Ø)	
				Roll:	Very Good	
Su-35 Flanker  	27	Type:	Multi-role Ftr (Super Flanker-E1, Su-27M)	Max Vel. Mach	2.1	MAR:17
	7	Armament:	AA-10A/ B/ C/ D, AA-11, AA-12	Hard Points:	11/ 8AA	
		RWR:	20 nm Elint Radar:NIIP N011ME	CMDs/ ECM:	Yes / Sorbtsiya pod -2AA	
		Radar Range:	Up:50 nm Down:50 nm ECM:30 nm	Vertical:	Med. S./Lyulka AL-35F(59.8k)	
		Notes:	2007. HMCS. No smoke exhst. Long range 2,500 nm. (T10M-3). N012 rear radar N/I.	Turn Rate °/sec:	10 - 14/ Instant: 21 (0.2nm Ø)	
				Vert./ Roll:	Very Good	
Su-39 Frogfoot  	25	Type:	Attack (Su-25TM)	Max Vel. Mach	0.83	MAR:17
	5	Armament:	AA-2B, AA-2C, AA-8, AA-11, AA-12	Hard Points:	10/ 6AA	
		RWR:	20 nm Pastel/ L150 Radar: Kopyo-25	CMDs/ ECM:	Yes / Integrated ECM	
		Radar Range:	Up:29 nm Down:29 nm ECM:20 nm	Vertical:	Med. Tumansky R195 (19.8k)	
		Notes:	2008. Smoke exhaust. 32kft ceiling. Best performance low and slow. SPO-32.	Turn Rate °/sec:	8 - 16 / Instant: 23	
				Roll:	Medium	



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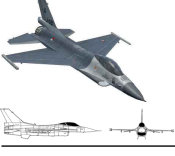
	A-1H Skyraider	Type: Attack (AD-6, Sandy, Spade, Hobo, Firefly) Armament: No missiles. 4x 20mm guns. RWR: N/A Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1954. Tough armored attack and FAC aircraft.	Max Vel. Mach 0.51 Hard Points: 15/ 0AA CMDs/ ECM: No / No Vertical: Medium Wright 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: 35 nm AN/ALR-45 Radar: AN/APG-53A 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: 35 nm AN/ALR-45 Radar: AN/APG-53A 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: 35 nm ALR-45/50 Radar: AN/APQ-145 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: 35 nm ALR-45/50 Radar: AN/APQ-145 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
	A-6E Intruder 4	Type: Attack Armament: No missiles. No gun. RWR: 30 nm AN/ALR-67 Radar:APQ-148 Radar Range: Up: <u>21 nm</u> Down: <u>21 nm</u> ECM: <u>12 nm</u> Notes: 1979. 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
	A-7E Corsair II 4	Type: Attack (USN) Armament: <u>AIM-9M/ P</u> , 20mm cannon RWR: 30 nm AN/ALR-45 Radar:AN/APQ-128 Radar Range: Up: <u>22 nm</u> Down: <u>22 nm</u> ECM: <u>12 nm</u> Notes: 1970. 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: 20 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.	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
	AJ 37 Viggen 4	Type: Multi-role Fighter (Attack Jakt) Armament: <u>AIM-9M</u> , <u>AIM-120B</u> , <u>Skyflash</u> RWR: 21 nm SATT Elektronik Radar: PS-37A 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
	AMX Ghibli 43	Type: Attack (A-11 Ghibli, ITAF) Armament: <u>AIM-9M</u> RWR: 30 nm ELT-156X Radar:EL/M 20001B 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   		Type: Attack	Max Vel. Mach	0.83	MAR:07
		Armament: AIM-9M	Hard Points:	6/4AA	
		RWR: 35 nm AN/ALR-67 Radar: AN/APG-65 N/I	CMDS/ ECM:	Yes/ Int ECM	
		Radar Range: Up: N/A Down: N/A ECM: N/A	Vertical:	Very Bad F402RR408 (23.8k)	
		Notes: 1985. V/STOL. Smoke. HMCS.	Turn Rate %/sec:	6 - 11/ Instant: 16	
			Roll:	Very Good	
AV-8B Harrier II+   	$\hat{18}$ $\hat{8}$	Type: Attack	Max Vel. Mach	0.83	MAR:17
		Armament: AIM-9M, AIM-120B	Hard Points:	6/4AA	
		RWR: 35 nm AN/ALR-67 Radar: AN/APG-65	CMDS/ ECM:	Yes/ Int ECM	
		Radar Range: Up: 50 nm Down: 50 nm ECM: 25 nm	Vertical:	Very Bad F402RR408 (23.8k)	
		Notes: 1993. V/STOL. Smoke. HMCS.	Turn Rate %/sec:	6 - 11/ Instant: 16	
			Roll:	Very Good	
CF/A-18 Hornet   	$\hat{18}$ $\hat{8}$	Type: Multi-role Fighter (CF-188)	Max Vel. Mach	1.59	MAR:17
		Armament: AIM-7F/ M, AIM-9H/J/ M/ P, AIM-120B	Hard Points:	7/8AA/ 12AA	
		RWR: 35 nm AN/ALR-67 Radar: AN/APG-73	CMDS/ ECM:	Yes/ Int ECM	
		Radar Range: Up: 50 nm Down: 50 nm ECM: 25 nm	Vertical:	Very Good F-404-GE-400 (32k)	
		Notes: 1982. RCAF.	Turn Rate %/sec:	14 - 18/ Instant: 21	
			Roll:	Good	
EA-6B Prowler   	$\hat{S}$ 4*	Type: Attack (Electronic Intruder, USN, USMC)	Max Vel. Mach	0.93	MAR:00
		Armament: No AA missiles. No gun.	Hard Points:	5/0AA	
		RWR: 40 nm ALQ-99, 32, 162 Radar: APQ-129	CMDS/ ECM:	Yes/ Int ECM, AN/ALQ-99 pod	
		Radar Range: Up: 69 nm Down: 69 nm ECM: 67 nm	Vertical:	Bad J-52-P-408A (20.8k)	
		Notes: 1971. Electronic warfare. AGM-88, jmr pods and tanks only. Jam 40nm radius.	Turn Rate %/sec:	7 - 14/ Instant: 26 (0.2 nm Ø)	
			Roll:	Medium	
EA-18G Growler   	$\hat{18}$ $\hat{8}$	Type: Attack	Max Vel. Mach	1.48	MAR:20
		Armament: AIM-120C. No gun.	Hard Points:	9/2AA	
		RWR: 35 nm ALQ-128 Radar: AN/APG-79	CMDS/ ECM:	Yes/ Int ECM, AN/ALQ-99 pod	
		Radar Range: Up: 50 nm Down: 50 nm ECM: 25 nm	Vertical:	Medium F-414-GE-400 (44k)	
		Notes: 2009. Electronic warfare. HMCS. AGM-88, tanks and pods only. Jam 40nm. AESA N/I.	Turn Rate %/sec:	11 - 15/ Instant: 20 (0.3 nm Ø)	
			Roll:	Very Good	
EF-2000 GAF   	$\hat{E}$ $\hat{E}$	Type: Multi-role Fighter (Eurofighter)	Max Vel. Mach	1.94	MAR:17
		Armament: AIM-9M/ X, AIM-120B, IRIS-T	Hard Points:	13/ 10AA +2 AIM-9	
		RWR: 30 nm PIRATE Radar: CAPTOR-M	CMDS/ ECM:	Yes/ Int ECM	
		Radar Range: Up: 69 nm Down: 69 nm ECM: 20 nm	Vertical:	Very Gd Eurojet EJ200 (40.5k)	
		Notes: 2002. Supercruise mach 1.29 in mil. HMCS. PIRATE IRST. 8.8g turn in mil.	Turn Rate %/sec:	18 - 26 / Instant: 28 (0.2 nm Ø)	
			Roll:	Very Good	
EF-2000 RAF   	$\hat{E}$ $\hat{E}$	Type: Multi-role Fighter (Typhoon FGR.4 UK)	Max Vel. Mach	1.94	MAR:17
		Armament: AIM-9M/X, AIM-120B, AIM-132, Skyflash	Hard Points:	13/ 10AA +2 AIM-9	
		RWR: 30 nm PIRATE Radar: CAPTOR-M	CMDS/ ECM:	Yes/ Int ECM	
		Radar Range: Up: 69 nm Down: 69 nm ECM: 20 nm	Vertical:	Very Gd Eurojet EJ200 (40.5k)	
		Notes: 2002. Supercruise mach 1.29 in mil. HMCS. 8.8g turn in mil. PIRATE IRST.	Turn Rate %/sec:	18 - 26 / Instant: 28 (0.2 nm Ø)	
			Roll:	Very Good	
F-4D ROKAF   	$\hat{4}$ $\hat{4}$	Type: Fighter Bomber (Phantom II)	Max Vel. Mach	1.6	MAR:13
		Armament: AIM-7M, AIM-9M, AIM-9P	Hard Points:	9/4AA + 4 AIM-9	
		RWR: 20 nm AN/APR-36/37, AN/ALR-46	CMDS/ ECM:	Yes/ AN/ALQ-119 pod	
		Radar Range: Up: 20 nm Down: 20 nm ECM: 8 nm	Vertical:	Medium J79-GE-15B (34k)	
		Notes: 1965. Gun. Smoke AN/APQ-109 radar.	Turn Rate %/sec:	9 - 12/ Instant: 17 (0.4 nm Ø)	
			Roll:	Very Good/ very bad with α	
F-4E ROKAF   	$\hat{4}$ $\hat{4}$	Type: Fighter Bomber (Phantom II Rhino)	Max Vel. Mach	1.6	MAR:13
		Armament: AIM-7M, AIM-9M/ P	Hard Points:	9/4AA + 4 AIM-9	
		RWR: 20 nm AN/APR-36/37, AN/ALR-46	CMDS/ ECM:	Yes/ AN/ALQ-119 pod	
		Radar Range: Up: 30 nm Down: 30 nm ECM: 13 nm	Vertical:	Med J79-GE-17C/ 17E (35.8k)	
		Notes: 1965. Gun. Smoke. AN/APQ-120 rdr. Likes to be fast.	Turn Rate %/sec:	10 - 13/ Instant: 17 (0.4 nm Ø)	
			Roll:	Very Good/ very bad with α	
F-4EJ Phantom   	4 $\hat{4}$	Type: Fighter (Phantom, Japan)	Max Vel. Mach	1.6	MAR:13
		Armament: AAM-3, AIM-7E-2/ M, AIM-9M	Hard Points:	9/4AA + 4 AIM-9 or AAM-3	
		RWR: 20 nm J/APR-2 (tail RWR)	CMDS/ ECM:	Yes/ AN/ALQ-119 pod	
		Radar Range: Up: 30 nm Down: 30 nm ECM: 13 nm	Vertical:	Med J79-GE-10 (35.8k)	
		Notes: 1965. Gun. Smoke. AN/APQ-120 rdr. No ground wpns N/I. Likes to be fast.	Turn Rate %/sec:	10 - 13/ Instant: 17 (0.4 nm Ø)	
			Roll:	Very Good/ very bad with α	

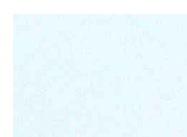
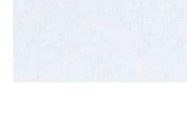
F-4F Phantom  	4	Type:	Fighter Bomber (Germany, SK, Japan)	Max Vel. Mach	1.6	MAR:17
	4	Armament:	AIM-7M, AIM-9M/ P, AIM-120B (1994)	Hard Points:	9/ 5AA + 4 AIM-9	
		RWR:	20 nm AN/APR-36/ 37, AN/ALR-46	CMDs/ ECM:	Yes/ AN/ALQ-119 pod	
		Radar Range:	Up:30 nm Down:30 nm ECM:13 nm	Vertical:	Med J79-MTU-17A (35.8k)	
		Notes:	1967. Gun. Smoke. AN/APQ-120 rdr.	Turn Rate %/sec:	10 - 13/ Instant: 17 (0.4 nm Ø)	
			Export F-4E. Likes to be fast. No grnd N/I.	Roll:	Very Good/ very bad with α	
F-4G Phantom  	4	Type:	Fighter Bomber (Wild Weasel Phantom)	Max Vel. Mach	1.6	MAR:13
	4	Armament:	AIM-7M, AIM-9M/ P	Hard Points:	9/ 4AA + 4 AIM-9	
		RWR:	20 nm AN/APR-47, AN/ALR-46	CMDs/ ECM:	Yes/ AN/ALQ-119 pod	
		Radar Range:	Up:30 nm Down:30 nm ECM:13 nm	Vertical:	Med J79-GE-17 (35.8k)	
		Notes:	1978. Gun pod N/I. Smoke. APQ-120	Turn Rate %/sec:	10 - 13/ Instant: 17 (0.4 nm Ø)	
			Rdr. Better RWR N/I. AGM-45/ 78/ 88.	Roll:	Very Good/ very bad with α	
F-5A Freedom Fighter  		Type:	Fighter (Freedom Fighter)	Max Vel. Mach	1.09	MAR:07
		Armament:	AIM-9M/ P	Hard Points:	7/ 6AA	
		RWR:	22 nm	CMDs/ ECM:	Yes/ No	
		Radar Range:	Up:N/A Down:N/A ECM:N/A	Vertical:	Med J85-GE-15 (8.6k)	
		Notes:	1954. Smoke.	Turn Rate %/sec:	9 - 13 / Instant: 16 (0.3 nm Ø)	
				Roll:	Very Good	
F-5E Tiger II  	5	Type:	Fighter (Tiger II)	Max Vel. Mach	1.42	MAR:07
	43	Armament:	AIM-9M/ P	Hard Points:	7/ 6AA	
		RWR:	22 nm AN/ALR-46 Radar: AN/APQ-153	CMDs/ ECM:	Yes/ No	
		Radar Range:	Up:15 nm Down:N/A ECM:9 nm	Vertical:	Med J85-GE-21 (10k)	
		Notes:	1964.	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
	42	Armament:	AIM-7M, AIM-9M, AIM-54A	Hard Points:	8/ 8AA	
		RWR:	35 nm ALR-45 Radar:AN/AWG-9	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:160 nm Down:160 nm ECM:80 nm	Vertical:	Medium TF30-PW-412 (41.8k)	
		Notes:	1973. Smoke exhaust. VG wings.	Turn Rate %/sec:	12 - 18/ Instant: 20	
				Roll:	Medium	
F-14B Tomcat  	14	Type:	Fighter	Max Vel. Mach	1.41	MAR:40
	43	Armament:	AIM-7M, AIM-9M, AIM-54A/ C	Hard Points:	8/ 8AA	
		RWR:	35 nm ALR-67 Radar: AN/AWG-15	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:160 nm Down:160 nm ECM:80 nm	Vertical:	Medium F110-GE-400 (52.1k)	
		Notes:	1988. Smoke exhaust. VG wings.	Turn Rate %/sec:	11 - 18/ Instant: 18	
				Roll:	Medium	
F-14D Tomcat  	14	Type:	Fighter	Max Vel. Mach	1.32	MAR:40
	43	Armament:	AIM-7M, AIM-9M, AIM-54A/ C	Hard Points:	8/ 8AA	
		RWR:	35 nm ALR-67 Radar: AN/AWG-15	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:160 nm Down:160 nm ECM:80 nm	Vertical:	Medium F110-GE-400 (52.1k)	
		Notes:	1990. No smoke. VG wings.	Turn Rate %/sec:	10 - 16/ Instant: 18	
				Roll:	Medium	
F-15A Eagle  	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:13
	43	Armament:	AIM-7F/ M, AIM-9M/ P	Hard Points:	11/ 8AA	
		RWR:	30 nm AN/ALR-56C Radar:AN/APG-63	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:60 nm Down:60 nm ECM:40 nm	Vertical:	Very Gd F-100-PW-100 (47.7k)	
		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
	44	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
		RWR:	30 nm AN/ALR-56C Radar:APG-63PSP	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:60 nm Down:60 nm ECM:40 nm	Vertical:	Very Gd F-100-PW-220 (47.7k)	
		Notes:	1979. No smoke. 1985:MSIP II APG-70	Turn Rate %/sec:	13 - 17/ Instant: 21	
			rdr, AIM-120. 2008: HMCS.	Roll:	Very Good	
F-15C 65th AS  	15	Type:	Fighter (Aggressor Squadron)	Max Vel. Mach	1.88	MAR:20
	44	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
		RWR:	30 nm AN/ALR-56C Radar:APG-63PSP	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:60 nm Down:60 nm ECM:40 nm	Vertical:	Very Gd F-100-PW-220 (47.7k)	
		Notes:	1980. No smoke. 1985:MSIP II APG-70	Turn Rate %/sec:	10 - 13/ Instant: 18	
			rdr, AIM-120. 2008: HMCS.	Roll:	Very Good	

F-15C Baz IDF AF 	15	Type:	Fighter (Israel)	Max Vel. Mach	1.88	MAR:20
	44	Armament:	AIM-7M, AIM-9M/ P, AIM-120B/ C, Python 3/ 4/ 5	Hard Points:	11/ 8AA	
F-15D Eagle 	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:20
	44	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
F-15DJ Peace Eagle 	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:20
	44	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
F-15E-220 	15	Type:	Multi-role Fighter (Strike Eagle, Mud Hen)	Max Vel. Mach	1.88	MAR:20
	44	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
F-15E-229 	15	Type:	Multi-role Fighter (Strike Eagle, Mud Hen)	Max Vel. Mach	1.88	MAR:20
	44	Armament:	AIM-7M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
F-15I Ra'am IDF 	15	Type:	Fighter (Israel, Thunder)	Max Vel. Mach	2.00	MAR:20
	44	Armament:	AIM-7M, AIM-9M/ P, AIM-120B/ C, Python 3/ 4/ 5	Hard Points:	11/ 8AA	
F-15J Peace Eagle 	15	Type:	Fighter	Max Vel. Mach	1.88	MAR:20
	44	Armament:	AIM-7M, AAM-3/ 4, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	11/ 8AA	
F-15K Slam Eagle 	15	Type:	Fighter (Slam Eagle, ROKAF)	Max Vel. Mach	2.06	MAR:20
	44	Armament:	AIM-9X, AIM-120C	Hard Points:	11/ 8AA	



	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	
		RWR:	30 nm ALR-69(V) Radar:AN/APG-66	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
		Radar Range:	Up:32 nm Down:32 nm ECM:10 nm	Vertical:	Good F-100-PW-200 (23.8k)	
		Notes:	1981. Green MFDs. No HMCS. Slower radar. Tracks not as stable. CMDs 30/15.	Turn Rate °/sec:	15 - 20/ Instant: 26	
				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	
		RWR:	30 nm TASC Radar:APG-66(V)2	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
		Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-220 (23.8k)	
		Notes:	1995. HMCS.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				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	
		RWR:	30 nm ALR-69(V) Radar:APG-66(V)2	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
		Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-200 (23.8k)	
		Notes:	1995. HMCS.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				Roll:	Very Good	
	16	Type:	Multi-role Fighter (RNLAf)	Max Vel. Mach	1.71	MAR:17
	6	Armament:	AIM-9M/ P/ X, AIM-120B	Hard Points:	9/6AA	
		RWR:	30 nm ALR-69(V) Radar:APG-66(V)2	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
		Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-220 (23.8k)	
		Notes:	1995. HMCS.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				Roll:	Very Good	
	16	Type:	Multi-role Fighter (RNoAF)	Max Vel. Mach	1.77	MAR:17
	6	Armament:	AIM-9M/ P, AIM-120B, IRIS-T	Hard Points:	9/6AA	
		RWR:	30 nm ALR-69(V) Radar:APG-66(V)2	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
		Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-220 (23.8k)	
		Notes:	1995. HMCS.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				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	
		RWR:	30 nm ALR-69(V) Radar:APG-66	CMDs/ ECM:	Yes/ AN/ALQ-131(V)	
		Radar Range:	Up:32 nm Down:32 nm ECM:10 nm	Vertical:	Good F-100-PW-200 (23.8k)	
		Notes:	1981. 2 Seats. Green MFDs. Less CMDs 30/15.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				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	
		RWR:	30 nm ALR-69(V) Radar:APG-63	CMDs/ ECM:	Yes/ ALQ-131(V), ALQ-184	
		Radar Range:	Up:40 nm Down:40 nm ECM:27 nm	Vertical:	Good F-100-PW-220 (23.8k)	
		Notes:	1987. HMCS. F-16C-32.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				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	
		RWR:	30 nm ALR-69(V) Radar:APG-68(V)	CMDs/ ECM:	Yes / ALQ-131(V), ALQ-184	
		Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-200 (23.8k)	
		Notes:	1984. Green MFDs. 1986 TFR, FLIR.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				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	
		RWR:	30 nm ALR-69(V) Radar:APG-68	CMDs/ ECM:	Yes/ ALQ-131(V), ALQ-184	
		Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Very Gd F-110-GE-100 (28k)	
		Notes:	1987. Green MFDs. TFR. FLIR.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				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	
		RWR:	30 nm ALR-69(V) Radar:APG-68	CMDs/ ECM:	Yes / ALQ-131(V), ALQ-184	
		Radar Range:	Up:40 nm Down:40 nm ECM:22 nm	Vertical:	Good F-100-PW-220 (23.8k)	
		Notes:	1987. Green MFDs. TFR. FLIR.	Turn Rate °/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
				Roll:	Very Good	

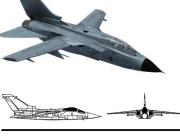
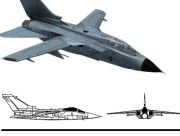
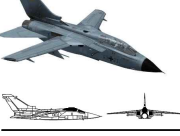
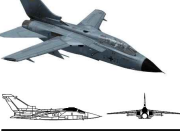
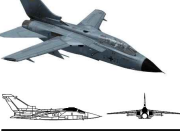
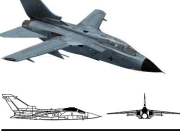
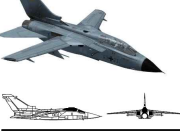
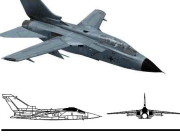
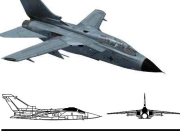
F-16CM Blk 40 	16	Type:	Multi-role Fighter (MSIP Stage III)	Max Vel. Mach	1.80	MAR:17
	6	Armament:	AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	9/ 6AA	
F-16CM Blk 42 	16	RWR:	30 nm ALR-56M Radar:APG-68(V)5	CMDs/ ECM:	Yes / ALQ-131, ALQ-184	
	6	Radar Range:	Up:40 nm Down:40 nm ECM:20 nm	Vertical:	Very Gd F-110-GE-100 (28k)	
F-16CM Blk 50 	16	Notes:	1989. HMCS. Big black HUD frame. TFR. FLIR.	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:	30 nm ALR-56M Radar:APG-68(V)5	Hard Points:	9/ 6AA	
F-16C Blk 52 CFT 	16	Radar Range:	Up:40 nm Down:40 nm ECM:20 nm	CMDs/ ECM:	Yes / ALQ-131, ALQ-184	
	6	Notes:	1991. HMCS.	Vertical:	Very Gd F-100-PW-229 (28.5k)	
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:	30 nm ALR-93(V)1 Radar:APG-68(V)XM	Max Vel. Mach	1.85	MAR:17
	6	Radar Range:	Up:55 nm Down:55 nm ECM:20 nm	Hard Points:	9/ 6AA	
F/A-18A Hornet 	18	Notes:	2008. HMCS. RWR with Different #'s and symbology F-16=6.	CMDs/ ECM:	Yes / Int ECM	
	8	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)	
	8	RWR:	30 nm ALR-56M Radar:APG-68(V)5	Roll:	Very Good	
F/A-18C Hornet 	18	Radar Range:	Up:40 nm Down:40 nm ECM:20 nm	Max Vel. Mach	1.86	MAR:17
	8	Notes:	1991. 2 Seats. HMCS.	Hard Points:	9/ 6AA	
F/A-18A Hornet 	18	Type:	Multi-role Fighter	CMDs/ ECM:	Yes / ALQ-131, ALQ-184	
	8	Armament:	AIM-7F/ M, AIM-9H/ J/ M/ P, AIM-120B	Vertical:	Very Gd F-100-PW-229 (28.5k)	
F/A-18B Hornet 	18	RWR:	34 nm AN/ALR-67 Radar:AN/APG-65	Turn Rate %/sec:	15 - 20/ Instant: 26 (0.3 nm Ø)	
	8	Radar Range:	Up:51 nm Down:51 nm ECM:20 nm	Roll:	Very Good	
F/A-18C Hornet 	18	Notes:	1983. Green MFDs.	Max Vel. Mach	1.6	MAR:17
	8	Type:	Multi-role Fighter	Hard Points:	9/ 8AA + 4 AIM-9 or 120	
F/A-18C Hornet 	18	Armament:	AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C	CMDs/ ECM:	Yes/ Int ECM	
	8	RWR:	34 nm AN/ALR-67 Radar:AN/APG-65	Vertical:	Very Gd F404-GE-400 (31.6K)	
F/A-18C Hornet 	18	Radar Range:	Up:51 nm Down:51 nm ECM:20 nm	Turn Rate %/sec:	14 - 17/ Instant: 22 (0.2 nm Ø)	
	8	Notes:	1987. 1992 upgraded to APG-73. HMCS.	Roll:	Very Good	

F/A-18D Hornet 	18	Type:	Multi-role Fighter	Max Vel. Mach	1.6	MAR:17
	8	Armament:	AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C	Hard Points:	9/ 8AA + 4 AIM-9 or 120	
F/A-18E 	18	RWR:	34 nm AN/ALR-67 Radar:AN/APG-65	CMDs/ ECM:	Yes/ Int ECM	
	8	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.	Turn Rate °/sec:	14 - 17/ Instant: 22 (0.2 nm Ø)	
	8	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
	8	RWR:	34 nm ALR-67(V)3 Radar:AN/APG-73	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	
	8	Notes:	1995. 2 Seats. AESA rdr N/I. HMCS.	Vertical:	Medium F414-GE-400 (44k)	
F-22A Raptor 	22	Type:	Fighter	Max Vel. Mach	1.4	MAR:17
	2	Armament:	AIM-9M, AIM-120C	Hard Points:	6/ 6AA + 2 AIM-9	
F-100D Super Sabre 	43	RWR:	250 nm ALR-94 Radar: AN/APG-77	CMDs/ ECM:	Yes/ Stealth 6.5 nm	
		Radar Range:	Up:xx nm Down:xx nm ECM:xx nm	Vertical:	Very Good F119-PW-100 (70k)	
F-104DJ Starfighter 	43	Notes:	2012. AESA rdr N/I. AN/ALR-56 MLD. Blurry pit. Super cruise. TV.	Turn Rate °/sec:	15 - 20/ Instant: 24 (0.1 nm Ø)	
		Type:	Fighter Bomber (The Hun)	Roll:	Very Good	
F-104DJ Starfighter 	43	Armament:	4x 20mm Cannons	Max Vel. Mach	1.43	MAR:02
		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	
		Notes:	1956. Gun tracking radar. Slow pitch.	Vertical:	Medium J57-P-21/21A (16k)	
F-104DJ Starfighter 	43	Type:	Fighter	Turn Rate °/sec:	8 - 15/ Instant:23	
		Armament:	AIM-9B, 20mm cannon	Roll:	Very Good	
F-105D Thud 	4	RWR:	10 nm APR-25/26 Radar:ASG-14T	Max Vel. Mach	1.89	MAR:05
		Radar Range:	Up:5 nm Down:N/A ECM:2 nm	Hard Points:	4AA	
F-105D Thud 	4	Notes:	1958.	CMDs/ ECM:	No / No	
		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)	
		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
		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.	
		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)	
		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
		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.	
		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)	
		Notes:	1960. RWR Vector.	Roll:	Very Good	



F-111E Aardvark  	⁴³	Type: Attack (Mark I) Armament: No AA missiles. No gun. RWR: 34 nm AN/APR-109 Radar:AN/APQ-113 Radar Range: Up: <u>15 nm</u> Down: <u>15 nm</u> ECM: <u>8 nm</u> Notes: 1969. 2 Seats. Smoke. Direct successor to A. Can accelerate in turn. Smoke.	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  	⁴³	Type: Attack (Mark IIB) Armament: No AA missiles. No gun. RWR: 34 nm AN/ALR-62 Radar:AN/APQ-144 Radar Range: Up: <u>15 nm</u> Down: <u>15 nm</u> ECM: <u>8 nm</u> Notes: 1970. 2 Seats. 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: 30 nm Classified Radar Locator System Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u> Notes: 1983. Not detected by AWACS. Can avoid F16 radar 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  	¹⁶ ⁶	Type: Multi-role Fighter (ROCAF) Armament: Tien Chien I, Tien Chien II RWR: 30 nm AN/ALR-93(V) Radar: GD-53 Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u> Notes: 1997.	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  	⁴ ⁴	Type: Interceptor (Jakt) Armament: AIM-9M, AIM-120B, Skyflash , 30 mm RWR: 20 nm SATT Radar: PS46/A Radar Range: Up: <u>30 nm</u> Down: <u>30 nm</u> ECM: <u>15 nm</u> Notes: 1978. Swedish. 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
KF-16C Blk 32  	¹⁶ ⁶	Type: Multi-role Fighter (Korean Peace Bridge 1) Armament: AIM-7M, AIM-9M/ P, AIM-120B RWR: 30 nm ALR-56M Radar:AN/APG-68 Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u> Notes: 1986. Green MFDs.	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  	¹⁶ ⁶	Type: Multi-role Fighter (Korean Peace Bridge II) Armament: AIM-7M, AIM-9M/ P, AIM-120B/ C RWR: 30 nm ALR-56M Radar:APG-68(V)7 Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u> Notes: 1994. HMCS. TFR. FLIR.	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: 22 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  	²⁰ ⁴³	Type: Fighter Armament: R.550 Magic II, R.530D RWR: 30 nm SERVAL Radar:CSF-RDI 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.	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
	43	Armament:	R.550 Magic II, MICA IR	Hard Points:	9/2AA	
		RWR:	48 nm SERVAL Radar:Antelope 50	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.	Turn Rate %/sec:	11 - 16/ Instant: 21 (0.2 nm Ø)	
				Roll:	Very Good	
	20	Type:	Fighter	Max Vel. Mach	1.87	MAR:14
	43	Armament:	R.550 Magic II, MICA EM, MICA IR	Hard Points:	9/6AA	
		RWR:	33 nm SERVAL Radar:Thales RDY	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:60 nm Down:60 nm ECM:26 nm	Vertical:	Good M53-P2 (21.4k)	
		Notes:	2000. 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
	43	Armament:	R.550 Magic II, MICA EM, MICA IR	Hard Points:	9/8AA	
		RWR:	33 nm Samir DDM Radar:Thales RDY	CMDs/ ECM:	Yes/ Int ECM	
		Radar Range:	Up:60 nm Down:60 nm ECM:26 nm	Vertical:	Good M53-P2 (21.4k)	
		Notes:	2000. 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
	43	Armament:	R.550 Magic II	Hard Points:	9/2AA	
		RWR:	48 nm SERVAL Radar:Antelope 5	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. 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:	20 nm CSF-BF Radar:CSF-Cyrano IV-1	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
	43	Armament:	AIM-9M, R.550 Magic, 2x 30mm	Hard Points:	5/2AA	
		RWR:	20 nm Radar:CSF-Cyrano II	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	
		Type:	Foward Air Control/ Attack	Max Vel. Mach	0.38	MAR:07
		Armament:	AIM-9M	Hard Points:	7/2AA	
		RWR:	AN/APR-39 N/I Radar:N/A	CMDs/ ECM:	Yes/ No	
		Radar Range:	Up:N/A Down:N/A ECM:N/A	Vertical:	Bad Garrett T76-G-420/421(2.1k)	
		Notes:	1969.	Turn Rate %/sec:	7 - 10/ Instant: 11	
				Roll:	Good	
	22	Type:	Multi-role Fighter (FAF)	Max Vel. Mach	1.62	MAR:14
	2	Armament:	Mica IR, Mica EM, Meteor	Hard Points:	12/10AA	
		RWR:	35 nm SPECTRA Radar:Thales RBE2	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 for AESA. OSF/IRST. RAM. DVI. HMCS. FLIR. Supercruise m1.14.	Turn Rate %/sec:	15 - 20/ Instant: 21	
				Roll:	Very Good	
		Type:	Fighter Bomber	Max Vel. Mach	1.17	MAR:07
		Armament:	AIM-9M	Hard Points:	7/2AA	
		RWR:	30 nm CFTH Radar:Decca N/I	CMDs/ ECM:	Yes/ AN/ALQ-101 pod	
		Radar Range:	Up:N/A Down:N/A ECM:N/A	Vertical:	Medium Adour 102 (14.6k)	
		Notes:	1973.	Turn Rate %/sec:	15 - 20/ Instant: 29	
				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:	30 nm ELS Radar:AI24 Foxhunter	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. Can accelerate in turn.	Turn Rate %/sec:	14 - 22/ Instant: 24 (0.2 nm Ø)	
				Roll:	Very Good	

Tornado ECR AMI 	43 	^A 	Type: Attack (Wild Weasel, ITAF)	Max Vel. Mach	1.75	MAR:07
			Armament: AIM-9M	Hard Points:	9/2AA	
Tornado ECR GAF 	43 	^A 	RWR: 30 nm ELS Radar: Decca 72	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)	
Tornado IDS AMI 	43 	^A 	Notes: 1990. 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 	43 	^A 	Type: Attack (InterDiction Strike, ITAF)	Max Vel. Mach	1.75	MAR:07
			Armament: AIM-9M	Hard Points:	9/2AA	
Tornado IDS GAF 	43 	^A 	RWR: 30 nm ELS Radar: Decca 72	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)	
Tornado IDS GAF 	43 	^A 	Notes: 1979. 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 	43 	^A 	Type: Attack (RSAF, RAF)	Max Vel. Mach	1.75	MAR:14
			Armament: AIM-9M, AIM-132	Hard Points:	9/4AA	
Tornado GR. 4 	43 	^A 	RWR: 30 nm ELS Radar: Decca 72	CMDS/ ECM:	Yes/ Skyshadow, BOZ-107	
			Radar Range: Up: 15 nm Down: 15 nm ECM: 10 nm	Vertical:	Good RB.199-34R Mk101(30k)	
Tornado GR. 4 	43 	^A 	Notes: 1997. Uses BOZ-107 pod to dispense chaff. Can accelerate in turn. IDS upgrade.	Turn Rate °/sec:	14 - 22/ Instant:24 (0.2 nm Ø)	
				Roll:	Very Good	



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General Notes

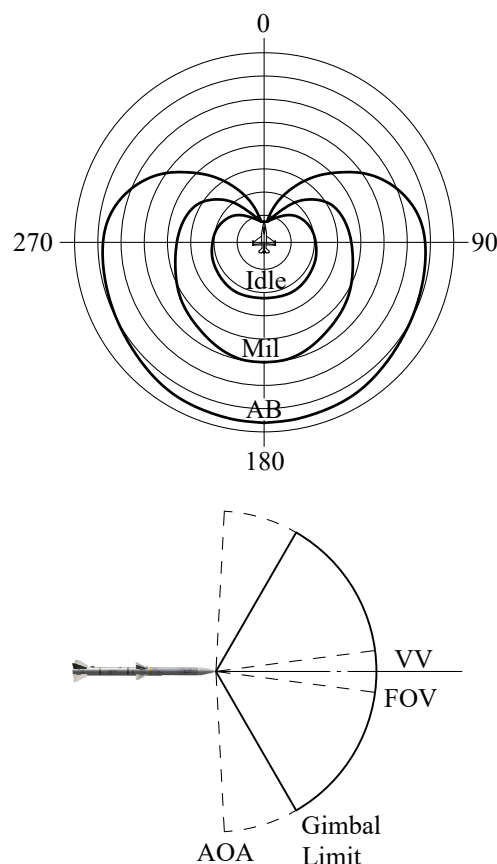
- Break turns should generally be into the missile. Turn AB off when defending against IR missiles.
- Radar missile range: the smaller range number is RTR, larger number is RPI. Longer ranges are possible for most missiles with greater altitude, speed and lofting.
- IR missile range: the first smaller number usually indicates the maximum range of the IR seeker while the missile can usually still travel further than this. The second number in () usually indicates the maximum range of the missile but requires the target to be in AB for the seeker to track the target.
- 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. 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.
- 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.

CM Effect # Decoys

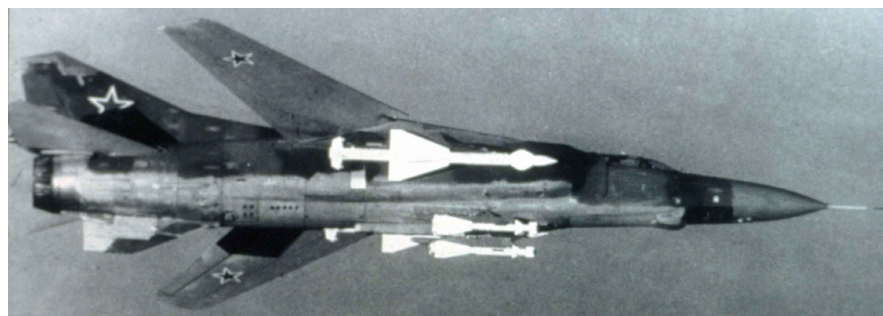
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Very Low	20-50
Low	6-17
Medium	4-6
High	2-4
Very High	1-2

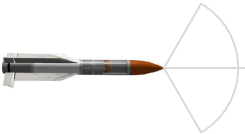
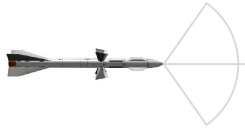
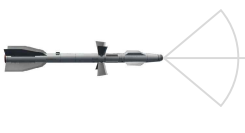
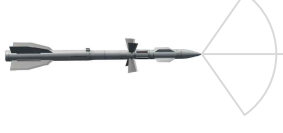
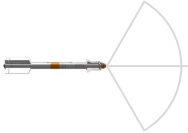
Abbreviations

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-19PM, 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 - (2) nm Range Rear: 2 - (4) 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-(2)nm, Rear 2-(7) .
AA-6A Acrid 	Guidance: SARH Range Front: 8 - 20 nm Range Rear: 4 - 6 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 - (13) 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 maneuverability. (15g), Max AOA 16°, gmb limit 25°, trkg rate 16°/sec, FOV 3°, 65 sec. Seeker Front 5-(13)nm, Rear 13-(38)nm .
AA-7A Apex 	Guidance: SARH Range Front: 7 - 10 nm Range Rear: 5 - 7 nm Chaff Effect: High Max Target g: 7 Max Vel.(mach): 2.9 (1,918 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 manueuv. 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: 2.6 - (7) 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 2.6-(7)nm, Rear 7-(20)nm .
AA-8 Aphid 	Guidance: IR all aspect (R-60) Range Front: 3.5 - (8) nm Range Rear: 2 - 3 nm Flare Effect: Low Max Target g: 10 Max Vel.(mach): 2.9 (1,918 kts)	Aircraft: G-4, J-11, Mig-21Mb/ bis/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 3.5-(8)nm, Rear 3.5-(8)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: 13 - 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: 7 - (20) nm Range Rear: 5 - 7 nm Flare Effect: Low Max Target g: 9 Max Vel.(mach): 3.4 (2,247 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 7-(22)nm, Rear 7-(22)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: 10 - (25) nm Range Rear: 8 - 10 nm Flare Effect: Low Max Target g: 9 Max Vel.(mach): 3.9 (2,579 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. Seeker Front 10-(31)nm, Rear 10-(31)nm .
AA-11 Archer 	Guidance: IR all aspect Range Front: 9 - (17)nm Range Rear: 6 - 8 nm Flare Effect: Very Low Max Target g: 12 Max Vel.(mach): 3.4 (2,247 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 F/R 9-(22)nm .
AA-12 Adder 	Guidance: ARH Range Front: 15 - 20 nm Range Rear: 5 - 8 nm Chaff Effect: Very Low Max Target g: 11 Max Vel.(mach): 4.2 10/2.7 15/2.0 20/1.2	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 nm .



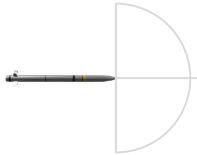
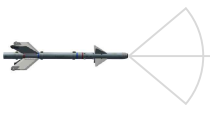
PL-7 Thunderbolt 	Guidance: IR Rear Aspect Range Front: 1 - (2.5) Range Rear: 3 - (5) nm Flare Effect: Very High Max Target g: 9 Max Vel.(mach): 2.8 (1,852 kts)	Names: N/A Aircraft: Chengdu J-7G, J-8I, Q-5 Notes: ~1982. PLAAF. Break turn 9g, flare. (30g), Max AOA 21°, gimbal limit 45°, tracking rate 16.5°/sec, FOV 3°, 27 sec. Reverse engineered R550 Magic I but not as good. Seeker front 1-(2.5)nm, rear 3-(7)nm .
PL-8 Thunderbolt 	Guidance: IR All Aspect Range Front: 8 - (15) 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 8-(23)nm, Rear 8-(23)nm .
PL-10 Thunderbolt 	Guidance: IR All Aspect Range Front: 12 - (18) nm Range Rear: 5 - 9 nm Flare Effect: Very Low Max Target g: 15 Max Vel.(mach): 3.7 (2,445 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 12-(31)nm, Rear 12-(31)nm .
PL-12 Thunderbolt 	Guidance: ARH Range Front: 15 - 20 nm Range Rear: 5 - 8 nm Chaff Effect: Very Low Max Target g: 11 Max Vel.(mach): 4.2 10/2.7 15/2.0 20/1.2	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°, 70 sec, PB 8 nm .



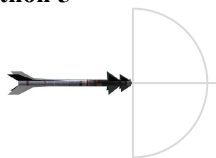
AIM-4C Falcon 	Guidance: IR Rear Aspect Range Front: N/A Range Rear: <u>1.1 nm</u> Flare Effect: Very High Max Target g: 3 Max Vel.(mach): <u>3.0</u> (1,984 kts)	Names: Falcon Aircraft: F-89H, F102, F-101, F-106, SAAB Draken Notes: USA. Break turn 5g, flares. (13g), Max AOA 15°, gimbal limit 20°, tracking rate 11°/sec, FOV 2°, 45 sec.
AIM-4D Falcon 	Guidance: IR All Aspect Range Front: <u>1.4 nm</u> Range Rear: <u>1.4 nm</u> Flare Effect: Very High Max Target g: 4 Max Vel.(mach): <u>4.0</u> (2,646 kts)	Names: Falcon Aircraft: F-101, F-102, F-106, F-4J, SAAB Draken Notes: USA. Break turn 5g, flares. (15g), Max AOA 15°, gimbal limit 25°, tracking rate 12.5°/sec, FOV 2°, 50 sec.
AIM-4G Super Falcon 	Guidance: IR All Aspect Range Front: <u>1.4 nm</u> Range Rear: <u>1.4 nm</u> Flare Effect: High Max Target g: 4 Max Vel.(mach): <u>4.0</u> (2,646 kts)	Names: Super Falcon, GAR-4A Aircraft: F-101, F-102, F-106, F-4J, SAAB Draken Notes: USA. Break turn 5g, flares. (15g), Max AOA 15°, gimbal limit 25°, tracking rate 12.5°/sec, FOV 2°, 60 sec.
AIM-7D Sparrow 	Guidance: SARH Range Front: <u>6 - 7 nm</u> Range Rear: 2 - 3 nm Chaff Effect: Low Max Target g: 5 Max Vel.(mach): <u>2.1</u> (1,389 kts)	Names: Sparrow, AAM-N-6a, AIM-101 Aircraft: F-4B/ C/ D/ J/ N/ S 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.
AIM-7E Sparrow 	Guidance: SARH Range Front: <u>6 - 10 nm</u> Range Rear: 2 - 5 nm Chaff Effect: Very High Max Target g: 5 Max Vel.(mach): <u>3.0</u> (1,984 kts)	Names: Sparrow, AAM-N-6b Aircraft: F-4B/ C/ D/ J/ N/ S 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.
AIM-7E-2 Sea Sparrow 	Guidance: SARH Range Front: <u>10 - 15 nm</u> Range Rear: 3 - 5 nm Chaff Effect: Very High Max Target g: 7 Max Vel.(mach): <u>3.3</u> (2,183 kts) 10/1.5	Names: RIM-7E Sea Sparrow Ships: Basic Point Defense Missile System for ships, F-4B/ C/ D/ EJ/ E-IAF/ J/ K/ M/ N/ S 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.
AIM-7F Sparrow 	Guidance: SARH Range Front: <u>12 - 17 nm</u> Range Rear: 4 - 5 nm Chaff Effect: High Max Target g: 7 Max Vel.(mach): <u>3.5</u> (2,315 kts)	Names: Sparrow Aircraft: CF/A-18, F-15A, F-16C30 IAF, F-16-C32EAF, F/A-18A/ B/ C/ D/ E. 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.
AIM-7M Sparrow 	Guidance: SARH Range Front: <u>11 - 18 nm</u> Range Rear: 6 - 8 nm Chaff Effect: High Max Target g: 7 Max Vel.(mach): <u>3.5</u> 10/2.4 15/1.3	Names: Sparrow 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 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.
AIM-9B Sidewinder 	Guidance: IR Rear Aspect Range Front: 1.1 - (3.8)nm Range Rear: <u>2 - 3.5 nm</u> Flare Effect: Very High Max Target g: 5 Max Vel.(mach): <u>2.6</u> (1,733 kts)	Names: GAR-8, AAM-N-7 Sidewinder IA, Aircraft: F-4B/ C/ D/ J/ N/ S, F-8E, F-104/ J, F-105D 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 1.1-(3.8)nm, rear 3.6-(10)nm .
AIM-9D Sidewinder 	Guidance: IR Rear Aspect Range Front: 1.5 - (3.8) nm Range Rear: <u>4 - 5 nm</u> Flare Effect: Very High Max Target g: 7 Max Vel.(mach): <u>2.9</u> (1,918 kts)	Names: AAM-N-7 Sidewinder IC (IR) Aircraft: Navy only, F-4B/ J/ N/ S, F-8E 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 1.3-(3.8)nm, rear 4 - (12)nm .

	AIM-9E Sidewinder	Guidance: IR Rear Aspect Range Front: 1 - (3.8)nm Range Rear: <u>2 - 3.5 nm</u> Flare Effect: Very High Max Target g: 6 Max Vel.(mach): <u>2.7</u> (1,800 kts)	Names: Sidewinder Aircraft: Airforce aircraft, F-4C/ D, F-104J Notes: 1969, 1972. USAF. Break turn 5g, flare. Easy to evade. (15g), Max AOA 16°, gimbal limit 25°, tracking rate 16.5°/sec, FOV 3°, 20 sec. Seeker Front 1-(3.8)nm, Rear 4-(10)nm .
	AIM-9G Sidewinder	Guidance: IR Rear Aspect Range Front: 1 - (3.8)nm Range Rear: <u>3 - 4 nm</u> Flare Effect: Very High Max Target g: 6 Max Vel.(mach): <u>3.0</u> (1,984 kts)	Names: Sidewinder Aircraft: Navy aircraft, F-4B/ J/ 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-(3.8)nm, Rear 4-(12)nm .
	AIM-9H Sidewinder	Guidance: IR Rear Aspect Range Front: 3 - (6) nm Range Rear: <u>3 - 5 nm</u> Flare Effect: Very High Max Target g: 7 Max Vel.(mach): <u>3.1</u> (2,050 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 3.7-(6)nm, Rear 6-(17)nm .
	AIM-9J Sidewinder	Guidance: IR Rear Aspect Range Front: 1.5 - (3.1) nm Range Rear: <u>2 - 3.5 nm</u> Flare Effect: Very High Max Target g: 8 Max Vel.(mach): <u>2.6</u> (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 1.5-(3.1)nm, Rear 3.5-(9.8)nm .
	AIM-9M Sidewinder	Guidance: IR All Aspect Range Front: <u>8 - (14) nm</u> Range Rear: 6 - 8 nm Flare Effect: Low Max Target g: 12 Max Vel.(mach): <u>3.2</u> (2,134 kts)	Aircraft: A-4E/ PTM/ M/ SU, A-7D/ E, A-10, AJ 37, AMX, AV-8B, CF/A-18, EF-2000, F-4D/ E/ EJ/ F/ G/ K, F-5A/ E, F-14, F-15, F-16, F/A-18, F-111C/ G, JA 37, Mirage IIIE, Jaguar, 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 8-(21)nm, Rear 8-(21)nm .
	AIM-9P Sidewinder	Guidance: IR Rear Aspect Range Front: 0 - (2) nm Range Rear: <u>2.7 - (4) nm</u> Flare Effect: High Max Target g: 9 Max Vel.(mach): <u>2.3</u> (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-104J 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-(2.1)nm, Rear 2.5-(7)nm .
	AIM-9X Sidewinder	Guidance: IR All Aspect Range Front: <u>11 - (15) nm</u> Range Rear: 5 - 8 nm Flare Effect: Very Low Max Target g: 13 Max Vel.(mach): <u>3.3</u> (2,183 kts)	Names: Sidewinder Aircraft: CF/A-18, EF-2000, F-15C/ D/ E/ J/ K, F-16AM MLU/ C/ D, F/A-18C/ D/ E/ F Notes: 2004. USA. Good IRCCM. (40g), Max AOA 51°, 35°, gimbal limit 90°, tracking rate 90°/sec, FOV 3°, 40 sec. IR seeker Front 11.6-(22.8)nm, Rear 12-(30)nm .
	AIM-54A Phoenix	Guidance: ARH Range Front: <u>20 - 50 nm</u> Range Rear: 12 - 16 nm Chaff Effect: Very Low Max Target g: 7 Max Vel.(mach): <u>4.0</u> 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 9nm . Self lofting.
	AIM-54C Phoenix	Guidance: ARH Range Front: <u>20 - 50 nm</u> Range Rear: 12 - 16 nm Chaff Effect: Very Low Max Target g: 7 Max Vel.(mach): <u>4.0</u> 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 9nm . 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): 3.5 10/2.9 15/2.4 20/1.9 25/1.1	Names: Slammer Aircraft: AJ 37, CF/A-18, EF-2000, 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 7-12nm . Lofted numbers.
	Guidance: ARH Range Front: 17 - 30 nm Range Rear: 12 - 16 nm Chaff Effect: Very Low Max Target g: Max Vel.(mach): 3.7 10/3.0 15/2.5 20/2.0 25/1.2	Names: Slammer Aircraft: F-15C/ D/ I/ J/ K, F-16AM MLU RDAF/ C/ D, F/A-18, F-22, KF16C52, Tornado F3 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°, 80 sec. PB 7-12nm . Lofted numbers.
AIM-132 ASRAAM 	Guidance: IR All Aspect Range Front: 12 - (18) nm Range Rear: 5 - 9 nm Flare Effect: Very Low Max Target g: 15 Max Vel.(mach): 3.7 (2,445 kts)	Names: Advanced Short Range Air to Air Missile Aircraft: EF-2000 RAF, Tornado F3/ GR4 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 12-(31)nm, Rear 12-(31)nm .
	Guidance: ARH Range Front: 54 nm Range Rear: xxx nm Chaff Effect: Medium Max Target g: 9 Max Vel.(mach): 4.0 (2,646 kts)	Names: Meteor Aircraft: Eurofighter(no contract), Rafale(2015), Gripen (2015), F-35 (future) Notes: 2005 tests. ECCM. HOJ. LOAL N/I . (28g), Max AOA 20°, gimbal limit 60°, tracking rate 40°/sec, FOV 10°, 120 sec, PB 7nm .
Derby AAM 	Guidance: ARH Range Front: 27 nm Range Rear: xxx nm Chaff Effect: xxx Max Target g: 9 Max Vel.(mach): 4.0 (2,646 kts)	Names: Alto Aircraft: F-15I, F-16, F-5, Mirage Notes: 2003. IAF. ECCM. HOJ. LOAL N/I . HMCS. Similar to Python4 with ARH. Lighter than AIM-120. (28g), Max AOA 18°, gimbal limit 60°, tracking rate 40°/sec, FOV 10°, 84 sec
	Guidance: IR All Aspect Range Front: 9 - 12 nm Range Rear: 5 - 7 nm Flare Effect: Very Low Max Target g: Max Vel.(mach): 3.5 (2,315 kts)	Names: IRIS T Aircraft: F-16AM MLU RDAF, F16C52 HAF CFT, Notes: 2005. GAF. IRCCM. TVC. HMCS. (50g), Max AOA 35°, 52°, gimbal limit 90°, tracking rate 90°/sec, FOV 3°, 35 sec. Msl under mach 1 after 13nm. IR seeker range 12 - 28 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 .
	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): 3.9	Names: Mica Aircraft: Mirage 2000SF/ EGM (Likes to shoot from 22nm) 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 38-(49), Rear 38-(49) .
Python 3 	Guidance: IR All Aspect Range Front: 2.5 - (7) nm Range Rear: 3 - (4) nm Flare Effect: Very High Max Target g: xx Max Vel.(mach): 3.0 (1,984 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 2.5-(7.8)nm, Rear 3-(8.5)nm .
	Guidance: IR All Aspect Range Front: 9 - (13) nm Range Rear: 5 - 6 nm Flare Effect: Low Max Target g: xx 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 8.5-(25)nm, Rear 10-(26.3)nm .

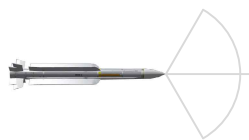
Python 5



Guidance: **IR All Aspect**
Range Front: **11 - (15) nm**
Range Rear: 5 - 7 nm
Flare Effect: Very Low
Max Target g: xx
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 11.5-(35)nm, Rear **12-(35)nm**.

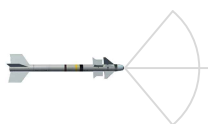
R.530D Super Matra



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.

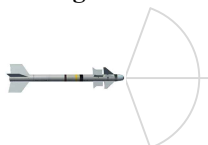
R.550 Magic



Guidance: **IR All Aspect**
Range Front: **8 - (12) nm**
Range Rear: 2 - 3.5 nm
Flare Effect: High
Max Target g:
Max Vel.(mach): **2.6** (1,178 kts)

Names: R550 Magic.
Aircraft: MB-339, Mirage F-1
Notes: 1975. FAF. (35g), Max AOA 23°, 35°, gimbal limit 50°, tracking rate 25°/sec, FOV 3°, 30 sec. IR seeker Front 8-(25)nm, Rear **8-(25)nm**.

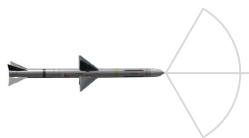
R.550 Magic II



Guidance: **IR All Aspect**
Range Front: **9 - (13) nm**
Range Rear: 3 - 4 nm
Flare Effect: Low
Max Target g:
Max Vel.(mach): **3.0** (1,984 kts)

Names: R550 Magic II.
Aircraft: Mirage 2000C/ D/ 5F/ EGM/ N, Mirage F-1, Mirage IIIE
Notes: 1986. FAF. (35g), Max AOA 23°, 35°, gimbal limit 70°, tracking rate 25°/sec, FOV 3°, 30 sec. IR seeker Front 9-(25)nm, Rear **9-(25)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.



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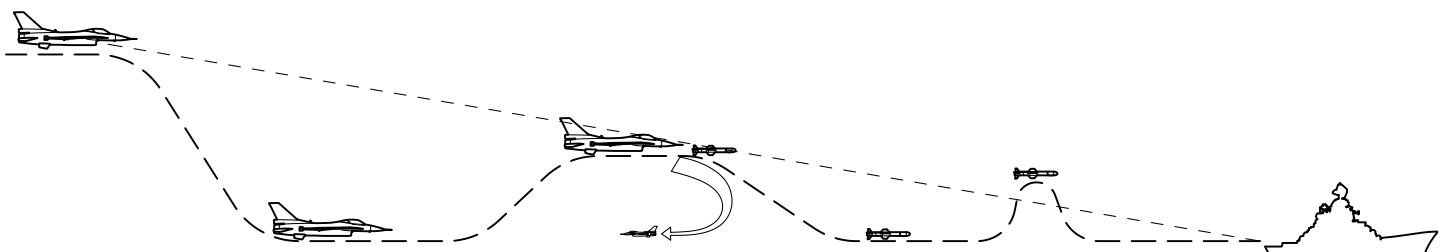


General Notes

- 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
FIHA	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	Rusion Navy/ Voenno-Morskoi Flot (VMF)
VLS	Guided Missile Vertical Launching System



Kirov 	Tracking: Rdr Lock Range: Min Range: Typical Engagement: Max Range: Typical Engagement: Notes: SAM: Top Pair (MR-800), Top Dome CIWS: Bass Tilt (MR-123) SAM: FC: 26 nm SA: 57nm (120nm) CIWS: FC: 0 nm SAM: 0.8 nm / 6/0, 11/50, 14/100, 16/200 SAM: 23 nm / 35,000 ft SA-N-6 SAM: 48 nm / 290,000 ft SAM: 4 nm / 16,000 ft SA-N-4 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: ECM BT Range: Chaff Vuln.: Bands (System): Targets: 3 Weapons: Guided Missile Cruiser No Effect Very Low SA:C/D/E/F FC: J CIWS: K AZ: 180 (180) EL: 90 (90) 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: Rdr Lock Range: Min Range: Typical Engagement: Max Range: Notes: SAM: 3R95 Cross Swords CIWS: Bass Tilt (MR-123) SAM: FC: 9 nm SA: 57nm CIWS: FC: 2.7 nm SAM: 0.5 nm / 35 ft SAM: 6.5 nm / 20,000 ft SA-N-9 SAM: 7 nm / 42,500 ft CIWS: 2.7nm / 10,000 ft 1995. USSR. Aircraft 33 + 12 helo. BMS unlimited AC. 3R95 has secondary IR guidance. Type: ECM BT Range: Chaff Vuln.: Bands (System): Targets: 4 Weapons: Aircraft Carrier/ Cruiser No Effect Very Low SA: G FC: K CIWS: K AZ: 180 (180) EL: 90 (90) 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: Rdr Range: Min Range: Typical Engagement: Max Range: Notes: SSM: Square Tie (MR-331 Rangout) CIWS: Drum Tilt (MR-104)/ Optical SSM: FC: 40 nm CIWS: FC: 12 nm SAM: None SAM: None SAM: None CIWS: 2nm 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. Type: ECM BT Range: Chaff Vuln.: Bands (System): Targets: 1 Weapons: Missile Boat No Effect No Effect I AZ: 180 (180) EL: 90 (90) SSM: 4x SS-N-2 Styx (P-15U) CIWS: 2x AK-230 30mm
Sovremenny 	Tracking: Rdr Range: Min Range: Typical Engagement: Max Range: Notes: SAM: Top Plate, 6x Font Dome(MR-90) CIWS: 2x Bass Tilt (MR-123) SAM: FC: CIWS: FC: 2 nm SAM: 1.6 nm / 140 ft launch / 50 ft trk SAM: 16.5 nm / 112,000 ft * SA-N-7 SAM: 18.5 nm / 112,000 ft CIWS: 2nm 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: ECM BT Range: Chaff Vuln.: Bands (System): Targets: 4 (40) Weapons: Guided Missile Destroyer No Effect Very Low SA:D/E FC:H/I CIWS: K AZ: 180 (180) EL: 90 (90) 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: Rdr Range: Min Range: Typical Engagement: Max Range: Notes: SAM: Type 360 (SR60), Type 345 AAG: Type 347 G/EFR-1(Rice Lamp) SAM: FC: 30 nm SA: 50 AAA: FC: 0 nm SAM: 0 nm / 0 ft SAM: 8 nm / 15,000 ft HQ-7 SAM: 8 nm / 20,000 ft AAA: 2.7 nm / 10,000 ft 37mm 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: ECM BT Range: Chaff Vuln.: Bands (System): Targets: 6 Weapons: Frigate No Effect Low SA:E/F FC:J Guns: I AZ: 180 (180) EL: 90 (90) 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



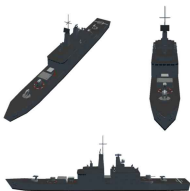
Tracking:	SAM: AN/SPS-48/ 49, AN/SPG-55 CIWS: Radar/ FLIR	Type:	Guided Missile Cruiser CG
Rdr Range:	SAM: FC: 100 nm SA: 100 CIWS: FC: 0 nm	ECM BT Range:	No Effect
Min Range:	SAM: 3 nm / 50 ft 17/100, 25/300, 32/500	Chaff Vuln.:	Very Low
Typical Engagement:	SAM: 39 nm / 469,000 ft SM-2ER	Bands (System):	SA:E/F/L FC:G/H/I/J Guns:Ku
Max Range:	SAM: 117 nm / 469,000 ft CIWS: 2.7 nm / 10,000 ft	Targets: 6	AZ: 180 (180) EL: 90 (90)
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.	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



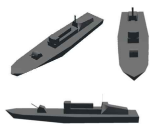
Tracking:	SAM: AN/SPY-1D, AN/SPG-62 CIWS: Radar / FLIR	Type:	Guided Missile Destroyer DDG
Rdr Range:	SAM: FC: 73 nm SA: 100 nm AAG: FC: 0 nm SA: 0	ECM BT Range:	No Effect
Min Range:	SAM: 3 nm / 50 ft 17/100, 25/300, 32/500	Chaff Vuln.:	Very Low
Typical Engagement:	SAM: 39 nm / 469,000 ft SM-2ER	Bands (System):	SA: D/E FC: I/J Guns: Ku
Max Range:	SAM: 117 nm / 469,000 ft	Targets: 7 (>100)	AZ: 180 (180) EL: 90 (90)
Typical Engagement:	SAM: 35 nm / 469,000 ft SM-2MR	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
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.		

California CLS



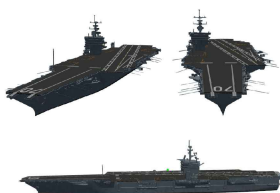
Tracking:	SAM: AN/SPS-48E 49, AN/SPG-51 CIWS: Radar / FLIR	Type:	Guided Missile Cruiser CG
Rdr Lock Range:	SAM: FC: 29 nm SA: 29 nm (250 nm) CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
Min Range:	SAM: 3 nm / 50 ft 17/100, 25/300	Chaff Vuln.:	Very Low
Typical Engagement:	SAM: 15 nm / 78,300 ft SM-1MR	Bands (System):	SA: E/ F/ L FC: G Guns: Ku
Max Rng:	SAM: 21 nm / 78,300 ft CIWS: 2.7 nm / 10,000 ft	Targets: 7	AZ: 180 (180) EL: 90 (90)
Notes:	1974. USN. Smoke. No launch warning. ECM, decoys. Mk 13 GMLS. 2x Helo. Use pop up attack, stay under radar.	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

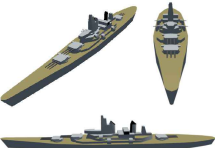


Tracking:	AAA: STX Radar CIWS:Ku Band Radar, FLIR	Type:	Patrol Boat
Rdr Range:	AAA: FC: 0 nm SA: 0nm CIWS: FC: 0 nm	ECM BT Range:	No Effect
Min Range:	CIWS: 0 nm / 0 ft	Chaff Vuln.:	No Effect
Typical Engagement:	CIWS: 2.7nm / 10,000 ft 20mm	Bands (System):	CIWS: Ku
Max Range:	CIWS: 2.7 nm / 10,000 ft	Targets: 1	AZ: 180 (180) EL: 90 (90)
Notes:	1970. RKN. CIWS Doesn't shoot or use radar. This ship is no threat to BMS AC.	Weapons:	SSG: 1x Bofors 40 mm AAA: 2x 12.7mm machine guns CIWS: 2x Sea Vulcan 20 mm

Nimitz CVN



Tracking:	SAM: AN/SPS-48E/ 49(V)5, AN/SPQ-9B CIWS: Radar / FLIR	Type:	Nimitz Class Supercarrier
Rdr Lock Range:	SAM: FC: 35 nm SA: 44 nm CIWS: FC: 2.5 nm SA: 37	ECM BT Range:	No Effect
Min Range:	SAM: 0 nm / 0 ft	Chaff Vuln.:	Low
Typical Engagement:	SAM: 8nm / 15,000 ft RIM-7	Bands (System):	SA:E/ F/ L/ I FC: I/ J Guns:Ku
Max Rng:	SAM: 8 nm / 26,000 ft CIWS: 2.2 nm / 9,500 ft	Targets: 7 (120)	AZ: 180 (180) EL: 90 (90)
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.	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	Type:	Guided Missile Destroyer DDG
		Rdr Lock Range:	SAM: FC: 90 nm SA: 90 nm CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
		Min Range:	SAM: 3 nm / 600 ft launch, 100' track	Chaff Vuln.:	Very Low
		Typical Engagement:	SAM: 39 nm / 469,000 ft SM-2ER	Bands (System):	SA: E/F/L FC:G/H/I/J Guns: AZ: 180 (180) EL: 90 (90)
		Max Range:	SAM: 117 nm / 469,000 ft CIWS: None	Targets: 7	SSM: RGM-84 Harpoon 1981
		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.	Weapons:	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	Type:	Fast Battleship BB
		Rdr Lock Range:	SAM: FC: 25 nm SA: 36 nm CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
		Min Range:	SAM: None	Chaff Vuln.:	No Effect
		Typical Engagement:	SAM: None	Bands (System):	SA: L FC: Guns: Ku AZ: 180 (180) EL: 90 (90)
		Max Range:	SAM: None CIWS: 2.7 nm / 10,000 ft	Targets: 6	SSM: RGM-84 Harpoon
		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.	Weapons:	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	Type:	Guided Missile Destroyer DDG
		Rdr Lock Range:	SAM: FC: 45 nm SA: 45 nm CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
		Min Range:	SAM: 3 nm / 100 ft launch, 50' track	Chaff Vuln.:	Very Low
		Typical Engagement:	SAM: 24 nm / 469,000 ft SM-1ER	Bands (System):	SA: E/F FC: G Guns: Ku AZ: 180 (180) EL: 90 (90)
		Max Range:	SAM: 90 nm / 469,000 ft CIWS: 2.7 nm / 10,000 ft	Targets: 1	SSM: RGM-84 Harpoon 1981
		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	Weapons:	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	Type:	Frigate FF
		Rdr Lock Range:	SAM: FC: 35 nm SA: 44 nm CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
		Min Range:	SAM: 0 nm / 0 ft	Chaff Vuln.:	Low
		Typical Engagement:	SAM: 8nm / 15,000 ft RIM-7	Bands (System):	SA: B FC: Guns: Ku AZ: 180 (180) EL: 90 (90)
		Max Range:	SAM: 8 nm / 26,000 ft CIWS: 2.7 nm / 10,000 ft	Targets: 7	SSM: RGM-84 Harpoon
		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.	Weapons:	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	Type:	Guided Missile Cruiser CG
		Rdr Lock Range:	SAM: FC: 90 nm SA: 90 nm CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
		Min Range:	SAM: 3 nm / 600 ft launch, 100' track	Chaff Vuln.:	Very Low
		Typical Engagement:	SAM: 39 nm / 469,000 ft SM-2ER	Bands (System):	SA:E/F/L FC:G/H/I/J Guns:Ku AZ: 180 (180) EL: 90 (90)
		Max Range:	SAM: 117 nm / 469,000 ft CIWS: 2.7 nm / 10,000 ft	Targets: 1	SSM: RGM-84 Harpoon 1981
		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	Weapons:	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	Type:	Guided Missile Cruiser CG
Rdr Lock Range:	SAM: FC: 73 nm SA: 100 nm CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
Min Range:	SAM: 3 nm / 50 ft 17/100, 25/300, 32/500	Chaff Vuln.:	Very Low
Typical Engagement:	SAM: 35 nm / 469,000 ft SM-2MR	Bands (System):	SA: D/E FC: I/J Guns: Ku
Max Range:	SAM: 73 nm / 469,000 ft CIWS: 2.7 nm / 10,000 ft	Targets: 7	AZ: 180 (180) EL: 90 (90)
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.	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	Type:	Guided Missile Cruiser CG
Rdr Lock Range:	SAM: FC: 73 nm SA: 100 nm CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
Min Range:	SAM: 3 nm / 50 ft 17/100, 25/300, 32/500	Chaff Vuln.:	Very Low
Typical Engagement:	SAM: 35 nm / 469,000 ft SM-2MR	Bands (System):	SA: D/E FC: I/J Guns: Ku
Max Range:	SAM: 73 nm / 469,000 ft CIWS: 2.7 nm / 10,000 ft	Targets: 7	AZ: 180 (180) EL: 90 (90)
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.	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	Type:	Frigate FF
Rdr Range:	SAM: None CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
Min Range:	SAM: None	Chaff Vuln.:	No Effect
Typical Engagement:	SAM: None	Bands (System):	SA: F FC: I Guns: I
Max Range:	SAM: None CIWS: 4.5 nm / 25,000 ft	Targets: 1	AZ: 180 (180) EL: 90 (90)
Notes:	1980. RKN. ECM. 2x Mk 141 GMLS. Ship doesn't shoot guns and has no SAMs, no threat in BMS.	Weapons:	SSM: 2x RGM-84 Harpoon SSG: 2x Otobreda 76 mm SAM: None CIWS: 3x DARD0 40mm ASub: 2x Blue Shark Torpedo

Virginia CLS



Tracking:	SAM: AN/ASP-48E/ 49 , AN/SPG-51 CIWS: Radar/ FLIR	Type:	Guided Missile Cruiser CGN
Rdr Range:	SAM: FC: 95 nm SA: 95 CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
Min Range:	SAM: 3 nm / 50 ft 17/100, 25/300, 32/500	Chaff Vuln.:	Very Low
Typical Engagement:	SAM: 35 nm / 469,000 ft SM-2MR	Bands (System):	SA: E/F FC: G Guns: Ku
Max Range:	SAM: 73 nm / 469,000 ft CIWS: 2.7 nm / 10,000 ft	Targets: 7	AZ: 180 (180) EL: 90 (90)
Notes:	1976. USN. No launch warning. Smoke. ECM, decoys. 2x Mk 26 GMLS. 1x helo. Use pop up attack, stay under radar.	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	Type:	Landing Helicopter Dock LHD
Rdr Lock Range:	SAM: FC: 29 nm SA: 51 nm CIWS: FC: 0 nm SA: 0	ECM BT Range:	No Effect
Min Range:	SAM: 0 nm / 0 ft 11/50, 15/100, 19/200	Chaff Vuln.:	Very Low
Typical Engagement:	SAM: 8 nm / 15,000 ft RIM-7	Bands (System):	SA: E/F FC: D Guns: Ku
Max Range:	SAM: 8 nm / 26,000 ft CIWS: 2.7 nm / 10,000 ft	Targets: 6	AZ: 180 (180) EL: 90 (90)
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.	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	15nm/ 230,000ft	38nm/ 230,000ft	E12-F9nm	Med
SA-3	F	3	F	3T	403	203	Flat Face	Low Blow	2.7nm/ 150ft	8nm/ 120,000ft	11nm/ 12,000ft	6nm	Med
SA-4	L	4	4A	4T	404	204	Long Track	Pat Hand	4nm/ 500ft	18nm/ 80,000ft	22nm/ 80,000ft	14nm	Med
SA-5	B 2	5 ---	5A 2	5T ---	405 ---	205 ---	Bar Lock Odd Group	Square Pair ---	7nm/ 1,000ft	53nm/ 327,000ft	190nm/ 327,000ft	26nm	Med
SA-6	F	6	F	6T	403	206	Flat Face	Straight Flush	2nm/ 550ft	10nm/ 101,500ft	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/ 276,000ft	54nm/ 276,000ft	36nm HOJ	No Effect
SA-11	D	11	11A	11T	411	211	Snow Drift	OB Fire Dome	1.6nm/ 180ft	12nm/ 90,000ft	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	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	17nm/ 79,000ft	19nm/ 79,000ft	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

	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	1.5nm/ 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		↗2	Fan Song E/ F	4nm/ 300ft	15nm/ 230,000ft	38nm/ 230,000ft	E12-F9nm	Med
SA-3	↙F	↗3	Low Blow	2.7nm/ 150ft	8nm/ 120,000ft	11nm/ 12,000ft	6nm	Med
SA-4	↙L	↗4	Pat Hand	4nm/ 500ft	18nm/ 80,000ft	22nm/ 80,000ft	14nm	Med
SA-5	↙B ↗2	CW2	Square Pair	7nm/ 1,000ft	53nm/ 327,000ft	190nm/ 327,000ft	26nm	Med
SA-6	↙F	↗6 03	Straight Flush	2nm/ 550ft	10nm/ 101,500ft	20nm/ 101,500ft	4nm HOJ	Med
HN-5A			Rear Aspect IR	0nm/ 60ft	1.6nm/ 8,000ft	2nm/ 10,500ft	N/A	High
SA-7			Rear Aspect IR	0.2nm/ 50ft	1.5nm/ 5,000ft	2nm/ 12,000ft	N/A	Very High
SA-8		↗8	OB Land Roll	0.8nm/ 80ft	4nm/ 16,000ft	8.5nm/ 50,000ft	14nm	Med
SA-9	92		Rear Aspect IR	0.3nm/ 50ft	2nm/ 14,500ft	3.2nm/ 14,500ft	N/A	Very High
SA-10	↗10	↗10	Flap Lid	3nm/ 60ft	48nm/ 276,000ft	54nm/ 276,000ft	36nm HOJ	No Effect
SA-11	↙D	42 03	OB Fire Dome	1.6nm/ 180ft	12nm/ 90,000ft	20nm/ 90,000ft	19nm HOJ	Very Low
SA-13 ∞	92		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	High
SA-15		↗5 12 42	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	23	OB Chair Back	1.6nm/ 140ft	17nm/ 79,000ft	19nm/ 79,000ft	30nm HOJ	No Effect
SA-19/ 2S6 ∞		4	OB Hot Shot/ IR	0nm/ 0ft	6.5nm/ 10,200ft	5.7nm/ 33,000ft	7nm HOJ	Med

	RWR							
AAA	S A	F C	Tracking	Min Rng/ Alt	Typical Engagement	Max Range/ Alt	Caliber	CM
KS-12		1	Fire Can/ Optical	0nm/ 2,000ft	5nm/ 28,000ft	5nm/ 28,000ft	85mm Flak	Med
KS-19		1	Fire Can/ Optical	0nm/ 2,000ft	5nm/ 33,500ft	5nm/ 33,500ft	100mm Flak	Med
S-60		1	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		4	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	1.5nm/ 9,800ft	14.5mm	No Effect
ZSU-23-4	92	4	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
↙ B Bar Lock
↙ D Snow Drift
↙ F Flat Face
↙ L Long Track
92 Dog Ear
↗ 2 Odd Group
↗ 10 Big Bird



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/ 0ft	2nm/ 9,500 ft	3nm/ 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 ---	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/ 50ft	3nm/ 10,000ft	3nm/ 18,000ft	N/A	Very Low
Nike Hercules	---	N PI	---	N ---	---	696 ---	---	AN/MPQ-43 ---	3nm/ 3,400ft	46nm/ 259,000ft	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	Very Low
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
K200-AD		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/ 0ft	2nm/ 9,500ft	3nm/ 20,000ft	N/A	Very Low
Chaparral			Rear Aspect IR	0nm/ 0ft	0.2nm/ 100ft	1.4nm/ 3,100ft	N/A	High
Hawk	7 CW3 CW4	∞MQ	AN/ MPQ-46	0.5nm/ 200ft	9-12nm/ 44,000ft	18-39nm/ 62,000ft	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	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		∞N	AN/ MPQ-43	3nm/ 3,400ft	46nm/ 259,000ft	70nm/ 259,000ft	15nm	Med
Patriot		∞P ∞M ∞MQ	AN/ MPQ-53	2nm/ 160ft	49nm/ 80,000ft	91nm/ 80,000ft	63nm HOJ	No Effect
Sky Guard		43	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
K200-AD		1	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
7 AN/ MPQ-50
CW3 AN/ MPQ-55
CW4 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/ Mig-17F	Fighter	2	0					
J-6B	Fighter	7	4	AA-2B	AA-2C			
J-7G	Multi	9	4	AA-2B	AA-2C, PL-7, PL-8			
J-8I	Fighter	15	4		PL-7, PL-8			
J-11	Multi	17	10		AA-8, A-11	AA-10A/ C	AA-10B/ D	AA-12
J-15	Multi	17	8		PL-8, PL-10			PL-12
Ka-50	Helo Attack	9			AA-11			
Mi-24	Helo Attack	9			AA-11			
Mi-28	Helo Attack	9			AA-11			
Mig-17PF	Fighter	4	4	AA-1				
Mig-19PM	Fighter	7	4	AA-2B	AA-2C			
Mig-19SF	Attack	2	0					
Mig-21F-13	Fighter	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	10	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	Fighter	15	6		AA-8, A-11	AA-10A		
Mig-29G	Fighter	15	6		AA-8, A-11	AA-10A	AA-10B	
Mig-29M	Fighter	17	8		AA-8, A-11	AA-10A/ C	AA-10B/ D	AA-12
Mig-29S	Fighter	17	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-5	Attack	5	4		AA-2C, PL-7			
Su-7BMK	Attack	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-24M	Attack	7	2		AA-8			
Su-25	Attack	7	2		AA-8			
Su-27	Fighter	17	10		AA-8, AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-27UB	Fighter	17	10		AA-8, A-11	AA-10A/ C	AA-10B/ D	AA-12
Su-30M	Multi	17	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-30MKK	Multi	17	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-33	Multi	17	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-34	Multi	17	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-35	Multi	17	8		AA-11	AA-10A/ C	AA-10B/ D	AA-12
Su-39	Attack	17	6		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/A-18	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
EF-2000 GAF	GAF	Multi	17	10-12		AIM-9M/ X, IRIS-T			AIM-120B
EF-2000 RAF	RAF	Multi	17	10-12		AIM-9M/ X	Skyflash	AIM-132	AIM-120B
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-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 Bk 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 Bk 15	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16C Bk 32 AGRS	USAF	Multi	17	6		AIM-9M/ P/ X	AIM-7M		AIM-120B/ C
F-16C Bk 25	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16C Bk 30	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16C Bk 30 IAF	BfS IAF	Multi	13	6		AIM-9P	AIM-7F, M		
F-16C Bk 32	USAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16C Bk 32 EAF	BfS EAF	Multi	13	6			AIM-7F, M		
F-16C Bk 32 ROKAF	ROKAF	Multi	17	6		AIM-9M/ P	AIM-7M		AIM-120B
F-16CM Bk 40	USAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C
F-16CM Bk 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	17	6		AIM-9M/ X			AIM-120C
F-100D	USAF	Multi	2	0					
F-104DJ	USAF	Fighter	5	4		AIM-9B			
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-9M, R.550			
OV-10A	USAF	FAC	7	2		AIM-9M			
Rafale C	FAF	Multi	14	10				MICA IR	MICA EM
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	

AV-MF: Russian Naval Aviation (Aviatsiya Voenno Morskogo Flota)

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

EAF: Egyptian Air Force

EPAF: 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)

ROKAF: Republic of Korea Air Force/ South Korea

RSAP: 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)

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/ Mig-17F	DPRK	Attack	2	0						Panghyon,
J-7G	DPRK	Multi	9	4	AA-2B	AA-2C, PL-7, PL-8				T'aech'on
J-8I	DPRK	Fighter	15	4		PL-7, PL-8				T'aech'on
J-11	PLAAF	Multi	17	10		AA-8, AA-11	AA-10A/ C	AA-10B/ D	AA-12	Shenyang, Liuhe
Mig-19SF	DPRK	Attack	2	0						Hwangsuwon
Mig-21MF	DPRK	Multi	8	4	AA-2B	AA-2C, AA-8				Hwangsuwon
Mig-23ML	DPRK	Multi	12	4-6	AA-2B, AA-7A	AA-2C, AA-7B, AA-8				Iwon
Mig-29A	DPRK	Fighter	15	6		AA-8, AA-11	AA-10A			Samjiyon-up
Mig-29S	DPRK	Fighter	17	6		AA-8, AA-11	AA-10A		AA-12	Samjiyon-up
Q-5N	DPRK	Attack	5	4		AA-2C, PL-7				Kaech'on, Panghyon,
Su-25	DPRK	Attack	7	2		AA-8				Iwon
Su-30MKK	PLAAF	Multi	17	10		AA-11	AA-10A/C	AA-10B/ D	AA-12	Shenyang, Liuhe

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				Haeju,
EA-18G	USN	EW	17	2					AIM-120C	Seoul,
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Kangnung,
F-5E	ROKAF	Fighter	7	6		AIM-9P/ M				Kangnung,
F-15C	USAF	Fighter	20	8		AIM-9P/ M/ X	AIM-7M		AIM-120B/ C	Kimpo,
F-15E-229	USAF	Multi	20	8		AIM-9P/ M/ X	AIM-7M		AIM-120B/ C	Seoul,
F-16C Blk 32	ROKAF	Multi	17	6		AIM-9P/ M	AIM-7M		AIM-120B	Kangnung,
F-16CM Blk 40	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Haeju,
F-16CM Blk 50	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Kimpo,
F-117A	USAF	Attack	0	0						Seoul,

DPRK: Democratic People's Republic of Korea/ North Korea
PLAAF: Peoples Liberation Army Air Force/ China
ROKAF: Repupic of Korea Air Force/ South Korea
USAF: United States Air Force
USN: United States Navy

BOMBERS AND SUPPORT AC

A-50 Liuhe
An-24 Samjiyon-up
B-2A Fukuoka
C-17 Fukuoka
C-130H Kunsan
CH-47 815th Mech Corps
E-3 Off Map South
E-8C Off Map South
IL-28 Iwon
IL-76M Liuhe
KC-10 Off Map South
KC-135R Off Map South
MD-500 108th Mech Corps
Mi-26 Tangch'on
OH-58D 815th Mech Corps
Tu-16 Liuhe
UH-1J 806th Mech Corps

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/ Mig-17F	DPRK	Attack	2	0						Kum-ni, Ayang-Ni, *1
Mig-19SF	DPRK	Attack	2	0						Ich'on, Sunch'on, *2
Mig-21MF	DPRK	Multi	8	4	AA-2B	AA-2C, AA-8				Taetan, Hyon-Ni, *3
Mig-23ML	DPRK	Multi	12	4-6	AA-2B, AA-7A	AA-2C, AA-7B, AA-8				Wonsan, Toksan, *4
Mig-29A	DPRK	Fighter	15	6		AA-8, AA-11	AA-10A			Hwangju, Wonsan
Su-25	DPRK	Attack	7	2		AA-8				Wonsan, Kum-ni, *5

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				Osan
EA-6B	USAF	EW	0	0						Fukwoka
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Chongju
F-5E	ROKAF	Fighter	7	6		AIM-9P/ M				Kangnung, Suwon
F-15K	ROKAF	Multi	20	8		AIM-9X			AIM-120C	Taegu
F-16C Blk 32	ROKAF	Multi	17	6		AIM-9P/ M	AIM-7M		AIM-120B	Choongwon
KF-16C Blk 52	ROKAF	Multi	17	6		AIM-9P/ M	AIM-7M		AIM-120B	Choongwon, *6
F-16CM Blk 40	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Kunsan, Osan
F-16CM Blk 50	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Kunsan
F/A-18D	USN	Multi	17	8-12		AIM-9P/ M/ X	AIM-7F/ M		AIM-120B/ C	Fukuoko

DPRK: Democratic People's Republic of Korea/ North Korea
FRAB: Forward Reserve Air Base
PLAAF: Peoples Liberation Army Air Force/ China
ROKAF: Republic of Korea Air Force/ South Korea
USAF: United States Air Force
USN: United States Navy

*1: Mirim, Hwangju
*2: Wonsan, Nuch'on-ni, Koksan, Taebukpo-ri
*3: Haeju, Koksan
*4: Ongjin, Wonsan, Koksan
*5: Koksan
*6: Seosan, Kunsan

BOMBERS AND SUPPORT AC

AH-1S R217, Chuncheon
AH-64D Pyongtaeg
AH-64E FRAB
An-2 Nuch'on-ni, Taebukpo-ri
An-24 Sondok, Pukch'ang-up
C-17 Fukuoka
C-130H Kimhae, Seoul
CH-47 Pyongtaeg, FRAB
E-3 Off Map South
E-8C Off Map South
IL-28 Hwangju, Kumni
IL-78 Pukch'ang-up
KC-135R Off Map South
MD-500 Chuncheon, R103, R217, Sokcho
MD-500 Hyon-Ni, 4th Inf Corps, 2nd Inf Corps
Mi-8 Hyon-Ni, 4th Inf Corps
U-2 Osan
UH-1J Chuncheon, R419, Yongin
UH-60L Pyongtaeg, R217, R505, Seoul, Yongin

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
Mig-19SF	DPRK	Attack	2	0						Ongjin, Sokcho
Mig-21MF	DPRK	Multi	8	4	AA-2B	AA-2C, AA-8				Suwon, Chuncheon
Mig-23ML	DPRK	Multi	12	4-6	AA-2B, AA-7A	AA-2C, AA-7B, AA-8				Kimpo, Kangnung, *
Mig-29A	DPRK	Fighter	15	6		AA-8, AA-11	AA-10A			Seoul
Q-5N	DPRK	Attack	5	4		AA-2C, PL-7				Hyon-Ni
Su-25	DPRK	Attack	7	2		AA-8				Kimpo

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				Kunsan
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M				Kwangju
CF188	RCAF	Multi	17	12		AIM-9H/ J/ M/ P	AIM-7F/ M		AIM-120B	Sachon
EA-18G	USN	Multi	20	2					AIM-120C	CVN-70 CSG
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Pohang
F-16CM Blk 40	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Kimhae, Pohang
F-16CM Blk 50	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Kunsan
F/A-18C	USN	Multi	17	8-12		AIM-9P/ M/ X	AIM-7F/ M		AIM-120B/ C	CVN-70 CSG
F/A-18D	USN	Multi	17	8-12		AIM-9P/ M/ X	AIM-7F/ M		AIM-120B/ C	CVN-70 CSG
F/A-18E	USN	Multi	17	10-16		AIM-9P/ M/ X	AIM-7F/ M		AIM-120B/ C	CVN-70 CSG
Tornado IDS GAF	GAF	Attack	7	2		AIM-9M, IRIS-T				Sachon

DPRK: Democratic People's Republic of Korea/ North Korea

FRAB: Foward Reserve Air Base

PLAAF: Peoples Liberation Army Air Force/ China

ROKAF: Repuplic of Korea Air Force/ South Korea

USAF: United States Air Force

USN: United States Navy

* Haeju

BOMBERS AND SUPPORT AC

AH-1S	Suemal,
AH-64D	2nd Army Base
An-2	R113
An-24	Wonsan, Kuum-ni
B-1B	Fukuoka
B-2A	Fukuoka
C-17	Fukuoka
C-130H	Kimhae
E-2C	CVN-70 CSG
E-3A	Off Map South
E-8C	Off Map South
IL-28	Hwangju, Kuum-ni
IL-76M	Koksan
KC-135R	Off Map South
MD-500	Singal
Mi-8	Wonju
UH-1J	Camp Walker
UH-60L	Suemal,

AIRCRAFT THREAT GUIDE - OPFOR (KTO-Double Dragon)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
J-6B	PLAAF	Attack	2	0						Uiju
J-7G	PLAAF	Multi	9	4	AA-2B	AA-2C, PL-7, PL-8				Kwail, Liuhe, *1
J-8I	PLAAF	Fighter	15	4		PL-7, PL-8				Shenyang, Liuhe, *2
J-11	PLAAF	Multi	17	10		AA-8, AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kaech'on, Kwail, *3
J-15	PLAAF	Multi	17	10		PL-8, PL-10E			PL-12	CV-16 Liaoning CSG
Q-5N	PLAAF	Attack	5	4		AA-2C, PL-7				Ongjin, Sunan
Su-27	VVS	Fighter	17	10		AA-8, AA-11	AA-10A/ C	AA-10B/ D	AA-12	Nachodka
Mig-29S	VVS	Fighter	17	6		AA-8, A-11	AA-10A		AA-12	Nachodka

AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Double Dragon)

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				Osan
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Kimpo, Chongju
F-5E	ROKAF	Fighter	7	6		AIM-9P/ M				Kangnung, Suwon
F-16C Blk 32	ROKAF	Multi	17	6		AIM-9P/ M	AIM-7M		AIM-120B	Choongwon
F-16C Blk 52	ROKAF	Multi	17	6		AIM-9P/ M	AIM-7M		AIM-120B	Sokcho, Osan, *4
F-16CM Blk 40	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Kunsan
Mig-19SF	DPRK	Attack	2	0						Iwon,
Mig-21MF	DPRK	Multi	8	4	AA-2B	AA-2C, AA-8				Hwangju, Hyon-Ni,*5
Mig-23ML	DPRK	Multi	12	4-6	AA-2B, AA-7A	AA-2C, AA-7B, AA-8				Haeju, Kuum-ni
Mig-29A	DPRK	Fighter	15	6		AA-8, AA-11	AA-10A			Onch'on,
Su-20	DPRK	Attack	7	4		AA-2C, AA-8				Onch'on, Hwangsuwon
Su-25	DPRK	Attack	7	2		AA-8				Panghyon

DPRK: Democratic People's Republic of Korea/ North Korea
PLAAF: Peoples Liberation Army Air Force/ China
ROKAF: Repupic of Korea Air Force/ South Korea
USAF: United States Air Force
USN: United States Navy
VVS: Russian Air Force (Voyenno-Vozdushnye Sil'y Rossii)

*1: Samjiyon-up
*2: Kaech'on
*3: Shenyang, Samjiyon-up, Uijii
*4: Seosan
*5: Sondok

BOMBERS AND SUPPORT AC

A-50 Off Map North, Nachodka, Shenyang
AH-1S Camp Humphreys
An-2 Pongsan, Taebukpo-ri, Yechon
An-24 Hyon-Ni,
An-72 Nachodka, Shenyang
AC-130 Kunsan
C-130H Seoul
CH-47 Camp Eagle
E-3A Seoul
E-8C Seoul
IL-28 Onch'on
IL-78 Off Map, Kuum-ni
KC-135R Seoul
MV-22 Kunsan
Mi-8 Kwail, Ongjin, 3rd Inf, Shenyang, P'Yongyang
Mi-8 815th Mech, 2nd Artillery, Onch'on
Mi-26 Nachodka
Tu-16 Off Map, Shenyang, T'aech'on
U-2 Kunsan
UH-1J R419, Seoul, Songwhan
UH-60L Kunsan

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-7B, AA-8				Kimhae, Pusan
Mig-29S	VVS	Fighter	17	6		AA-8, AA-11	AA-10A		AA-12	Kimhae
Mig-31	VVS	Interceptor	20	8-10		AA-8, AA-11	AA-9, AA-10C	AA-6B, AA-10B		Kimhae, Pusan
Su-24M	VVS	Attack	7	2		AA-8				Nachodka
Su-25	VVS	Attack	7	2		AA-8				Sokcho, Pusan
Su-27	VVS	Fighter	17	10		AA-8, AA-11	AA-10A/ C	AA-10B/ D	AA-12	Pusan, Sokcho, Nachodka
Su-27UB	VVS	Fighter	17	10		AA-8, AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kimhae, Sokcho
Su-33	VVS	Multi	17	10		AA-11	AA-10A/ C	AA-10B/ D	AA-12	1st CSG
Su-35	VVS	Multi	17	8		AA-11	AA-10A/ C	AA-10B/ D	AA-12	Kimhae, Pohang
Su-39	VVS	Attack	17	6		AA-8			AA-12	1st CSG

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			Pyontaeg, Osan
F-5E	ROKAF	Fighter	7	6		AIM-9P/ M				Kimpo, Wonju
F-16C Blk 32	ROKAF	Multi	17	6		AIM-9P/ M	AIM-7M		AIM-120B	Kunsan, Osan
KF-16C Blk 52	ROKAF	Multi	17	6		AIM-9P/ M	AIM-7M		AIM-120B	Choongwon,

ROKAF: Republic of Korea Air Force/ South Korea

USAF: United States Air Force

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

BOMBERS AND SUPPORT AC

A-50	Nachodka
AH-64A	Chongju
C-17	Sachon
C-130H	Kunsan
E-3	Seoul
E-8C	Seoul
IL-76M	Kangnung
IL-78M	Kangnung
KC-135E	Kwangju
KC-135R	Seoul
Mi-8	Taegu, 1st CSG
Mi-26	Kimhae
Mi-28	Kimhae
RC-135W	Seoul
Tu-95MS	Nachodka
Tu-160	Nachodka
UH-60L	Osan

AIRCRAFT THREAT GUIDE - OPFOR (KTO-Mantis at Dawn)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
EF-2000 RAF	RAF	Multi	17	10-12		AIM-9M/ X	Skyflash	AIM-132	AIM-120B	Kwangju
F-16CM Blk 50	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Kunsan
F-16DM Blk 52	USAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B/ C	Kunsan
F/A-18C	USN	Multi	17	8-12		AIM-9P/ M/ X	AIM-7F/ M		AIM-120B/ C	Kunsan
Mirage 2000D	FAF	Fighter	14	2		R.550-II		MICA IR		Sachon
Rafale C	FAF	Multi	14	10				MICA IR	MICA EM	Kwangju
Tornado IDS AMI	ITAF	Attack	7	2		AIM-9M				Sachon
F-16AM RDAF	RDAF	Multi	17	6		AIM-9M/ P/ X			AIM-120B/ C	Sachon
F-16AM RNLAf	RNLAf	Multi	17	6		AIM-9M/ P/ X			AIM-120B	Sachon

AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Mantis at Dawn)

Aircraft	Origin	Role	MAR	AA Hard Points	SARH WVR	IR WVR	SARH BVR	IR BVR	ARH BVR	AIR BASES
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M				CVN-71
A-4E	USAF	Attack	7	4		AIM-9J/ M/ P				Osan
A-10A	USAF	Attack	7	2		AIM-9P/ M				Osan
A-10C	USAF	Attack	7	2		AIM-9P/ M				Seosan
F-4E ROKAF	ROKAF	Multi	13	4-8		AIM-9P/ M	AIM-7M			Chongju
F-15C 65th AS	USAF	Fighter	20	8		AIM-9P/ M/ X	AIM-7M		AIM-120B/ C	Fukuoka
F-16C Blk 32 AGRS	USAF	Multi	17	6		AIM-9P/ M/ X	AIM-7M		AIM-120B/ C	Seosan
F/A-18A AGRS	USN	Multi	17	8-12		AIM-9M/ X	AIM-7F/ M		AIM-120B	CVN-70, CVN-71

FAF: French Air Force (Armée de l'Air) (Army of the Air)
ITAF: Italian Air Force (AM: Aeronautica Militare)
RAF: Royal Air Force (England)
ROKAF: Republic of Korea Air Force/ South Korea
USAF: United States Air Force
USMC: United States Marine Corps
USN: United States Navy

BOMBERS AND SUPPORT AC

AC-130H Seosan
AH-64A/D/E Pyontaeg
B-1B Fukuoka
B-2A Fukuoka
C-130H Kunsan, Seosan
C-160R Sachon
EA-6B CVN-71
E-2C CVN-70
E-3 Kwangju
KC-135R Fukuoka
KDC-10 Sachon
MH-60R CVN-70, CVN-71
UH-60L Sachon
U-2 Chongju

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				Ladevci, Mostar, Podgorica, 1*
J-22	FRY	Attack	7			AA-8				Dubrave, Ladevci, Mostar
Mig-21bis	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Pleso
Mig-21F-13	FRY	Fighter	7	2	AA-1	AA-2C				Dubrovnik
Mig-21MF	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Ubdnia, Zemunik
Mig-29A	FRY	Fighter	15	6		AA-8, AA-11	AA-10A			Bonja Luka, Dubrave
Su-25	FRY	Attack	7	2		AA-8				St. Paul

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				Brnik
AMX	ITAF	Attack	7	2		AIM-9M				Istrana
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M				Varazdin
EA-6B	USN	EW	0	0						Secovlje
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Bolzano
F-16AM RNLAF	RNLAF	Multi	17	6		AIM-9P/ M/ X			AIM-120B	Pula, Amendola
F-16CM Blk 40	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Aviano
F-16CM Blk 50	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Brnik
F-117A	USAF	Attack	0	0						Aviano
Mig-17PFU	FUAS	Fighter	4	4	AA-1					Kucova
Mig-19SF	FUAS	Attack	2	0						Gjader
Mig-21MF	FUAS	Multi	8	4	AA-2B	AA-2C, AA-8				Gjader
Mig-29A	ML	Fighter	15	6		AA-8, A-11	AA-10A			Satorhely
Tornado F3	RAF	Fighter	17	8		AIM-9M	Skyflash	AIM-132	AIM-120B/ C	Gioia del Colle
Tornado IDS AMI	ITAF	Attack	7	2		AIM-9M				Forli
U-2	USAF	Recon	0	0						Sigonella

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

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)

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: Ubdina, Zeljava, Zemunik

BOMBERS AND SUPPORT AC

AH-1S	Falconara
AN-2	Batajnica, Sarajevo, Sombor
AN-24	Batajnica, Dolac, Nikola Tesla, Ponikve, Sarajevo, Szeged, Tivat
B-2A	Bolzano
CH-47	Casale, Slovenj, Jezerane
C-5	S. Francesco
C-17	Borgo Panigale, Guidonia
C-130H	Ciampino
E-3	Bolzano
KC-10	Asiago
KC-135R	Pescara, Galatina, S. Angelo
Mi-8	Kovin, Ladevci, Szeged, Varazdin Army Base
Mi-24	Varazdin Army Base
OH-58D	Grobnicko Polje
UH-1J	Cerklje, Pescara
UH-60L	Brnik, Karlovac

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				Ponikve, Podgorica
J-22	FRY	Attack	7			AA-8				Ladevci
Mig-21F-13	FRY	Fighter	7	2	AA-1	AA-2C				Ladevci, Sombor
Mig-21bis	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Nikola Tesla, St. Paul
Mig-21MF	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Dolac
Mig-29A	FRY	Fighter	15	6		AA-8, AA-11	AA-10A			Tivat, Batajnica
Su-25	FRY	Attack	7	2		AA-8				St. Paul

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				Palese
AMX	ITAF	Attack	7	2		AIM-9M				Istrana
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M				LHD-1 Wasp
EA-6B	USN	EW	0	0						CVN-71
Mirage F-1CT	FAF	Fighter	17	4		R.550/ -II	R.530D			Casale
F-14B	USN	Multi	17	8-12		AIM-9H/ J/ M/ P	AIM-7F/ M		AIM-120B	CVN-71
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Bolzano
F-16AM RNLAf	RNLAf	Multi	17	6		AIM-9M/ P/ X			AIM-120B	Amendola
F-16CM Bk 40	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Aviano
F-16CM Bk 50	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Casale
F/A-18C	USN	Multi	17	8-12		AIM-9M/ P/ X	AIM-7F/ M		AIM-120B/ C	71st CSG
Mig-17PFU	FUAS	Fighter	4	4	AA-1					Kucova
Mig-19SF	FUAS	Attack	2	0						Cerrik
Mig-21bis	HRZ	Multi	8	4	AA-2B	AA-2C, AA-8				Pleso, Pula
S-3B	USN	Attack	0	0						CVN-71
Tornado IDS AMI	ITAF	Attack	7	2		AIM-9M				Gioia del Colle
U-2	USAF	Recon	0	0						Crotone

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

BOMBERS AND SUPPORT AC

AN-2 Sjenica, Batajnica
 AN-24 Batajnica, Sombor
 B-2A Pantelleria
 CH-47 Gioia del Colle,
 C-5 Ampugnano
 C-17 Vicenza, Asiago
 C-130H Ciampino
 E-2C 71st CSG
 E-3A Bolzano
 KC-10 Asiago
 KC-135R Guidonia
 Mi-8 Cacac, Kastela, Kovin, Ladevci, Mostar, Sjenica, S. Paul, Uzice
 Mi-24 Nagykanizsa, Pleso
 UH-1J Banja Luka, Palese

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				Ponikve
J-22	FRY	Attack	7			AA-8				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				Podgorica, Tivat
Mig-21MF	FRY	Multi	8	4	AA-2B	AA-2C, AA-8				Tivat
Mig-29A	FRY	Fighter	15	6		AA-8, AA-11	AA-10A			Batajnica
Su-25	FRY	Attack	7	2		AA-8				St. Paul

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				Cerklje Ob Krki
AMX	ITAF	Attack	7	2		AIM-9M				Istrana
AV-8B Harrier II	USMC	Attack	7	4		AIM-9M				LHD-1 Wasp
EA-6B	USN	EW	0	0						Matera
F-15C	USAF	Fighter	20	8		AIM-9M/ X			AIM-120B/ C	Orehoba Vas
F-16AM RNLAf	RNLAf	Multi	17	6		AIM-M/ P/ X			AIM-120B	Amendola, Crotone
F-16CM Blk 40	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Miramare
F-16CM Blk 50	USAF	Multi	17	6		AIM-9M/ X			AIM-120B/ C	Gioia del Colle, Ubdina
F/A-18D	USN	Multi	17	8-12		AIM-M/ P/ X	AIM-7F/ M		AIM-120B/ C	Lamezia Terme
F-117A	USAF	Attack	0	0						Birgi
Mirage 2000C	FAF	Fighter	17	4		R.550-II	R.530D			Grosseto
Mig-17PFU	FUAS	Fighter	4	4	AA-1					Gjader
Mig-19SF	FUAS	Attack	2	0						Gjader
Mig-21MF	FUAS	Multi	8	4	AA-2B	AA-2C, AA-8				Gjader
Mig-29A	ML	Fighter	15	6		AA-8, A-11	AA-10A			Satorhely
SEPECAT Jaguar	FAF	Multi	7	2		AIM-9M				Palese
Tornado F3	RAF	Fighter	17	8		AIM-9M	Skyflash	AIM-132	AIM-120B/ C	Gioia del Colle
Tornado IDS AMI	ITAF	Attack	7	2		AIM-9M				Palese
Tornado IDS GAF	GAF	Attack	7	2		AIM-9M				Galatina
U-2	USAF	Recon	0	0						Crotone

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

CAF: Croatia Air Force (Hrvatsko ratno zrakoplovstvo)

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)

ITAF: Italian Air Force (AM: Aeronautica Militare)

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

RNLAf: Royal Netherlands Air Force (Koninklijke Luchtmacht)

RNoAF: Royal Norwegian Air Force (Luftforsvaret)

USA: United States Army

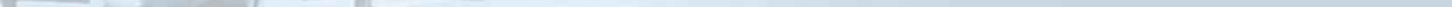
USAF: United States Air Force

USN: United States Navy

USMC: United States Marine Corps

BOMBERS AND SUPPORT AC

AH-1S	Casale, Falconara
AN-2	Batajnica, Dolac, Ponikve
AN-24	Sjenica, St. Paul, Szeged
B-2A	Padova
CH-47	Casale, Palese
C-5B	S Francesco
C-17	Borgo Panigale, Guidonia
C-130H	Ciampino
E-3A	Pantelleria
E-8C	Mattarello
KC-10	Vicenza
KC-135R	Capodichino, Grottaglie, Pescara, S. Angelo
Mi-8	Kovin, Ladevci, Mostar, Podgorica, St. Paul, Szeged
Mi-24	Banja Luka, Nagykanizsa, Pleso
OH-58D	Casale
UH-1J	Banja Luka, Matera
UH-60L	Cerklje, Gioia del Colle, Zagreb


57

* 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
Momson 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
McCampbell 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	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	30	145 BLU-97 A/B CEM	Cluster Armor Med.	USA	1999
AGM-154C JSOW	GPS/ INS/ IR	30	Broach WDU-44/45	Penetration, Facility	USA	2005
AGM-158 JASSM	GPS/ INS/ DL/ IR	70	1k lbs WDU-42/B	Facility, Armor	USA	2009
Rampage IAI	GPS/INS	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	10% PI/0.1% PI	Range (nm)	Warhead	Purpose		IOC
BLU-107/B Duraland		High Drag	330	Runway		1971
BLU-109/B	1,063/ 1,640	5-6	2,000	Bunker Penetration		1985
MK-82 Air	328/ 1,230	High Drag	500	General, low altitude delivery		1973
MK-82 LDGP	820/ 1,394	5-6	500	General		1950
MK-82 SE (Snake Eye)	328/ 1,230	High Drag	500	General, low altitude delivery		1965
MK-83 Air	902/ 1,558	High Drag	1,000	General, low altitude delivery		1973
MK-83 LDGP	902/ 1,558	5-6	1,000	General		1950
MK-84 Air	1,063/ 1,640	High Drag	2,000	General, low altitude delivery		1973
MK-84 LDGP	1,063/ 1,640	5-6	2,000	General		1950

Cluster Bombs Units						
Name	Lethal Radius (ft)	Range (nm)	Warhead	Purpose		IOC
CBU-52B/B	425	5-6	217 BLU-61A/B	Infantry, Light Armor, Trucks		
CBU-55/B FAE	450	5-6	460 lbs FAE	Mines, Med Armor, AC, Bunkers		1960
CBU-58A/B	450	5-6	650 BLU-63A/B	Infantry, Light Armor, AC		
CBU-59/B APAM Rockeye II	500	5-6	717 BLU-77/B	Infantry, Medium Armor		1970
CBU-71/B	500	5-6	670 BLU-86/B	Infantry, Light Armor, AC		
CBU-72/B FAE	500	5-6	500 lbs FAE	Mines, Med Armor, AC, Bunkers		1960
CBU-87 CEM	1150 x 1300	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	500 x 1200	5-6	10 BLU-108/B	Heavy Armor		1986
CBU-103 WCMD (CBU-87 CEM)	1150 x 1300	5-6	202 BLU-97/B CEB	Medium Armor, Trucks		1998
CBU-104 WCMD (CBU-89 GATOR)	+alt = better disp	5-6	72 BLU-91/B 22 BLU-92B	Anti Armor and Infantry Mines		1998
CBU-105 WCMD (CBU-97 SFW)	500 x 1200	5-6	10 BLU-108/B	Heavy Armor		1998
Mk-20D Rockeye	450	5-6	247 MK-118	Heavy Armor		1968

GPS Guided Bomb Units JDAM						
Name	10% PI/0.1% PI	Range (nm)	Warhead	Purpose	Origin	IOC
GBU-31(V)1/B	1,063/ 1,640	8-10	MK-84 2,000	General	USA	1997
GBU-31(V)3/B	1,063/ 1,640	8-10	BLU-109 2,000	Penetration	USA	1997
GBU-32(V)1/B	902/ 1,558	8-10	MK-83 1,000	General	USA	1997
GBU-38/B	820/ 1,394	8-10	MK-82 500	General	USA	1997
(Continued on Next Page)						

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

PI: Probability of Incapacitation computed from intended impact point at center of stick of bombs (radius).

* 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	10% PI/0.1% PI	Range (nm)	Warhead	Purpose	Origin	IOC
GBU-39/B SDB		*30	AFX-757 250	Medium Armor	USA	2006
GBU-54/B Laser JDAM	820/ 1,394	8-10	MK-82 500	General	USA	2008
SPICE 1000	902/ 1,558	30-40	MK-83 1,000	General	IAF	2003
SPICE 1000P	902/ 1,558	30-40	BLU-110 1,000	Penetration	IAF	2003
SPICE 2000	1,063/ 1,640	15-20	MK-84 2,000	General	IAF	2003
SPICE 2000P	1,063/ 1,640	15-20	BLU-109 2,000	Penetration	IAF	2003

Laser Guided Bomb Units						
Name	10% PI/ 0.1% PI	Range (nm)	Warhead	Purpose	Origin	IOC
GBU-10I/B Paveway II	1,063/ 1,640	8	BLU-109 2,000	Penetration	USA	1970
GBU-10C/B Paveway II	1,063/ 1,640	8	MK-84 2,000	General	USA	1970
GBU-10G/B Paveway II	1,063/ 1,640	8	BLU-109/B 2,000	Penetration	USA	1970
GBU-12B/B Paveway II	820/ 1,394	8	MK-82 500	General	USA	1970
GBU-16 Paveway II	902/ 1,558	8	MK-83 1,000	General	USA	1970
GBU-22 Paveway III	820/ 1,394	8-10	MK-82 500	General	USA	1996
GBU-24/B Paveway III	1,063/ 1,640	8-10	MK-84 2,000	General	USA	1983
GBU-24A/B Paveway III	1,063/ 1,640	8-10	BLU-109 2,000	Penetration	USA	1983
GBU-27/B Paveway III	1,063/ 1,640	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.

PI: Probability of Incapacitation computed from intended impact point at center of stick of bombs (radius).

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

* 36kft = 50nm

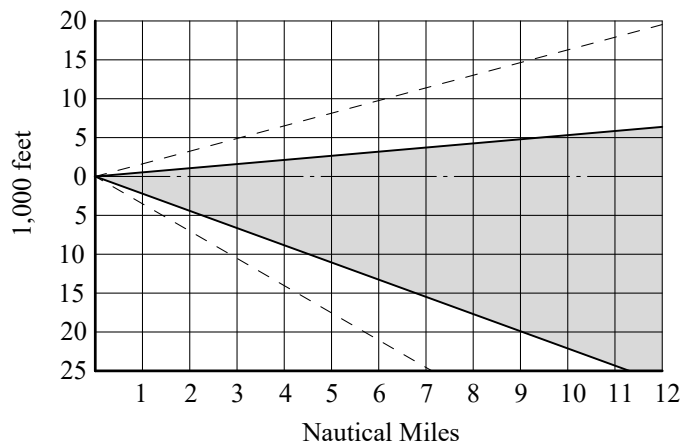
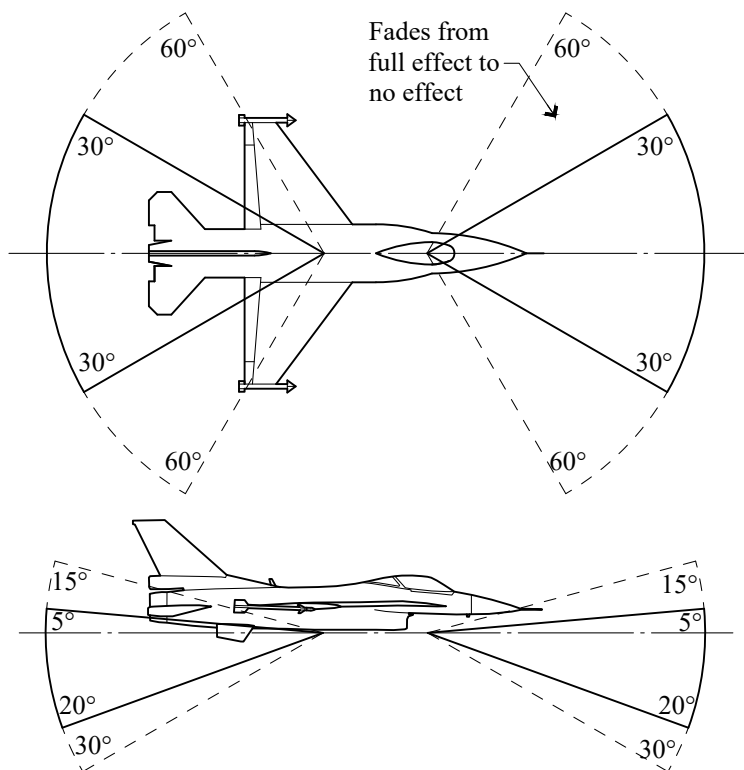
Pod 1: AN/AXQ-14

Pod 2: AN/ASW-55

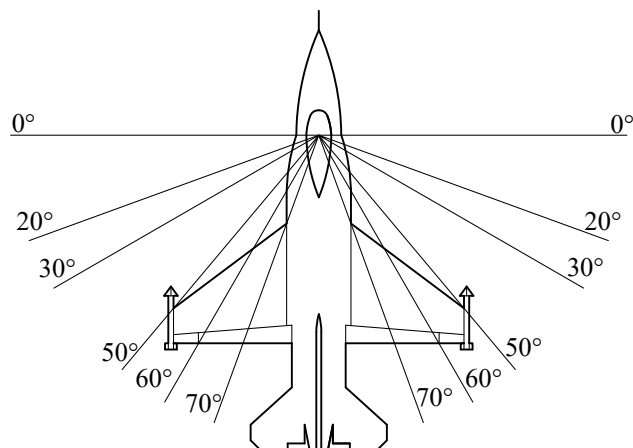
Pod 3: AN/AWW-9 (AN/AWW-13)

Pod 4: APK-9

ECM Coverage



View Angles



AIRTAC AI Presets for Fighters

Flight1: 12, 22, 75, 85Y

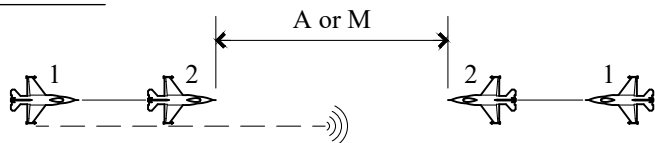
Flight2: 13, 23, 76, 86Y

Flight3: 14, 24, 77, 87Y

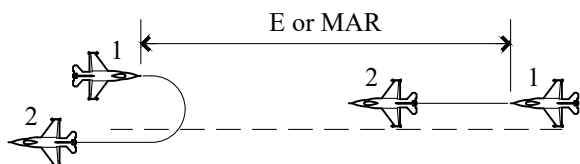
Flight4: 15, 25, 78, 88Y

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

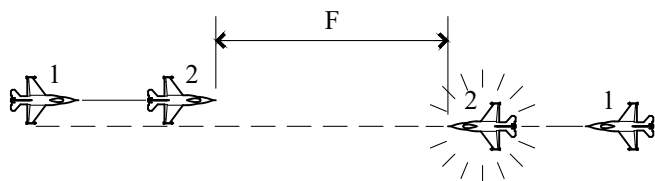
Pole Cues



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

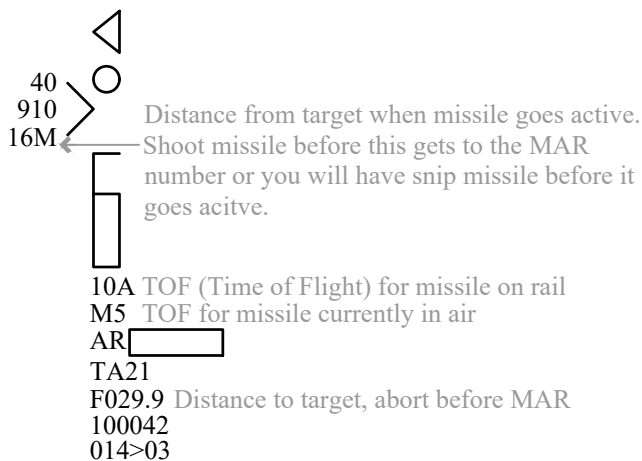


E Pole: Distance to target where you can drag and evade missile.



F Pole: Distance to target at missile impact.

AN/APG-68 Radar WEZ

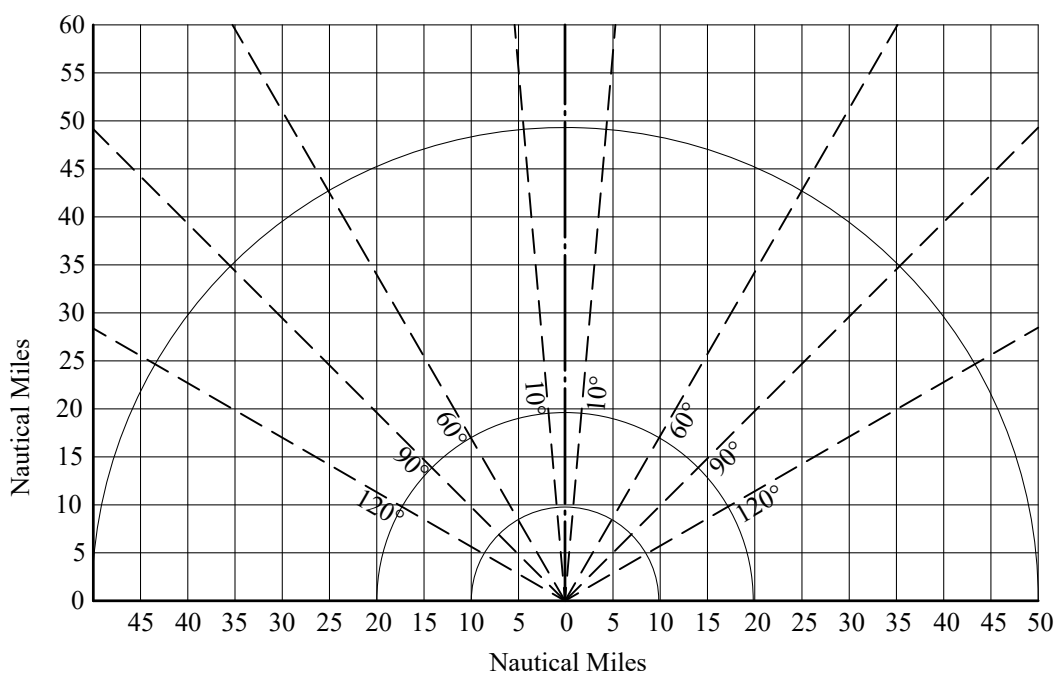




RWR Coverage

Radar Emitters		Radar Band											Aircraft with RWR
RWR Name		A	B	C	D	E	F	G	H	I	J	K	
AN/ALR-56M				Omni			15°						F-16C/D40 to 52, KF-16C52
AN/ALR-67(V)3				Omni			15°						A-6E, AV-8, F/A-18
AN/ALR-69V				Omni			15°						A-10, F-16A/B15, F-16AM-MLU, F-16C/D25 to 32
AN/ALR-93(V)1				Omni			15°						F-16C52-CFT
Elisra SPS-1000V-5							15°						
Thales Carapace							1°						F-16AM-MLU BAF

MHz		US ECM Standard												
IEEE Standard		A	B	C	D	E	F	G	H	I	J	K	L	M
		00 000 - 00 250	00 250 - 00 500	00 500 - 01 000	01 000 - 02 000	02 000 - 03 000	03 000 - 04 000	04 000 - 06 000	06 000 - 08 000	08 000 - 10 000	10 000 - 20 000	20 000 - 40 000	40 000 - 60 000	60 000 - 100 000
		VHF		UHF										



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

Symbols

 Highest priority when in diamond float mode.

 Aircraft

 ARH Missile

Symbol Threat

A/S Fire Can (KS-12, KS-19, S-60)
A M-1992, ZSU-23-4
A K200-AD, M-163/ -167, SA-19/ 2S6
B Bar Lock (SA-5)
C KSAM Daewoo
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-34-4)
P Patriot AN/ MPQ-53
P Sky Guard
2 SA-2 Fan Song
2 Odd Group (SA-5)
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
50 AN/MPQ-50 (Hawk)
55 AN/MPQ-55 (Hawk)

Symbol Threat

A Attack, Su-7BMK, G4, Mig-19PM, J-6B, A-6E, AMX, F-104DJ, F-105D, F-111, Su-24, Tornado
E EF-2000
P Su-15, A-7E, Mirage F-1CT, Mirage IIIIE
S AWACS, EA-6B
T Tornado F3
4 AJ 37, F-4, JA 37
5 F-5
14 F-14
15 F-15
16 F-16
18 F-18
20 Mirage 2000
21 J-7G, J-8I, Mig-21
22 F-22, JSF, Rafale
23 Mig-23
25 Mig-25, Su-39
27 J-11, Su-27, Su-27UB, Su-33, Su-35
29 Mig-29
30 J-15, Su-30M, Su-30MKK, Su-34
31 Mig-31

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

2 SA-2 Fan Song
2 Odd Group (SA-5)
03 SA-6 Straight Flush, SA-11 Fire Dome
3 SA-3 Low Blow
4 SA-4 Pat Hand
5 SA-15 also shows up as 12, 42
6 SA-6 also shows up as 03
7 AN/ MPQ-50 (Hawk)
8 SA-8 Land Roll
10 SA-10 Flap Lid, Big Bird
23 SA-17 Chair Back
42 SA-11, also shows up as 03
43 Skyguard
92 Dog Ear (SA-9, SA-13, ZSU-34-4)
1B Bar Lock (SA-5)
C KSAM Daewoo
CW2 SA-5 Square Pair
CW3 AN/ MPQ-55 (Hawk)
CW4 AN/ MPQ-55 (Hawk)
1D Snow Drift (SA-11, SA-17)
1F Flat Face (SA-3, SA-6)
1L Long Track (SA-4)
MQ Hawk AN/ MPQ-46
N Nike Hercules AN/ MPQ-43
P Patriot, also shows as M and MQ

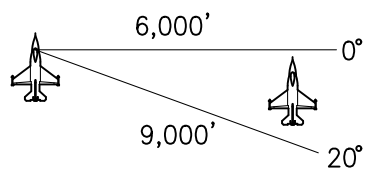
AAA

1 Fire Can, K200-AD
4 M-1992, ZSU-23-4, SA-19

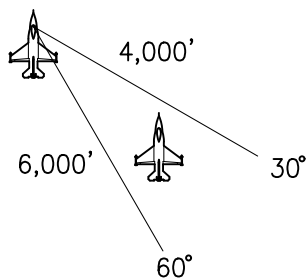
Aircraft

1 J-8, Mig-21
2 F-22, Rafale
3 Mig-23ML
4 F-4, JA 37
5 Mig-25, Su-39
6 F-16, F-CK-1C
8 AV-8, F-18
J J-11, Su-27, Su-27UB, Su-33, Su-35
9 Mig-29
E EF-2000 GAF, EF-2000 RAF
T Tornado F3
4 A-6, A-7, EA-6B, F-8, F-105, F-111, Su-7, Su-24, Tornado
42 F-14A
43 AMX, F-5E, F-14B/ D, F-15A, F-100D, F-104, G-4, J-15, Mig-17PF, Mig-19PM, Mirage 2000/ IIIIE, Su-15, Su-30M, Su-30MKK, Su-34
44 F-15, Mig-31, Mirage F1CT

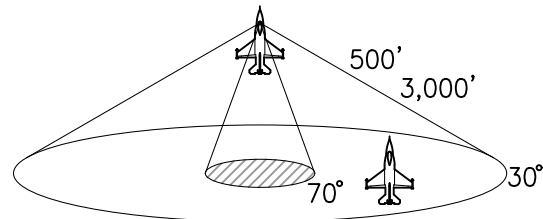
Line Abreast



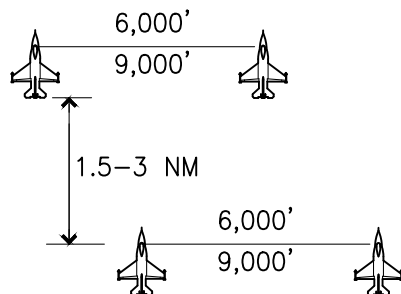
Wedge



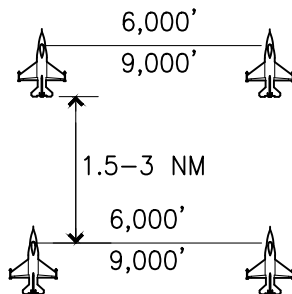
Fighting Wing



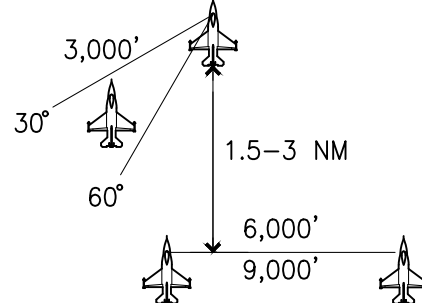
Four Ship Offset Box



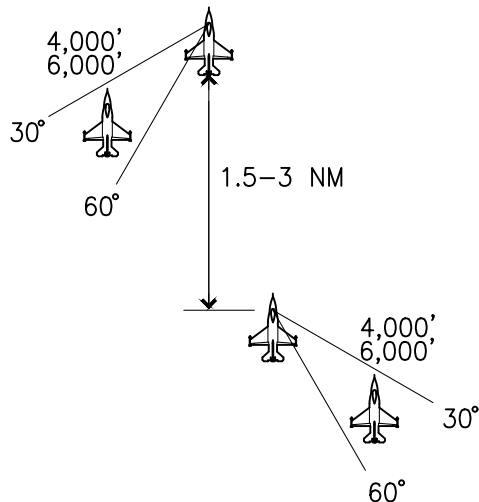
Four Ship Box



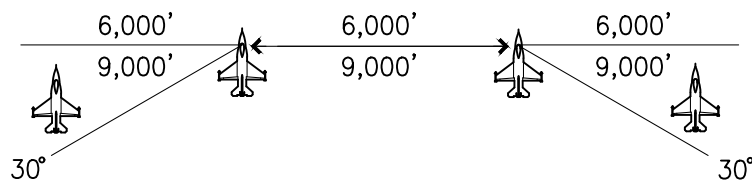
Arrowhead



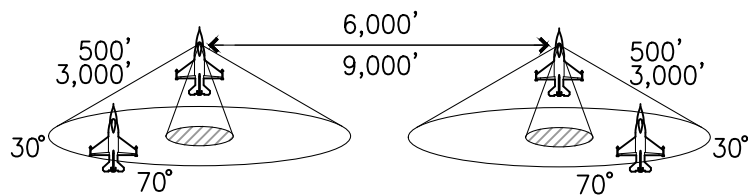
Wedge



Spread Four



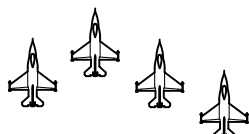
Fluid Four



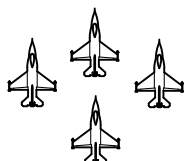
Trail



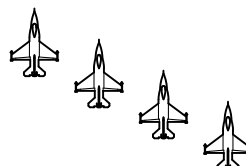
Fingertip



Diamond



Echelon Right



Spread

