# THE VAULT

## A Guide to the Weapons in Falcon BMS 4.33.1

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 air craft. 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. One piece of data in particular is the typical engagement range of SAMs which tends to be consistent. If you don't want to know this then cross out the orange data for the SAM systems. The rest of the data has a range of variation that I would not consider to be a game spoiler. However 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."

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ausairpower.net

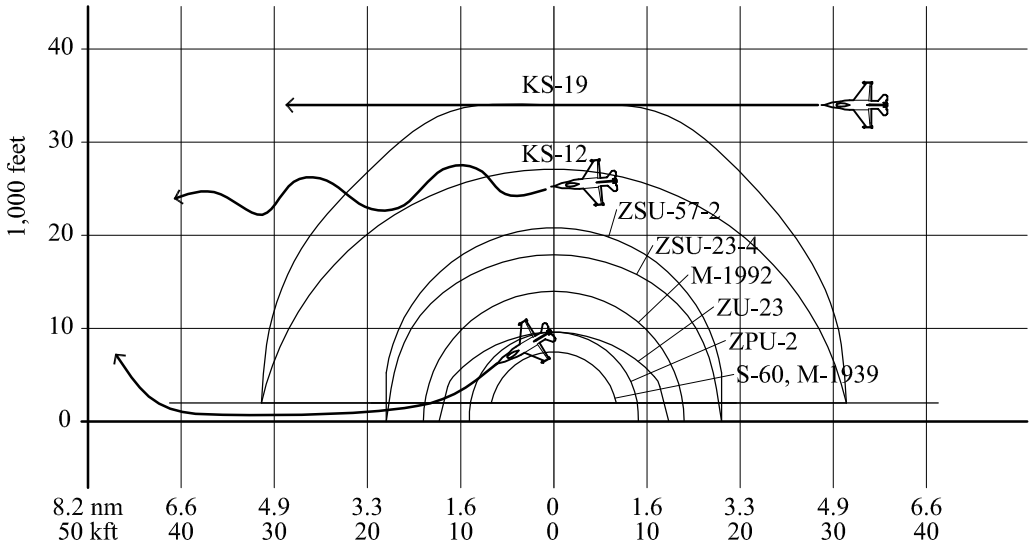
Credits: The images used in this guide are snap shots taken from the models used in the BMS simulation. Credit for the creation of these models and skins goes to the countless number of people who volunteered their time making them. The motivation for this guide came from the original Threat Guide that is in the Docs folder of the BMS program. Cover photo A-7E bombing Duong Bridge during operation Linebacker-1, wikipedia.org. 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.

**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.
- Fly above 20,000 ft to avoid most of the AAA. Fly at 34,000 ft to avoid all of the AAA. Jink in the vertical if shot at. 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.
- Shoot and move did not work in the past. Some SAM's have been seen moving while shooting in U1.
- 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.
- Multiple targets per SAM not supported in BMS. Multiple missiles per target is supported.
- 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.

**Abbreviations**

| | |
|---|---|
| AA | Anti Air |
| ABM | Anti Ballistic Missile |
| CW | Continuous Wave Radar |
| ECCM | Electronic Counter Countermeasures |
| EOTS | Electro-Optical Tracking System |
| FC | Fire Control |
| 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 |
| S-A- | Flashing S and A on RWR |
| SHORAD | Short Range Air Defense |
| THAAD | Terminal High Altitude Air Defense |
| TVM | Track Via Missile |
| (g) | Missile max g |



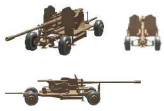

**AAA Chart**

vosizneias.com

**Fire Can Radar** A-S-A 1

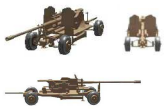
| | | | |
|---|---|---|---|
| Tracking: | Fire Can Radar (Son-9) | Type: | Towed Radar |
| Rdr Lock Range: | SA: 13nm FC: 7nm | ECM BT Range: | No effect |
| Min. Altitude: | unknown | Chaff Vuln.: | Low |
| Max Rng Guns: | N/A | Bands (System): | D/ F (PD) |
| Notes: | 1950. Usually appears on RWR 8-10 nm. Guns still fire high without Fire Can. | Initial/ Terminal: | N/A |

**KS-12 (Type 72)**



| | | | |
|---|---|---|---|
| Tracking: | OC Fire Can Radar/ Optical | Type: | Towed SHORAD |
| Min Rng Guns: | 0 nm / 2,000 ft | ECM BT Range: | 0 |
| Typical Engagement: | 5 nm / 27,000 ft | Shoot and Move: | No |
| Max Rng Guns: | 5 nm / 27,000 ft | Gun Caliber: | 85mm Flak |
| Notes: | 1939. Jink vertically. | 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 | Type: | Towed SHORAD |
| Min Rng Guns: | 0 nm / 2,000 ft | ECM BT Range: | 0 |
| Typical Engagement: | 5 nm / 33,500 ft | Shoot and Move: | No |
| Max Rng Guns: | 5 nm / 33,500 ft | Gun Caliber: | 100mm Flak |
| Notes: | 1949. Jink vertically. | 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 | Type: | Towed SHORAD |
| Min Rng Guns: | 0 nm / 0 ft | ECM BT Range: | 0 |
| Typical Engagement: | 0.9 nm / 6,000 ft | Shoot and Move: | No |
| Max Rng Guns: | 0.9 nm / 6,000 ft | Gun Caliber: | 57mm Flak |
| Notes: | 1950. Maintain high speed jink. | Max Vel.(mach): | N/A (N/A kts) |
| | | Rdr Lock Range: | SA: 13nm FC: 7nm |

**M-1939 (61K) (Type 55)**

| | | | |
|---|---|---|---|
| Tracking: | Optical | Type: | Towed SHORAD |
| Min Rng Guns: | 0 nm / 2,000 ft | ECM BT Range: | N/A |
| Typical Engagement: | 1.3 nm / 8,600 ft | Shoot and Move: | No |
| Max Rng Guns: | 1.3 nm / 8,600 ft | Gun Caliber: | 37mm Flak |
| Notes: | 1939. Maintain high speed, jink. There is a (52k) variant with 85mm N/I. | Max Vel.(mach): | N/A (N/A kts) |
| | | Rdr Lock Range: | N/A |

**M-1992** A 4

| | | | |
|---|---|---|---|
| Tracking: | OB Gun Dish Radar (J) | Type: | Mobile SHORAD |
| Min Rng Guns: | 0 nm / 0 ft | ECM BT Range: | No effect |
| Typical Engagement: | 2.5 nm / 9,800 ft | Shoot and Move: | Yes |
| Max Rng Guns: | 2.5 nm / 14,000 ft | Gun Caliber: | 30mm |
| Notes: | 1992. Maintain high speed 450+ knots, jink. Usually fires many rounds in short bursts. | Max Vel.(mach): | N/A (N/A kts) |
| | | Rdr Lock Range: | SA: 11nm / FC: 5nm |

**ZU-23 Shilka**

| | | | |
|---|---|---|---|
| Tracking: | Optical | Type: | Towed SHORAD |
| Min Rng Guns: | 0 nm / 0 ft | ECM BT Range: | N/A |
| Typical Engagement: | 2.0 nm / 9,600 ft | Shoot and Move: | No |
| Max Rng Guns: | 2.0 nm / 9,600 ft | Gun Caliber: | 23mm |
| Notes: | 1960. Maintain high speed, jink. | Max Vel.(mach): | N/A (N/A kts) |
| | | Rdr Lock Range: | N/A |

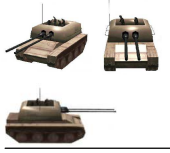
**ZPU-2 (Type 58)**

| | | | |
|---|---|---|---|
| Tracking: | Optical | Type: | Towed SHORAD |
| Min Rng Guns: | 0 nm / 0 ft | ECM BT Range: | N/A |
| Typical Engagement: | 1.5 nm / 9,700 ft | Shoot and Move: | No |
| Max Rng Guns Opt: | 1.5 nm / 9,700 ft | Gun Caliber: | 14.5mm KPV |
| Notes: | 1946. Maintain high speed, jink. | 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) | Type: | Mobile SHORAD |
| Min Rng Guns: | 0 nm / 0 ft | ECM BT Range: | No effect |
| Typical Engagement: | 2 nm / 8,200 ft | Shoot and Move: | Yes |
| Max Rng Guns: | 3 nm / 18,200 ft | Gun Caliber: | 23mm AZP-23 |
| Notes: | 1962. Maintain high speed 450+ knots, jink. Very dangerous. | Max Vel.(mach): | N/A (N/A kts) |
| | | Rdr Lock Range: | SA: 11nm / FC: 8nm |

**ZSU-57-2 Sparka**



| | | | |
|---|---|---|---|
| Tracking: | Optical (Type-80) | Type: | Mobile SHORAD |
| Min Rng Guns: | 0 nm / 2,000 ft | ECM BT Range: | N/A |
| Typical Engagement: | 3 nm / 20,800 ft | Shoot and Move: | No |
| Max Rng Guns Opt: | 3 nm / 20,800 ft | Gun Caliber: | 57mm Flak |
| Notes: | 1955. Maintain high speed, jink. Gun has low accuracy. | Max Vel.(mach): | N/A (N/A kts) |
| | | Rdr Lock Range: | N/A |

**Bar Lock-B** S

1

Tracking/ Name: Search Radar/ P-35 Saturn
Rdr Lock Range: SA: 190 nm
Min. Altitude: 1,000 ft
Notes: 1958. SA radar for SA-5. Used for EW, GCI, and SAM target acquisition.

Type: Towed SA Radar
ECM BT Range: 29 nm - 36 nm
Chaff Vulnerability: High
Bands (System): E (PD)
Initial/ Terminal: N/A

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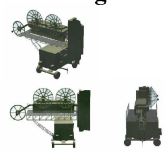
**Fan Song** 2



↗2

Tracking/ Name: SA-2 SAM Radar/ SNR-75
Rdr Lock Range: SA: 73 nm / FC: 26 nm
Min Altitude: Launch: 300 ft / Track: 80 ft
Notes: 1960. Destroy to neutralize SA-2 site. 1 target, 3 missiles. SA radar Spoon Rest.

Type: Towed SAM Radar
ECM BT Range: 11 - 14 nm
Chaff Vulnerability: Low
Band (System): G (PD/ CW)
Initial/ Terminal: Command/ Command

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**Flap Lid B** 10

↗10

Tracking/ Name: SA-10B SAM Radar/ 5N63S
Rdr Lock Range: SA: 83 nm / FC: 55 nm
Min Altitude: Launch: 100 ft / Track: 100 ft
Notes: 1978. Destroy to neutralize SA-10 site. Can track w/o 10 on RWR. No launch warning. SA radars Tin Shield, Clam Shell N/I. RWR shows H sometimes.

Type: Mobile SAM Radar
ECM BT Range: No effect
Chaff Vulnerability: No effect
Band (System): I/J/H (PESA)
Initial/ Terminal: Command/ TVM

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**Flat Face** S

1

Tracking/ Name: Search Radar/ P-15 Tropa
Rdr Lock Range: SA: 80 nm N/I
Min. Altitude: 150 ft N/I
Notes: 1955. SA radar for SA-3. Often for SA-13 too. Part of group of radars and CC systems. Spoon Rest, Side Net, rdr cntrl truck and Mercury Grass CC system N/I.

Type: Mobile SA Radar
ECM BT Range: N/I
Chaff Vulnerability: N/I
Band (System): C (UHF Pulse)
Initial/ Terminal: N/A

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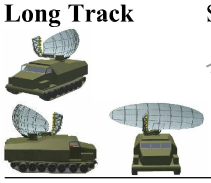
**Long Track** S



1

Tracking/ Name: Search Radar/ P-40, 1S12 Bronya
Rdr Lock Range: SA: 78 nm
Min Altitude: 100 ft
Notes: 1963. SA radar. Primary SA-4. Also SA-6, SA-8 and SA-11. Occasionally SA-13.

Type: Mobile SA Radar
ECM BT Range: 16 nm
Chaff Vulnerability: Med
Band (System): E
Initial/ Terminal: N/A

---

**Low Blow** 3

↗3

Tracking/ Name: SA-3 SAM Radar/ SNR-125 Almaz
Rdr Lock Range: SA: 90 nm / FC: 32 nm
Minimum Altitude: Launch: 150 ft / Track: 150 ft
Notes: 1961. Destroy to neutralize SA-3. Beam + 6 chaff bundles tends to break lock. Guide to one target at a time. SA radars Flat Face, Side Net, Squat Eye N/I.

Type: Towed SAM Radar
ECM BT Range: 6 nm
Chaff Vulnerability: Med
Band (System): I/ D (PD)
Initial/ Terminal: Command/ Command

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**Pat Hand** 4

↗4

Tracking/ Name: SA-4 SAM Radar/ 1S32
Rdr Lock Range: SA: 43 nm / FC: 40 nm
Min Altitude: Launch: 500 ft / Track: 500 ft
Notes: 1965. Destroy to neutralize SA-4 site. Can shoot 2 missiles per target. SA radar Long Track, Thin Skin N/I.

Type: Mobile SAM Radar
ECM BT Range: 14 nm
Chaff Vulnerability: Med
Band (System): H (PD/ CW)
Initial/ Terminal: Command/ SARH

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**Spoon Rest** S

1

Tracking/ Name: Search Radar/ P-12 Yenisei
Rdr Lock Range: SA: 145 nm N/I
Min. Altitude: 1,200 ft N/I
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: N/I
Chaff Vulnerability: N/I
Band (System): A (VHF PD)
Initial/ Terminal: N/A

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**Square Pair** 5

92

Tracking/ Name: SA-5 SAM Radar/ 5N62
Rdr Lock Range: SA: 190 nm FC: 190 nm
Min. Altitude: Launch: 3,000 ft / Track:1,000 ft
Notes: 1966. Destroy to neutralize SA-5 site. SA radar Bar Lock, Tall King, Back Net, Odd Pair, Squat Eye N/I.

Type: Towed SAM Radar
ECM BT Range: 0 nm
Chaff Vulnerability: High
Band (System): H (PD/ CW)
Initial/ Terminal: Command/ SARH

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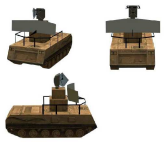
**Straight Flush** 6



↗6

Tracking/ Name: SA-6 SAM Radar/ 1S91 SURN
Rdr Lock Range: SA: 35 nm / FC: 30 nm
Min Altitude: Launch: 550 ft / Track: 0 ft
Notes: 1970. Destroy to neutralize SA-6 sites. 1 tgt, 2 msls. SA radar Spoon Rest, Long Track, Flat Face, Thin Skin, Side Net, Score Board N/I.

Type: Mobile SAM Radar
ECM BT Range: 4 - 8 nm
Chaff Vulnerability: Medium
Band (System): E/ G/ H (PD/ CW)
Initial/ Terminal: Command/ SARH

# AIR DEFENSE VEHICLES - OPFOR

**HN-5A Red Tassel**

Tracking/ Name: Optical, IR Rear Aspect/ Hong Ying-5
Min. Rng Missiles: 0 nm / 0 ft
Typical Engagement: 2.0 nm / 7,800 ft
Max Rng Missiles: 4 nm / 14,000 ft 9M32M
Notes: 1970. Maintain high speed, break turn, flare.

Type: MANPAD
ECM BT Range: N/A
Flare Vulnerability: High
Init/ Term/ Pursuit: IR Rear Aspect/ Pure
Max Vel.(mach) 1.6 (1,058 kts) .29 nm/s
Rdr Lock Range: N/A

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**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: 18 nm / 90,000 ft
Max Rng Missiles: 18 nm / 90,000 ft V-750
Notes: 1957. Break turn 4g. Beam/ chaff. Beam/ split-s/ turn away. Beam only med. effect. SA Spoon Rest.

Type: Towed SAM
ECM BT Range: 11 - 14 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: 73 nm / FC: 26 nm

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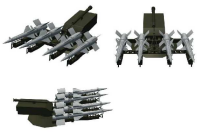
**SA-3 Goa** 3



Tracking/ Name: OC Low Blow Radar/ S-125 Neva
Min Rng Missiles: 2.9 nm / 150 ft launch / 150 ft track
Typical Engagement: 10 nm / 120,000 ft
Max Rng Missiles: 19 nm / 120,000 ft 5V27/ D (V601/P)
Notes: 1961. Break turn 6-7g (13g). Beam+ 6 chaff. Beam/ split-s/ turn away. SA Flat Face, Squat Eye.

Type: Towed SAM
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: 90 nm / FC: 32 nm

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**SA-4 Ganef** 4

Tracking/ Name: OC Pat Hand, EOTS/ 2K11 Krug
Min Rng Missiles: 0.8 nm / 500 ft launch / 500 ft track
Typical Engagement: 19 nm / 80,000 ft
Max Rng Missiles: 30 nm / 80,000 ft 9M8, 9M8M1/ M2
Notes: 1965. Break turn 7-8g. Beam/ split-s/ turn away. Can shoot without 4 on RWR. SA Long Track.

Type: Mobile SAM
ECM BT Range: 14 nm
Chaff Vulnerability: Medium
Init/ Term/ Pursuit: Cmd / SARH/ Lead
Max Vel.(mach) 2.6 (1,720 kts) .48 nm/s
Rdr Lock Range: SA: 43 nm / FC: 40 nm

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**SA-5 Gammon** 5

Tracking/ Name: OC Square Pair/ S-200 Angara
Min Rng Missiles: 10-13 nm / 3,000 ft launch/ 1,000 ft track
Typical Engagement: 53 nm / 327,000 ft
Max Rng Missiles: 190 nm / 327,000 ft 5V21, 5V28
Notes: 1966. Break turn 5-6g, chaff, beam. At very high altitudes I have seen it get up to mach 30.6.

Type: Towed SAM
ECM BT Range: 0 nm
Chaff Vulnerability: High
Init/ Term/ Pursuit: Cmd / SARH/ Pure
Max Vel.(mach) 8.0 (5,291 kts) 1.47 nm/s
Rdr Lock Range: SA: 190 nm / FC: 190 nm

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**SA-6 Gainful** 6

Tracking/ Name: OC Straight Flush Radar/ 2K12 Kub
Min Rng Missiles: 0 nm / 550 ft launch / 0 ft track
Typical Engagement: 10 nm / 99,800 ft
Max Rng Missiles: 20 nm / 99,800 ft 9M9, 9M9M1, ...
Notes: 1970. Beam/ split-s/ turn away. Break turn 6-7g/ chaff.

Type: Mobile SAM
ECM BT Range: 4-8 nm
Chaff Vulnerability: Medium
Init/ Term/ Pursuit: Cmd / SARH/ Lead
Max Vel.(mach) 3.2 (2,116 kts) .59 nm/s
Rdr Lock Range: SA: 36 nm / FC: 36 nm

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**SA-7 Grail**

Tracking/ Name: Optical, IR Rear Aspect/ 9K32 Strela-2
Min Rng Missiles: 0.2 nm / 50 ft
Typical Engagement: 2 nm / 5,000 ft
Max Rng Missiles: 4 nm / 14,000 ft 9M32
Notes: 1966. Maintain high speed 4g turn to put missile on 3/9 line, flare. Carried by BMP-1, ACRV,

Type: MANPAD
ECM BT Range: N/A
Flare Vulnerability: High
Init/ Term/ Pursuit: IR Rear Aspect/ Lead
Max Vel.(mach) 1.6 (1,058 kts) .29 nm/s
Rdr Lock Range: N/A

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**SA-8-Gecko** 8

Tracking/ Name: OB Land Roll (H/J), EOTS/ 9K33 Romb
Min Rng Missiles: 0 nm / 0 ft launch / 80 ft track
Typical Engagement: 3.5 nm / 12,000 ft
Max Rng Missiles: 8.5 nm / 40,000 ft 9M33/ M2/ M3
Notes: 1971. Break turn 5-6g + 4 chaff. Evade close shot with slice turn to get under 100'.

Type: Mobile SHORAD
ECM BT Range: 3.4 nm
Chaff Vulnerability: High
Init/ Term/ Pursuit: Cmd/ Cmd/ Lead
Max Vel.(mach) 2.5 (1,654 kts) .46 nm/s
Rdr Lock Range: SA: 15 nm / FC: 15 nm

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**SA-9 Gaskin**

Tracking/ Name: OB Passive Flat Box, IR/ 9K31 Strela-1
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 2.5 nm / 13,500 ft
Max Rng Missiles: 3.2 nm / 18,000 ft 9M31
Notes: 1968. Break turn 7-8g + 2 flare/ change plane of turn. In M-84 and BMP-2 battalions. 1 msl/tgt.

Type: Mobile SHORAD
ECM BT Range: N/A
Flare Vulnerability: 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

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**SA-10B Grumble** 10

Tracking/ Name: OC Flap Lid B Radar/ S-300PS
Min Rng Missiles: 0 nm / 100 ft launch / 100 ft track
Typical Engagement: 49 nm / 380,000 ft
Max Rng Missiles: 50 nm / 380,000 ft 48N6
Notes: 1982. Very dangerous. No smoke or launch warning. Pump at 45nm. 300'/25nm. Listen for chirp and run.

Type: Mobile HIMAD
ECM BT Range: No Effect
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: 83 nm / FC: 55 nm

**SA-11 Gadfly** 11 / 42

Tracking/ Name: OB Fire Dome (H/ I), EOTS/ Buk-M1
Min Rng Missiles: 1 nm / 180 ft launch / 0 ft track
Typical Engagement: 12.5 nm / 90,000 ft
Max Rng Missiles: 19 nm / 90,000 ft 9M38, 9M38M1, ...
Notes: 1979. 2msl/tgt. No smoke. Brk turn 5g. Pump/ weave x3/ pull up. No launch warning. SA rdr Snow Drift N/I.

Type: Mobile SAM
ECM BT Range: No Effect
Chaff Vulnerability: No Effect
Init/ Term/ Pursuit: SARH / Lead
Max Vel.(mach) 2.6 (1,720 kts) .48 nm/s
Rdr Lock Range: SA: 46 nm / FC: 29 nm

**SA-13 Gopher** 13

Tracking/ Name: OB Snap Shot (K), IR/ 9K35 Strela-10
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 2 nm / 9,000 ft
Max Rng Missiles: 5 nm / 26,800 ft 9M37, 9M31
Notes: 1976. Very dangerous. Not detected by most RWR. SA rdr LT, FF, Squat Eye, Dog Ear N/I.

Type: Mobile SHORAD
ECM BT Range: N/A
Flare Vulnerability: Very Low/No Effect IRCCM
Init/ Term/ Pursuit: IR All Aspect/ Pure
Max Vel.(mach) 1.6 (1,058 kts) .29 nm/s
Rdr Lock Range: SA: 13 nm / FC: 13 nm

**SA-14 Gremlin**

Tracking/ Name: Optical, IR/ 9K34 Strela-3
Min Rng Missiles: 0 nm / 50 ft launch / 80 ft track
Typical Engagement: 2 nm / 10,000 ft
Max Rng Missiles: 4 nm / 15,600 ft 9M36
Notes: 1974. No smoke. Brk turn 5-7g/ 6x flares. BMP-CMD, BMP-1.

Type: MANPAD
ECM BT Range: N/A
Flare Vulnerability: Medium has IRCCM
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

Tracking/ Name: OB Scrum Half(E/F/G/H)/9K331 Tor-M1
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 4 nm / 15,000 ft
Max Rng Missiles: 7 nm / 42,500 ft 9M331
Notes: 1991. Very dangerous. 1msl/tgt. 2 tgts. No smoke. No shoot and move.

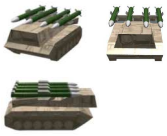
Type: Mobile SHORAD
ECM BT Range: No Effect
Chaff Vulnerability: No Effect
Init/ Term/ Pursuit: Cmd / Lead
Max Vel.(mach) 2.5 (1,654 kts) .46 nm/s
Rdr Lock Range: SA: 20 nm / FC: 12 nm

**SA-16 Gimlet**

Tracking/ Name: Optical, IR All Aspect/ 9K310 Igla-1
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 2.8 nm / 10,000 ft
Max Rng Missiles: 3.6 nm / 27,000 ft 9M313
Notes: 1981. No smoke. Break turn 4g/ flares.

Type: MANPAD
ECM BT Range: N/A
Flare Vulnerability: Medium has IRCCM
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-17 Grizzly** 17 / S-A-93



Tracking/ Name: OB Fire Dome (H/I)/ Buk M1-2 or M2
Min Rng Missiles: 2.0 nm / 140 ft launch / 50 ft track
Typical Engagement: 18 - 23 nm / 79,000 ft
Max Rng Missiles: 17 nm / 79,000 ft 9M317, 9M38....
Notes: 1998. 3msl/tgt. No smoke. Pump/ 2-3 weaves/ pull up. Brk turn 9g slice. 190'/11nm. Link to SA-6 N/I.

Type: Mobile SAM
ECM BT Range: No Effect
Chaff Vulnerability: Very Low/ No Effect
Init/ Term/ Pursuit: SARH/ Lead
Max Vel.(mach) 2.5 (1,720 kts) .48 nm/s
Rdr Lock Range: SA: 46 nm / FC: 18-28 nm

**SA-19 Grison on 2S6 Tunguska** A / 4

Tracking/ Name: OB Hot Shot (E), Optcl, IR/ 2K22, 9K22
Max Rng Guns: 2.2 nm / 10,700 ft
Typical Engagement: 3.8 nm / 10,000 ft
Max Rng Missiles: 5.7 nm / 28,000 ft 9M311
Notes: 1982. Very Dangerous. 1msl/tgt 6 tgts. No smoke. SAM's stationary. Missiles min. launch 0 ft.

Type: Mobile SHORAD
ECM BT Range: No Effect
Chaff/ Flare Vuln: Very Low/ No Effect
Gun Caliber: 30mm 2A38
Max Vel.(mach): 2.7 (1,786 kts) .50 nm/s
Rdr Lock Range: SA: N/A / FC: 6 nm

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**AN/MPQ-43** N PI ↗N

Tracking: Nike Radar
Rdr Lock Range: SA: 76 nm / FC: 53 nm
Min. Altitude: Launch: 8,400 ft / Track:400 ft
Max Rng Missiles: N/A
Notes: 1961. Destroy to neutralize Nike. Passing throgh beam usually breaks lock.

Type: Fixed Radar HIMAD
ECM BT Range: 15 nm
Chaff Vulnerability: low
Bands (System): D/ F/ I (HIPAR)
Initial/ Terminal: Command

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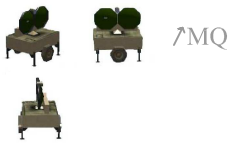
**AN/MPQ-46 HPI** H ↗MQ



Tracking: Hawk Radar / Optical
Rdr Lock Range: SA: 33 nm / FC: 19-33 nm
Min. Altitude: Launch: 200 ft / Track: 0 ft
Notes: 1960. Destroy to neutralize HAWK. FC tone at 19nm first time in. 33nm second time.

Type: Towed Radar HIMAD
ECM BT Range: 8 - 10 nm
Chaff Vulnerability: low
Bands (System): D/ I/ J ( PD/ CW)
Initial/ Terminal: SARH

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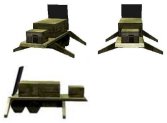
**AN/MPQ-53, AN/MSQ-104 ECS** P ↗P



Tracking: Patriot Radar
Rdr Lock Range: SA: 77 nm and FC: 77 nm
Min Altitude: Launch: 160 ft / Track: 50 ft
Max Rng Missiles: N/A
Notes: 1984. Destroy to neutralize Patriot site. No launch warning. Assume launch if you hear FC tone.

Type: Towed Radar HIMAD
ECM BT Range: High jamming resist
Chaff Vulnerability: Very Low ECCM
Bands (System): G (PESA)
Initial/ Terminal: Command/ TVM

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**Sky Guard Rdr** P 43

Tracking: Sky Guard Radar
Rdr Lock Range: SA: 13 nm FC: 13 nm
Min Altitude: 0 ft
Max Rng Missiles: N/A
Notes: 1960. Destroy to neutralize Skyguard site. SAM and AAA fire control radar.

Type: Towed Radar
ECM BT Range: 4 nm
Chaff Vulnerability: Low
Bands (System): I (MP)
Initial/ Terminal: SARH

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**Avenger M1097 HMMWV**

Tracking: Optical/ IR All Aspect/ UV
Max Rng Guns: 3,000 ft
Typical Engagement: 2 nm / 9,500 ft
Max Rng Missiles: 3 nm / 20,000 ft FIM-92 Stinger
Notes: 1989. Break turn 4-5g, flares. M2A3 shooting 75mm 11.7 kft. Others vehicle guns 5 kft. AKA M1097.

Type: Mobile SHORAD
ECM BT Range: N/A
Flare Vulnerability: Medium
Gun Caliber: 13mm XM293
Max Vel.(mach) 2.2 (1,455 kts) .40 nm/s
Rdr Lock Range: N/A

---

**Chaparal**

Tracking: OB AN/MPQ-49 FAAR/ Optcl / IR Rear
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 0.2 nm / 100 ft
Max Rng Missiles: 1.4 nm / 3,100 ft AIM-9E, MIM-72A
Notes: 1969. Maintain high speed, jink. Missile loses energy very fast. No radar showed on RWR.

Type: Mobile SHORAD
ECM BT Range: N/A
Flare Vulnerability: High
Init/ Term/ Pursuit: IR Rear Aspect/ Pure
Max Vel.(mach) 1.2 (794 kts) .22 nm/s
Rdr Lock Range: SA: N/A / FC: N/A

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**HAWK ADS** H ↗MQ

Tracking: OC AN/MPQ-46 Hawk Radar SARH
Min Rng Missiles: 0.5 nm / 200 ft launch / 0 ft track
Typical Engagement: 9-12 nm / 44,000 ft
Max Rng Missiles: 18-39 nm / 62,000 ft MIM-23 Hawk
Notes: 1960. Pump 5g slice/ ECM/ Chaff 90%. Beam/ split-s/ chaff/ turn away 50%. 6g barrel roll 50%.

Type: Towed SAM HIMAD
ECM BT Range: 8 - 10 nm
Chaff Vulnerability: Low
Init/ Term/ Pursuit: SARH / Lead
Max Vel.(mach) 2.5 (1,650 kts) .46 nm/s
Rdr Lock Range: SA: 33 nm / FC: 19-33 nm

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**K200-AD** A 1

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

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**KSAM Chun-ma Pegasus** C ↗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 Chun ma
Notes: ~2000. 1 msl/ tgt. No smoke. Brk 7g /chaff x6. Launch warning varies. Loses energy fast in 1st turn.

Type: Mobile SHORAD
ECM BT Range: No Effect
Chaf Vulnerability: Medium
Init/ Term/ Pursuit: Cmd/ Cmd/ Lead
Max Vel.(mach) 1.9 (1,267 kts) .35 nm/s
Rdr Lock Range: SA & FC: 12 nm

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**LAV/ ADATS** CW3

Tracking: OB Radar(I)/ IR/ Laser Guided Missiles
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 2 nm / 7,000 ft
Max Rng Missiles: 3 nm / 20,000 ft FIM-92 Stinger
Notes: 1989. Break turn 4-5g, flares. EOTS.

Type: Mobile SHORAD
ECM BT Range: N/A
Flare Vulnerability: Medium
Init/ Term/ Pursuit: IR All Aspect/ Pure
Max Vel.(mach) 2.2 (1,455 kts) .40 nm/s
Rdr Lock Range: SA: N/A FC: N/A

**M-163/M-167 Vulcan**

Tracking: OB Radar
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 All Aspect
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 2 nm / 7,000 ft
Max Rng Missiles: 3 nm / 20,000 ft FIM-92 Stinger
Notes: 1988. Break turn 4-5g, flares.

Type: Mobile SHORAD
ECM BT Range: N/A
Flare Vulnerability: Medium
Init/ Term/ Pursuit: IR All Aspect/ Pure
Max Vel.(mach) 2.2 (1,455 kts) .40 nm/s
Rdr Lock Range: SA: N/A FC: N/A

**M2A2/ BSFV-ADV/ M6 BL**

Tracking: IR All Aspect
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 2 nm / 7,000 ft
Max Rng Missiles: 3 nm / 20,000 ft FIM-92 Stinger
Notes: 1988. Break turn 4-5g, flares.

Type: Mobile SHORAD
ECM BT Range: N/A
Flare Vulnerability: Medium
Init/ Term/ Pursuit: IR All Aspect/ Pure
Max Vel.(mach) 2.2 (1,455 kts) .40 nm/s
Rdr Lock Range: SA: N/A FC: 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 ↗N

Tracking: OC Radar AN/MPQ-43
Min Rng Missiles: 3 nm / 8,400 ft launch / 400 ft track
Typical Engagement: 53nm / 259,000 ft
Max Rng Missiles: 35 nm / 259,000 ft MIM-14
Notes: 1961. Break turn 8-9g. Beam. Pump.

Type: Fixed HIMAD
ECM BT Range: 15 nm
Chaff Vulnerability: low
Init/ Term/ Pursuit: Cmd / Pure then Lead
Max Vel.(mach) 2.8 (1,867 kts) .52 nm/s
Rdr Lock Range: SA:76nm / FC:53nm

**Patriot MIM-104** P ↗P

Tracking: OC AN/MSQ-104 Patriot Radar
Min Rng Missiles: 1 nm / 160 ft launch / 50 ft track
Typical Engagement: 49 nm / 80,000 ft
Max Rng Missiles: 68 nm / 80,000 ft MIM-104
Notes: 1984. No launch warning. 71 sec to impact from 49 nm. Stingers in group. 2msls/ tgt. 23nm/300 ft.

Type: Towed SAM HIMAD
ECM BT Range: ECM no effect
Chaff Vulnerability: Very Low 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: Mobile 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

**Stinger**

Tracking: Optical / IR / UV All Aspect
Min Rng Missiles: 0 nm / 0 ft
Typical Engagement: 2 nm / 10,000 ft
Max Rng Missiles: 3.0 nm / 20,000 ft FIM-92
Notes: 1981. Break turn 4-5g, flares.

Type: MANPAD
ECM BT Range: N/A
Flare Vulnerability: Medium
Initial/ Terminal: IR/ UV All Apsect
Max Vel.(mach) 2.2 (1,455 kts) .40 nm/s
Rdr Lock Range: N/A

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**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.

**Abreviations**

| | |
|---|---|
| AESA | Active Electronically Scanned Array |
| CFT | Conformal Fuel Tank |
| CMDS | Counter Measure Dispsensing 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 |
| xxx | Data still needed |

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**G4 Super Galeb**

43

Type: Attack (Super Seagull)
Armament: AA-8
RWR: 30 nm Iskra SD-1 Radar:AN/TPS-1D
Radar Range: Up:21 nm Down:21 nm ECM:6 nm
Notes: 1984. Slow attack aircraft.

Max Vel. Mach 0.81 MAR:07
Hard Points: 4/ 2-AA
CMDS/ ECM: Chaff, Flare/ No ECM
Vertical: Bad Viper MK-632 (3.9k)
Turn Rate °/sec: 10 / Instant: 21
Roll: Very good

**J-5/Mig-17F Fresco**

Type: Attack (Shenyang J-5, PLAAF)
Armament: 37mm and 23mm guns only
RWR: N/A
Radar Range: Up:N/A Down:N/A ECM:N/A
Notes: 1952. Smoke exhaust. Very good turn rate at slow speeds.

Max Vel. Mach 0.9 MAR:02
Hard Points: 4/ No AA
CMDS/ ECM: N/A
Vertical: Bad VK-1F (14.9k)
Turn Rate °/sec: 16 - 22/ Instant: 31 (0.2nm Ø)
Roll: Good

**J-7 III Fishbed**

21
1

Type: Multi-role Fighter (Chengdu J-7, PLAAF)
Armament: PL-7, PL-8, 30mm
RWR: 18 nm RKL-204 Radar: JL-7
Radar Range: Up:8 nm Down:N/A ECM:4 nm
Notes: 1984. Smoke exhaust.

Max Vel. Mach 1.5 MAR:09
Hard Points: 4/ 4AA
CMDS/ ECM: Chaff, Flare/ No ECM
Vertical: Medium Liyang WP13 (14.5K)
Turn Rate °/sec: 14 / Instant: 20 (0.2nm Ø)
Roll: Very Good

**J-8B Finback**

21
1

Type: Fighter B/ C/ D (Shenyang J-8II, PLAAF)
Armament: PL-7, PL-8, AA-10A, AA-10B, 23 mm
RWR: 20 nm RKL-204 Radar:208A
Radar Range: Up:10 nm Down:N/A ECM:4 nm
Notes: 1989. Smoke exhaust.

Max Vel. Mach 1.8 MAR:15
Hard Points: 6/ 4AA
CMDS/ ECM: Chaff, Flare/ No ECM
Vertical: Medium Liyang WP-13A (29.6k)
Turn Rate °/sec: 14 - 23/ Instant: 25 (0.2nm Ø)
Roll: Very Good

**J11 Flanker**

29
9

Type: Fighter / Attack (PLAAF)
Armament: AA-8, AA-10A/ B/ C/ D, AA-11, AA-12
RWR: 20 nm SPO-15 Radar: NIIP N001V
Radar Range: Up:50 nm Down:50 nm ECM:35 nm
Notes: 1995. No smoke. Long range. DASH N/I. Chinese copy of Su-27SK.

Max Vel. Mach 1.68 MAR:17
Hard Points: 10/ 10AA
CMDS/ ECM: Yes
Vertical: Good Lyulka AL-31F (59.4k)
Turn Rate °/sec: 13 - 17/ Instant: 24 (0.2nm Ø)
Roll: Very Good

**Mig-17PF Fresco-D**

17

43

Type: Fighter
Armament: AA-1, 23mm
RWR: N/A Radar: RP-5 Izumrud-5
Radar Range: Up:7 nm Down:N/A ECM:4 nm
Notes: 1955. Smoke exhaust.

Max Vel. Mach 0.9 MAR:04
Hard Points: 4/ 4AA
CMDS/ ECM: N/A
Vertical: Bad VK-1F (14.8k)
Turn Rate °/sec: 12 - 22/ Instant: 32 (0.2nm Ø)
Roll: Good

**Mig-19PM Farmer**

A

43

Type: Fighter (Farmer-E)
Armament: AA-1, AA-2C, AA-2D
RWR: N/A Radar:RP-ZU Izumrud-2
Radar Range: Up:7 nm Down:N/A ECM:4 nm
Notes: 1957. Smoke exhaust.

Max Vel. Mach 0.84 MAR:07
Hard Points: 6/ 4AA
CMDS/ ECM: N/A
Vertical: Bad Tumansky RD-9B (14.4k)
Turn Rate °/sec: 9 - 18/ Instant: 30 (0.2nm Ø)
Roll: Medium

**Mig-19SF Farmer**

Type: Attack (Farmer-C)
Armament: Cannon 30mm x3
RWR: N/A
Radar Range: Up:N/A Down:N/A ECM:N/A
Notes: 1956. Smoke exhaust. F-6 and J-6 are Chinese copies.

Max Vel. Mach 0.83 MAR:02
Hard Points: 4/ No AA
CMDS/ ECM: N/A
Vertical: Very Bad T. RD-9BF-1 (14.6k)
Turn Rate °/sec: 9 - 19/ Instant: 31 (0.2nm Ø)
Roll: Medium

**Mig-21F-13 Fishbed**

21
1

Type: Fighter (Fishbed-E)
Armament: AA-1, AA-2C, AA-2D, Cannon 30mm
RWR: N/A SPO-2 N/I Radar:SRD-5M
Radar Range: Up:10 nm Down:N/A ECM:4 nm
Notes: 1955. Smoke exhaust. Easy to break radar lock.

Max Vel. Mach 1.40 MAR:07
Hard Points: 5/ 4-AA
CMDS/ ECM: No/ SPS-141 MWGE pod
Vertical: Bad T. R-11F-300 (12.7k)
Turn Rate °/sec: 8 - 11/ Instant: 18 (0.3nm Ø)
Roll: Good

**Mig-21MBIS**

21
1

Type: Multi-Role Fighter (Fishbed-N)
Armament: AA-2C, AA-2D, AA-8
RWR: 18 nm SPO-10 Radar: SOD-57M
Radar Range: Up:31 nm Down:N/A ECM:12 nm
Notes: 1958. Smoke exhaust.

Max Vel. Mach 1.38 MAR:08
Hard Points: 5/ 4AA or +2 AA-8
CMDS/ ECM: No / SPS-141 MWGE Pod
Vertical: Bad Tumansky R-25-300 (15.7k)
Turn Rate °/sec: 8 - 13/ Instant: 18 (0.3nm Ø)
Roll: Good

**Mig-21MF/ PFM**

21 / 1

Type: Multi-role Fighter (Fishbed-F)
Armament: AA-2C, AA-2D, AA-8
RWR: 20 nm SPO-2 Radar: RP-21M
Radar Range: Up:9 nm Down:N/A ECM:4 nm
Notes: 1958. Smoke exhaust. Easy to break lock. Samotsvet IR sight N/I.

Max Vel. Mach 1.46 MAR:08
Hard Points: 5/ 4AA
CMDS/ ECM: No / SPS-141 MWGE Pod
Vertical: Bad T. R-11F2S-300 (13.6k)
Turn Rate °/sec: 9 - 11/ Instant: 17 (0.3nm Ø)
Roll: Good

**Mig-21-93**

21 / 1

Type: Multi-role Fighter
Armament: AA-2C, AA-2D, AA-8, AA-10A
RWR: xx nm Radar:Kopyo FK04
Radar Range: Up:20 nm Down:xxx ECM:xxnm
Notes: Battle for Balkans. Need more data, difficult to test this one, several CTDs.

Max Vel. Mach 1.7 MAR:15
Hard Points: 5/ 4AA
CMDS/ ECM: Chaff, Flare/ No ECM
Vertical: Bad Tumansky R25-300 (15.6k)
Turn Rate °/sec: 15 - 21/ Instant: 21
Roll: Very good

**Mig-23ML Flogger**

23 / 3

Type: Multi-role Fighter (Flogger-F)
Armament: AA-2C, AA-2D, AA-7, AA-7R, AA-8
RWR: 21 nm SPO-15 Radar: Sapfir 23ML
Radar Range: Up:29 nm Down:13 nm ECM:10-20 nm
Notes: 1978. Smoke. Accelerate in turn. IRST TP 23ML N/I. VG wings.

Max Vel. Mach 1.6 MAR:12
Hard Points: 5/ 4AA or +2 AA-8's
CMDS/ ECM: Yes / SPS-141 Pod
Vertical: Good R-35F-300 (28.7k)
Turn Rate °/sec: 13 - 25/ Instant: 27 (0.1nm Ø)
Roll: Medium

**Mig-25 Foxbat**

25 / 5

Type: Interceptor
Armament: AA-6, AA-6R, AA-7, AA-7R, AA-8
RWR: 20 nm Sirena-3 Radar:RP-25 Smerch
Radar Range: Up:46 nm Down:18 nm ECM:8-12 nm
Notes: 1967. Bad pitch. Smoke. Hard to lock low or bm AC. ECM uses AA slot. No gun.

Max Vel. Mach 2.6 MAR:10
Hard Points: 4/ 4AA or +2 AA-8's
CMDS/ ECM: Yes / SPS-141 MWGE Pod
Vertical: Bad R31-300 (54k)
Turn Rate °/sec: 9 - 14/ Instant: 17 (0.3nm Ø)
Roll: Medium

**Mig-27 Flogger**

Type: Attack
Armament: AA-2D, AA-7, AA-8
RWR: 20 nm SG-1 Radar: N/A
Radar Range: Up:N/A Down:N/A ECM:N/A
Notes: 1975. Smoke exhaust. VG wings 380.

Max Vel. Mach 1.74 MAR:08
Hard Points: 7/ 4AA or +2 AA-8
CMDS/ ECM: Yes / SPS-141 MWGE Pod
Vertical: Medium R-29B-300 (17.7k)
Turn Rate °/sec: 13 - 25/ Instant: 28 (0.2nm Ø)
Roll: Very Good

**Mig-29A Fulcrum**

29 / 9

Type: Fighter (Fulcrum-A)
Armament: AA-8, AA-10A, AA-10B, AA-11
RWR: 21 nm SPO-15 Radar:N019 Sapfir 29
Radar Range: Up:36 nm Down:36 nm ECM:12-14 nm
Notes: 1983. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.

Max Vel. Mach 2.0 MAR:15
Hard Points: 7/ 6AA
CMDS/ ECM: Yes
Vertical: Very Good Kilmov RD33 (36.6k)
Turn Rate °/sec: 13 - 24 / Instant: 28 (0.2nm Ø)
Roll: Good

**Mig-29G Fulcrum**

29 / 9

Type: Fighter (Fulcrum-B, GAF)
Armament: AA-8, AA-10A, AA-10B, AA-11
RWR: 21 nm SPO-15 Radar:N019 Sapfir 29
Radar Range: Up:36 nm Down:36 nm ECM:12-14 nm
Notes: 1995. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.

Max Vel. Mach 1.8 MAR:15
Hard Points: 7/ 6AA
CMDS/ ECM: Yes
Vertical: Very Good Kilmov RD33 (36.6k)
Turn Rate °/sec: 13 - 24 / Instant: 28 (0.2nm Ø)
Roll: Good

**Mig-29M Fulcrum**

29 / 9

Type: Fighter (Fulcrum-F, Super Fulcrum)
Armament: AA-8, AA-10A, AA-10B, AA-11
RWR: 21 nm SPO-15 Radar:N010 Zhuk-M
Radar Range: Up:36 nm Down:36 nm ECM:12-14 nm
Notes: 1989. HMCS. Not tested. IRST N/I.

Max Vel. Mach 1.8 MAR:15
Hard Points: 7/ 6AA
CMDS/ ECM: Yes
Vertical: Very Good K. RD33K (38.6k)
Turn Rate °/sec: 13 - 24 / Instant: 28 (0.2nm Ø)
Roll: Good

**Mig-29S Fulcrum**

29 / 9

Type: Fighter (Fulcrum-C)
Armament: AA-8, AA-10A, AA-10B, AA-11, AA-12
RWR: 21 nm SPO-15 Radar:N019M Topaz
Radar Range: Up:36 nm Down:36 nm ECM:12-14 nm
Notes: 1992. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.

Max Vel. Mach 2.0 MAR:17
Hard Points: 7/ 6AA Can carry 6 Adders
CMDS/ ECM: Yes
Vertical: Very Good Kilmov RD33 (36.6k)
Turn Rate °/sec: 13 - 24 / Instant: 28 (0.2nm Ø)
Roll: Good

**Mig-31 Foxhound**

31 / 44

Type: Interceptor
Armament: AA-6, AA-8, AA-9, AA-10B /C, AA-11
RWR: 20 nm SPO-15 Radar: Zaslon S-800
Radar Range: Up:67 nm Down:65 nm ECM:12-14 nm
Notes: 1979. IRST N/I. Smoke. Brk lock bm. Long range AA-9 msls.

Max Vel. Mach 1.7 MAR:20
Hard Points: 8AA +2 with AA-8's
CMDS/ ECM: Yes
Vertical: Med. Soloviev D-30 F6 (68.2k)
Turn Rate °/sec: 13 - 20/ Instant: 25 (0.2nm Ø)
Roll: Good

**Q-5 Fantan**

| | | | | |
|---|---|---|---|---|
| Type: | Attack (PLAAF) | Max Vel. Mach | 0.78 | MAR:05 |
| Armament: | AA-2D, PL-7, 23 mm cannon | Hard Points: | 10/ 6AA | |
| RWR: | 30 nm SPO-2, Sirena-2 | CMDS/ ECM: | Yes | |
| Radar Range: | Up:N/A Down:N/A ECM:N/A | Vertical: | Med. LW-6A or RD-9(16.4k) | |
| Notes: | 1970. Smoke exhst. Chinese Mig-19 derivative. | Turn Rate °/sec: | 11 - 18/ Instant: 24 (0.2 nm Ø) | |
| | | Roll: | Medium | |

**Su-7BMK Fitter**

A

4*

| | | | | |
|---|---|---|---|---|
| Type: | Fighter Bomber | Max Vel. Mach | 1.6 | MAR:07 |
| Armament: | AA-2C, 30mm cannon | Hard Points: | 6/ 2AA | |
| RWR: | 20 nm Kremniy-2 Radar:SRD-5M | CMDS/ ECM: | Yes / No ECM | |
| Radar Range: | Up:7 nm Down:N/A ECM:4 nm | 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) | |
| | | Vert./ Roll: | Good | |

**Su-15 Flagon-F**

43

| | | | | |
|---|---|---|---|---|
| Type: | Interceptor (Su-15TM) | Max Vel. Mach | 1.58 | MAR:07 |
| Armament: | AA-1, AA-2C, AA-2D, AA-8N/I | Hard Points: | 4/4AA | |
| RWR: | N/A Sirena-3 N/I Radar:Taifun-M | CMDS/ ECM: | Yes | |
| Radar Range: | Up:16 nm Down:16 nm ECM:8 nm | 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-2D, AA-8 | Hard Points: | 8/ 4AA | |
| RWR: | 20 nm SPO-3 Sir.-10 Radar:K.(1)/SRD-5M | CMDS/ ECM: | Yes / SPS-141 MWGE Pod | |
| Radar Range: | Up:4 nm Down:4 nm ECM:2 nm | 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-2D, AA-8 | Hard Points: | 8/ 4AA | |
| RWR: | 20 nm SPO-3 Sir.-10 Radar:K.(1)/SRD-5M | CMDS/ ECM: | Yes/ SPS-141 MWGE Pod | |
| Radar Range: | Up:4 nm Down:4 nm ECM:2 nm | 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-2D, 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:4 nm Down:4 nm ECM:2 nm | 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**

4*

| | | | | |
|---|---|---|---|---|
| Type: | Attack (Fencer-C) | Max Vel. Mach | 2.19 | MAR:02 |
| Armament: | No AA missiles, 30mm gattling cannon | Hard Points: | 7/ No AA | |
| RWR: | 30 nm SPO-15 Radar:Orien | CMDS/ ECM: | Yes / Yes | |
| Radar Range: | Up:16 nm Down:16 nm ECM:5 nm | 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:N/A Down:N/A ECM:N/A | 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**

29

9

| | | | | |
|---|---|---|---|---|
| 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 | |
| RWR: | 20 nm SPO-15 Radar:NIIP N001 | 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: | 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**

29

9

| | | | | |
|---|---|---|---|---|
| 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:50 nm Down:50 nm ECM:15 nm | 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** 29 / 9

| | |
|---|---|
| Type: | Multi-role Fighter (Flanker-F2) |
| Armament: | AA-10A/ B/ C/ D, AA-11, AA-12 |
| RWR: | 20 nm SPO-15 Radar:NIIP N001 |
| Radar Range: | Up:50 nm Down:50 nm ECM:15 nm |
| Notes: | 1992. HMCS. Use ECM, bm, chaff, mnvr to brk lock x>10nm. Long rng. Auto LEF. |
| Max Vel. Mach | 1.3 MAR:17 |
| Hard Points: | 10/ 10AA |
| CMDS/ ECM: | Yes / Sorbtsiya or Su-xx |
| Vertical: | Med. S./Lyulka AL-31F(55.2k) |
| Turn Rate °/sec: | 12 - 17/ Instant: 23 (0.2nm Ø) |
| Roll: | Good |

**Su-30MKK Flanker** 29 / 9

| | |
|---|---|
| Type: | Multi-role Fighter (Flanker-G, PLAAF) |
| Armament: | AA-10A/ B/ C/ D, AA-11, AA-12 |
| RWR: | 20 nm Pastel/ L150 Radar:NIIP N001VE |
| Radar Range: | Up:50 nm Down:50 nm ECM:15 nm |
| Notes: | 2000. HMCS. Use ECM, bm, chaff, mnvr to brk lock x>10nm. Long rng. Auto LEF. |
| Max Vel. Mach | 1.1 MAR:17 |
| Hard Points: | 10/ 10AA |
| CMDS/ ECM: | Yes / Sorbtsiya or Su-xx |
| Vertical: | Good S./Lyulka AL-31F(55.2k) |
| Turn Rate °/sec: | 12 - 17/ Instant: 22 (0.2nm Ø) |
| Roll: | Good |

**Su-33 Flanker** 29 / 9

| | |
|---|---|
| Type: | Fighter (Naval Flanker-D, Su-27K) |
| Armament: | AA-10A/ B/ C/ D, AA-11, AA-12 |
| RWR: | 20 nm SPO-15 Radar:NIIP N001 |
| Radar Range: | Up:50 nm Down:50 nm ECM:30 nm |
| Notes: | 1992. HMCS. No smoke exhaust. Long range. |
| Max Vel. Mach | 1.6 MAR:17 |
| Hard Points: | 10/ 10AA |
| CMDS/ ECM: | Yes / Sorbtsiya |
| Vertical: | Good S./Lyulka AL-31F(55.2k) |
| Turn Rate °/sec: | 13 - 18/ Instant: 24 (0.2nm Ø) |
| Roll: | Good |

**Su-34 Fullback** 29 / 9

| | |
|---|---|
| Type: | Fighter/ Bomber (Su-27TB) |
| Armament: | AA-10A/ B/ C/ D, AA-11, AA-12 |
| RWR: | 20 nm Elint Radar:Leninets V004 |
| Radar Range: | Up:50 nm Down:50 nm ECM:30 nm |
| Notes: | 2011. Leninets V005 rear facing radar N/I. |
| Max Vel. Mach | 1.5 MAR:17 |
| Hard Points: | 12/ 10AA |
| CMDS/ ECM: | Yes / Sorbtsiya or Su-xx |
| Vertical: | Med. S./Lyulka AL-35F(59.8k) |
| Turn Rate °/sec: | 11 - 15/ Instant: 22 (0.3nm Ø) |
| Roll: | Very Good |

**Su-35 Flanker** 29 / 9

| | |
|---|---|
| Type: | Multi-role Ftr (Super Flanker-E1, Su-27M) |
| Armament: | AA-10A/ B/ C/ D, AA-11, AA-12 |
| RWR: | 20 nm Elint Radar:NIIP N011 |
| Radar Range: | Up:50 nm Down:50 nm ECM:30 nm |
| Notes: | 2007. HMCS. No smoke exhst. Long range 2,500 nm. (T10M-3). N012 rear radar N/I. |
| Max Vel. Mach | 2.1 MAR:17 |
| Hard Points: | 10/ 10AA |
| CMDS/ ECM: | Yes / Sorbtsiya |
| Vertical: | Med. S./Lyulka AL-35F(59.8k) |
| Turn Rate °/sec: | 10 - 14/ Instant: 21 (0.2nm Ø) |
| Vert./ Roll: | Very Good |

**Su-37 Flanker** 29 / 9

| | |
|---|---|
| Type: | Multi-role Ftr (Super Flanker-E2, T10M-11) |
| Armament: | AA-10A/ B/ C/ D, AA-11, AA-12 |
| RWR: | 20 nm Elint Radar:NIIP N011 |
| Radar Range: | Up:50 nm Down:50 nm ECM:30 nm |
| Notes: | 2002. Protypes. HMCS. TV. HOTAS. Long range 2,230 nm. N012 rear rdr, IRST N/I. |
| Max Vel. Mach | 2.1 MAR:17 |
| Hard Points: | 10/10/AA |
| CMDS/ ECM: | Yes / Sorbtsiya |
| Vertical: | Medium AL-31FU |
| Turn Rate °/sec: | 10 - 15/ Instant: 22 (0.2nm Ø) |
| Roll: | Very Good |

**Su-39 Frogfoot** 25 / 5

| | |
|---|---|
| Type: | Attack (Su-25TM) |
| Armament: | AA-8, AA-11, AA-12 |
| RWR: | 20 nm Pastel/ L150 Radar: Kopyo-25 |
| Radar Range: | Up:29 nm Down:29 nm ECM:20 nm |
| Notes: | 2008. Smoke exhaust. 32kft ceiling. Best performance low and slow. SPO-32. |
| Max Vel. Mach | 0.83 MAR:17 |
| Hard Points: | 10/ 6AA |
| CMDS/ ECM: | Yes / Integrated ECM |
| Vertical: | Med. Tumansky R195 (19.8k) |
| 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:N/A Down:N/A ECM:N/A
Notes: 1954. Tough armored attack and FAC aircraft.

Max Vel. Mach 0.51 MAR:02
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

**A-4B Skyhawk**

Type: Attack (A4D-2)
Armament: 2x 20mm cannon
RWR: N/A
Radar Range: Up:N/A Down:N/A ECM:N/A
Notes: 1957. Not available in TE.

Max Vel. Mach 0.89 MAR:02
Hard Points: 5
CMDS/ ECM: No / No
Vertical: Medium Wright J65 (7.2k)
Turn Rate °/sec: 12 - 19/ Instant: 30
Roll: Very Good

**A-4E Skyhawk**

Type: Attack (A4D-5)
Armament: AIM-9J, 2x 20mm cannon
RWR: 20 nm AN/ALR-45 Radar: AN/APG-53A
Radar Range: Up:4 nm Down:4 nm ECM:2.5 nm
Notes: 1963. Smaller RCS than F-16, much harder to detect. Smoke.

Max Vel. Mach 0.89 MAR:05
Hard Points: 5/ 2AA
CMDS/ ECM: Yes / ALQ-51 N/I
Vertical: Medium J52-P6A (8.5k)
Turn Rate °/sec: 12 - 19/ Instant: 30 (0.2nm Ø)
Roll: Very Good

**A-4M Skyhawk II**

Type: Attack (USMC)
Armament: AIM-9M, 2x 20mm cannon
RWR: 20 nm ALR-45/50 Radar: AN/APG-53A
Radar Range: Up:4 nm Down:4 nm ECM:2.5 nm
Notes: 1971. Smaller RCS than F-16, much harder to detect. Smoke.

Max Vel. Mach 1.02 MAR:07
Hard Points: 7/ 2AA
CMDS/ ECM: Yes / ALQ-162 N/I
Vertical: Medium J52-P408 (11.2k)
Turn Rate °/sec: 12 - 19/ Instant: 30 (0.2nm Ø)
Roll: Very Good

**A-6E Intruder**

4*

Type: Attack
Armament: No missiles. No gun.
RWR: 30 nm AN/ALR-67 Radar:APQ-148
Radar Range: Up:21 nm Down:21 nm ECM:12 nm
Notes: 1979. Smoke.

Max Vel. Mach 0.93 MAR:00
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

**A-7D Corsair II**

4*

Type: Attack (USAF)
Armament: AIM-9M/ P, 20mm cannon
RWR: 30 nm AN/ALR-45 Radar:AN/APQ-126
Radar Range: Up:21 nm Down:21 nm ECM:12 nm
Notes: 1970. Terrain following radar. Smoke.

Max Vel. Mach 0.90 MAR:07
Hard Points: 8/ 2AA
CMDS/ ECM: Yes / No
Vertical: Very Bad TF41-A-1 (14.3k)
Turn Rate °/sec: 12 - 18/ Instant: 26 (0.2nm Ø)
Roll: Good

**A-7E Corsair II**

4*

Type: Attack (USN)
Armament: AIM-9M/ P, 20mm cannon
RWR: 30 nm AN/ALR-45 Radar:AN/APQ-128
Radar Range: Up:22 nm Down:22 nm ECM:12 nm
Notes: 1970. Terrain following radar. Smoke.

Max Vel. Mach 0.90 MAR:07
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

**A-7H Corsair II**

4*

Type: Attack (HAF)
Armament: AIM-9M/ P, 20mm cannon
RWR: 30 nm AN/ALR-45 Radar:AN/APQ-128
Radar Range: Up:22 nm Down:22 nm ECM:12 nm
Notes: 1970. Terrain following radar. Smoke. Not able to put in TE.

Max Vel. Mach 0.90 MAR:07
Hard Points: 8/2AA
CMDS/ ECM: Yes / No
Vertical: Very Bad TF41-A-1 (14.3k)
Turn Rate °/sec: 12 - 18/ Instant: 26 (0.2nm Ø)
Roll: Good

**A-10A/ C Warthog**

Type: Attack (Thunderbolt II)
Armament: AIM-9M/ P, 30 mm GAU-8/A Avenger
RWR: 20 nm ALR-69
Radar Range: Up:N/A Down:N/A ECM:N/A
Notes: 1977. Tough armored attack aircraft.

Max Vel. Mach 0.65 MAR:07
Hard Points: 11/ 2AA
CMDS/ ECM: Yes/ ALQ-119 pod
Vertical: Med T34 GE 100 (18k)
Turn Rate °/sec: 11 - 16/ Instant:21 (0.3 nm Ø)
Roll: Bad

**AJ 37 Viggen**

4

Type: Multi-role Fighter (Attack Jakt)
Armament: AIM-9M, AIM-120B, Skyflash
RWR: 21 nm SATT Elektronik Radar: PS-37A
Radar Range: Up:32 nm Down:32 nm ECM:20 nm
Notes: 1971. Swedish. Ground wpns N/I. Can't put in TE.

Max Vel. Mach 1.69 MAR:17
Hard Points: 6/ 6AA
CMDS/ ECM: Yes/ Ericson Erijammer Pod N/I
Vertical: Bad Volvo RM8A (26k)
Turn Rate °/sec: 9 - 12/ Instant: 22 (xx nm Ø)
Vert/ Roll: Good

**AMX Ghibli**

43

Type: Attack (A-11 Ghibli, ITAF)
Armament: AIM-9M
RWR: 30 nm ELT-156X Radar:EL/M 20001B
Radar Range: Up:21 nm Down:21 nm ECM:15 nm
Notes: 1989. Supposed to be range only radar. Smoke.

Max Vel. Mach 0.94 MAR:07
Hard Points: 6/ 2AA
CMDS/ ECM: Yes/ Integrated ECM
Vertical: Very Bad RB168MK807 (11k)
Turn Rate °/sec: 7 - 10/ Instant: 20 (0.3nm Ø)
Roll: Good

**AV-8B Harrier II**

Type: Attack
Armament: AIM-9M
RWR: 35 nm AN/ALR-67 Radar:AN/APG-65 N/I
Radar Range: Up:N/A Down:N/A ECM:N/A
Notes: 1985. V/STOL. Smoke. HMCS.

Max Vel. Mach 0.83 MAR:07
Hard Points: 6/ 4AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Bad F402RR408 (23.8k)
Turn Rate °/sec: 6 - 11/ Instant: 16
Roll: Very Good

**AV-8B Harrier II+**

18
8

Type: Attack
Armament: AIM-9M, AIM-120B
RWR: 35 nm AN/ALR-67 Radar:AN/APG-65
Radar Range: Up:50 nm Down:50 nm ECM:25 nm
Notes: 1993. V/STOL. Smoke. HMCS.

Max Vel. Mach 0.83 MAR:17
Hard Points: 6/ 4AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Bad F402RR408 (23.8k)
Turn Rate °/sec: 6 - 11/ Instant: 16
Roll: Very Good

**CF/A-18 Hornet**

18
8

Type: Multi-role Fighter (CF-188)
Armament: AIM-7F/ M, AIM-9H/J/ M/ P/ X, AIM-120B
RWR: 35 nm AN/ALR-67 Radar: AN/APG-65
Radar Range: Up:50 nm Down:50 nm ECM:25 nm
Notes: 1982. RCAF.

Max Vel. Mach 1.59 MAR:17
Hard Points: 7/ 8AA/ 12AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Good F-404-GE-400 (32k)
Turn Rate °/sec: 14 - 18/ Instant: 21
Roll: Good

**EA-6B Prowler**

S
4*

Type: Attack (Electronic Intruder, USN, USMC)
Armament: No AA missiles. No gun.
RWR: 40 nm ALQ-99, 32, 162 Radar:AN/APS-130
Radar Range: Up:69 nm Down:69 nm ECM: 67nm
Notes: 1971. Electronic warfare. Can carry AGM-88, jmr pods and tanks only.

Max Vel. Mach 0.93 MAR:00
Hard Points: 5/ 0AA
CMDS/ ECM: Yes/ Int ECM, AN/ALQ-99 pod
Vertical: Bad J-52-P-408A (20.8k)
Turn Rate °/sec: 7 - 14/ Instant: 26 (0.2 nm Ø)
Roll: Medium

**EA-18G Growler**

18
8

Type: Attack
Armament: AIM-120C. No gun.
RWR: 35 nm ALQ-128 Radar: AN/APG-79
Radar Range: Up:50 nm Down:50 nm ECM: 25 nm
Notes: 2009. Electronic warfare. HMCS. AGM-88, tanks and pods only. AESA N/I.

Max Vel. Mach 1.48 MAR:20
Hard Points: 9/ 2AA
CMDS/ ECM: Yes/ Int ECM, AN/ALQ-99 pod
Vertical: Medium F-414-GE-400 (44k)
Turn Rate °/sec: 11 - 15/ Instant: 20 (0.3 nm Ø)
Roll: Very Good

**EF-2000 GE**

E
E

Type: Multi-role Fighter (Eurofighter)
Armament: AIM-9M/ X, AIM-120B, IRIS-T
RWR: 30 nm PIRATE Radar: CAPTOR-M
Radar Range: Up:69 nm Down:69 nm ECM:20 nm
Notes: 2002. Supercruise mach 1.29 in mil. HMCS. PIRATE IRST. 8.8g turn in mil.

Max Vel. Mach 1.94 MAR:17
Hard Points: 13/ 10AA +2 AIM-9
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd Eurojet EJ200 (40.5k)
Turn Rate °/sec: 18 - 26 / Instant: 28 (0.2 nm Ø)
Roll: Very Good

**EF-2000 Typhoon**

E
E

Type: Multi-role Fighter (Typhoon FGR.4 UK)
Armament: AIM-9M/X, AIM-120B, AIM-132, Skyflash
RWR: 30 nm PIRATE Radar: CAPTOR-M
Radar Range: Up:69 nm Down:69 nm ECM:20 nm
Notes: 2002. Supercruise mach 1.29 in mil. HMCS. 8.8g turn in mil. PIRATE IRST.

Max Vel. Mach 1.94 MAR:17
Hard Points: 13/ 10AA +2 AIM-9
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd Eurojet EJ200 (40.5k)
Turn Rate °/sec: 18 - 26 / Instant: 28 (0.2 nm Ø)
Roll: Very Good

**F-4B Phantom**

4
4

Type: Fighter Bomber (USN, USMC)
Armament: AIM-7D/ E/ E-2, AIM-9B/ D/ G/ H
RWR: 21 nm AN/APR-30 Radar:AN/APQ-72
Radar Range: Up:30 nm Down:30 nm ECM:8 nm
Notes: 1961. Smoke. IRST sensor. Performs better at higher speeds. APA-157. No gun.

Max Vel. Mach 1.6 MAR:10
Hard Points: 9/ 6AA +2 AIM-9
CMDS/ ECM: Yes/ AN/ALQ-119 pod
Vertical: Medium J79-GE-8 (34k)
Turn Rate °/sec: 9 - 13/ Instant: 19 (0.4 nm Ø)
Roll: Good/ very bad with α

**F-4C Phantom**

4
4

Type: Fighter Bomber (USAF)
Armament: AIM-7D/ E/ E-2, AIM-9B/ E/ J
RWR: 20 nm AN/ALR-53 Radar:AN/APQ-100
Radar Range: Up:30 nm Down:30 nm ECM:8 nm
Notes: 1964. Smoke. Empty IRST pod. Performs better at higher speeds. APA-157. No gun.

Max Vel. Mach 1.6 MAR:10
Hard Points: 9/ 6AA + 2 AIM-9
CMDS/ ECM: Yes/ AN/ALQ-119 pod
Vertical: Medium J79-GE-15 (34k)
Turn Rate °/sec: 9 - 13/ Instant: 19 (0.4 nm Ø)
Roll: Good/ very bad with α

**F-4D Phantom II**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (USAF) | Max Vel. Mach | 1.6 | MAR:10 |
| 4 | Armament: | AIM-7D/ E/ E-2, AIM-9B/ E/ J | Hard Points: | 9/ 6AA + 2 AIM-9 | |
| | RWR: | 20 nm ALR-67(V)2 Radar: AN/APQ-109 | 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: | 1964. Gun N/I. Smoke. AN/APQ-109 rdr. Likes to be fast. | Turn Rate °/sec: | 9 - 12/ Instant: 17 (0.4 nm Ø) | |
| | | | Roll: | Very Good/ very bad with α | |

**F-4D SK**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (Phantom II) | Max Vel. Mach | 1.6 | MAR:10 |
| 4 | Armament: | AIM-7D/ E/ E-2, AIM-9B/ E/ J | Hard Points: | 9/ 6AA + 2 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. Can't put in TE. | Turn Rate °/sec: | 9 - 12/ Instant: 17 (0.4 nm Ø) | |
| | | | Roll: | Very Good/ very bad with α | |

**F-4E IAF**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (Phantom II) | Max Vel. Mach | 1.6 | MAR:13 |
| 4 | Armament: | AIM-7E-2/ M, AIM-9M | Hard Points: | 9/ 6AA + 2 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: | 1969. 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-4E ROK**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (Phantom II Rhino) | Max Vel. Mach | 1.6 | MAR:13 |
| 4 | Armament: | AIM-7M, AIM-9M/ P | Hard Points: | 9/ 6AA + 2 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-4E USAF**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (Phantom, USAF) | Max Vel. Mach | 1.6 | MAR:13 |
| 4 | Armament: | AIM-7M, AIM-9M/ P | Hard Points: | 9/ 6AA + 2 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 | Type: | Fighter (Phantom, Japan) | Max Vel. Mach | 1.6 | MAR:13 |
| 4 | Armament: | AIM-7E-2/ M, AIM-9M | Hard Points: | 9/ 6AA + 2 AIM-9 | |
| | 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/ 6AA + 2 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. Export F-4E. Likes to be fast. No grnd N/I. | Turn Rate °/sec: | 10 - 13/ Instant: 17 (0.4 nm Ø) | |
| | | | Roll: | Very Good/ very bad with α | |

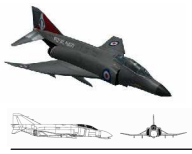
**F-4G Phantom**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (Wild Weasel Phantom) | Max Vel. Mach | 1.6 | MAR:13 |
| 4 | Armament: | AIM-7M, AIM-9M/ P | Hard Points: | 9/ 6AA + 2 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 Rdr. Better RWR N/I. AGM-45/ 78/ 88. | Turn Rate °/sec: | 10 - 13/ Instant: 17 (0.4 nm Ø) | |
| | | | Roll: | Very Good/ very bad with α | |

**F-4J Phantom**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (Phantom, USN, USMC) | Max Vel. Mach | 1.6 | MAR:10 |
| 4 | Armament: | AIM-7D/ E, E-2, AIM-9B/ D/ G/ H | Hard Points: | 9/ 6AA + 2 AIM-9 | |
| | RWR: | 20 nm APR-32 Radar:APG-59, AWG-10 | 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: | 1966. Smoke. Gun pod N/I. VTAS. SEAM. Data Link. Likes to be fast. | Turn Rate °/sec: | 10 - 13/ Instant: 17 (0.4 nm Ø) | |
| | | | Roll: | Very Good/ very bad with α | |

**F-4K Phantom**



| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter (FAA British Royal Navy) | Max Vel. Mach | 1.6 | MAR:11 |
| 4 | Armament: | AIM-7E-2, AIM-9M, Skyflash | Hard Points: | 9/ 6AA + 2 AIM-9 | |
| | RWR: | 20 nm AN/APR-32 Radar:AN/AWG-11 | CMDS/ ECM: | Yes/ AN/ALQ-119 pod | |
| | Radar Range: | Up:30 nm Down:30 nm ECM:13 nm | Vertical: | Med Rolls Royce Spey (42k) | |
| | Notes: | 1968. Smoke. VTAS. SEAM. Data Link. AA only. No gun. | Turn Rate °/sec: | 10 - 13/ Instant: 17 (0.4 nm Ø) | |
| | | | Roll: | Very Good/ very bad with α | |

**F-4M Phantom**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (RAF British Royal AF) | Max Vel. Mach | 1.6 | MAR:11 |
| | Armament: | AIM-7E-2, AIM-9M, Skyflash | Hard Points: | 9/ 6AA + 2 AIM-9 | |
| 4 | RWR: | 20 nm AN/APR-32 Radar:AN/AWG-12 | CMDS/ ECM: | Yes/ AN/ALQ-119 pod | |
| | Radar Range: | Up:30 nm Down:30 nm ECM:13 nm | Vertical: | Med Rolls Royce Spey (42k) | |
| | Notes: | 1968. Smoke. Gun Pod N/I. VTAS. SEAM. Data Link. | Turn Rate °/sec: | 10 - 13/ Instant: 17 (0.4 nm Ø) | |
| | | | Roll: | Very Good/ very bad with α | |

**F-4N Phantom**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber (Phantom, USN, USMC) | Max Vel. Mach | 1.6 | MAR:10 |
| | Armament: | AIM-7D, E, E-2, AIM-9B/ D/ G/ H | Hard Points: | 9/ 6AA + 2 AIM-9 | |
| 4 | RWR: | 20 nm AN/APR-30 Radar:AN/ASA-32 | CMDS/ ECM: | Yes/ AN/ALQ-119 pod | |
| | Radar Range: | Up:20 nm Down:20 nm ECM:8 nm | Vertical: | Med J79-GE-8A (34k) | |
| | Notes: | 1973. Smoke. Gun pod N/I. IRST. VTAS. SEAM. Data Link. Bee line upgrade. | Turn Rate °/sec: | 10 - 13/ Instant: 17 (0.4 nm Ø) | |
| | | | Roll: | Very Good/ very bad with α | |

**F-4S Phantom II**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Type: | Fighter Bomber(Phantom II, USN, USMC) | Max Vel. Mach | 1.6 | MAR:10 |
| | Armament: | AIM-7D/ E/ E-2, AIM-9B/ D/ G/ H | Hard Points: | 9/ 6AA + 2 AIM-9 | |
| 4 | RWR: | 20 nm AN/APR-32 Radar: AN/APG-59 | CMDS/ ECM: | Yes/ AN/ALQ-119 pod | |
| | Radar Range: | Up:30 nm Down:30 nm ECM:13 nm | Vertical: | Med J79-GE-10B (35.8k) | |
| | Notes: | 1979. Smoke. No gun. VTAS. SEAM. Data Link. Likes to be fast. | Turn Rate °/sec: | 10 - 13/ Instant: 17 (0.4 nm Ø) | |
| | | | 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 |
| | Armament: | AIM-9M/ P | Hard Points: | 7/ 6AA | |
| 43 | 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-8E Crusader**

| | | | | | |
|---|---|---|---|---|---|
| 8 | Type: | Fighter | Max Vel. Mach | 2.1 | MAR:06 |
| | Armament: | AIM-9B/ D/ G/ H | Hard Points: | 4/ 2AA +2 AIM-9 | |
| 4* | RWR: | 22 nm ALR-45 Radar: AN/APQ-94 | CMDS/ ECM: | No/ No | |
| | Radar Range: | Up:16 nm Down:16 nm ECM:10 nm | Vertical: | Medium J-57-P20A (18k) | |
| | Notes: | 1962. Smoke exhaust. | Turn Rate °/sec: | 15 - 20/ Instant: 26 (0.2 nm Ø) | |
| | | | Roll: | Good | |

**F-14A Tomcat**

| | | | | | |
|---|---|---|---|---|---|
| 14 | Type: | Fighter | Max Vel. Mach | 1.55 | MAR:40 |
| | Armament: | AIM-7M, AIM-9M, AIM-54A/ C | Hard Points: | 8/ 8AA | |
| 42 | RWR: | 35 nm ALR-45 Radar:AN/AWG-9 | CMDS/ ECM: | Yes/ Int ECM | |
| | Radar Range: | Up:85 nm Down:85 nm ECM:30-40 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 |
| | Armament: | AIM-7M, AIM-9M, AIM-54A/ C | Hard Points: | 8/ 8AA | |
| 43 | RWR: | 35 nm ALR-67 Radar: AN/AWG-15 | CMDS/ ECM: | Yes/ Int ECM | |
| | Radar Range: | Up:85 nm Down:85 nm ECM:30-40 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 |
| | Armament: | AIM-7M, AIM-9M, AIM-54A/ C | Hard Points: | 8/ 8AA | |
| 43 | RWR: | 35 nm ALR-67 Radar: AN/AWG-15 | CMDS/ ECM: | Yes/ Int ECM | |
| | Radar Range: | Up:85 nm Down:85 nm ECM:30-40 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 |
| | Armament: | AIM-7F/ M, AIM-9M/ P | Hard Points: | 11/ 8AA | |
| 43 | 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: | 10 - 16/ Instant: 17 | |
| | | | Roll: | Very Good | |

**F-15C Eagle** 15 44

Type: Fighter
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm AN/ALR-56C Radar:APG-63PSP
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 1979. No smoke. 1985:MSIP II APG-70 rdr, AIM-120. 2008: HMCS.

Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F-100-PW-220 (47.7k)
Turn Rate °/sec: 10 - 16/ Instant: 17
Roll: Very Good

**F-15C 65th AS** 15 44

Type: Fighter (Aggressor Squadron)
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm AN/ALR-56C Radar:APG-63PSP
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 1980. No smoke. 1985:MSIP II APG-70 rdr, AIM-120. 2008: HMCS.

Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F-100-PW-220 (47.7k)
Turn Rate °/sec: 10 - 16/ Instant: 17
Roll: Very Good

**F-15C Baz IDF AF** 15 44

Type: Fighter (Israel)
Armament: AIM-7M, AIM-9M/ P, AIM-120B/ C, Python 3/ 4/ 5
RWR: 30 nm AN/ALR-56C Radar:APG-63PSP
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 1980: Akef, CFT. 1998: Baz DASH.

Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F-100-PW-220 (47.7k)
Turn Rate °/sec: 10 - 16/ Instant: 17
Roll: Very Good

**F-15D Eagle** 15 44

Type: Fighter
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm AN/ALR-56C Radar:APG-63PSP
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 1979. 2 seats. No smoke. HMCS.

Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F-100-PW-220 (47.7k)
Turn Rate °/sec: 11 - 17/ Instant: 18
Roll: Very Good

**F-15DJ Peace Eagle** 15 44

Type: Fighter
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm J/APR-4 Radar:APG-63PSP
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 1980. 2 seats. No smoke.

Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F-100-PW-220 (47.7k)
Turn Rate °/sec: 11 - 17/ Instant: 18
Roll: Very Good

**F-15E-220** 15 44

Type: Multi-role Fighter (Strike Eagle, Mud Hen)
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm AN/ALR-56C Radar:AN/APG-70
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 1989. 2 seats. FLIR, nav pod, tgt pod.

Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Med F-100-PW-220 (47.7k)
Turn Rate °/sec: 8 - 11/ Instant: 15 (0.2 nm Ø)
Vert/ Roll: Very Good

**F-15E-229** 15 44

Type: Multi-role Fighter (Strike Eagle, Mud Hen)
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm AN/ALR-56C Radar:AN/APG-70
Radar Range: Up:60 nm Down:60 nm ECM:30 nm
Notes: 1991. 2 seats. FLIR, nav pod, tgt pod.

Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Med F-100-PW-229 (58.2k)
Turn Rate °/sec: 8 - 11/ Instant: 15 (0.2 nm Ø)
Roll: Very Good

**F-15I Ra'am IDF** 15 44

Type: Fighter (Israel, Thunder)
Armament: AIM-7M, AIM-9M/ P, AIM-120B/ C, Python 3/ 4/ 5
RWR: 30 nm Elisra SPS-2110 Rdr:AN/APG-70I
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 1999. 2 seats. DASH. CFT.

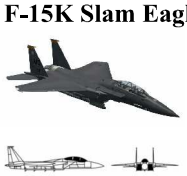
Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F-100-PW-229 (58.2k)
Turn Rate °/sec: 11 - 17/ Instant: 18
Roll: Very Good

**F-15J Peace Eagle** 15 44

Type: Fighter
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm J/APR-4 Radar:APG-63PSP
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 1981. HMCS.

Max Vel. Mach 1.88 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F-100-PW-220 (47.7k)
Turn Rate °/sec: 11 - 17/ Instant: 18
Roll: Very Good

**F-15K Slam Eagle** 15 44



Type: Fighter (Slam Eagle, ROK)
Armament: AIM-9X, AIM-120C
RWR: 30 nm ALR-56C(V)1 Rdr:APG-63(V)1
Radar Range: Up:60 nm Down:60 nm ECM:40 nm
Notes: 2007. 2 seats. HMCS. CFT. IRST.

Max Vel. Mach 2.06 MAR:20
Hard Points: 11/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Good F-110-GE-129 (58k)
Turn Rate °/sec: 8 - 11/ Instant: 15
Roll: Very Good

**F-16A Blk 15**

16 / 6

Type: Multi-role Fighter
Armament: AIM-7M, AIM-9M/ P, AIM-120B
RWR: 30 nm ALR-69(V) Radar:AN/APG-66
Radar Range: Up:32 nm Down:32 nm ECM:10 nm
Notes: 1981. Green MFDs. No HMCS. Slower radar. Tracks not as stable. CMDS 30/15.

Max Vel. Mach 1.64 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes/ AN/ALQ-131(V)
Vertical: Good F-100-PW-200 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26
Roll: Very Good

**F-16AM MLU**

16 / 6

Type: Multi-role Fighter (BAF)
Armament: AIM-9M/ P/ X, AIM-120B
RWR: 30 nm TASC Radar:APG-66(V)2
Radar Range: Up:40 nm Down:40 nm ECM:22 nm
Notes: 1995. HMCS.

Max Vel. Mach 1.77 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes/ AN/ALQ-131(V)
Vertical: Good F-100-PW-220 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16AM MLU**

16 / 6

Type: Multi-role Fighter (RDAF)
Armament: AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-69(V) Radar:APG-66(V)2
Radar Range: Up:40 nm Down:40 nm ECM:22 nm
Notes: 1995. HMCS.

Max Vel. Mach 1.64 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes/ AN/ALQ-131(V)
Vertical: Good F-100-PW-200 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16AM MLU**

16 / 6

Type: Multi-role Fighter (RNIAF)
Armament: AIM-9M/ P/ X, AIM-120B
RWR: 30 nm ALR-69(V) Radar:APG-66(V)2
Radar Range: Up:40 nm Down:40 nm ECM:22 nm
Notes: 1995. HMCS.

Max Vel. Mach 1.71 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes/ AN/ALQ-131(V)
Vertical: Good F-100-PW-220 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16AM MLU**

16 / 6

Type: Multi-role Fighter (RNoAF)
Armament: AIM-9M/ P, AIM-120B, IRIS-T
RWR: 30 nm ALR-69(V) Radar:APG-66(V)2
Radar Range: Up:40 nm Down:40 nm ECM:22 nm
Notes: 1995. HMCS.

Max Vel. Mach 1.77 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes/ AN/ALQ-131(V)
Vertical: Good F-100-PW-220 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16B Blk 15**

16 / 6

Type: Multi-role Fighter (MSIP Stage I)
Armament: AIM-7M, AIM-9M/ P, AIM-120B
RWR: 30 nm ALR-69(V) Radar:APG-66
Radar Range: Up:32 nm Down:32 nm ECM:10 nm
Notes: 1981. 2 Seats. Green MFDs. Less CMDS 30/15.

Max Vel. Mach 1.64 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes/ AN/ALQ-131(V)
Vertical: Good F-100-PW-200 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16C AGRS**

29 / 9

Type: Multi-role Fighter (Aggressor 414th CTS)
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-69(V) Radar:APG-63
Radar Range: Up:40 nm Down:40 nm ECM:27 nm
Notes: 1987. HMCS. F-16C-32.

Max Vel. Mach 1.76 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes/ ALQ-131(V), ALQ-184
Vertical: Good F-100-PW-220 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16C Blk 25**

16 / 6

Type: Multi-role Fighter (MSIP Stage II)
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-69(V) Radar:APG-68(V)
Radar Range: Up:40 nm Down:40 nm ECM:22 nm
Notes: 1984. Green MFDs. TFR. FLIR.

Max Vel. Mach 1.64 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / ALQ-131(V), ALQ-184
Vertical: Good F-100-PW-200 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16C Blk 30**

16 / 6

Type: Multi-role Fighter (MSIP Stage III)
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-69(V) Radar:APG-68
Radar Range: Up:40 nm Down:40 nm ECM:22 nm
Notes: 1987. Green MFDs. TFR. FLIR.

Max Vel. Mach 1.8 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes/ ALQ-131(V), ALQ-184
Vertical: Very Gd F-110-GE-100 (28k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16C Blk 32**

16 / 6

Type: Multi-role Fighter (MSIP Stage III)
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-69(V) Radar:APG-68
Radar Range: Up:40 nm Down:40 nm ECM:22 nm
Notes: 1987. Green MFDs. TFR. FLIR.

Max Vel. Mach 1.76 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / ALQ-131(V), ALQ-184
Vertical: Good F-100-PW-220 (23.8k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16C Blk 40**

16 / 6

Type: Multi-role Fighter (MSIP Stage III)
Armament: AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-56M Radar:APG-68(V)5
Radar Range: Up:40 nm Down:40 nm ECM:20 nm
Notes: 1989. HMCS. Big black HUD frame. TFR. FLIR.

Max Vel. Mach 1.80 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / ALQ-131, ALQ-184
Vertical: Very Gd F-110-GE-100 (28k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16C Blk 42**

16 / 6

Type: Multi-role Fighter (MSIP Stage III)
Armament: AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-56M Radar:APG-68(V)5
Radar Range: Up:40 nm Down:40 nm ECM:22 nm
Notes: 1989. HMCS. Big black HUD frame.TFR. FLIR.

Max Vel. Mach 1.80 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / ALQ-131, ALQ-184
Vertical: Good F-100-PW-220 (23.7k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16CM Blk 50**

16 / 6

Type: Multi-role Fighter (MSIP Stage III)
Armament: AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-56M Radar:APG-68(V)5
Radar Range: Up:40 nm Down:40 nm ECM:20 nm
Notes: 1991. HMCS.

Max Vel. Mach 1.86 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / ALQ-131, ALQ-184
Vertical: Very Gd F-110-GE-129 (29k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16CM Blk 52**

16 / 6

Type: Multi-role Fighter (MSIP Stage III)
Armament: AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-56M Radar:APG-68(V)5
Radar Range: Up:40 nm Down:40 nm ECM:20 nm
Notes: 1991. HMCS.

Max Vel. Mach 1.86 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / ALQ-131, ALQ-184
Vertical: Very Gd F-100-PW-229 (28.5k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16C Blk 52 CFT**

16 / 6

Type: Multi-role Fighter (HAF CFT)
Armament: AIM-9M/ P, AIM-120B/ C, IRIS-T
RWR: 30 nm ALR-93(V)1 Radar:APG-68(V)XM
Radar Range: Up:55 nm Down:55 nm ECM:20 nm
Notes: 2008. HMCS. RWR with Different #'s and symbology F-16=6.

Max Vel. Mach 1.85 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / Int ECM
Vertical: Good F-100-PW-229 (28.5k)
Turn Rate °/sec: 11 - 17/ Instant: 21 (0.3 nm Ø)
Roll: Very Good

**F-16D Blk 40**

16 / 6

Type: Multi-role Fighter (MSIP Stage III)
Armament: AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-56M Radar:APG-68(V)5
Radar Range: Up:40 nm Down:40 nm ECM:20 nm
Notes: 1989. 2 Seats. Big black HUD. HMCS.

Max Vel. Mach 1.86 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / ALQ-131, ALQ-184
Vertical: Very Gd F-110-GE-100 (28k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F-16DM Blk 52**

16 / 6

Type: Multi-role Fighter (MSIP Stage III)
Armament: AIM-9M/ P/ X, AIM-120B/ C
RWR: 30 nm ALR-56M Radar:APG-68(V)5
Radar Range: Up:40 nm Down:40 nm ECM:20 nm
Notes: 1991. 2 Seats. HMCS.

Max Vel. Mach 1.86 MAR:17
Hard Points: 9/ 6AA
CMDS/ ECM: Yes / ALQ-131, ALQ-184
Vertical: Very Gd F-100-PW-229 (28.5k)
Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**F/A-18A Hornet**

18 / 8

Type: Multi-role Fighter
Armament: AIM-7F/ M, AIM-9H/ J/ M/ P, AIM-120B/ C
RWR: 34 nm AN/ALR-67 Radar:AN/APG-65
Radar Range: Up:51 nm Down:51 nm ECM:20 nm
Notes: 1983. Green MFDs.

Max Vel. Mach 1.6 MAR:17
Hard Points: 9/ 8AA + 4 AIM-9 or 120
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F404-GE-400 (31.6K)
Turn Rate °/sec: 14 - 17/ Instant: 22 (0.2 nm Ø)
Roll: Very Good

**F/A-18B Hornet**

18 / 8

Type: Multi-role Fighter
Armament: AIM-7F/ M, AIM-9H/ J/ M/ P, AIM-120B
RWR: 34 nm AN/ALR-67 Radar:AN/APG-65
Radar Range: Up:51 nm Down:51 nm ECM:20 nm
Notes: 1983. 2 Seats. Green MFDs.

Max Vel. Mach 1.6 MAR:17
Hard Points: 9/ 8AA + 4 AIM-9 or 120
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F404-GE-400 (31.6K)
Turn Rate °/sec: 14 - 17/ Instant: 22 (0.2 nm Ø)
Roll: Very Good

**F/A-18C Hornet**

18 / 8

Type: Multi-role Fighter
Armament: AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 34 nm AN/ALR-67 Radar:AN/APG-65
Radar Range: Up:51 nm Down:51 nm ECM:20 nm
Notes: 1987. 1992 upgraded to APG-73. HMCS.

Max Vel. Mach 1.6 MAR:17
Hard Points: 9/ 8AA + 4 AIM-9 or 120
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F404-GE-402 (35k)
Turn Rate °/sec: 14 - 17/ Instant: 22 (0.2 nm Ø)
Roll: Very Good

**F/A-18D Hornet**

18 / 8

Type: Multi-role Fighter
Armament: AIM-7F/ M, AIM-9M/ P/ X , AIM-120B/ C
RWR: 34 nm AN/ALR-67 Radar:AN/APG-65
Radar Range: Up:51 nm Down:51 nm ECM:20 nm
Notes: 1987. 2 Seats. HMCS.

Max Vel. Mach 1.6 MAR:17
Hard Points: 9/ 8AA + 4 AIM-9 or 120
CMDS/ ECM: Yes/ Int ECM
Vertical: Very Gd F404-GE-402 (35k)
Turn Rate °/sec: 14 - 17/ Instant: 22 (0.2 nm Ø)
Roll: Very Good

**F/A-18E**

18 / 8

Type: Multi-role Fighter (Super Hornet)
Armament: AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 34 nm ALR-67(V)3 Radar:AN/APG-73
Radar Range: Up:51 nm Down:51 nm ECM:20 nm
Notes: 1995. HMCS.

Max Vel. Mach 1.54 MAR:17
Hard Points: 11/ 10AA + 6 AIM-9 or 120
CMDS/ ECM: Yes/ Int ECM
Vertical: Medium F414-GE-400 (44k)
Turn Rate °/sec: 11 - 15/ Instant: 15 (0.3 nm Ø)
Roll: Very Good

**F/A-18F**

18 / 8

Type: Multi-role Fighter (Super Hornet)
Armament: AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C
RWR: 34 nm ALR-67(V)3 Radar: AN/APG-79
Radar Range: Up:51 nm Down:51 nm ECM:20 nm
Notes: 1995. 2 Seats. AESA rdr N/I. HMCS.

Max Vel. Mach 1.54 MAR:17
Hard Points: 11/ 10AA + 6 AIM-9 or 120
CMDS/ ECM: Yes/ Int ECM
Vertical: Medium F414-GE-400 (44k)
Turn Rate °/sec: 11 - 15/ Instant: 15 (0.3 nm Ø)
Roll: Very Good

**F-22A Raptor**

22 / 2

Type: Fighter
Armament: AIM-9M, AIM-120C
RWR: 250 nm ALR-94 Radar: AN/APG-77
Radar Range: Up:xx nm Down:xx nm ECM:xx nm
Notes: 2012. AESA rdr N/I. AN/ALR-56 MLD. Blurry pit nothing works. Super cruise.

Max Vel. Mach 1.4 MAR:17
Hard Points: 6/ 6AA
CMDS/ ECM: Yes/ Stealth 6.5nm
Vertical: xxx F119-PW-100 (70k)
Turn Rate °/sec: xxx / Instant: xxx
Roll: xxx

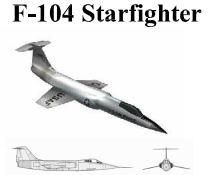
**F-100D Super Sabre**

43

Type: Fighter Bomber (The Hun)
Armament: 4x 20mm Cannons
RWR: 15 nm APR-126 Radar:APR-25V
Radar Range: Up:8 nm Down:8 nm ECM:6 nm
Notes: 1956. Gun tracking radar. Slow pitch.

Max Vel. Mach 1.43 MAR:02
Hard Points: 6/ 0AA
CMDS/ ECM: No / No
Vertical: Medium J57-P-21/21A (16k)
Turn Rate °/sec: 8 - 15/ Instant:23
Roll: Very Good

**F-104 Starfighter**



A / 43

Type: Fighter
Armament: AIM-9B, 20mm cannon
RWR: 10 nm APR-25/26 Radar:ASG-14T
Radar Range: Up:5 nm Down:N/A ECM:2 nm
Notes: 1958.

Max Vel. Mach 1.89 MAR:05
Hard Points: 4AA
CMDS/ ECM: No / No
Vertical: Medium J79-GE-11A (15.6k)
Turn Rate °/sec: 6 - 9/ Instant: 12 (0.5 nm Ø)
Roll: Very Good

**F-105D Thud**

4*

Type: Fighter Bomber (Thunderchief)
Armament: AIM-9B, 20mm cannon
RWR: 15 nm APR-25/26 Radar: NASARR R-14A
Radar Range: Up:14 nm Down:14 nm ECM:10 nm
Notes: 1960. RWR Vector.

Max Vel. Mach 1.97 MAR:05
Hard Points: 5/ 2AA +2 AIM-9
CMDS/ ECM: No / No, AN/ALQ-72 pod N/I.
Vertical: Bad J75-P-19W (26.5k)
Turn Rate °/sec: 11 - 16/ Instant: 24 (0.3 nm Ø)
Roll: Very Good

**F-111A Aardvark**

4*

Type: Attack (Mark I)
Armament: No AA missiles. No gun.
RWR: 35 nm APS-109 Radar: AN/APQ-113
Radar Range: Up:15 nm Down:15 nm ECM:8 nm
Notes: 1967. 2 Seats. Can accelerate in turn with low burner or mil power. Smoke.

Max Vel. Mach 1.46 MAR:00
Hard Points: 4/ 0AA
CMDS/ ECM: Yes / Int ALQ-94, No pods.
Vertical: Medium TF30-P-3 (37k)
Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø)
Roll: Medium

**F-111C Aardvark**

4*

Type: Attack (Mark I)
Armament: AIM-9M. No gun.
RWR: 30 nm APS-109 Radar:AN/APQ-113
Radar Range: Up:15 nm Down:15 nm ECM:8 nm
Notes: 1969. 2 Seats. Can accelerate in turn with low burner or mil power. Smoke.

Max Vel. Mach 1.28 MAR:07
Hard Points: 4/ 2AA
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-111D Aardvark**

4*

Type: Attack (Mark II)
Armament: No AA missiles. No gun.
RWR: 35 nm AN/ALR-41 Radar: AN/APQ-130
Radar Range: Up:16 nm Down:16 nm ECM:12 nm
Notes: 1972. 2 Seats. Can accelerate in turn with low burner or mil power. Smoke.

Max Vel. Mach 1.35 MAR:00
Hard Points: 4/ 0AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Medium TF30-P-9 (50k)
Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø)
Roll: Medium

**F-111E Aardvark**

4*

Type: Attack (Mark I) | Max Vel. Mach 1.45 | MAR:00
Armament: No AA missiles. No gun. | Hard Points: 4/ 0AA
RWR: 34 nm AN/APS-109 Radar:AN/APQ-113 | CMDS/ ECM: Yes / Int ECM
Radar Range: Up:15 nm Down:15 nm ECM:8 nm | Vertical: Medium TF30-P-3 (37k)
Notes: 1969. 2 Seats. Smoke. Direct successor to A. Can accelerate in turn. Smoke. | Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø)
Roll: Medium

**F-111F Aardvark**

4*

Type: Attack (Mark IIB) | Max Vel. Mach 1.56 | MAR:00
Armament: No AA missiles. No gun. | Hard Points: 4/ 0AA
RWR: 34 nm AN/ALR-62 Radar:AN/APQ-144 | CMDS/ ECM: Yes / Int ECM
Radar Range: Up:15 nm Down:15 nm ECM:8 nm | Vertical: Medium TF30-P-100 (50k)
Notes: 1970. 2 Seats. Can accelerate in turn with low burner or mil power. Smoke. | Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø)
Roll: Medium

**F-111G Aardvark**

4*

Type: Attack | Max Vel. Mach 1.56 | MAR:07
Armament: AIM-9M. No gun. | Hard Points: 4/ 2AA
RWR: 35 nm AN/ALR-62 Radar:AN/APQ-114 | CMDS/ ECM: Yes/ Int ECM
Radar Range: Up:15 nm Down:15 nm ECM:8 nm | Vertical: Medium TF30-P-7 (41k)
Notes: 1989. 2 Seats. Upgraded A model. Can accelerate in turn. Smoke. | Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø)
Roll: Medium

**FB-111 Aardvark**

4*

Type: Attack (Mark IIB) | Max Vel. Mach 1.55 | MAR:00
Armament: No AA missiles. No gun. | Hard Points: 4/ 0AA
RWR: 35 nm AN/ALR-62 Radar:AN/APQ-144 | CMDS/ ECM: Yes/ Int ECM
Radar Range: Up:15 nm Down:15 nm ECM:8 nm | Vertical: Medium TF30-P-7 (41k)
Notes: 1972. 2 Seats. Nuclear strike mission. Smoke. Can accelerate in turn. | Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø)
Roll: Medium

**F-117A Nighthawk**

Type: Attack | Max Vel. Mach 0.78 | MAR:00
Armament: No AA missiles. No gun. | Hard Points: 2/ 0AA
RWR: 30 nm Classified | CMDS/ ECM: Yes/ No, Stealth 1.7 nm
Radar Range: Up:N/A Down:N/A ECM:N/A | Vertical: Bad F404-GE-F1D2 (21k)
Notes: 1983. Not detected by AWACS. Can avoid F16 radar to about 1.7nm. | Turn Rate °/sec: 10 - 14/ Instant: 20
Roll: Good

**JA 37 Viggen**

4

4

Type: Interceptor (Jakt) | Max Vel. Mach 1.66 | MAR:17
Armament: AIM-9M, AIM-120B, Skyflash, 30 mm | Hard Points: 6AA
RWR: 20 nm SATT Radar: PS46/A | CMDS/ ECM: Yes/ No
Radar Range: Up:30 nm Down:30 nm ECM:15 nm | Vertical: Medium Volvo RM8B (26k)
Notes: 1978. Swedish. AA only. | Turn Rate °/sec: 8 - 11/ Instant: 16
Roll: Good

**KF-16C Blk 32**

16

6

Type: Multi-role Fighter (Korean Peace Bridge 1) | Max Vel. Mach 1.2 | MAR:17
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B | Hard Points: 9/ 6AA
RWR: 30 nm ALR-56M Radar:AN/APG-68 | CMDS/ ECM: Yes/ Int ECM, ALQ-131(V)
Radar Range: Up:40 nm Down:40 nm ECM:20 nm | Vertical: Good F-100-PW-220 (23.8k)
Notes: 1986. Green MFDs. | 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) | Max Vel. Mach 1.85 | MAR:17
Armament: AIM-7M, AIM-9M/ P/ X, AIM-120B/ C | Hard Points: 9/ 6AA
RWR: 30 nm ALR-56M Radar:APG-68(V)7 | CMDS/ ECM: Yes/ Int ECM
Radar Range: Up:40 nm Down:40 nm ECM:20 nm | Vertical: Very Gd F-100-PW-229 (28.5k)
Notes: 1994. HMCS. TFR. FLIR. | Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)
Roll: Very Good

**MB-339**

Type: Attack (Aermachi, ITAF) | Max Vel. Mach 0.84 | MAR:08
Armament: AIM-9M, R.550 Magic, 30mm | Hard Points: 6/ 2AA
RWR: 22 nm ELT-156 | CMDS/ ECM: Yes/ Int ECM, ELT-5 Pod N/I
Radar Range: Up:N/A Down:N/A ECM:N/A | Vertical: Bad RR Viper MK. 680-43 (4.4k)
Notes: 1976. 2 Seats. Performs best low and slow. | Turn Rate °/sec: 12 - 23/ Instant: 32
Roll: Good

**Mirage 2000C**

20

43

Type: Fighter | Max Vel. Mach 1.74 | MAR:17
Armament: R.550 Magic II, R.530D | Hard Points: 9/ 4AA
RWR: 30 nm SERVAL Radar:CSF-RDI | CMDS/ ECM: Yes/ Int ECM
Radar Range: Up:47 nm Down:42 nm ECM:10 nm | Vertical: Good M53-P2 (21.4k)
Notes: 1984. x<10nm to keep radar lock. Limits effective range of R530D. | Turn Rate °/sec: 11 - 16/ Instant: 21 (0.2 nm Ø)
Roll: Very Good

**Mirage 2000D**

20 / 43

Type: Fighter
Armament: R.550 Magic II
RWR: 48 nm SERVAL Radar:Antilope 50
Radar Range: Up:15 nm Down:15 nm ECM:8 nm
Notes: 1995. 2 Seats.

Max Vel. Mach 1.44 MAR:08
Hard Points: 9/ 2AA
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

**Mirage 2000-5F**

20 / 43

Type: Fighter
Armament: R.550 Magic II, MICA EM, MICA IR
RWR: 33 nm SERVAL Radar:Thales RDY
Radar Range: Up:60 nm Down:60 nm ECM:26 nm
Notes: 2000. Updated Mirage 2000C.

Max Vel. Mach 1.87 MAR:14
Hard Points: 9/ 6AA
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

**Mirage 2000EGM**

20 / 43

Type: Fighter (EGM HAF)
Armament: R.550 Magic II, MICA EM, MICA IR
RWR: 33 nm Samir DDM Radar:Thales RDY
Radar Range: Up:60 nm Down:60 nm ECM:26 nm
Notes: 2000. Updated Mirage 2000-5.

Max Vel. Mach 1.87 MAR:14
Hard Points: 9/ 8AA
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

**Mirage 2000N**

20 / 43

Type: Fighter
Armament: R.550 Magic II
RWR: 48 nm SERVAL Radar:Antelope 5
Radar Range: Up:15 nm Down:15 nm ECM:8 nm
Notes: 1988. 2 Seats. Nuclear strike version. No gun.

Max Vel. Mach 1.44 MAR:08
Hard Points: 9/ 2AA
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

**Mirage F-1**

44

Type: Fighter
Armament: R.550 Magic, R.550 Magic II, R.530D
RWR: 20 nm CSF-BF Radar:CSF-Cyrano IV-1
Radar Range: Up:35 nm Down:35 nm ECM:19 nm
Notes: 1974. x<10nm to keep radar lock. Limits effective range of R530D.

Max Vel. Mach 1.96 MAR:17
Hard Points: 7/ 6AA
CMDS/ ECM: Yes/ No
Vertical: Medium ATAR 9K-50 (15.9k)
Turn Rate °/sec: 9 - 12/ Instant: 12
Roll: Very Good

**Mirage IIIE**

43

Type: Fighter
Armament: AIM-9M, R.550 Magic, 2x 30mm
RWR: 20 nm Radar:CSF-Cyrano II
Radar Range: Up:30 nm Down:30 nm ECM:15 nm
Notes: 1964.

Max Vel. Mach 1.4 MAR:08
Hard Points: 5/ 2AA
CMDS/ ECM: No/ No
Vertical: Medium ATAR 9C (13.7k)
Turn Rate °/sec: 8 - 11/ Instant: 16
Roll: Very Good

**OV-10 Bronco**

Type: Foward Air Control/ Attack
Armament: AIM-9M
RWR: AN/APR-39 N/I Radar:N/A
Radar Range: Up:N/A Down:N/A ECM:N/A
Notes: 1969.

Max Vel. Mach 0.38 MAR:07
Hard Points: 7/ 2AA
CMDS/ ECM: Yes/ No
Vertical: Bad Garrett T76-G-420/421(2.1k)
Turn Rate °/sec: 7 - 10/ Instant: 11
Roll: Good

**Rafale C**

22 / 2

Type: Multi-role Fighter (FAF)
Armament: Mica IR, Mica EM, Meteor
RWR: 35 nm SPECTRA Radar:Thales RBE2
Radar Range: Up:65 nm Down:65 nm ECM:50 nm
Notes: 2006. 2012 for AESA. OSF/ IRST. RAM. DVI. HMCS. FLIR. Supercruise m1.14.

Max Vel. Mach 1.62 MAR:14
Hard Points: 12/ 10AA
CMDS/ ECM: Yes/ Thales SPECTRA
Vertical: Very Good Snecma M88-2 (34k)
Turn Rate °/sec: 15 - 20/ Instant: 21
Roll: Very Good

**SEPECAT Jaguar**

Type: Fighter Bomber
Armament: AIM-9M
RWR: 30 nm CFTH Radar:Decca N/I
Radar Range: Up:N/A Down:N/A ECM:N/A
Notes: 1973.

Max Vel. Mach 1.17 MAR:07
Hard Points: 7/ 2AA
CMDS/ ECM: Yes/ AN/ALQ-101 pod
Vertical: Medium Adour 102 (14.6k)
Turn Rate °/sec: 15 - 20/ Instant: 29
Roll: Very Good

**Tornado ADV**

T / T

Type: Interceptor (Air Defense Varient)
Armament: AIM-9M, Skyflash, AIM-120B/ C, AIM-132
RWR: 30 nm ELS Radar:AI24 Foxhunter
Radar Range: Up:54 nm Down:54 nm ECM:25 nm
Notes: 1986. 2 Seats. Can accelerate in turn.

Max Vel. Mach 1.75 MAR:17
Hard Points: 10/ 8AA
CMDS/ ECM: Yes/ Int ECM
Vertical: Good RB.199-34 Mk 104 (33k)
Turn Rate °/sec: 14 - 22/ Instant: 24 (0.2 nm Ø)
Roll: Very Good

**Tornado ECR AMI**

| | | | | |
|---|---|---|---|---|
| Type: | Attack (Wild Weasel, ITAF) | Max Vel. Mach | 1.75 | MAR:07 |
| Armament: | AIM-9M | Hard Points: | 9/ 2AA | |
| 4* 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(29.7k) | |
| 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 ECR GE**

| | | | | |
|---|---|---|---|---|
| Type: | Attack (Wild Weasel, GAF) | Max Vel. Mach | 1.75 | MAR:07 |
| Armament: | AIM-9M | Hard Points: | 9/ 2AA | |
| 4* RWR: | 30 nm ELS Radar: Decca 72 | CMDS/ ECM: | Yes/ Int ECM, BOZ, Cerberus | |
| Radar Range: | Up:15 nm Down:15 nm ECM:10 nm | Vertical: | Good RB.199-34R Mk101(29.7k) | |
| 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 AMI**

| | | | | |
|---|---|---|---|---|
| Type: | Attack (InterDiction Strike, ITAF) | Max Vel. Mach | 1.75 | MAR:07 |
| Armament: | AIM-9M | Hard Points: | 9/ 2AA | |
| 4* 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(29.7k) | |
| 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 IDS GE**

| | | | | |
|---|---|---|---|---|
| Type: | Attack (InterDiction Strike, GAF) | Max Vel. Mach | 1.75 | MAR:07 |
| Armament: | AIM-9M | Hard Points: | 9/ 2AA | |
| 4* RWR: | 30 nm ELS Radar: Decca 72 | CMDS/ ECM: | Yes/ Int ECM, BOZ, Cerberus | |
| Radar Range: | Up:15 nm Down:15 nm ECM:10 nm | Vertical: | Good RB.199-34R Mk101(29.7k) | |
| 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**

| | | | | |
|---|---|---|---|---|
| Type: | Attack (RSAF, RAF) | Max Vel. Mach | 1.75 | MAR:14 |
| Armament: | AIM-9M, AIM-132 | Hard Points: | 9/ 4AA | |
| 4* 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(29.7k) | |
| 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.

**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 |
| 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 |

**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.

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**AA-2C Atoll-C**

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: Mig-19PM, Mig-21F-13/ Mbis/MF/PFM/-93, Mig-23ML, Su-7BMK, Su-15
Notes: 1960. USSR. Brk turn 4g, chaff, bm. Get below horizon. (15g), Max AOA 16°, gmbl limit 30°, trkg rate 12.5°/sec, FOV 2°, 35 sec.

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**AA-2D Atoll-D**

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/Mbis/MF/PFM/-93, Mig-23ML, Mig-27, Q-5, Su-15, Su-17, Su-20, Su-22
Notes: 1960. USSR. Brk turn 4g/ flare. (20g, 33g), Max AOA 16°, gmbl lmt 25°, trkg rate 12.5°/sec, FOV 2°, 35 sec. Seeker Front 1-(2)nm, Rear 2-(7).

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**AA-6 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°, gmbl limit 25°, trkg rate 16°/sec, FOV 3°, 75 sec. Seeker Front 5-(13)nm, Rear 13-(38)nm.

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**AA-6R Acrid**

Guidance: SARH
Range Front: 8 - 20 nm
Range Rear: 4 - 6 nm
Chaff Effect: Medium
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.

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**AA-7 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.

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**AA-7R 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 maneuv. 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.

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**AA-8 Aphid**



Guidance: IR all aspect (R-60)
Range Front: 3.5 - (8) nm
Range Rear: 2 - 3 nm
Flare Effect: Medium
Max Target g: 10
Max Vel.(mach): 2.9 (1,918 kts)

Aircraft: G-4, J-11, Mig-21Mbis/MF/PFM/-93, Mig-23ML, -25, -27, -29A/ G/ M/ S, Mig-31, Su-17, -20, -22, -24M, -25, -27/UB, -39
Notes: 1974. USSR. Head on break turn 9g, flare. Minor IRCCM. (30g), AOA 29° 17°, gmbl lmt 20°, tkg 35°/sec, FOV 3°, 23 sec. Seeker Front 3.5-(8)nm, Rear 3.5-(8)nm.

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**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): 2.9 (1,918 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°, 160 sec. Easy to break the Mig-31 radar lock at longer ranges.

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**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 17°, 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: Med
Max Target g: 9
Max Vel.(mach): 3.4 (2,247 kts)

Names: R-27T
Aircraft: J-8/B/C/D, J-11, Mig-29A/ G/ M/ S, 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 17°, 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-32, 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: Medium
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: 1982. 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. Break turn 9g, chaff, bm, weaving, dive & climb. Crank & pump. HOJ. (35g), Max AOA 30°, gmbl limit 60°, tkg rate 40°/sec, FOV 10°, 70 sec, PB 12 nm.

**PL-7 Thunderbolt**

Guidance: IR Rear Aspect
Range Front: 1 - (2.5)
Range Rear: 3 - (5) nm
Flare Effect: High
Max Target g: 9
Max Vel.(mach): 2.8 (1,852 kts)

Names: N/A
Aircraft: Chengdu J-7 III, J-8B/ C/ D, Q-5
Notes: ~1982. PLAAF. Break turn 9g, flare. (30g), Max AOA 21°, gimbal limit 45°, tracking rate 16.5°/sec, FOV 8°, 60 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-7 III, J-8B/ C/ D
Notes: ~1988. PLAAF. Break turn, flare. Rudimentary IRCCM. Bleeds speed in high g maneuver. (30g), Max AOA 20°, gimbal limit 40°, tracking rate 25°/sec, FOV 3°, 60 sec. IR seeker Front 8-(23)nm, Rear 8-(23)nm.

**AIM-4C Falcon**

Guidance: IR Rear Aspect
Range Front: N/A
Range Rear: 1.1 nm
Flare Effect: Very High
Max Target g: 3
Max Vel.(mach): 3.0 (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: 1.4 nm
Range Rear: 1.4 nm
Flare Effect: Very High
Max Target g: 4
Max Vel.(mach): 4.0 (2,646 kts)

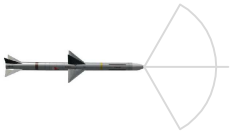
Names: Falcon
Aircraft: F-101, F-102, F-106, F-4J, SAAB Draken
Notes: USA. Break turn 5g, flares. (15g), Max AOA 15°, gimbal limit 25°, tracking rate 12.5°/sec, FOV 2°, 50 sec.

**AIM-4G Super Falcon**

Guidance: IR All Aspect
Range Front: 1.4 nm
Range Rear: 1.4 nm
Flare Effect: High
Max Target g: 4
Max Vel.(mach): 4.0 (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.

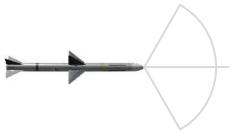
**AIM-7D Sparrow**



Guidance: SARH
Range Front: 6 - 7 nm
Range Rear: 2 - 3 nm
Chaff Effect: Low
Max Target g: 5
Max Vel.(mach): 2.1 (1,389 kts)

Names: Sparrow, AAM-N-6a, AIM-101
Aircraft: F-4B/ C/ D/ D-SK/ 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.

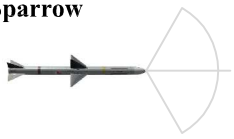
**AIM-7E Sparrow**



Guidance: SARH
Range Front: 6 - 10 nm
Range Rear: 2 - 5 nm
Chaff Effect: Very High
Max Target g: 5
Max Vel.(mach): 3.0 (1,984 kts)

Names: Sparrow, AAM-N-6b
Aircraft: F-4B/ C/ D/ D-SK/ 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: 10 - 15 nm
Range Rear: 3 - 5 nm
Chaff Effect: Very High
Max Target g: 7
Max Vel.(mach): 3.3 (2,183 kts) 10/1.5

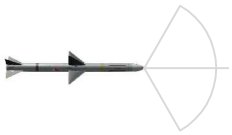
Names: RIM-7E Sea Sparrow
Ships: Basic Point Defense Missile System for ships, F-4B/ C/ D/ D-SK/ E-J/ E-IAF/ K/ M/ N/ S
Notes: 1969. USN. Break turn 8g, chaff, beam, weaving, dive and climb.(23g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 100 sec. 13% PK.

**AIM-7F Sparrow**

Guidance: SARH
Range Front: 12 - 17 nm
Range Rear: 4 - 5 nm
Chaff Effect: High
Max Target g: 7
Max Vel.(mach): 3.5 (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. Can shoot from as far as 24nm but low PK. Loses a lot of energy after 9nm.

**AIM-7M Sparrow**



Guidance: SARH
Range Front: 11 - 18 nm
Range Rear: 6 - 8 nm
Chaff Effect: High
Max Target g:
Max Vel.(mach): 3.5 10/2.4 15/1.3

Names: Sparrow
Aircraft: CF/A-18, F-4E/ J/ 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°, 100 sec.

**AIM-9B Sidewinder**

Guidance: IR Rear Aspect
Range Front: 1.1 - (3.8)nm
Range Rear: 2 - 3.5 nm
Flare Effect: Very High
Max Target g: 5
Max Vel.(mach): 2.6 (1,733 kts)

Names: GAR-8, AAM-N-7 Sidewinder IA,
Aircraft: F-4B/ C/ D/ J/ N/ S, F-8E, F-104, 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: 4 - 5 nm
Flare Effect: Very High
Max Target g: 7
Max Vel.(mach): 2.9 (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: 2 - 3.5 nm
Flare Effect: High
Max Target g: 6
Max Vel.(mach): 2.7 (1,800 kts)

Names: Sidewinder
Aircraft: Airforce aircraft, F-4C/ D
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 3.4-(9.8)nm.

**AIM-9G Sidewinder**



Guidance: IR Rear Aspect
Range Front: 1 - (3.8)nm
Range Rear: 3 - 4 nm
Flare Effect: High
Max Target g: 6
Max Vel.(mach): 3.0 (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-(12.2)nm.

**AIM-9H Sidewinder**

Guidance: IR Rear Aspect
Range Front: 3 - (6) nm
Range Rear: 3 - 5 nm
Flare Effect: Low
Max Target g: 7
Max Vel.(mach): 3.1 (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 5.9-(17.1)nm.

**AIM-9J Sidewinder**

Guidance: IR Rear Aspect
Range Front: 1.5 - (3.1) nm
Range Rear: 2 - 3.5 nm
Flare Effect: Medium
Max Target g: 8
Max Vel.(mach): 2.6 (1,733 kts)

Names: Sidewinder
Aircraft: A-4E, CF/A-18, F-4C/ D, F/A-18A/ B
Notes: 1977. 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: 8 - (14) nm
Range Rear: 6 - 8 nm
Flare Effect: Low
Max Target g: 12
Max Vel.(mach): 3.2 (2,134 kts)

Aircraft: A-4M, A-7D/E, A-10, AJ-37, AMX, AV-8B, CF/A-18, EF-2000, F-4E/ F/ G/ K/ M, 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°, 50 sec. Seeker range Front 8-(21)nm, Rear 8-(21)nm.

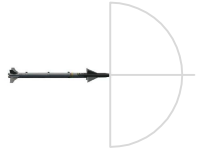
**AIM-9P Sidewinder**



Guidance: IR Rear Aspect
Range Front: 0 - (2) nm
Range Rear: 2.7 - (4) nm
Flare Effect: High
Max Target g: 9
Max Vel.(mach): 2.3 (1,520 kts)

Names: Sidewinder
Aircraft: A-4M, A-7D/ E, A-10, CF/A-18, F-4E/ F/ G, F-5A/ E, F-14, F-15, F-16, F/A-18
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 2.7-(7)nm.

**AIM-9X Sidewinder**



Guidance: IR All Aspect
Range Front: 11 - (15) nm
Range Rear: 5 - 8 nm
Flare Effect: Very Low
Max Target g: 13
Max Vel.(mach): 3.3 (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°, 45 sec. IR seeker Front 11.6-(22.8)nm, Rear 12-(30)nm.

**AIM-54A Phoenix**

Guidance: ARH
Range Front: 20 - 45 nm
Range Rear: 12 - 16 nm
Chaff Effect: Low
Max Target g: 7
Max Vel.(mach): 5.0 10/5 20/4.2 30/3.8

Names: Phoenix
Aircraft: F-14A/ B/ D
Notes: 1974. USA. Break turn 8g, chaff, beam, weaving, dive and climb. (20g), Max AOA 15°, gimbal limit 60°, tracking rate 25°/sec, FOV 10°, 200 sec. WEZ is way off in HUD. PB 7.5nm. MAR 22nm if not lofted.

**AIM-54C Phoenix**

Guidance: ARH
Range Front: 20 - 45 nm
Range Rear: 12 - 16 nm
Chaff Effect: Low
Max Target g: 7
Max Vel.(mach): 5.0 10/5 20/4.2 30/3.8

Names: Phoenix
Aircraft: F-14A/ B/ D
Notes: 1986. USA. Break turn 8g, chaff, beam, weaving, dive and climb. (17g), Max AOA 15°, gimbal limit 60°, tracking rate 25°/sec, FOV 10°, 200 sec. PB 7.5nm. Mach 4 and MAR 22nm if not lofted.

**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 ADV
Notes: 1994. USA. HOJ. Break AC radar lock prior to terminal phase. Crank & pump. (35g), AOA 27°, gmbl lmt 60°, tkg rate 40°/sec, FOV 10°, 80 sec. PB 7-12nm. Lofted numbers.

**AIM-120C AMRAAM**

Guidance: ARH
Range Front: 17 - 30 nm
Range Rear: 12 - 16 nm
Chaff Effect: Very Low
Max Target g:
Max Vel.(mach): 3.7 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 ADV
Notes: 1996. USA. HOJ. Break AC rdr lock prior to term phase. Crank & pump. (35g), Max AOA 29°, gmbl lmt 60°, tkg rate 40°/sec, FOV 10°, 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)

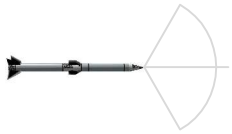
Names: Advanced Short Range Air to Air Missile
Aircraft: EF-2000 Typhoon, Tornado ADV/ GR4
Notes: 1998. RAF, RAAF. IRCCM. LOAL N/I. (50g), Max AOA 35° 47°, gimbal limit 90°, tracking rate 90°/sec, FOV 3°, 35 sec. IR seeker Front 12-(31)nm, Rear 12-(31)nm.

**BVRAAM Meteor**

Guidance: ARH
Range Front: 54 nm
Range Rear: xxx nm
Chaff Effect: xxx
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

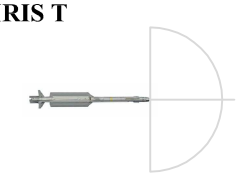
**Derby AAM**



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

**IRIS T**



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 2000-5F/ EGM
Notes: 2007. FAF. 360° launch envelope. Link 16 targeting. LOAL, ECCM, TVC, HMCS. (40g), Max AOA 30°, gimbal limit 60°, tracking rate 40°/sec, FOV 10°, 65 sec. PB 7nm.

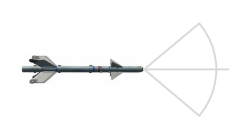
**Mica IR**



Guidance: IR All Aspect
Range Front: 14 - 22 nm
Range Rear: 6 - 8 nm
Flare Effect: Very Low
Max Target g: 13
Max Vel.(mach): 3.9

Names: Mica
Aircraft: Mirage 2000-5F/ EGM (Likes to shoot from 22nm)
Notes: 2007. FAF. 360° launch envelope. Link 16 targeting. LOAL, IRCCM, TVC, HMCS. (40g), Max AOA 43°, 25°, 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: Medium
Max Target g: xx
Max Vel.(mach): 3.0 (1,984 kts)

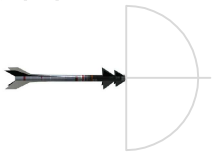
Names: Python-3
Aircraft: F-15C Bas IDF, F-15I Ra'am IDF
Notes: 1985. IAF. (35g), Max AOA 20°,26°, gimbal limit 40°, tracking rate 25°/sec, FOV 3°, 40 sec. Seeker range Front 2.5-(7.8)nm, Rear 3.2-(8.5)nm.

**Python 4**

Guidance: IR All Aspect
Range Front: 9 - (13) nm
Range Rear: 5 - 6 nm
Flare Effect: Very Low
Max Target g: xx
Max Vel.(mach): 3.3 (2,183 kts)

Names: Python-4
Aircraft: F-15C Bas IDF, F-15I Ra'am IDF, F-16IAF
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 Bas IDF, F-15I Ra'am IDF, F-16IAF
Notes: 2003. IAF. IRCCM. HMCS. LOAL. (50g), Max AOA 30°, gimbal limit 90°, tracking rate 90°/sec, FOV 4°, 30 sec. IR seeker Front 11.5-(35)nm, Rear 11.5-(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)

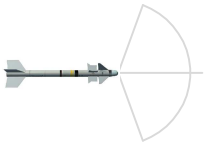
Names: Super Matra
Aircraft: Mirage 2000C, Mirage F1
Notes: 1988. FAF. ECCM. (23g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 100 sec. Limitted by supporting AC radar. Hard to keep lock over 10 nm.

**R.550 Magic**

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

Names: R550 Magic.
Aircraft: MB-339, Mirage F-1
Notes: 1975. FAF. (50g), 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: Medium
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 Typhoon, 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.


f-16.net

## AIR DEFENSE VEHICLE THREAT GUIDE - OPFOR

| SAM | RWR | Tracking | Min Rng /Alt | Typical Engagement | Max Range/ Alt | ECM | CM |
|---|---|---|---|---|---|---|---|
| SA-2 | 2 | Fan Song | 4nm/ 300ft | 18nm/ 90,000ft | 18nm/ 90,000ft | 11-14nm | Med |
| SA-3 | 3 | Low Blow | 2.9nm/ 150ft | 10nm/ 120,000ft | 19nm/ 120,000ft | 6nm | Med |
| SA-4 | 4 | Pat Hand | 0.8nm/ 500ft | 19nm/ 80,000ft | 30nm/ 80,000ft | 14nm | Med |
| SA-5 | 5 | Square Pair | 10-13nm/ 3,000ft | 53nm/ 327,000ft | 190nm/ 327,000ft | 0nm | High |
| SA-6 | 6 | Straight Flush | 0nm/ 550ft | 10nm/ 99,800ft | 20nm/ 99,800ft | 4-8nm | Med |
| HN-5A | | Rear Aspect IR | 0nm/ 0ft | 2nm/ 7,800ft | 4nm/ 14,000ft | N/A | High |
| SA-7 | | Rear Aspect IR | 0.2nm/ 50ft | 2nm/ 5,000ft | 4nm/ 14,000ft | N/A | High |
| SA-8 | 8 | OB Land Roll | 0nm/ 80ft | 3.5nm/ 12,000ft | 8.5nm/ 40,000ft | 3.4nm | High |
| SA-9 | | Rear Aspect IR | 0nm/ 0ft | 2.5nm/ 13,500ft | 3.2nm/ 18,000ft | N/A | High |
| SA-10 | 10 | Flap Lid | 0nm/ 100ft | 49nm/ 380,00ft | 50nm/ 380,000ft | No Effect | No Effect |
| SA-11 | 11 | OB Fire Dome | 1nm/ 180ft | 12.5nm/ 90,000ft | 19nm/ 90,000ft | No Effect | No Effect |
| SA-13 ∞ | 13 | OB Snap Shot/ IR | 0nm/ 0ft | 2nm/ 9,000ft | 5nm/ 26,800ft | N/A | No Effect |
| SA-14 | | All Aspect IR | 0nm/ 50ft | 2nm/ 10,000ft | 4nm/ 15,600ft | N/A | Med |
| SA-15 ∞ | 15-M- | OB Scrum Half | 0nm/ 0ft | 4nm/ 15,000ft | 7nm/ 42,500ft | No Effect | No Effect |
| SA-16 | | All Aspect IR | 0nm/ 0ft | 2.8nm/ 10,000ft | 3.6nm/ 27,000ft | N/A | Med |
| SA-17 | 17 | OB Fire Dome | 2nm/ 140ft | 18-23nm/ 79,000ft | 17nm/ 79,000ft | No Effect | No Effect |
| SA-19/2S6 ∞ | A | OB Hot Shot/ IR | 0nm/ 0ft | 3.8nm/ 10,000ft | 5.7nm/ 38,000ft | No Effect | No Effect |

| AAA | RWR | Tracking | Min Rng/Alt | Typical Engagement | Max Range/ Alt | Caliber | CM |
|---|---|---|---|---|---|---|---|
| KS-12 | A | Fire Can/ Optical | 0nm/ 2,000ft | 5nm/ 27,000ft | 5nm/27,000ft | 85mm Flak | Very Low |
| KS-19 | A | Fire Can/ Optical | 0nm/ 2,000ft | 5nm/ 33,500ft | 5nm/ 33,500ft | 100mm Flak | Very Low |
| S-60 | A | Fire Can/ Optical | 0nm/ 0ft | 1.3nm/ 8,600ft | 1.3nm/ 8,600ft | 57mm Flak | Very Low |
| 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/ 9,800ft | 2.5nm/ 14,000ft | 30mm | Very Low |
| ZU-23 | | Optical | 0nm/ 0ft | 2.0nm/ 9,600ft | 2.0nm/ 9,600ft | 23mm | No Effect |
| ZPU-2 | | Optical | 0nm/ 0ft | 1.5nm/ 9,700ft | 1.5nm/ 9,700ft | 14.5mm | No Effect |
| ZSU-23-4 | A | OB Gun Dish | 0nm/ 0ft | 2nm/ 8,200ft | 3nm/ 18,200ft | 23mm | Very Low |
| ZSU-57-2 | | Optical | 0nm/ 2,000ft | 3nm/ 20,800ft | 3nm/20,800ft | 57mm Flak | No Effect |

CM Counter measure Effectiveness
OB On board radar
∞ Impossible to evade/ drag missile

# AIR DEFENSE VEHICLE THREAT GUIDE - BLUEFOR

| SAM | RWR | 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 | Med |
| Chaparal | | Rear Aspect IR | 0nm/ 0ft | 0.2nm/ 100ft | 1.4nm/ 3,100ft | N/A | High |
| Hawk | H | AN/MPQ-46 | 0.5nm/200ft | 9-12nm/ 44,000ft | 18-39nm/ 62,000ft | 8-10nm | Low |
| KSAM | C | OB Daewoo | 0nm/ 0ft | 5nm/ 10,000ft | 8nm/ 27,000ft | N/E | Med |
| LAV/ ADATS | | All Aspect IR | 0nm/ 0ft | 2nm/ 7,000ft | 3nm/ 20,000ft | N/A | Med |
| M2A2/ ADATS | | All Aspect IR | 0nm/ 0ft | 2nm/ 7,000ft | 3nm/ 20,000ft | N/A | Med |
| M2A2/ ADV | | All Aspect IR | 0nm/ 0ft | 2nm/ 7,000ft | 3nm/ 20,000ft | N/A | Med |
| Mistral | | All Aspect IR | 0nm/ 0ft | 3nm/10,000ft | 3nm/18,000ft | N/A | Very Low |
| Nike Hercules | N / PI | AN/ MPQ-43 | 3nm/ 8,400ft | 53nm/ 259,000ft | 35nm/259,000ft | 15nm | Low |
| Patriot | P | AN/MSQ-104 | 1nm/ 160ft | 49nm/ 80,000ft | 68nm/ 80,000ft | N/E | Very Low |
| Sky Guard | P | Sky Guard | 0nm/ 0ft | 8nm/ 20,000ft | 11nm/ 23,000ft | 4nm | Low |
| Stinger | | All Aspect IR | 0nm/ 0ft | 2nm/ 10,000ft | 3nm/ 20,000ft | N/A | Med |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

| AAA | RWR | Tracking | Min Rng/Alt | Typical Engagement | Max Range/ Alt | Caliber | CM |
|---|---|---|---|---|---|---|---|
| K200-AD | A | OB Radar | 0nm/ 0ft | 2.0nm/ 9,900ft | 2.0nm/ 9,900ft | 20mm | Very Low |
| M-163/ -167 | A | OB Radar | 0nm/ 0ft | 2.0nm/ 9,900ft | 2.0nm/ 9,900ft | 20mm | Very Low |
| | | | | | | | |
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CM Counter measure Effectiveness
OB On board radar
N/E No effect
Hawk 2nd numbers 44,000 feet

| 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-7 III | Multi | 9 | 4 | | PL-7, PL-8 | | | |
| J-8B/ C/ D | Fighter | 15 | 4 | | PL-7, PL-8 | AA-10A | AA-10B | |
| J-11 | Multi | 17 | 10 | | AA-8 | AA-10A/ C | AA-10B/ D, AA-11 | AA-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-1, AA-2C | AA-2D | | | |
| Mig-19SF | Fighter | 2 | 0 | | | | | |
| Mig-21F-13 | Fighter | 7 | 4 | AA-1, AA-2C | AA-2D | | | |
| Mig-21 Mbis | Multi | 8 | 4 | AA-2C | AA-2D, AA-8 | | | |
| Mig-21MF/PFM | Multi | 8 | 4 | AA-2C | AA-2D, AA-8 | | | |
| Mig-21-93 | Multi | 15 | 4 | AA-2C | AA-2D, AA-8 | AA-10A | | |
| Mig-23ML | Multi | 12 | 4-6 | AA-2C, AA-7R | AA-2D, AA-7, AA-8 | | | |
| Mig-25 | Interceptor | 10 | 4-6 | AA-7R | AA-7, AA-8 | AA-6R | AA-6 | |
| Mig-27 | Attack | 8 | 4-6 | | AA-2D, AA-7, AA-8 | | | |
| Mig-29A | Fighter | 15 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | |
| Mig-29G | Fighter | 15 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | |
| Mig-29M | Fighter | 15 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | |
| Mig-29S | Fighter | 17 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | AA-12 |
| Mig-31 | Interceptor | 20 | 8-10 | | AA-8 | AA-9, AA-10C | AA-6, AA-10B, AA-11 | |
| Q-5 | Attack | 5 | 6 | | AA-2D, PL-7 | | | |
| Su-7BMK | Attack | 7 | 2 | AA-2C | | | | |
| Su-15 | Interceptor | 7 | 4 | AA-1, AA-2C | AA-2D | | | |
| Su-17 | Attack | 7 | 4 | | AA-2D, AA-8 | | | |
| Su-20 | Attack | 7 | 4 | | AA-2D, AA-8 | | | |
| Su-22 | Attack | 7 | 4 | | AA-2D, AA-8 | | | |
| Su-24 | Attack | 2 | 0 | | | | | |
| Su-24M | Attack | 7 | | | AA-8 | | | |
| Su-25 | Attack | 7 | 2 | | AA-8 | | | |
| Su-27 | Fighter | 17 | 10 | | AA-8 | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 |
| Su-27UB | Fighter | 17 | 10 | | AA-8 | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 |
| Su-30M | Multi | 17 | 10 | | | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 |
| Su-30MKK | Multi | 17 | 10 | | | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 |
| Su-33 | Multi | 17 | 10 | | | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 |
| Su-34 | Multi | 17 | 10 | | | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 |
| Su-35 | Multi | 17 | 10 | | | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 |
| Su-37 | Multi | 17 | 10 | | | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 |
| Su-39 | Attack | 17 | 6 | | AA-8 | | | AA-12 |
| Yak-25 | | 4 | | AA-1 | | | | |
| Yak-28 | | 4 | | AA-2 | | | | |
| | | | | | | | | |

# 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-4B** | USN | Attack | 2 | 0 | | | | | |
| **A-4E** | USN | Attack | 5 | 2 | | AIM-9J | | | |
| **A-4M** | USN | Attack | 7 | 2 | | | | AIM-9M | |
| **A-6E** | USN | Attack | 0 | 0 | | | | | |
| **A-7D** | USAF | Attack | 7 | 2 | | AIM-9P | | AIM-9M | |
| **A-7E** | USN | Attack | 7 | 2 | | AIM-9P | | AIM-9M | |
| **A-7H** | HAF | Attack | 7 | 2 | | AIM-9P | | AIM-9M | |
| **A-10A/ C** | USAF | Attack | 7 | 2 | | AIM-9P | | AIM-9M | |
| **AJ 37** | SAF | Multi | 17 | 6 | | | Skyflash | AIM-9M | AIM-120B |
| **AMX** | ITAF | Attack | 7 | 2 | | | | AIM-9M | |
| **AV-8B** | 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/ P | AIM-7F/ M | AIM-9M/ X | AIM-120B |
| **EA-6B** | USN | EW | 0 | 0 | | | | | |
| **EA-18G** | USN | EW | 20 | 2 | | | | | AIM-120C |
| **EF-2000 GE** | | Multi | 17 | 12 | | IRIS-T | | AIM-9M/ X | AIM-120B |
| **EF-2000 Typhoon** | | Multi | 17 | 12 | | | Skyflash | AIM-9M/ X/ 132 | AIM-120B |
| **F-4B** | USN | Multi | 10 | 6-8 | AIM-7D/ E | AIM-9B/ D/ G/ H | AIM-7E-2 | | |
| **F-4C** | USAF | Multi | 10 | 6-8 | AIM-7D/ E | AIM-9B/ E/ J | AIM-7E-2 | | |
| **F-4D** | USAF | Multi | 10 | 6-8 | AIM-7D/ E | AIM-9B/ E/ J | AIM-7E-2 | | |
| **F-4D SK** | ROK | Multi | 10 | 6-8 | AIM-7D/ E | AIM-9B/ E/ J | AIM-7E-2 | | |
| **F-4E IAF** | IAF | Multi | 13 | 6-8 | | | AIM-7E-2/ M | AIM-9M | |
| **F-4E ROK** | ROK | Multi | 13 | 6-8 | | AIM-9P | AIM-7M | AIM-9M | |
| **F-4E USAF** | USAF | Multi | 13 | 6-8 | | AIM-9P | AIM-7M | AIM-9M | |
| **F-4E J** | JASDF | Multi | 13 | 6-8 | | | AIM-7E-2/ M | AIM-9M | |
| **F-4F** | GAF | Multi | 17 | 6-8 | | AIM-9P | AIM-7M | AIM-9M | AIM-120B |
| **F-4G Wild Weasel** | | Multi | 13 | 6-8 | | AIM-9P | AIM-7M | AIM-9M | |
| **F-4J** | USN | Multi | 10 | 6-8 | AIM-7D/ E | AIM-9B/ D/ G/ H | AIM-7E-2 | | |
| **F-4K** | RN | Fighter | 11 | 6-8 | | | AIM-7E-2, Skyflash | AIM-9M | |
| **F-4M** | RAF | Multi | 11 | 6-8 | | | AIM-7E-2, Skyflash | AIM-9M | |
| **F-4N** | USN | Multi | 10 | 6-8 | AIM-7D/ E | AIM-9B/ D/ G/ H | AIM-7E-2 | | |
| **F-4S** | USN | Multi | 10 | 6-8 | AIM-7D/ E | AIM-9B/ D/ G/ H | AIM-7E-2 | | |
| **F-5A** | USAF | Fighter | 7 | 6 | | AIM-9P | | AIM-9M | |
| **F-5E** | USAF | Fighter | 7 | 6 | | AIM-9P | | AIM-9M | |
| **F-8E** | USN | Fighter | 6 | 4 | | AIM-9B/ D/ G/ H | | | |
| **F-14A** | USN | Fighter | 40 | 8 | | | AIM-7M | AIM-9M | AIM-54A/ C |
| **F-14B** | USN | Fighter | 40 | 8 | | | AIM-7M | AIM-9M | AIM-54A/ C |
| **F-14D** | USN | Fighter | 40 | 8 | | | AIM-7M | AIM-9M | AIM-54A/ C |
| **F-15A** | USAF | Fighter | 13 | 8 | | AIM-9P | AIM-7F/ M | AIM-9M | |
| **F-15C** | USAF | Fighter | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-15C 65th AS** | USAF | Fighter | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-15C Baz IDF** | IAF | Fighter | 20 | 8 | | AIM-9P, Python 3/ 4 | AIM-7M | AIM-9M, Python 5 | AIM-120B/ C |
| **F-15D** | USAF | Fighter | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-15DJ** | JASDF | Fighter | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-15E-220** | USAF | Multi | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-15E-229** | USAF | Multi | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-15I Ra'am IDF** | IAF | Fighter | 20 | 8 | | AIM-9P, Python 3/ 4 | AIM-7M | AIM-9M, Python 5 | AIM-120B/ C |
| **F-15J** | JASDF | Fighter | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-15K** | ROK | Fighter | 20 | 8 | | | | AIM-9X | AIM-120C |
| **F-16A Blk 15** | USAF | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M | AIM-120B |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **F-16AM MLU BAF** | BAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B |
| **F-16AM MLU RDAF** | RDAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C |
| **F-16AM MLU RNLAF** | RNLAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B |
| **F-16AM MLU RNoAF** | RNoAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M, IRIS-T | AIM-120B |
| **F-16B Blk 15** | USAF | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M | AIM-120B |
| **F-16C AGRS** | USAF | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-16C Blk 25** | USAF | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-16C Blk 30** | USAF | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-16C Blk 30 IAF** | BfS IAF | Multi | 13 | 6 | | AIM-9P | AIM-7F, M | | |
| **F-16C Blk 32** | USAF | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **F-16C Blk 32 EAF** | BfS EAF | Multi | 13 | 6 | | | AIM-7F, M | | |
| **F-16C Blk 40** | USAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C |
| **F-16C Blk 42** | USAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C |
| **F-16C Blk 50** | USAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C |
| **F-16C Blk 52** | USAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C |
| **F-16C Blk 52 CFT** | HAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M, IRIS-T | AIM-120B/ C |
| **F-16D Blk 40** | USAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C |
| **F-16D Blk 52** | USAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C |
| **F/A-18A** | USN | Multi | 17 | 8-12 | | AIM-9H/ J/ P | AIM-7F/ M | AIM-9M | AIM-120B/ C |
| **F/A-18B** | USN | Multi | 17 | 8-12 | | AIM-9H/ J/ P | AIM-7F/ M | AIM-9M | AIM-120B/ C |
| **F/A-18C** | USN | Multi | 17 | 8-12 | | AIM-9P | AIM-7F/ M | AIM-9M/ X | AIM-120B/ C |
| **F/A-18D** | USN | Multi | 17 | 8-12 | | AIM-9P | AIM-7F/ M | AIM-9M/ X | AIM-120B/ C |
| **F/A-18E** | USN | Multi | 17 | 10-16 | | AIM-9P | AIM-7F/ M | AIM-9M/ X | AIM-120B/ C |
| **F/A-18F** | USN | Multi | 17 | 10-16 | | AIM-9P | AIM-7F/ M | AIM-9M/ X | AIM-120B/ C |
| **F-22A** | USAF | Fighter | 17 | 6 | | | | AIM-9M | AIM-120C |
| **F-100D** | USAF | Multi | 2 | 0 | | | | | |
| **F-104** | USAF | Fighter | 5 | 4 | | AIM-9B | | | |
| **F-105D** | USAF | Multi | 5 | 2-4 | | AIM-9B | | | |
| **F-111A** | USAF | Attack | 0 | 0 | | | | | |
| **F-111C** | USAF | Attack | 7 | 2 | | | | AIM-9M | |
| **F-111D** | USAF | Attack | 0 | 0 | | | | | |
| **F-111E** | USAF | Attack | 0 | 0 | | | | | |
| **F-111F** | USAF | Attack | 0 | 0 | | | | | |
| **F-111G** | USAF | Attack | 7 | 2 | | | | AIM-9M | |
| **FB-111** | USAF | Attack | 0 | 0 | | | | | |
| **F-117A** | USAF | Attack | 0 | 0 | | | | | |
| **JA 37** | SAF | Fighter | 17 | 6 | | | Skyflash | AIM-9M | AIM-120B |
| **KF-16C Blk 32** | ROK | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B |
| **KF-16C Blk 52** | ROK | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C |
| **MB-339** | ITAF | Attack | 8 | 2 | | R.550 | | AIM-9M | |
| **Mirage 2000C** | FAF | Fighter | 17 | 4 | | R.550-II | R.530D | | |
| **Mirage 2000D** | FAF | Fighter | 8 | 2 | | R.550-II | | | |
| **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-1** | FAF | Fighter | 17 | 6 | | R.550/ -II | R.530D | | |
| **Mirage IIIE** | FAF | Fighter | 8 | 2 | | R.550-II | | AIM-9M | |
| **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 ADV** | RAF | Fighter | 17 | 8 | | | Skyflash | AIM-9M/ 132 | AIM-120B/ C |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Tornado ECR AMI** | ITAF | Attack | 7 | 2 | | | | AIM-9M | |
| **Tornado ECR GE** | GAF | Attack | 7 | 2 | | | | AIM-9M | |
| **Tornado IDS AMI** | ITAF | Attack | 7 | 2 | | | | AIM-9M | |
| **Tornado IDS GE** | GAF | Attack | 7 | 2 | | | | AIM-9M | |
| **Tornado GR.4** | RAF | Attack | 14 | 2 | | | | AIM-9M/ 132 | |
| | | | | | | | | | |

AV-MF: Russian Naval Aviation (Aviatsiya Voyenno 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 Austrailan Air Force
RCAF: Royal Canadian Air Force
RDAF: Royal Danish Air Force (Denmark) (Flyvevåbnet)
RN: British Royal Navy aka FAA
RNLAF: Royal Netherlands Air Force (Koninklijke Luchtmacht)
RNoAF: Royal Norwegian Air Force (Luftforsvaret)
ROK: Repuplic of Korea/ South Korea
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 (Voyenno-Vozdushnye Sily Rossii)

## AIRCRAFT THREAT GUIDE - OPFOR (KTO)

| Aircraft | Origin | Role | MAR | AA Hard Points | SARH WVR | IR WVR | SARH BVR | IR BVR | ARH BVR | AIR BASES |
|---|---|---|---|---|---|---|---|---|---|---|
| J-5/ Mig-17F | DPRK | Fighter | 2 | 0 | | | | | | |
| J-8B/ C/ D | DPRK | Fighter | 15 | 4 | | PL-7, PL-8 | AA-10A | AA-10B | | |
| J-11 | PLAAF | Multi | 17 | 10 | | AA-8 | AA-10A/ C | AA-10B/ D, AA-11 | AA-12 | |
| MD-500 | DPRK | Helo Attack | 2 | 0 | | | | | | |
| Mi-8 | DPRK | Helo Attack | 2 | 0 | | | | | | |
| Mi-26 | DPRK | Helo Attack | 2 | 0 | | | | | | |
| Mig-19SF | DPRK | Fighter | 2 | 0 | | | | | | |
| Mig-21F-13 | DPRK | Fighter | 7 | 4 | AA-1, AA-2C | AA-2D | | | | |
| Mig-21 Mbis | DPRK | Multi | 8 | 4 | AA-2C | AA-2D, AA-8 | | | | |
| Mig-21MF | DPRK | Multi | 8 | 4 | AA-2C | AA-2D, AA-8 | | | | |
| Mig-23ML | DPRK | Multi | 12 | 4-6 | AA-2C, AA-7R | AA-2D, AA-7, AA-8 | | | | |
| Mig-29A | DPRK | Fighter | 15 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | | |
| Mig-29S | DPRK | Fighter | 17 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | AA-12 | |
| Q-5 | DPRK | Attack | 5 | 6 | | AA-2D, PL-7 | | | | |
| Su-25 | DPRK | Attack | 7 | 2 | | AA-8 | | | | |
| Su-30MKK | PLAAF | Multi | 17 | 10 | | | AA-10A/C | AA-10B/ D, AA-11 | AA-12 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

## AIRCRAFT THREAT GUIDE - BLUEFOR (KTO)

| Aircraft | Origin | Role | MAR | AA Hard Points | SARH WVR | IR WVR | SARH BVR | IR BVR | ARH BVR | AIR BASES |
|---|---|---|---|---|---|---|---|---|---|---|
| A-10A/ C | USAF | Attack | 7 | 2 | | AIM-9P | | AIM-9M | | |
| AV-8B | USMC | Attack | 7 | 4 | | | | AIM-9M | | |
| CF/A-18 | RCAF | Multi | 17 | 12 | | AIM-9H/ J/ P | AIM-7F/ M | AIM-9M/ X | AIM-120B | |
| EA-18G | USN | EW | 17 | 2 | | | | | AIM-120C | |
| F-4E ROK | ROK | Multi | 13 | 6-8 | | AIM-9P | AIM-7M | AIM-9M | | |
| F-5E | USAF | Fighter | 7 | 6 | | AIM-9P | | AIM-9M | | |
| F-15C | USAF | Fighter | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C | |
| F-15E-229 | USAF | Multi | 20 | 8 | | AIM-9P | AIM-7M | AIM-9M/ X | AIM-120B/ C | |
| F-16C Blk 40 | USAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C | |
| F-16C Blk 50 | USAF | Multi | 17 | 6 | | AIM-9P | | AIM-9M/ X | AIM-120B/ C | |
| F/A-18C | USN | Multi | 17 | 8-12 | | | AIM-7M | AIM-9M | AIM-120C | |
| F-117A | USAF | Attack | 0 | 0 | | | | | | |
| KF-16C Blk 32 | ROK | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M | AIM-120B | |
| KF-16C Blk 52 | ROK | Multi | 17 | 6 | | AIM-9P | AIM-7M | AIM-9M | AIM-120B | |
| Tornado IDS GE | GAF | Attack | 7 | 2 | | | | AIM-9M | | |
| | | | | | | | | | | |

## AIRCRAFT THREAT GUIDE - OPFOR (Israel Standing Wave)

| Aircraft | Origin | Role | MAR | AA Hard Points | SARH WVR | IR WVR | SARH BVR | IR BVR | ARH BVR | AIR BASES |
|---|---|---|---|---|---|---|---|---|---|---|
| **F-16C-32 EAF** | EAF | Multi | 13 | 6 | | AIM-9P | AIM-7M | AIM-9M | | Abu Suwayr |
| **F-16C-40 EAF** | EAF | Multi | 13 | 6 | | AIM-9P | AIM-7M | AIM-9M | | Faid |
| **F-16C-52 EAF** | EAF | Multi | 13 | 6 | | AIM-9P | AIM-7M | AIM-9M | | Faid |
| **Mi-8** | Syria | Helo | 2 | | | | | | | Mezze |
| **Mi-24** | Syria | Helo | 2 | | | | | | | As Suwayda, * |
| **Mig-21F-13** | EAF | Fighter | 7 | 4 | AA-1, AA-2C | AA-2D | | | | Hurghada |
| **Mig-21MF** | Syria | Multi | 8 | 4 | AA-2C | AA-2D, AA-8 | | | | Al Qusayr, Kalhalhak |
| **Mig-23ML** | Syria | Multi | 12 | 4-6 | AA-2C, AA-7R | AA-2D, AA-7, AA-8 | | | | An Nasariyah, * |
| **Mig-25** | Syria | Interceptor | 10 | 4-6 | AA-7R | AA-7, AA-8 | AA-6R | AA-6 | | Tiyas |
| **Mig-29A** | Syria | Fighter | 15 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | | Sayqal |
| **Rafale C** | EAF | Multi | 14 | 10 | | | | MICA IR | MICA EM | Cairo West |
| **Su-22** | Syria | Attack | 7 | 4 | | AA-2D, AA-8 | | | | Shayrat |
| **Su-24** | Syria | Attack | 7 | | | AA-8 | | | | Tiyas |
| **UH-1N** | Syria | Helo | 2 | | | | | | | Rafic Hariri |
| | | | | | | | | | | |

## AIRCRAFT THREAT GUIDE - BLUEFOR (Israel Standing Wave)

| Aircraft | Origin | Role | MAR | AA Hard Points | SARH WVR | IR WVR | SARH BVR | IR BVR | ARH BVR | AIR BASES |
|---|---|---|---|---|---|---|---|---|---|---|
| **AH-64A** | IAF | Helo | 2 | | | | | | | Migiddo |
| **AH-64D** | IAF | Helo | 2 | | | | | | | Ramon |
| **CH-53D** | IAF | Helo | 0 | | | | | | | Tel Nof |
| **EF-2000** | SA | Multi | 17 | 12 | | | Skyflash | AIM-9M/ 132 | AIM-120B | Prince Sultan Bin A. |
| **F-5E** | JO | Fighter | 7 | 6 | | AIM-9P | | AIM-9M | | King Faisal |
| **F-15C Baz IDF** | IAF | Fighter | 20 | 8 | | AIM-9MP, Python 3/ 4 | AIM-7M | AIM-9M, Python 5 | AIM-120B/ C | Tel Nof |
| **F-15E-220** | SA | Multi | 20 | 8 | | | | AIM-9M/ X | AIM-120B/ C | Prince Sultan Bin A. |
| **F-15I** | IAF | Fighter | 20 | 8 | | AIM-9MP, Python 3/ 4 | AIM-7M | AIM-9M, Python 5 | AIM-120B/ C | Hatzerim |
| **F-16A-15 IAF** | IAF | Multi | 7 | 6 | | AIM-9P | | AIM-9M | | Ovda |
| **F-16AM JO** | JO | Multi | 17 | 6 | | AIM-9P | | AIM-9M | AIM-120B/ C | Shaheed Mwaffaq |
| **F-16C-30 IAF** | IAF | Multi | 14 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | | Ramat David |
| **F-16D-30 IAF** | IAF | Multi | 14 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | | Ramat David |
| **F-16C-40 IAF** | IAF | Multi | 14 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | | Hatzor |
| **F-16D-40 IAF** | IAF | Multi | 14 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | | Hatzor |
| **F-16I-52-CFT** | IAF | Multi | 17 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | AIM-120B/ C | Hatzerim, Ramon |
| **UH-60L** | IAF | Helo | 0 | | | | | | | Hatzerim, Palmachim |
| | | | | | | | | | | |

IAF: Israel Air Force
EAF: Egyptian Air Force
JO: Jordan Air Force
SA: Saudi Arabian Air Force

*Marj Ruhayyil

**BOMBERS AND SUPPORT AC**

| | |
|---|---|
| A-50 | Palmyr |
| AN-24 | Sayqal |
| C-17 | Aktori |
| C-130 | Nevatim |
| C-130H | Cairo |
| G550 CAEW | Nevatim |
| IL-76M | Sayqal |

## AIRCRAFT THREAT GUIDE - OPFOR (Israel Operation Solid Truss)

| Aircraft | Origin | Role | MAR | AA Hard Points | SARH WVR | IR WVR | SARH BVR | IR BVR | ARH BVR | AIR BASES |
|---|---|---|---|---|---|---|---|---|---|---|
| **AH-64A** | EAF | Helo | 2 | | | | | | | Al Zaqaziq, ** |
| **CH-47** | EAF | Helo | 0 | | | | | | | Kom Awashim |
| **F-16C-32 EAF** | EAF | Multi | 13 | 6 | | AIM-9P | AIM-7M | AIM-9M | | Abu Suwayr, Ben Suef |
| **F-16C-40 EAF** | EAF | Multi | 13 | 6 | | AIM-9P | AIM-7M | AIM-9M | | Faid, Jinkalis New |
| **F-16C-52 EAF** | EAF | Multi | 13 | 6 | | AIM-9P | AIM-7M | AIM-9M | | Faid |
| **Mi-8** | Syria | Helo | 2 | | | | | | | Cairo Almaza |
| **Mi-24** | Syria | Helo | 2 | | | | | | | As Suwayda, * |
| **Mig-21F-13** | EAF | Fighter | 11 | 4 | | AIM-9P | | | | Al Mansurha, Hurghada |
| **Mig-21MF** | Syria | Multi | 10 | 4 | | AIM-9P | | | | Al Mansurha |
| **Mig-23ML** | Syria | Multi | 12 | 4-6 | AA-2C, AA-7R | AA-2D, AA-7, AA-8 | | | | An Nasariyah, * |
| **Mig-25** | Syria | Interceptor | 10 | 4-6 | AA-7R | AA-7, AA-8 | AA-6R | AA-6 | | Tiyas |
| **Mig-29A** | Syria | Fighter | 15 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | | Sayqal |
| **Mirage 2000EM** | EAF | Multi | 17 | 4 | | R.550 Magic II | R.530D | | | Tanta |
| **Rafale C** | EAF | Multi | 14 | 10 | | | | MICA IR | MICA EM | Cairo West |
| **Su-22** | Syria | Attack | 7 | 4 | | AA-2D, AA-8 | | | | Shayrat |
| **Su-24** | Syria | Attack | 7 | | | AA-8 | | | | Tiyas |
| **UH-1N** | Syria | Helo | 0 | | | | | | | Rafic Hariri |
| | | | | | | | | | | |

## AIRCRAFT THREAT GUIDE - BLUEFOR (Israel Operation Solid Truss)

| Aircraft | Origin | Role | MAR | AA Hard Points | SARH WVR | IR WVR | SARH BVR | IR BVR | ARH BVR | AIR BASES |
|---|---|---|---|---|---|---|---|---|---|---|
| **AH-64A** | IAF | Helo | 2 | | | | | | | Migiddo |
| **AH-64D** | IAF | Helo | 2 | | | | | | | Ramon |
| **CH-53D** | IAF | Helo | 0 | | | | | | | Tel Nof |
| **EF-2000** | SA | Multi | 17 | 12 | | | Skyflash | AIM-9M/ 132 | AIM-120B | Prince Sultan Bin A. |
| **F-5E** | JO | Fighter | 7 | 6 | | AIM-9P | | AIM-9M | | King Faisal |
| **F-15C Baz IDF** | IAF | Fighter | 20 | 8 | | AIM-9MP, Python 3/ 4 | AIM-7M | AIM-9M, Python 5 | AIM-120B/ C | Tel Nof |
| **F-15E-220** | SA | Multi | 20 | 8 | | | | AIM-9M/ X | AIM-120B/ C | Prince Sultan Bin A. |
| **F-15I** | IAF | Fighter | 20 | 8 | | AIM-9MP, Python 3/ 4 | AIM-7M | AIM-9M, Python 5 | AIM-120B/ C | Hatzerim |
| **F-16A-15 IAF** | IAF | Multi | 7 | 6 | | AIM-9P | | AIM-9M | | Ovda |
| **F-16AM JO** | JO | Multi | 17 | 6 | | AIM-9P | | AIM-9M | AIM-120B/ C | Shaheed Mwaffaq |
| **F-16C-30 IAF** | IAF | Multi | 14 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | | Ramat David |
| **F-16D-30 IAF** | IAF | Multi | 14 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | | Ramat David |
| **F-16C-40 IAF** | IAF | Multi | 14 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | | Hatzor |
| **F-16D-40 IAF** | IAF | Multi | 14 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | | Hatzor |
| **F-16I-52-CFT** | IAF | Multi | 17 | 6 | | AIM-9P, Python 4 | | AIM-9M, Python 5 | AIM-120B/ C | Hatzerim, Ramon |
| **UH-60L** | IAF | Helo | 0 | | | | | | | Hatzerim, Palmachim |
| | | | | | | | | | | |

IAF: Israel Air Force
EAF: Egyptian Air Force
JO: Jordan Air Force
SA: Saudi Arabian Air Force

* Marj Ruhayyil
** Wadi Al Jandali

**BOMBERS AND SUPPORT AC**

| | |
|---|---|
| A-50 | Palmyr |
| AN-24 | Sayqal |
| C-17 | Aktori |
| C-130H | Nevatim |
| C-130H | Cairo |
| E-2C | Cairo West |
| G550 CAEW | Nevatim |
| IL-76M | Sayqal |

## 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 | | | | Lepa Glava |
| **J-22** | FRY | Attack | 7 | | | AA-8 | | | | Kraljevo |
| **Mi-8** | FRY | Helo | 2 | 0 | | | | | | Kovin, Kraljevo, Ohrid, * |
| **Mi-8** | Croatia | Helo | 2 | 0 | | | | | | Split, Zagreb |
| **Mi-24** | Croatia | Helo | 2 | 0 | | | | | | Zagreb |
| **Mig-17PFU** | Albania | Fighter | 4 | 4 | AA-1 | | | | | Gramsh |
| **Mig-19SF** | Albania | Fighter | 2 | 0 | | | | | | Gramsh |
| **Mig-21bis** | FRY | Multi | 8 | 4 | AA-2C | AA-2D, AA-8 | | | | Podgorica, Sjenica |
| **Mig-21bis** | Coratia | Multi | 8 | 4 | AA-2C | AA-2D, AA-8 | | | | Pula, Split, Zagreb |
| **Mig-21F-13** | FRY | Fighter | 7 | 4 | AA-1, AA-2C | AA-2D | | | | Lepa Glava |
| **Mig-21MF** | FRY | Multi | 7 | 4 | AA-2C | AA-2D | | | | Beograd |
| **Mig-21MF** | Albania | Multi | 7 | 4 | AA-2C | AA-2D | | | | Gramsh |
| **Mig-29A** | FRY | Fighter | 15 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | | Batajnica |
| **Su-25** | FRY | Attack | 7 | 2 | | AA-8 | | | | Ohrid |
| | | | | | | | | | | |

## 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 |
| **AH-1S** | USMC | Helo | 2 | 0 | | | | | | Brindisi Casale, Falcanara |
| **AMX** | ITAF | Attack | 7 | 2 | | | | AIM-9M | | Istrana |
| **AV-8B** | USMC | Attack | 7 | 4 | | | | AIM-9M | | Lecce |
| **CH-47** | USA | Helo | 0 | 0 | | | | | | Bari, Brindisi Casale |
| **EA-6B** | USN | EW | 0 | 0 | | | | | | Matera |
| **F-15C** | USAF | Fighter | 20 | 8 | | | | AIM-9M/ X | AIM-120B/ C | Maribor |
| **F-16AM MLU** | RNLAF | Multi | 17 | 6 | | | | AIM-9M/ X | AIM-120B | Amendoloa, Crotone |
| **F-16CM Blk 40** | USAF | Multi | 17 | 6 | | | | AIM-9M/ X | AIM-120B/ C | Rimini |
| **F-16CM Blk 50** | USAF | Multi | 17 | 6 | | | | AIM-9M/ X | AIM-120B/ C | Gioia del Colle |
| **F/A-18D** | USN | Multi | 17 | 8-12 | | | | AIM-9M/ X | AIM-120B/ C | Lamezia |
| **F-117A** | USAF | Attack | 0 | 0 | | | | | | Birgi |
| **Mirage 2000C** | FAF | Fighter | 17 | 4 | | R.550-II | R.530D | | | Grosseto |
| **OH-58D** | USA | Helo | 0 | | | | | | | Brindisi Casale |
| **SEPECAT Jaguar** | FAF | Multi | 7 | 2 | | | | AIM-9M | | Bari, Lecce |
| **Tornado ADV** | RAF | Fighter | 17 | 8 | | | Skyflash | AIM-9M/ 132 | AIM-120B/ C | Gioia del Colle |
| **Tornado IDS** | | Attack | 7 | 2 | | | | AIM-9M | | Bari, Lecce |
| **U-2** | USAF | Recon | 0 | 0 | | | | | | Crotone |
| **UH-1N** | USA | Helo | 0 | 0 | | | | | | Matera |
| **UH-60L** | USA | Helo | 0 | 0 | | | | | | Gioia del Colle |
| | | | | | | | | | | |

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
HAF: Hellenic Air Force (Greece) (Polemikí Aeroporía)
ITAF: Italian Air Force (AM: Aeronautica Militare)
RAF: Royal Air Force (England)
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

* Podgorica

**BOMBERS AND SUPPORT AC**
AN-2: Batajnica, Ivangrad, Lepa Glava
AN-24: Ohrid, Sjenica
B-2A: Padova
C-5: Perugia
C-17: Bologna, Guidogna
C-130H: Ciampino
E-3 AWACS: Pantelleria
E-8C JSTAR: Matarello
KC-10: Vicenza
KC-135: Capodichino, Grotaglie, Pescara, S. Angelo

| 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 | | | | Batajnica, Kraljevo, * |
| **J-22** | FRY | Attack | 7 | | | AA-8 | | | | Kraljevo, Mostar, Tuzla |
| **Mi-8** | FRY | Helo | 2 | 0 | | | | | | Kovin, Kraljevo, Ohrid, ** |
| **Mi-24** | | Helo | 2 | 0 | | | | | | |
| **Mig-17PFU** | Albania | Fighter | 4 | 4 | AA-1 | | | | | Berat |
| **Mig-19SF** | Albania | Fighter | 2 | 0 | | | | | | Gramsh |
| **Mig-21bis** | FRY | Multi | 8 | 4 | AA-2C | AA-2D, AA-8 | | | | Osijek, Split |
| **Mig-21MF** | FRY | Multi | 7 | 4 | AA-2C | AA-2D | | | | Dubrovnic, Zemunik |
| **Mig-21MF** | Albania | Multi | 7 | 4 | AA-2C | AA-2D | | | | Gramsh |
| **Mig-29A** | FRY | Fighter | 15 | 6 | | AA-8 | AA-10A | AA-10B, AA-11 | | Banja Luka, Satorhely, Tuzla |
| **Su-25** | FRY | Attack | 7 | 2 | | AA-8 | | | | Ohrid |
| | | | | | | | | | | |

| 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 | | Ljubljana |
| **AH-1S** | USMC | Helo | 2 | 0 | | | | | | Falcanara |
| **AMX** | ITAF | Attack | 7 | 2 | | | | AIM-9M | | Istrana |
| **AV-8B** | USMC | Attack | 7 | 4 | | | | AIM-9M | | Maribor |
| **CH-47** | USA | Helo | 0 | 0 | | | | | | Bari, Brindisi Casale |
| **EA-6B** | USN | EW | 0 | 0 | | | | | | Portoroz |
| **F-15C** | USAF | Fighter | 20 | 8 | | | | AIM-9M/ X | AIM-120B/ C | Bolzano |
| **F-16AM MLU** | RNLAF | Multi | 17 | 6 | | | | AIM-9M/ X | AIM-120B | Amendoloa, Pula |
| **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 | Ljubljana |
| **F/A-18D** | USN | Multi | 17 | 8-12 | | | | AIM-9M/ X | AIM-120B/ C | |
| **F-117A** | USAF | Attack | 0 | 0 | | | | | | Aviano |
| **Mirage 2000C** | FAF | Fighter | 17 | 4 | | R.550-II | R.530D | | | Grosseto |
| **OH-58D** | USA | Helo | 0 | | | | | | | Rijeka |
| **SEPECAT Jaguar** | FAF | Multi | 7 | 2 | | | | AIM-9M | | |
| **Tornado ADV** | RAF | Fighter | 17 | 8 | | | Skyflash | AIM-9M/ 132 | AIM-120B/ C | Gioia del Colle |
| **Tornado IDS** | ITAF | Attack | 7 | 2 | | | | AIM-9M | | Forli |
| **U-2** | USAF | Recon | 0 | 0 | | | | | | Sigonella |
| **UH-1N** | USA | Helo | 0 | 0 | | | | | | Cerklje Ob Krki, Pescara |
| **UH-60L** | USA | Helo | 0 | 0 | | | | | | Ljubljana |
| **Mi-8** | Croatia | Helo | 2 | 0 | | | | | | Varazdin |
| **Mig-21bis** | Croatia | Multi | 12 | 4 | AA-2C | AA-2D, AA-8 | | | | Varazdin moves to Maribor |
| | | | | | | | | | | |

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
HAF: Hellenic Air Force (Greece) (Polemikí Aeroporía)
ITAF: Italian Air Force (AM: Aeronautica Militare)
RAF: Royal Air Force (England)
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

* Mostar, Podgorica, Zemunik
** Podgorica

**BOMBERS AND SUPPORT AC**
AN-2: Szeged, Sarajevo, Sombor
AN-24: Szeged, Beograd, Ivangrad, Lepa Glava, Sarajevo
B-2A: Bolzano
C-5: Perugia
C-17: Bologna, Guidogna
C-130H: Ciampino
E-3 AWACS: Bolzano
E-8C JSTAR:
KC-10: Asiago
KC-135: Pescara, S. Angelo, Lecce

## Air to Ground Missiles

| Name | Guidance | Range (nm) | Warhead | Purpose | Origin | IOC |
|---|---|---|---|---|---|---|
| AGM-65A Maverick | TV | 10 | 125 | Armor | USA | 1972 |
| AGM-65B Maverick | TV Magnify | 10 | 125 | Armor | USA | 1975 |
| AGM-65D Maverick | TV IR | 10 | 125 | Armor | USA | 1986 |
| AGM-65G Maverick | TV IR | 20 | 300 | Bunker | USA | 1986 |
| 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 |

## 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 Durandal | | 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 |
| 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 |
| (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).

| GPS Guided Bomb Units JDAM (continued) | | | | | | |
|---|---|---|---|---|---|---|
| **Name** | **10% PI/0.1% PI** | **Range (nm)** | **Warhead** | **Purpose** | **Origin** | **IOC** |
| 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 | 20-30 | MK-84 2,000 | General | IAF | 2003 |
| SPICE 2000P | 1,063/ 1,640 | 20-30 | 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 | MK-84 2,000 | General | 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** |
| Deliah (Pod: AN/ASW-55) | IR & TV options | 70 | 66 | Light armor, Radar | IAF | 1995 |
| GBU-15 (Pod: AN/AXQ-14) | IR & TV options | 16 | MK-84 2,000 | General | USA | 1975 |

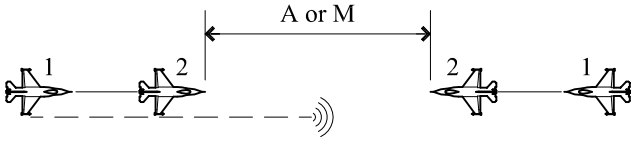
First number in range is NOE loft, second number is high altitude.

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

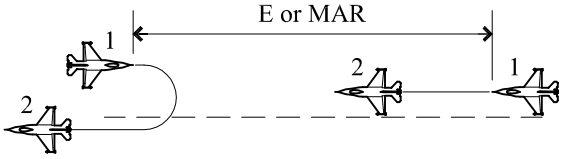
PI: Probability of Incapacitation computed from intended impact point at center of stick of bombs (radius).

**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

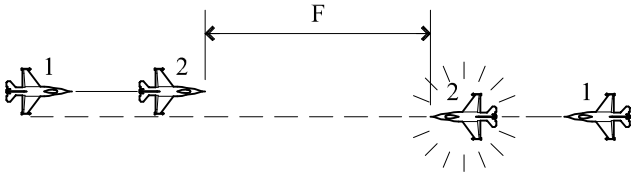
**Pole Cues**




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

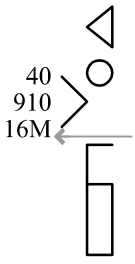



E Pole: Distance to target where you can drag and evade missile.




F Pole: Distance to target at missile impact.

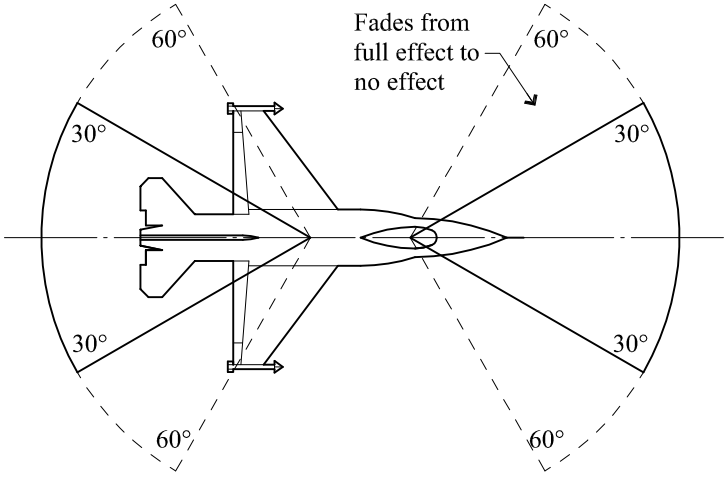
**AN/APG-68 Radar WEZ**

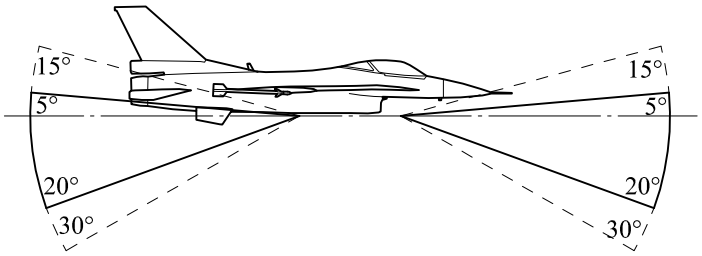


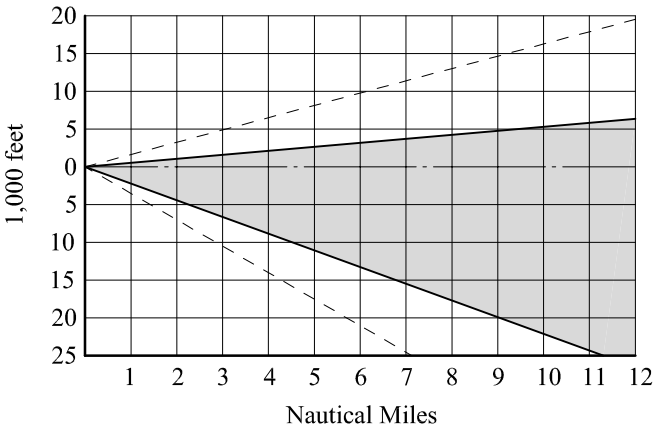

Distance from target when missile goes active.
Shoot missile before this gets to the MAR number or you will have snip missile before it goes acitve.

10A TOF (Time of Flight) for missile on rail
M5 TOF for missile currently in air
AR
TA21
F029.9 Distance to target, abort before MAR
100042
014>03

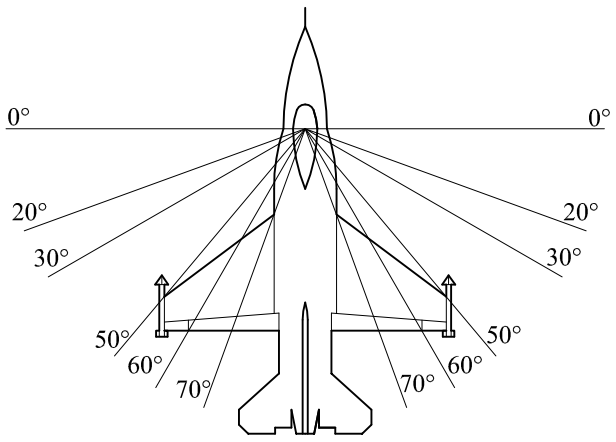
**ECM Coverage**



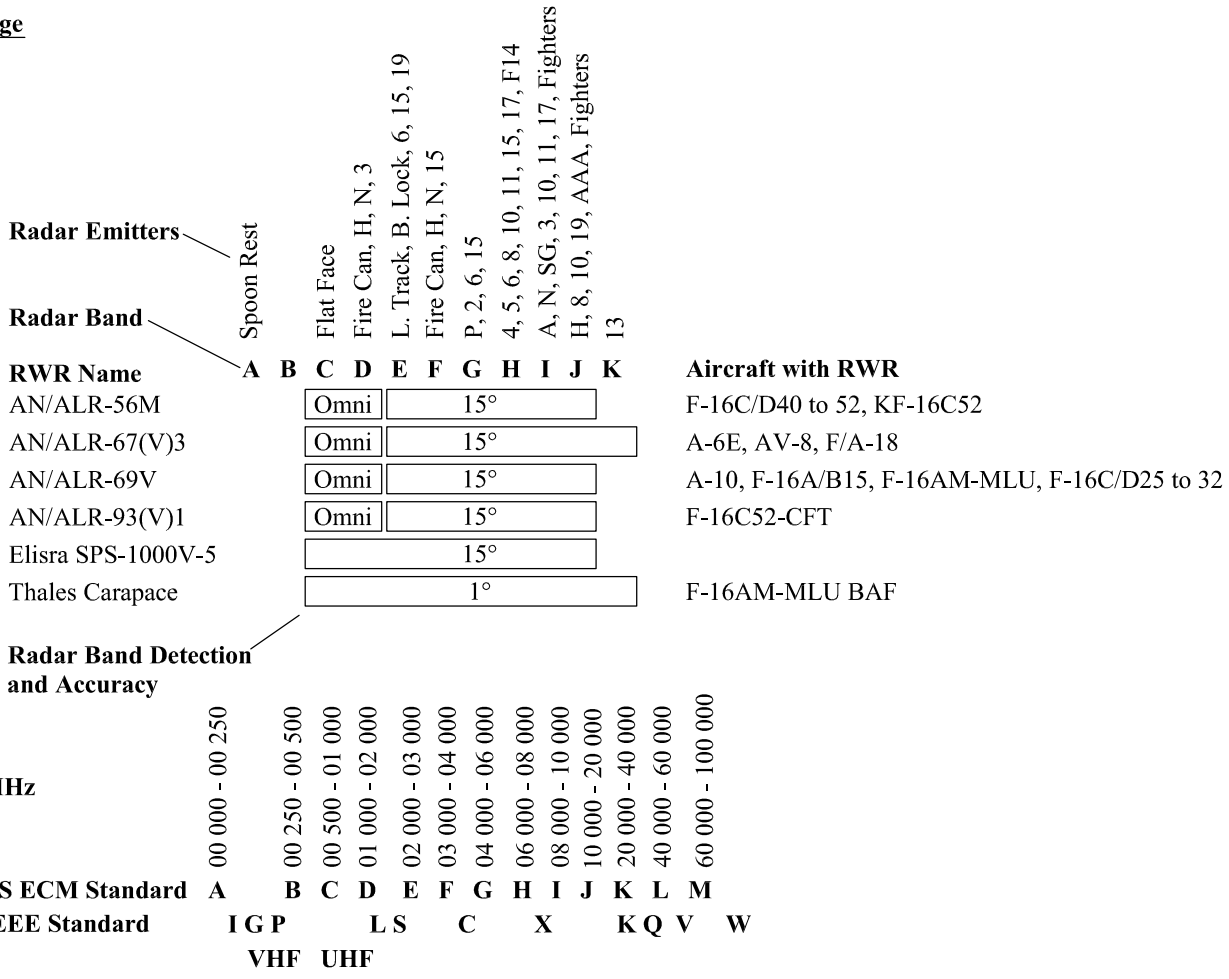




**View Angles**



## RWR Coverage




## AN/ALR-93(V)1

**Symbols**

- Highest threat
- Lethal threat
- Launch
- # Aircraft
- ↗ SAM
- ⊿ Search radar
- 14 Unknown
- [#] AAA
- T Tracking
- (AM) ARH missile
- (↗2T) SAM, SA-2, Tracking, Launch warning, Highest priority

**SAMs**

| | |
|---|---|
| ↗2 | SA-2 |
| 03 | SA-6, SA-11 |
| ↗3 | SA-3 |
| ↗4 | SA-4 |
| ↗5 | SA-15 |
| ↗6 | SA-6 also shows up as 03 |
| ↗8 | SA-8 |
| ↗10 | SA-10 |
| 42 | SA-11, also shows up as 03 |
| 43 | Skyguard |
| 92 | SA-5 |
| 93 | or 73, 23: SA-17 |
| ↗C | KSAM Chun-ma Pegasus |
| ↗MQ | Hawk |
| ↗N | Nike |
| ↗P | Patriot, also shows as ↗M and ↗MQ |

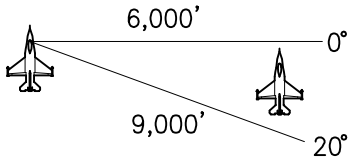
**AAA**

| | |
|---|---|
| [1] | Fire Can, K200-AD |
| [4] | M-1992, ZSU-23-4, SA-19 |
| CW3 | LAV/ AD |

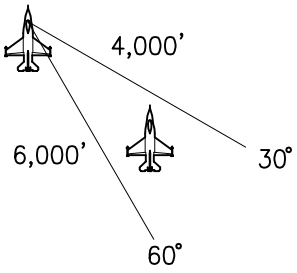
**Aircraft**

| | |
|---|---|
| ^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 |
| ^8 | AV-8, F-18 |
| ^9 | Mig-29, J-11, Su-27, Su-30/33/34/37 |
| ^E | EF-2000 GE, EF-2000 |
| ^T | Tornado ADV |
| 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, Mig-17PF, Mig-19PM, Mirage 2000/ IIIE, Su-15 |
| 44 | F-15, Mig-31, Mirage F1 |

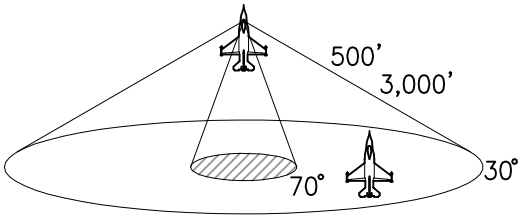
## Line Abreast



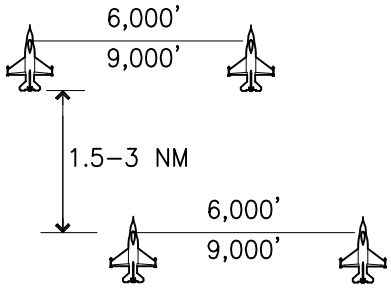

## Wedge



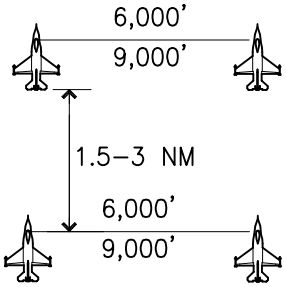

## Fighting Wing



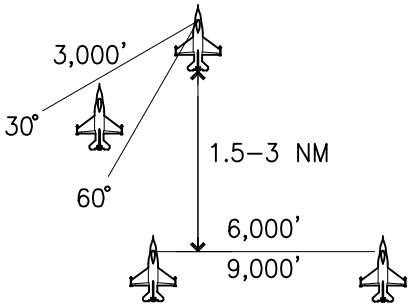

## Four Ship Offset Box



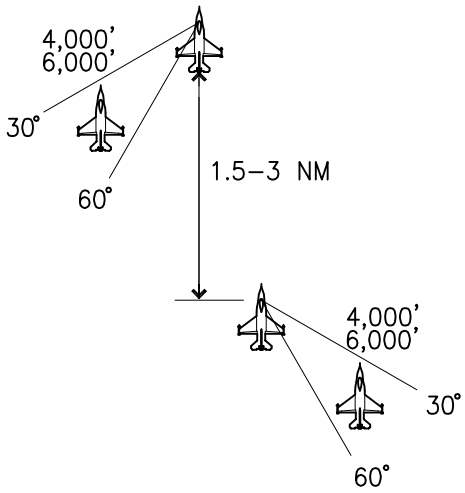

## Four Ship Box



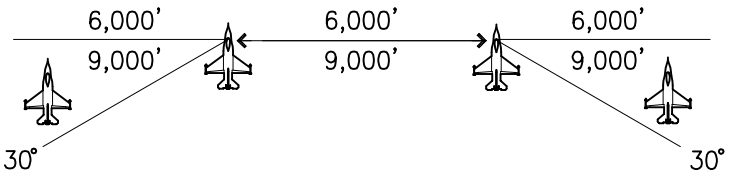

## Arrowhead



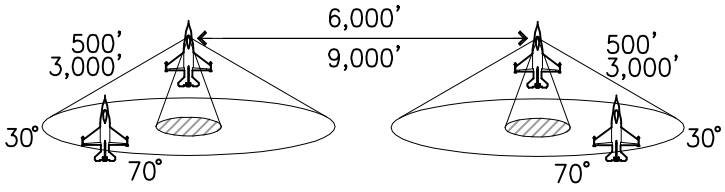

## Wedge




## Spread Four

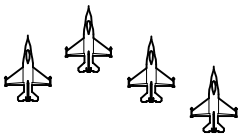



## Fluid Four

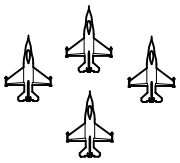



## Trail

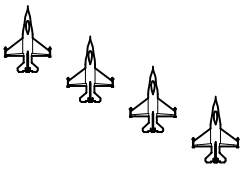
## Fingertip



## Diamond



## Echelon Right



## Spread