



# FALCON BMS

## THE VAULT THREAT GUIDE



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

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

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

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

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



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



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ausairpower.net

**General Notes**

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

**CM Effect # Decoys**

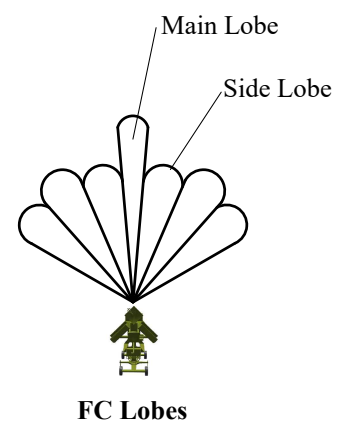
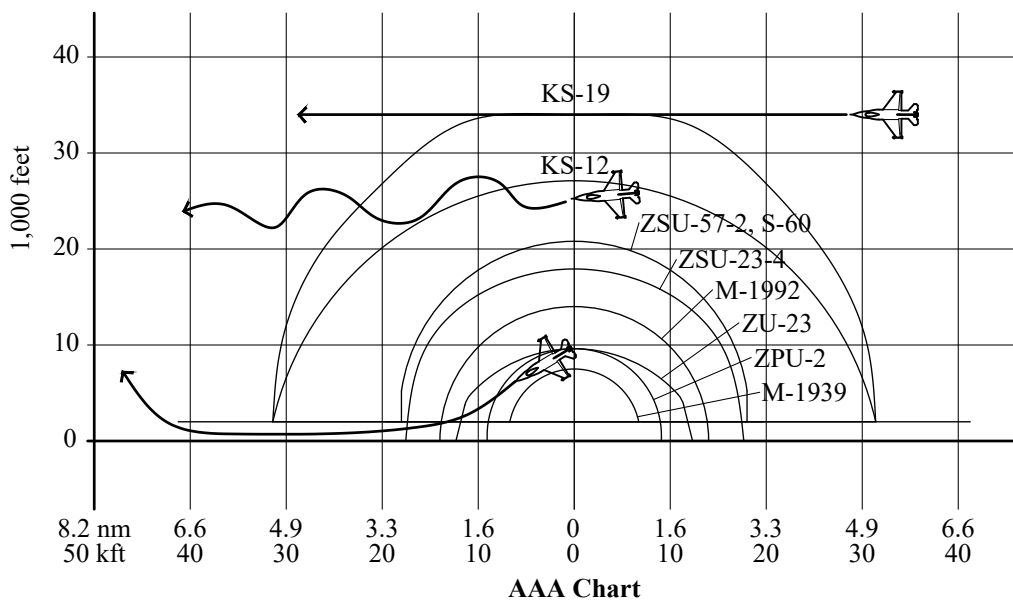
|           |       |
|-----------|-------|
| No Effect | -     |
| Very Low  | 20-50 |
| Low       | 6-17  |
| Medium    | 4-6   |
| High      | 2-4   |
| Very High | 1-2   |

**Abbreviations**

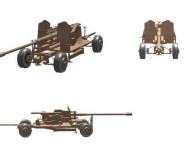
|        |                                            |
|--------|--------------------------------------------|
| AA     | Anti Air                                   |
| ABM    | Anti Ballistic Missile                     |
| AZ     | Azimuth                                    |
| BT     | Burn Through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

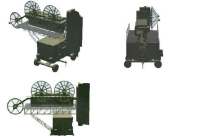
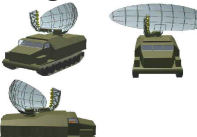
**RWR Symbols Diagram**

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





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

|                                                                                    |     |                                                                                                                                                                                                                                                   |                                                                                                                                                                   |
|------------------------------------------------------------------------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | B   | Tracking/ Name: <b>Search Radar/</b> P-35 Saturn                                                                                                                                                                                                  | Type: Towed SA Radar                                                                                                                                              |
|                                                                                    | 15  | Rdr Lock Range: SA: 250 nm<br>Min. Altitude: 1,100 ft<br>Notes: 1958. SA radar for SA-5. Used for EW, GCI, and SAM target acquisition.                                                                                                            | ECM BT Range: 45 nm<br>Chaff Vulnerability: Medium<br>Bands (System): E/ F (PD)<br>Initial/ Terminal: N/A                                                         |
|    | 10  | Tracking/ Name: <b>Search Radar/</b> 64N6                                                                                                                                                                                                         | Type: Towed SA Radar                                                                                                                                              |
|                                                                                    | 710 | Rdr Lock Range: SA: 170 nm<br>Min Altitude: .<br>Notes: 1992. SA radar for SA-10. Gives battery better range and ABM role. This 10 has lower sound and stays in outer ring.                                                                       | ECM BT Range: 30 nm<br>Chaff Vulnerability: Low<br>Band (System): E<br>Initial/ Terminal: N/A                                                                     |
|    | O   | Tracking/ Name: <b>Search Radar/</b> 9S80 Ovod                                                                                                                                                                                                    | Type: Mobile SA Radar                                                                                                                                             |
|                                                                                    | 113 | Rdr Lock Range: SA: 43 nm<br>Min Altitude: .<br>Notes: 1976. SA radar for SA-9, SA-13, ZSU23-4.                                                                                                                                                   | ECM BT Range: 30 nm<br>Chaff Vulnerability: High<br>Band (System): G<br>Initial/ Terminal: N/A                                                                    |
|    | 2   | Tracking/ Name: <b>SA-2 SAM Radar/</b> SNR-75                                                                                                                                                                                                     | Type: Towed SAM Radar                                                                                                                                             |
|                                                                                    | 72  | Rdr Lock Range: FC: 82 nm<br>Min Altitude: Launch: 330 ft / Track: 80 ft<br>Notes: 1960. Destroy to neutralize SA-2 site. 1 target, 3 missiles. SA radar Spoon Rest.                                                                              | ECM BT Range: 12 nm<br>Chaff Vulnerability: Medium<br>Band (System): G (PD/ CW)<br>Initial/ Terminal: Command/ Command<br>Targets: 1 AZ: 120 (10) EL: 90 (10)     |
|   | 2   | Tracking/ Name: <b>SA-2 SAM Radar/</b> SNR-75                                                                                                                                                                                                     | Type: Towed SAM Radar                                                                                                                                             |
|                                                                                    | 72  | Rdr Lock Range: FC: 62 nm<br>Min Altitude: Launch: 330 ft / Track: 80 ft<br>Notes: 1960. Destroy to neutralize SA-2 site. 1 target, 3 missiles. SA radar Spoon Rest.                                                                              | ECM BT Range: 9 nm<br>Chaff Vulnerability: Medium<br>Band (System): G (PD/ CW)<br>Initial/ Terminal: Command/ Command<br>Targets: 1 AZ: 120 (10) EL: 90 (10)      |
|  | 10  | Tracking/ Name: <b>SA-10B SAM Radar/</b> 30N6E1/ 2                                                                                                                                                                                                | Type: Mobile SAM Radar                                                                                                                                            |
|                                                                                    | 710 | Rdr Lock Range: FC: 60 nm<br>Min Altitude: Launch: 60 ft / Track: 60 ft<br>Notes: 1978. Destroy to neutralize SA-10 site. Can track w/o 10 on RWR. No launch warning. SA radars Big Bird, Tin Shield, Clam Shell N/I. Higher chirp inner ring.    | ECM BT Range: 36 nm HOJ<br>Chaff Vulnerability: No effect<br>Band (System): I/ J (PESA)<br>Initial/ Terminal: Command/ TVM<br>Targets: 6 AZ: 120 (60) EL: 90 (60) |
|  | F   | Tracking/ Name: <b>Search Radar/</b> P-15 Tropa                                                                                                                                                                                                   | Type: Mobile SA Radar                                                                                                                                             |
|                                                                                    | 1F  | Rdr Lock Range: SA: 108<br>Min. Altitude: .<br>Notes: 1955. SA radar for SA-3, SA-6, SA-13. Part of group of radars and CC systems. Spoon Rest, Side Net, rdr cntrl truck and Mercury Grass CC system N/I.                                        | ECM BT Range: 49<br>Chaff Vulnerability: No effect<br>Band (System): C (UHF Pulse)<br>Initial/ Terminal: N/A                                                      |
|  | L   | Tracking/ Name: <b>Search Radar/</b> P-40, 1S12 Bronya                                                                                                                                                                                            | Type: Mobile SA Radar                                                                                                                                             |
|                                                                                    | 1L  | Rdr Lock Range: SA: 85 nm<br>Min Altitude: .<br>Notes: 1963. SA radar. Primary SA-4. Also SA-6, SA-8 and SA-11. Occasionally SA-13. Sometimes overlaps with F to look like E on RWR.                                                              | ECM BT Range: 38 nm<br>Chaff Vulnerability: High<br>Band (System): E<br>Initial/ Terminal: N/A                                                                    |
|  | 3   | Tracking/ Name: <b>SA-3 SAM Radar/</b> SNR-125 Neva/                                                                                                                                                                                              | Type: Towed SAM Radar                                                                                                                                             |
|                                                                                    | 73  | Rdr Lock Range: FC: 30 nm Pechora<br>Minimum Altitude: Launch: 150 ft / Track: 60 ft<br>Notes: 1961. Destroy to neutralize SA-3. Beam + 6 chaff tends to break lock. Guide to one target at a time. SA radars Flat Face, Side Net, Squat Eye N/I. | ECM BT Range: 6 nm<br>Chaff Vulnerability: Medium<br>Band (System): I/ D (PD)<br>Initial/ Terminal: Command/ Command<br>Targets: 1 AZ: 120 (10) EL: 90 (10)       |
|  | B   | Tracking/ Name: <b>Search Radar/</b> PRV-17 Azimut                                                                                                                                                                                                | Type: Towed Search Radar                                                                                                                                          |
|                                                                                    | 15  | Rdr Lock Range: SA: 167 nm<br>Minimum Altitude: .<br>Notes: 1984. Height finding radar for SA-5.                                                                                                                                                  | ECM BT Range: 30 nm<br>Chaff Vulnerability: Medium<br>Band (System): E<br>Initial/ Terminal: N/A                                                                  |

**Pat Hand**

4 Tracking/ Name: **SA-4 SAM Radar/** 1S32  
 Rdr Lock Range: FC: 50 nm  
 74 Min Altitude: Launch: 500 ft / Track: 500 ft  
 Notes: 1965. Destroy to neutralize SA-4 site. SA radar  
 Long Track, Thin Skin N/I.

Type: Mobile SAM Radar  
 ECM BT Range: 14 nm  
 Chaff Vulnerability: Medium  
 Band (System): H (PD/ CW)  
 Initial/ Terminal: Command/ SARH  
 Targets: 1 AZ: 120 (10) EL: 90 (10)

**Snow Drift**

D Tracking/ Name: **Search Radar/** 9S18M1 Tube Arm  
 Rdr Lock Range: SA: 86 nm  
 1D Min Altitude: 60 ft  
 Notes: 1979. SA radar for SA-11 and SA-17.

Type: Mobile SA Radar  
 ECM BT Range: 52 nm  
 Chaff Vulnerability: Very Low  
 Band (System): F  
 Initial/ Terminal: N/A

**Spoon Rest**

Tracking/ Name: **Search Radar/** P-12 Yenisei  
 Rdr Lock Range: SA: 145 nm  
 Min. Altitude:  
 Notes: 1956. SA radar for SA-2, SA-11, SA-6. Part of group  
 of radars and CC systems. Flat Face, Side Net, rdr  
 cntrl truck and Mercury Grass CC system N/I.

Type: Mobile SA Radar  
 ECM BT Range: 65 nm  
 Chaff Vulnerability: High  
 Band (System): A (VHF PD)  
 Initial/ Terminal: N/A

**Square Pair**

5 Tracking/ Name: **SA-5 SAM Radar/** 5N62  
 Rdr Lock Range: FC: 145 nm  
 75 Min. Altitude: Launch: 1,000 ft / Track: 1,000 ft  
 Notes: 1966. Destroy to neutralize SA-5 site. SA radars: Bar  
 Lock, Odd Group. Optional radars: Tall King or Big  
 Back, Back Net or Back Trap, Side Net, Squat Eye N/I.

Type: Towed SAM Radar  
 ECM BT Range: 26 nm  
 Chaff Vulnerability: Medium  
 Band (System): H (PD/ CW)  
 Initial/ Terminal: Command/ SARH  
 Targets: 1 AZ: 120 (10) EL: 90 (10)

**Straight Flush**

6 Tracking/ Name: **SA-6 SAM Radar/** 1S91 SURN  
 Rdr Lock Range: FC: 30 nm  
 76 Min Altitude: Launch: 550 ft / Track: 80 ft  
 Notes: 1970. Destroy to neutralize SA-6 sites. SA radar  
 Spoon Rest, Long Track, Flat Face, Thin Skin, Side  
 Net, Score Board N/I.

Type: Mobile SAM Radar  
 ECM BT Range: 4 nm HOJ  
 Chaff Vulnerability: Medium  
 Band (System): G/ H/ I (PD/ CW)  
 Initial/ Terminal: Command/ SARH  
 Targets: 1 AZ: 120 (10) EL: 90 (10)

**HN-5A Red Tassel**

Tracking/ Name: Optical, **IR Rear Aspect/** Hong Ying-5  
 Min. Rng Missiles: 0 nm / 60 ft  
 Typical Engagement: **1.6 nm / 8,000 ft**  
 Max Rng Missiles: 2 nm / 10,500 ft 9M32M  
 Notes: 1970. Maintain high speed, break turn, flare.

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

**SA-2 Guideline**

2 Tracking/ Name: **OC Fan Song Radar/** S-75 Dvina  
 72 Min Rng Missiles: 4 nm / 300 ft launch / 80 ft track  
 Typical Engagement: **15 nm / 230,000 ft**  
 Max Rng Missiles: 38 nm / 230,000 ft V-750  
 Notes: 1957. Break turn 4g. Beam/ split-s/ turn away. SA  
 Spoon Rest. 13nm pump bad. Pump/ nose up/ ECM.

Type: Towed SAM  
 ECM BT Range: E:12 nm F:9 nm  
 Chaff Vulnerability: Medium  
 Init / Term/ Pursuit: **Cmd/** Cmd / Lead  
 Max Vel.(mach): **4.5** (2,997 kts) .83 nm/s  
 Rdr Lock Range: SA: 108nm / FC: E82-F62nm





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

|                                                                                                                           |       |                     |                                                                                                                                                |                      |                                |
|---------------------------------------------------------------------------------------------------------------------------|-------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------|
| <b>SA-13 Gopher</b><br>                   | O     | Tracking/ Name:     | OB Snap Shot «K», *IR/ 9K35 Strela-10                                                                                                          | Type:                | Mobile SHORAD                  |
|                                                                                                                           | 413   | Min Rng Missiles:   | 0.1 nm / 30 ft                                                                                                                                 | ECM BT Range:        | 4 nm                           |
|                                                                                                                           |       | Typical Engagement: | 2 nm / 12,000 ft                                                                                                                               | Flare Vulnerability: | Very Low IRCCM                 |
|                                                                                                                           |       | Max Rng Missiles:   | 5 nm / 26,800 ft 9M37, 9M31                                                                                                                    | Init/ Term/ Pursuit: | IR All Aspect/ Lead            |
|                                                                                                                           |       | Notes:              | 1976. Very dangerous. Optical IR skr. 13 on Thales & ALR-67 . SA rdr LT, FF, Dog Ear, Squat Eye N/I.                                           | Max Vel.(mach)       | 1.6 (1,058 kts) .29 nm/s       |
|                                                                                                                           |       |                     |                                                                                                                                                | Rdr Lock Range:      | SA: 43 nm / FC: 5 nm           |
| <b>SA-14 Gremlin</b><br>                  |       | Tracking/ Name:     | Optical, IR/ 9K34 Strela-3                                                                                                                     | Type:                | MANPAD                         |
|                                                                                                                           |       | Min Rng Missiles:   | 0 nm / 50 ft launch / 80 ft track                                                                                                              | ECM BT Range:        | N/A                            |
|                                                                                                                           |       | Typical Engagement: | 1.6 nm / 10,000 ft                                                                                                                             | Flare Vulnerability: | Very High                      |
|                                                                                                                           |       | Max Rng Missiles:   | 3 nm / 12,100 ft 9M36                                                                                                                          | Init/ Term/ Pursuit: | IR All Aspect/ Pure            |
|                                                                                                                           |       | Notes:              | 1974. No smoke. Brk turn 5-7g/ flares. BMP-CMD, BMP-1.                                                                                         | Max Vel.(mach)       | 1.6 (1,058 kts) .29 nm/s       |
|                                                                                                                           |       |                     |                                                                                                                                                | Rdr Lock Range:      | SA: N/A / FC: N/A              |
| <b>SA-15 Gauntlet</b><br>                 | 15-M- | Tracking/ Name:     | OB Scrum Half «G/H/J»/9K331 Tor-M1                                                                                                             | Type:                | Mobile SHORAD TLAR             |
|                                                                                                                           | 715   | Min Rng Missiles:   | 0.5 nm / 35 ft                                                                                                                                 | ECM BT Range:        | 13 nm                          |
|                                                                                                                           |       | Typical Engagement: | 6.5 nm / 20,000 ft                                                                                                                             | Chaff Vulnerability: | Medium                         |
|                                                                                                                           |       | Max Rng Missiles:   | 7 nm / 42,500 ft 9M331                                                                                                                         | Init/ Term/ Pursuit: | Cmd / Lead                     |
|                                                                                                                           |       | Notes:              | 1991. Very dangerous. 1 msl l/tgt. 2 tgts. 8 msls rdy. No smoke. No shoot and move. 6nm pump+chaff. 7-8g break+chaff. Anti-missile capability. | Max Vel.(mach)       | 3.0 (1,984 kts) .63 nm/s       |
|                                                                                                                           |       |                     |                                                                                                                                                | Rdr Lock Range:      | FC: 16 nm                      |
|                                                                                                                           |       |                     |                                                                                                                                                | Targets:             | 1 (2) AZ: 120 (10) EL: 90 (10) |
| <b>SA-16 Gimlet</b><br>                   |       | Tracking/ Name:     | Optical, IR All Aspect/ 9K310 Igla-1                                                                                                           | Type:                | MANPAD                         |
|                                                                                                                           |       | Min Rng Missiles:   | 0.2 nm / 60 ft                                                                                                                                 | ECM BT Range:        | N/A                            |
|                                                                                                                           |       | Typical Engagement: | 3 nm / 10,000 ft                                                                                                                               | Flare Vulnerability: | Very Low IRCCM                 |
|                                                                                                                           |       | Max Rng Missiles:   | 3.5 nm / 19,400 ft 9M313                                                                                                                       | Init/ Term/ Pursuit: | IR All Aspect/ Lead            |
|                                                                                                                           |       | Notes:              | 1981. No smoke. 6-7g slice+flares. 9kft mach1 straight thru. Turn to keep missile on 3-9.                                                      | Max Vel.(mach)       | 1.6 (1,058 kts) .29 nm/s       |
|                                                                                                                           |       |                     |                                                                                                                                                | Rdr Lock Range:      | SA: N/A / FC: N/A              |
| <b>SA-17 Grizzly</b><br>                 | D     | Tracking/ Name:     | OB Chair Back «H/I»/ Buk M1-2 or M2                                                                                                            | Type:                | Mobile SAM TELAR               |
|                                                                                                                           | 4D    | Min Rng Missiles:   | 1.6 nm / 140 ft launch / 50 ft track                                                                                                           | ECM BT Range:        | 30 nm HOJ                      |
|                                                                                                                           |       | Typical Engagement: | 16.5 nm / 79,000 ft                                                                                                                            | Chaff Vulnerability: | No Effect                      |
|                                                                                                                           |       | Max Rng Missiles:   | 18.5 nm / 79,000 ft 9M317, 9M38....                                                                                                            | Init/ Term/ Pursuit: | SARH/ Lead                     |
|                                                                                                                           |       | Notes:              | 1998. 2msl/tgt. No smoke. 14nm pump/ 2-3 weaves/ pull up. 9g slice. SA-7&14. SA Snow Drift. Anti-missile capability. Link to SA-6 N/I.         | Max Vel.(mach)       | 2.7 (1,786 kts) .50 nm/s       |
|                                                                                                                           |       |                     |                                                                                                                                                | Rdr Lock Range:      | SA: 85 nm / FC: 40 nm          |
|                                                                                                                           |       |                     |                                                                                                                                                | Targets:             | 6 AZ: 120 (60) EL: 90 (60)     |
| <b>SA-19 Grison on 2S6 Tunguska</b><br> | A     | Tracking/ Name:     | OB Hot Shot«E/J»,Optcl, IR/ 2K22,9K22                                                                                                          | Type:                | Mobile SHORAD                  |
|                                                                                                                           | 19    | Max Rng Guns:       | 2.2 nm / 10,700 ft                                                                                                                             | ECM BT Range:        | 7 nm HOJ                       |
|                                                                                                                           |       | Typical Engagement: | 6.5 nm / 10,200 ft                                                                                                                             | Chaff/ Flare Vuln:   | Medium                         |
|                                                                                                                           |       | Max Rng Missiles:   | 5.7 nm / 33,000 ft 9M311                                                                                                                       | Gun Caliber:         | 30mm 2A38                      |
|                                                                                                                           |       | Notes:              | 1982. Very Dangerous. 1msl/tgt 6 tgts. No smoke. SAM's stationary. Missiles min. launch 0.5nm, 20 ft.                                          | Max Vel.(mach):      | 2.7 (1,786 kts) .50 nm/s       |
|                                                                                                                           |       |                     |                                                                                                                                                | Rdr Lock Range:      | SA: N/A / FC: 10 nm            |
|                                                                                                                           |       |                     |                                                                                                                                                | Targets:             | 1 (6) EL: 120(10) EL: 90 (60)  |



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



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



**Stinger**

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

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

**Mistral**

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

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

**Nike Hercules**

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

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

**Patriot MIM-104 P**

7P Tracking: OC AN/MPQ-53 Patriot Radar  
 Min Rng Missiles: 2 nm / 160 ft launch / 50 ft track  
 Typical Engagement: 49 nm / 80,000 ft  
 Max Rng Missiles: 91 nm / 80,000 ft MIM-104  
 Notes: 1984. No launch warning. Pump 40nm, up 50, turn back 60. Stingers in group. 2msls/ tgt. 23nm/300 ft.

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

**Sky Guard SAM**

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

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



### General Notes

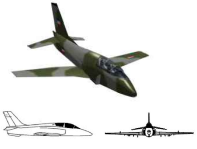
- Performance numbers are optimum numbers on clean aircraft. This is to get an idea of the relative performance of each aircraft. Added drag, weight or pilots with varying skills will effect performance.
- RWR number is when shown AC detects F-16C52 on RWR. The detection range increases significantly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

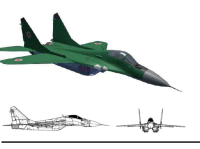
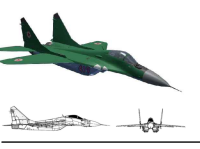
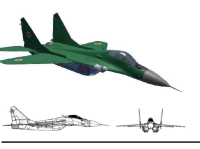
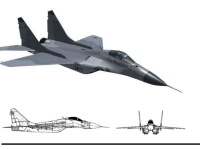
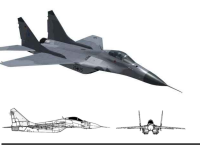
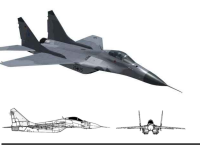
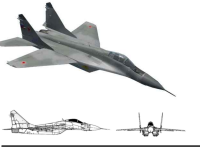
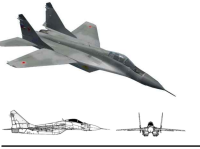
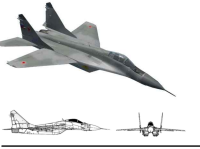
### Abbreviations

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





|                                                                                                               |    |                                                                                    |                  |                                 |        |
|---------------------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------|------------------|---------------------------------|--------|
| <b>G4 Super Galeb</b><br>     |    | Type: Attack (Super Galeb/ Seagull, N-62)                                          | Max Vel. Mach    | 0.81                            | MAR:07 |
|                                                                                                               |    | Armament: AA-8                                                                     | Hard Points:     | 4/ 2-AA                         |        |
|                                                                                                               |    | RWR: 30 nm Iskra SD-1                                                              | CMDS/ ECM:       | Yes/ No                         |        |
|                                                                                                               |    | Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>                       | Vertical:        | Bad Viper MK-632 (3.9k)         |        |
|                                                                                                               |    | Notes: 1984. Slow attack aircraft.                                                 | Turn Rate °/sec: | 10 / Instant: 21                |        |
|                                                                                                               |    |                                                                                    | Roll:            | Very good                       |        |
| <b>J-5/Mig-17F Fresco</b><br> |    | Type: Attack (Shenyang J-5, PLAAF, Fresco-C)                                       | Max Vel. Mach    | 0.9                             | MAR:02 |
|                                                                                                               |    | Armament: 37mm and 23mm guns only                                                  | Hard Points:     | 4/ No AA                        |        |
|                                                                                                               |    | RWR: N/A                                                                           | CMDS/ ECM:       | No/ No                          |        |
|                                                                                                               |    | Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>                       | Vertical:        | Bad VK-1F (14.9k)               |        |
|                                                                                                               |    | Notes: 1952. Smoke exhaust. Very good turn rate at slow speeds.                    | Turn Rate °/sec: | 16 - 22/ Instant: 31 (0.2nm Ø)  |        |
|                                                                                                               |    |                                                                                    | Roll:            | Good                            |        |
| <b>J-7G Fishcan</b><br>       | 21 | Type: Fighter (Chengdu, PLAAF)                                                     | Max Vel. Mach    | 1.77                            | MAR:08 |
|                                                                                                               | 1  | Armament: PL-7, PL-8, AA-2B, AA-2C, 30mm                                           | Hard Points:     | 4/ 4AA                          |        |
|                                                                                                               |    | RWR: 24 nm RKL-204 Radar: SL-3 «E/G»                                               | CMDS/ ECM:       | Yes/ No ECM                     |        |
|                                                                                                               |    | Radar Range: Up: <u>9 nm</u> Down: <u>2 nm</u> ECM: <u>5 nm</u>                    | Vertical:        | Medium Liyang WP-7C (13.6K)     |        |
|                                                                                                               |    | Notes: 2003.                                                                       | Turn Rate °/sec: | 10 - 13 / Instant: 18 (0.4nm Ø) |        |
|                                                                                                               |    |                                                                                    | Roll:            | Very Good                       |        |
| <b>J-8I Finback</b><br>       | 21 | Type: Interceptor (Shenyang, PLAAF, Finback-A)                                     | Max Vel. Mach    | 1.7                             | MAR:08 |
|                                                                                                               | 1  | Armament: PL-7, PL-8, 23 mm                                                        | Hard Points:     | 5/ 4AA                          |        |
|                                                                                                               |    | A: 29 nm RKL-204 Radar: SL-7A «E/G»                                                | CMDS/ ECM:       | Yes/ No ECM                     |        |
|                                                                                                               |    | Radar Range: Up: <u>9 nm</u> Down: <u>2 nm</u> ECM: <u>5 nm</u>                    | Vertical:        | Good Liming WP-7A (26.4k)       |        |
|                                                                                                               |    | Notes: 1985. Smoke exhaust.                                                        | Turn Rate °/sec: | 12-15/ Instant: 18 (0.3nm Ø)    |        |
|                                                                                                               |    |                                                                                    | Roll:            | Very Good                       |        |
| <b>J-11 Flanker</b><br>      | 27 | Type: Multi-role Fighter (PLAAF, Flanker-L)                                        | Max Vel. Mach    | 1.68                            | MAR:15 |
|                                                                                                               | 27 | Armament: AA-8, AA-10A/ B/ C/ D, AA-11, AA-12                                      | Hard Points:     | 10/ 10AA                        |        |
|                                                                                                               |    | RWR: 29 nm SPO-15 Rdr: NIIP N001VE «I»                                             | CMDS/ ECM:       | Yes/ Sorbtsiya                  |        |
|                                                                                                               |    | Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>35 nm</u>                 | Vertical:        | Good Lyulka AL-31F (59.4k)      |        |
|                                                                                                               |    | Notes: 1995. No smoke. Long range. DASH N/I. Chinese copy of Su-27SK.              | Turn Rate °/sec: | 13 - 17/ Instant: 24 (0.2nm Ø)  |        |
|                                                                                                               |    |                                                                                    | Roll:            | Very Good                       |        |
| <b>J-15 Flanker</b><br>     | 30 | Type: Multi-role (Flying Shark, PLAAF, Flnkr-X2)                                   | Max Vel. Mach    | 1.6                             | MAR:17 |
|                                                                                                               | 30 | Armament: PL-8, PL-10E, PL-12                                                      | Hard Points:     | 11/ 4AA +2 Heat                 |        |
|                                                                                                               |    | RWR: 29 nm SPO-15 Radar: NIIP N011 «I»                                             | CMDS/ ECM:       | Yes / Integrated ECM            |        |
|                                                                                                               |    | Radar Range: Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>30 nm</u>                 | Vertical:        | Good Shenyang WS-10 (60k)       |        |
|                                                                                                               |    | Notes: 2013. Naval. HMCS. No smoke exhaust. Long range. Copy of Su-33/ Su-27K.     | Turn Rate °/sec: | 13 - 18/ Instant: 24 (0.2nm Ø)  |        |
|                                                                                                               |    |                                                                                    | Roll:            | Good                            |        |
| <b>J-20 Black Eagle</b><br> | 22 | Type: Fighter (Mighty Dragon, PLAAF)                                               | Max Vel. Mach    | 1.7                             | MAR:17 |
|                                                                                                               | 20 | Armament: PL-10E, PL-12, PL-15                                                     | Hard Points:     | 4/ 4AA+2 Heat                   |        |
|                                                                                                               |    | RWR: 48 nm Radar: KLJ-5 «I»                                                        | CMDS/ ECM:       | Yes / Integrated ECM            |        |
|                                                                                                               |    | Radar Range: Up: <u>75 nm</u> Down: <u>75 nm</u> ECM: <u>55 nm</u>                 | Vertical:        | Good Shenyang WS-10C (64k)      |        |
|                                                                                                               |    | Notes: 2017. HMCS. No smoke exhst. EASA, IRST, EOTS N/I. Stealth. Supercruise 1.04 | Turn Rate °/sec: | 13 - 16/ Instant: 25 (0.3nm Ø)  |        |
|                                                                                                               |    |                                                                                    | Roll:            | Very Good                       |        |
| <b>Mig-17PF Fresco</b><br>  | A  | Type: Multi-role Fighter (Fresco-D)                                                | Max Vel. Mach    | 0.9                             | MAR:04 |
|                                                                                                               | 19 | Armament: AA-1, 23mm                                                               | Hard Points:     | 4/ 4AA                          |        |
|                                                                                                               |    | RWR: N/A Radar: RP-5 Izumrud-5 «I»                                                 | CMDS/ ECM:       | No/ No                          |        |
|                                                                                                               |    | Radar Range: Up: <u>7 nm</u> Down: <u>N/A</u> ECM: <u>4 nm</u>                     | Vertical:        | Bad VK-1F (14.8k)               |        |
|                                                                                                               |    | Notes: 1955. Smoke exhaust.                                                        | Turn Rate °/sec: | 12 - 22/ Instant: 32 (0.2nm Ø)  |        |
|                                                                                                               |    |                                                                                    | Roll:            | Good                            |        |
| <b>Mig-19PM/ J-6B</b><br>   | A  | Type: Fighter (Farmer-E)                                                           | Max Vel. Mach    | 0.84                            | MAR:07 |
|                                                                                                               | 19 | Armament: AA-2B, AA-2C                                                             | Hard Points:     | 6/ 4AA                          |        |
|                                                                                                               |    | RWR: N/A Radar: RP-ZU Izumrud-2 «I»                                                | CMDS/ ECM:       | No/ No                          |        |
|                                                                                                               |    | Radar Range: Up: <u>7 nm</u> Down: <u>N/A</u> ECM: <u>4 nm</u>                     | Vertical:        | Bad Tumansky RD-9B (14.4k)      |        |
|                                                                                                               |    | Notes: 1957/ 1962. Smoke exhaust.                                                  | Turn Rate °/sec: | 9 - 18/ Instant: 30 (0.2nm Ø)   |        |
|                                                                                                               |    |                                                                                    | Roll:            | Medium                          |        |
| <b>Mig-19SF Farmer</b><br>  |    | Type: Attack (Farmer-C)                                                            | Max Vel. Mach    | 0.83                            | MAR:02 |
|                                                                                                               |    | Armament: Cannon 30mm x3                                                           | Hard Points:     | 4/ No AA                        |        |
|                                                                                                               |    | RWR: N/A                                                                           | CMDS/ ECM:       | No/ No                          |        |
|                                                                                                               |    | Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>                       | Vertical:        | Very Bad T. RD-9BF-1 (14.6k)    |        |
|                                                                                                               |    | Notes: 1956. Smoke exhaust. F-6 and J-6 are Chinese copies.                        | Turn Rate °/sec: | 9 - 19/ Instant: 31 (0.2nm Ø)   |        |
|                                                                                                               |    |                                                                                    | Roll:            | Medium                          |        |

|                                                                                    |    |              |                                                                              |                  |                                 |        |
|------------------------------------------------------------------------------------|----|--------------|------------------------------------------------------------------------------|------------------|---------------------------------|--------|
|    | 21 | Type:        | Multi-role Fighter (Fishbed-E)                                               | Max Vel. Mach    | 1.40                            | MAR:07 |
|                                                                                    | 21 | Armament:    | AA-1, AA-2C Cannon 30mm                                                      | Hard Points:     | 3/2AA                           |        |
|    | 21 | RWR:         | N/A SPO-2 N/I Radar:SRD-5M «I»                                               | CMDs/ ECM:       | ASO-21/ SPS-141 pod             |        |
|                                                                                    | 21 | Radar Range: | Up:11 nm Down:2 nm ECM:4 nm                                                  | Vertical:        | Bad T. R-11F-300 (12.7k)        |        |
|    | 21 | Notes:       | 1955. Smoke exhaust. Easy to break radar lock.                               | Turn Rate %/sec: | 8 - 11/ Instant: 18 (0.3nm Ø)   |        |
|                                                                                    | 21 |              |                                                                              | Roll:            | Good                            |        |
|    | 21 | Type:        | Multi-role Fighter (Fishbed-N)                                               | Max Vel. Mach    | 1.38                            | MAR:08 |
|                                                                                    | 21 | Armament:    | AA-2B, AA-2C, AA-8                                                           | Hard Points:     | 5/4AA or +2 AA-8                |        |
|    | 21 | RWR:         | 29 nm SPO-10 Radar: SOD-57M «I»                                              | CMDs/ ECM:       | Yes / SPS-141 Pod               |        |
|                                                                                    | 21 | Radar Range: | Up:31 nm Down:24 nm ECM:12 nm                                                | Vertical:        | Bad Tumansky R-25-300(15.7k)    |        |
|    | 21 | Notes:       | 1958. Smoke exhaust.                                                         | Turn Rate %/sec: | 8 - 13/ Instant: 18 (0.3nm Ø)   |        |
|                                                                                    | 21 |              |                                                                              | Roll:            | Good                            |        |
|    | 21 | Type:        | Multi-role Fighter (Fishbed-J)                                               | Max Vel. Mach    | 1.46                            | MAR:08 |
|                                                                                    | 21 | Armament:    | AA-2B, AA-2C, AA-8                                                           | Hard Points:     | 5/4AA                           |        |
|    | 21 | RWR:         | 24 nm SPO-2 Radar: RP-21M «I»                                                | CMDs/ ECM:       | No / SPS-141 Pod                |        |
|                                                                                    | 21 | Radar Range: | Up:23 nm Down:3 nm ECM:4 nm                                                  | Vertical:        | Bad T. R-11F2S-300 (13.6k)      |        |
|    | 21 | Notes:       | 1958. Smoke exhaust. Easy to break lock. Samotsvet IR sight N/I.             | Turn Rate %/sec: | 9 - 11/ Instant: 17 (0.3nm Ø)   |        |
|                                                                                    | 21 |              |                                                                              | Roll:            | Good                            |        |
|    | 23 | Type:        | Multi-role Fighter (Flogger-G)                                               | Max Vel. Mach    | 1.6                             | MAR:12 |
|                                                                                    | 23 | Armament:    | AA-2B, AA-2C, AA-7A, AA-7B, AA-8                                             | Hard Points:     | 5/4AA or +2 AA-8's              |        |
|    | 23 | RWR:         | 29 nm SPO-15 Radar: Sapfir 23ML «I»                                          | CMDs/ ECM:       | Yes / SPS-141 Pod               |        |
|                                                                                    | 23 | Radar Range: | Up:30 nm Down:14 nm ECM:10-20 nm                                             | Vertical:        | Good R-35F-300 (28.7k)          |        |
|    | 23 | Notes:       | 1978. Smoke. Accelerate in turn. IRST TP 23ML N/I. VG wings.                 | Turn Rate %/sec: | 13 - 25/ Instant: 27 (0.1nm Ø)  |        |
|                                                                                    | 23 |              |                                                                              | Roll:            | Medium                          |        |
|   | 25 | Type:        | Interceptor                                                                  | Max Vel. Mach    | 2.6                             | MAR:12 |
|                                                                                    | 25 | Armament:    | AA-6A, AA-6B, AA-7A, AA-7B, AA-8                                             | Hard Points:     | 5/4AA or +2 AA-8's              |        |
|   | 25 | RWR:         | 29 nm Sirena-3 Radar:RP-25 Smerch «J»                                        | CMDs/ ECM:       | Yes / SPS-141 MWGE Pod          |        |
|                                                                                    | 25 | Radar Range: | Up:46 nm Down:21 nm ECM:8-12 nm                                              | Vertical:        | Bad R31-300 (54k)               |        |
|   | 25 | Notes:       | 1967. Bad pitch. Smoke. Hard to lock low or bm AC. ECM uses AA slot. No gun. | Turn Rate %/sec: | 9 - 14/ Instant: 17 (0.3nm Ø)   |        |
|                                                                                    | 25 |              |                                                                              | Roll:            | Medium                          |        |
|  |    | Type:        | Attack                                                                       | Max Vel. Mach    | 1.74                            | MAR:08 |
|                                                                                    |    | Armament:    | AA-2C, AA-7B, AA-8                                                           | Hard Points:     | 7/4AA or +2 AA-8                |        |
|  |    | RWR:         | 20 nm SG-1 Radar: N/A                                                        | CMDs/ ECM:       | Yes / SPS-141 Pod               |        |
|                                                                                    |    | Radar Range: | Up:N/A Down:N/A ECM:N/A                                                      | Vertical:        | Medium R-29B-300 (17.7k)        |        |
|  |    | Notes:       | 1975. Smoke exhaust. VG wings 380.                                           | Turn Rate %/sec: | 13 - 25/ Instant: 28 (0.2nm Ø)  |        |
|                                                                                    |    |              |                                                                              | Roll:            | Very Good                       |        |
|  | 29 | Type:        | Multi-role Fighter (Fulcrum-A)                                               | Max Vel. Mach    | 2.0                             | MAR:12 |
|                                                                                    | 29 | Armament:    | AA-8, AA-10A, AA-11                                                          | Hard Points:     | 7/6AA                           |        |
|  | 29 | RWR:         | 30 nm SPO-15 Radar:N019 Sapfir 29 «I»                                        | CMDs/ ECM:       | Yes BVP-30-26M/ No              |        |
|                                                                                    | 29 | Radar Range: | Up:34 nm Down:34 nm ECM:12-14 nm                                             | Vertical:        | Very Gd Kilmov RD33 (36.6k)     |        |
|  | 29 | Notes:       | 1983. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.       | Turn Rate %/sec: | 13 - 24 / Instant: 28 (0.2nm Ø) |        |
|                                                                                    | 29 |              |                                                                              | Roll:            | Good                            |        |
|  | 29 | Type:        | Multi-role Fighter (Fulcrum-B, GAF)                                          | Max Vel. Mach    | 1.8                             | MAR:12 |
|                                                                                    | 29 | Armament:    | AA-8, AA-10A, AA-11                                                          | Hard Points:     | 7/6AA                           |        |
|  | 29 | RWR:         | 30 nm SPO-15 Radar:N019 Sapfir 29 «I»                                        | CMDs/ ECM:       | Yes/ No                         |        |
|                                                                                    | 29 | Radar Range: | Up:34 nm Down:34 nm ECM:12-14 nm                                             | Vertical:        | Very Gd Kilmov RD33 (36.6k)     |        |
|  | 29 | Notes:       | 1995. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.       | Turn Rate %/sec: | 13 - 24 / Instant: 28 (0.2nm Ø) |        |
|                                                                                    | 29 |              |                                                                              | Roll:            | Good                            |        |
|  | 29 | Type:        | Multi-role Ftr (Fulcrum-F, Super Fulcrum)                                    | Max Vel. Mach    | 1.8                             | MAR:15 |
|                                                                                    | 29 | Armament:    | AA-8, AA-10A/ B/ C/ D, AA-11, AA-12                                          | Hard Points:     | 9/8AA Can carry 8 Adders        |        |
|  | 29 | RWR:         | 30 nm SPO-15 Radar:N010 Zhuk-M «I»                                           | CMDs/ ECM:       | Yes/ Int. ECM                   |        |
|                                                                                    | 29 | Radar Range: | Up:34 nm Down:34 nm ECM:12-14 nm                                             | Vertical:        | Very Gd K. RD33K (38.6k)        |        |
|  | 29 | Notes:       | 1989. HMCS. Not tested. IRST N/I. Target pod.                                | Turn Rate %/sec: | 13 - 24 / Instant: 28 (0.2nm Ø) |        |
|                                                                                    | 29 |              |                                                                              | Roll:            | Good                            |        |
|  | 29 | Type:        | Multi-role Fighter (Fulcrum-C)                                               | Max Vel. Mach    | 2.0                             | MAR:15 |
|                                                                                    | 29 | Armament:    | AA-8, AA-10A, AA-11, AA-12                                                   | Hard Points:     | 7/6AA Can carry 6 Adders        |        |
|  | 29 | RWR:         | 30 nm SPO-15 Radar:N019M Topaz «I»                                           | CMDs/ ECM:       | Yes/ Int. ECM L-203 Gardenya    |        |
|                                                                                    | 29 | Radar Range: | Up:34 nm Down:34 nm ECM:12-14 nm                                             | Vertical:        | Very Gd Kilmov RD33 (36.6k)     |        |
|  | 29 | Notes:       | 1992. HMCS. Smoke exhaust. Break lock with beam or hard 180. IRST N/I.       | Turn Rate %/sec: | 13 - 24 / Instant: 28 (0.2nm Ø) |        |
|                                                                                    | 29 |              |                                                                              | Roll:            | Good                            |        |

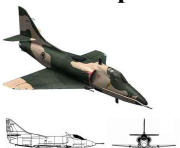
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------|------------------------------------------------------------------------------------|------------------|---------------------------------|--------|
| <b>Mig-31 Foxhound</b><br><br>    | 31 | Type:        | Interceptor                                                                        | Max Vel. Mach    | 1.7                             | MAR:20 |
|                                                                                                                                                                                                   | 31 | Armament:    | AA-6B, AA-8, AA-9, AA-10B /C, AA-11                                                | Hard Points:     | 8AA +2 with AA-8's              |        |
|                                                                                                                                                                                                   |    | RWR:         | 29 nm SPO-15 Radar: Zaslon RP-31 «J»                                               | CMDs/ ECM:       | Yes APP-50/ No                  |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>65 nm</u> Down: <u>60 nm</u> ECM: <u>20 nm</u>                              | Vertical:        | Med. Soloviev D-30 F6 (68.2k)   |        |
|                                                                                                                                                                                                   |    | Notes:       | 1979. IRST N/I. Smoke. Brk lock bm.<br>Long range AA-9 msls.                       | Turn Rate %/sec: | 13 - 20/ Instant: 25 (0.2nm Ø)  |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Good                            |        |
| <b>Q-5N Fantan</b><br><br>        |    | Type:        | Attack (PLAAF)                                                                     | Max Vel. Mach    | 0.78                            | MAR:05 |
|                                                                                                                                                                                                   |    | Armament:    | AA-2C, PL-7, 23 mm cannon                                                          | Hard Points:     | 10/ 4AA                         |        |
|                                                                                                                                                                                                   |    | RWR:         | 20 nm SPO-2, Sirena-2                                                              | CMDs/ ECM:       | No/ No                          |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>                                    | Vertical:        | Med. LW-6A or RD-9(16.4k)       |        |
|                                                                                                                                                                                                   |    | Notes:       | 1970. Smoke exst. Chinese Mig-19 derivative.                                       | Turn Rate %/sec: | 11 - 18/ Instant: 24 (0.2 nm Ø) |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Medium                          |        |
| <b>Su-7BMK Fitter</b><br><br>     | 41 | Type:        | Fighter Bomber                                                                     | Max Vel. Mach    | 1.6                             | MAR:02 |
|                                                                                                                                                                                                   |    | Armament:    | 30mm cannon                                                                        | Hard Points:     | 6/ No AA                        |        |
|                                                                                                                                                                                                   |    | RWR:         | 20 nm Kremniy-2 Radar:SRD-5M «I»                                                   | CMDs/ ECM:       | No / No                         |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>7 nm</u> Down: <u>N/A</u> ECM: <u>1 nm</u>                                  | Vertical:        | Good Lyulka AL-7F-1 (22.1k)     |        |
|                                                                                                                                                                                                   |    | Notes:       | 1967. Ranging Radar. Easy to break lock.<br>Smoke exhaust.                         | Turn Rate %/sec: | 11 - 20/ Instant: 25 (0.2nm Ø)  |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Good                            |        |
| <b>Su-15 Flagon-F</b><br><br>     | 43 | Type:        | Interceptor (Su-15TM)                                                              | Max Vel. Mach    | 1.58                            | MAR:07 |
|                                                                                                                                                                                                   |    | Armament:    | AA-1, AA-2C, AA-8N/I                                                               | Hard Points:     | 4/4AA                           |        |
|                                                                                                                                                                                                   |    | RWR:         | 29 nm Sirena-3 Radar:Taifun-M «I»                                                  | CMDs/ ECM:       | Yes/ Int. ECM                   |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>16 nm</u> Down: <u>13 nm</u> ECM: <u>8 nm</u>                               | Vertical:        | Med Tumansky R13-300 (19k)      |        |
|                                                                                                                                                                                                   |    | Notes:       | 1969. Smoke exst. Low fuel short range.<br>Easy to break lock over 10nm. Bm works. | Turn Rate %/sec: | 14 - 23/ Instant: 27 (0.2nm Ø)  |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Very good                       |        |
| <b>Su-17 Fitter-C</b><br><br>    |    | Type:        | Attack                                                                             | Max Vel. Mach    | 2.0                             | MAR:07 |
|                                                                                                                                                                                                   |    | Armament:    | AA-2C, AA-8                                                                        | Hard Points:     | 8/ 4AA                          |        |
|                                                                                                                                                                                                   |    | A:           | 29 nm SPO-3 Sir.-10 Rdr:K.(1)/SRD-5M«I»                                            | CMDs/ ECM:       | No / SPS-141 MWGE Pod           |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>4 nm</u> Down: <u>4 nm</u> ECM: <u>2 nm</u>                                 | Vertical:        | Medium AL-7F-1 (22.1k)          |        |
|                                                                                                                                                                                                   |    | Notes:       | 1971. Short range. Smoke exhaust. ECM<br>uses AA slot. VG wings.                   | Turn Rate %/sec: | 14 - 23/ Instant: 28 (0.2nm Ø)  |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Good                            |        |
| <b>Su-20 Fitter-C</b><br><br> |    | Type:        | Attack (Su-17M)                                                                    | Max Vel. Mach    | 2.0                             | MAR:07 |
|                                                                                                                                                                                                   |    | Armament:    | AA-2C, AA-8                                                                        | Hard Points:     | 8/ 4AA                          |        |
|                                                                                                                                                                                                   |    | RWR:         | 29 nm SPO-3 Sir.-10 Rdr:K.(1)/SRD-5M«I»                                            | CMDs/ ECM:       | No/ SPS-141 MWGE Pod            |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>4 nm</u> Down: <u>4 nm</u> ECM: <u>2 nm</u>                                 | Vertical:        | Medium AL-21F-3 (24.8k)         |        |
|                                                                                                                                                                                                   |    | Notes:       | 1973. Short range. ECM uses AA slot.<br>Smoke. VG wings.                           | Turn Rate %/sec: | 15 - 23/ Instant: 28 (0.2nm Ø)  |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Good                            |        |
| <b>Su-22 Fitter-F</b><br><br> |    | Type:        | Attack (Su-17M2)                                                                   | Max Vel. Mach    | 2.0                             | MAR:07 |
|                                                                                                                                                                                                   |    | Armament:    | AA-2C, AA-8                                                                        | Hard Points:     | 8/ 4AA                          |        |
|                                                                                                                                                                                                   |    | RWR:         | 29 nm SPO-3 Sirena-10 Radar: Komar «I»                                             | CMDs/ ECM:       | Yes / SPS-141 MWGE Pod          |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>4 nm</u> Down: <u>4 nm</u> ECM: <u>2 nm</u>                                 | Vertical:        | Good T. R29-BS300 (25.3k)       |        |
|                                                                                                                                                                                                   |    | Notes:       | 1976. Short range. Smoke exhaust. VG<br>wings. Export version.                     | Turn Rate %/sec: | 14 - 23/ Instant: 30 (0.2nm Ø)  |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Good                            |        |
| <b>Su-24 Fencer</b><br><br>   | 41 | Type:        | Attack (Fencer-C)                                                                  | Max Vel. Mach    | 2.19                            | MAR:07 |
|                                                                                                                                                                                                   |    | Armament:    | AA-8, 30mm gattling cannon                                                         | Hard Points:     | 7/ 2AA                          |        |
|                                                                                                                                                                                                   |    | RWR:         | 44 nm SPO-15 Radar: Orien «E/G»                                                    | CMDs/ ECM:       | SPS-5-2x/Int. ECM SPS161/162    |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>16 nm</u> Down: <u>16 nm</u> ECM: <u>7 nm</u>                               | Vertical:        | Med. Lyulka AL-21F-3 (49.6k)    |        |
|                                                                                                                                                                                                   |    | Notes:       | 1974. Can sustain turn with no AB. VG<br>wings. Smoke exhaust.                     | Turn Rate %/sec: | 14 - 19/ Instant: 23 (0.3nm Ø)  |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Good x>220 kts                  |        |
| <b>Su-25 Frogfoot</b><br><br> |    | Type:        | Attack (Grach)                                                                     | Max Vel. Mach    | 0.86                            | MAR:07 |
|                                                                                                                                                                                                   |    | Armament:    | AA-8                                                                               | Hard Points:     | 10/ 2AA                         |        |
|                                                                                                                                                                                                   |    | RWR:         | 20 nm SPO-15 Radar:DISS-7 N/I                                                      | CMDs/ ECM:       | Yes / SPS-141 MWGE Pod          |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u>                                    | Vertical:        | Bad Tumansky R-95 (17.6k)       |        |
|                                                                                                                                                                                                   |    | Notes:       | 1981. Faster at altitudes below 10kft.<br>25kft clng. Very tough.                  | Turn Rate %/sec: | 9 - 15/ Instant: 21 (0.2nm Ø)   |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Medium                          |        |
| <b>Su-27 Flanker</b><br><br>  | 27 | Type:        | Multi-role Ftr (Flanker-B, Crane, Azure Ltg)                                       | Max Vel. Mach    | 1.8                             | MAR:15 |
|                                                                                                                                                                                                   | 27 | Armament:    | AA-8, AA-10A/ B/ C/ D, AA-11, AA-12                                                | Hard Points:     | 10/ 10AA Can carry 8 Adders     |        |
|                                                                                                                                                                                                   |    | RWR:         | 29 nm SPO-15 Radar:NIIP N001 «I»                                                   | CMDs/ ECM:       | Yes / Sorbtsiya Pod -2AA        |        |
|                                                                                                                                                                                                   |    | Radar Range: | Up: <u>50 nm</u> Down: <u>50 nm</u> ECM: <u>22 nm</u>                              | Vertical:        | Good S./Lyulka AL-31F (55.2k)   |        |
|                                                                                                                                                                                                   |    | Notes:       | 1986. HMCS. Use ECM, bm, chaff, mnvr to<br>brk lock x>10nm. Long rng. IRST N/I.    | Turn Rate %/sec: | 15 - 17/ Instant: 23 (0.2nm Ø)  |        |
|                                                                                                                                                                                                   |    |              |                                                                                    | Roll:            | Good                            |        |



|                                                                                                              |    |              |                                                                                    |                  |                                |        |
|--------------------------------------------------------------------------------------------------------------|----|--------------|------------------------------------------------------------------------------------|------------------|--------------------------------|--------|
| <b>Su-27UB Flanker</b><br>   | 27 | Type:        | Multi-role Ftr (2 seat version, Flanker-C)                                         | Max Vel. Mach    | 1.8                            | MAR:15 |
|                                                                                                              | 27 | Armament:    | AA-8, AA-10A/ B/ C/ D, AA-11, AA-12                                                | Hard Points:     | 10/ 10AA                       |        |
|                              | 30 | RWR:         | 29 nm SPO-15 Radar:NIIP N001 «I»                                                   | CMDs/ ECM:       | Yes / Sorbtsiya Pod -2AA       |        |
|                                                                                                              | 30 | Radar Range: | Up:50 nm Down:50 nm ECM:22 nm                                                      | Vertical:        | Med. S./Lyulka AL-31F(55.2k)   |        |
| <b>Su-30MKK Flanker</b><br>  | 30 | 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) |        |
|                                                                                                              | 30 | Type:        | Multi-role Fighter (Flanker-F2)                                                    | Roll:            | Good                           |        |
| <b>Su-30M Flanker</b><br>    | 30 | Armament:    | AA-10A/ B/ C/ D, AA-11, AA-12                                                      | Max Vel. Mach    | 1.3                            | MAR:15 |
|                                                                                                              | 30 | RWR:         | 29 nm SPO-15 Radar:NIIP N011ME «I»                                                 | Hard Points:     | 11/ 10AA Can carry 8 Adders    |        |
| <b>Su-30MKK Flanker</b><br> | 30 | Radar Range: | Up:50 nm Down:50 nm ECM:22 nm                                                      | CMDs/ ECM:       | Yes / Sorbtsiya pod -2AA       |        |
|                                                                                                              | 30 | Notes:       | 1992. HMCS. Use ECM, bm, chaff, mnvr to brk lock x>10nm. Long rng. Auto LEF.       | Vertical:        | Med. S./Lyulka AL-31F(55.2k)   |        |
| <b>Su-33 Flanker</b><br>   | 27 | Type:        | Multi-role Ftr (Naval Flanker-D, Su-27K)                                           | Turn Rate °/sec: | 12 - 17/ Instant: 23 (0.2nm Ø) |        |
|                                                                                                              | 27 | Armament:    | AA-10A/ B/ C/ D, AA-11, AA-12                                                      | Roll:            | Good                           |        |
| <b>Su-33 Flanker</b><br>   | 27 | RWR:         | 29 nm SPO-15 Radar:NIIP N011 «I»                                                   | Max Vel. Mach    | 1.6                            | MAR:15 |
|                                                                                                              | 27 | Radar Range: | Up:50 nm Down:50 nm ECM:22 nm                                                      | Hard Points:     | 11/ 8AA                        |        |
| <b>Su-34 Fullback</b><br>  | 30 | Notes:       | 1992. HMCS. No smoke exhaust. Long range.                                          | CMDs/ ECM:       | Yes / Sorbtsiya pod -2AA       |        |
|                                                                                                              | 30 | Type:        | Fighter/ Bomber (Su-27TB)                                                          | Vertical:        | Good S./Lyulka AL-31F(55.2k)   |        |
| <b>Su-34 Fullback</b><br>  | 30 | Armament:    | AA-10A/ B/ C/ D, AA-11, AA-12                                                      | Turn Rate °/sec: | 13 - 18/ Instant: 24 (0.2nm Ø) |        |
|                                                                                                              | 30 | RWR:         | 29 nm Elint Radar:Leninets V004 «I»                                                | Roll:            | Good                           |        |
| <b>Su-34 Fullback</b><br>  | 30 | Radar Range: | Up:50 nm Down:50 nm ECM:22 nm                                                      | Max Vel. Mach    | 1.5                            | MAR:15 |
|                                                                                                              | 30 | Notes:       | 2011. Leninets V005 rear facing radar N/I.                                         | Hard Points:     | 11/ 10AA                       |        |
| <b>Su-35 Flanker</b><br>   | 30 | Type:        | Multi-role Ftr (Super Flanker-E1, Su-27M)                                          | CMDs/ ECM:       | Yes / Sorbtsiya pod -2AA       |        |
|                                                                                                              | 30 | Armament:    | AA-10A/ B/ C/ D, AA-11, AA-12                                                      | Vertical:        | Med. S./Lyulka AL-35F(59.8k)   |        |
| <b>Su-35 Flanker</b><br>   | 30 | RWR:         | 29 nm Elint Radar:NIIP N011ME «I»                                                  | Turn Rate °/sec: | 10 - 14/ Instant: 21 (0.2nm Ø) |        |
|                                                                                                              | 30 | Radar Range: | Up:50 nm Down:50 nm ECM:22 nm                                                      | Vert./ Roll:     | Very Good                      |        |
| <b>Su-35 Flanker</b><br>   | 30 | Notes:       | 2007. HMCS. No smoke exhst. Long range 2,500 nm. (T10M-3). N012 rear radar N/I.    | Max Vel. Mach    | 2.1                            | MAR:15 |
|                                                                                                              | 30 | Type:        | Multi-role Ftr (Super Flanker-E1, Su-27M)                                          | Hard Points:     | 11/ 8AA                        |        |
| <b>Su-39 Frogfoot</b><br>  | 25 | Armament:    | AA-2B, AA-2C, AA-8, AA-11, AA-12                                                   | CMDs/ ECM:       | Yes / Sorbtsiya pod -2AA       |        |
|                                                                                                              | 25 | RWR:         | 29 nm Pastel/ L150 Radar: Kopyo-25«I»                                              | Vertical:        | Med. S./Lyulka AL-35F(59.8k)   |        |
| <b>Su-39 Frogfoot</b><br>  | 39 | Radar Range: | Up:29 nm Down:29 nm ECM:15 nm                                                      | Turn Rate °/sec: | 10 - 14/ Instant: 21 (0.2nm Ø) |        |
|                                                                                                              | 39 | Notes:       | 2008. Smoke exhaust. 32kft ceiling. Best performance low and slow. SPO-32.         | Roll:            | Very Good                      |        |



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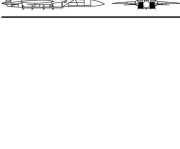
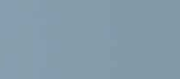
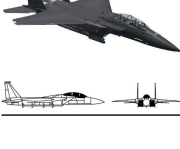
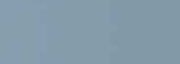
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|    | <b>A-1H Skyraider</b>      |     | Type: Attack (AD-6, Sandy, Spade, Hobo, Firefly)<br>Armament: No missiles. 4x 20mm guns.<br>RWR: N/A<br>Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u><br>Notes: 1954. Tough armored attack and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

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

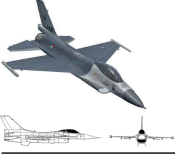
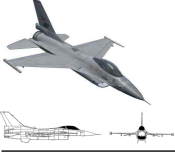
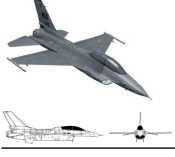




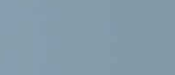
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| <b>F-4F Phantom</b><br><br>         | 4  | Type:        | Fighter Bomber (Germany, SK, Japan)                                               | Max Vel. Mach    | 1.6                             | MAR:17 |
|                                        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

|                                                                                    |    |              |                                                |                  |                                |        |
|------------------------------------------------------------------------------------|----|--------------|------------------------------------------------|------------------|--------------------------------|--------|
|    | 15 | Type:        | Fighter (Israel)                               | Max Vel. Mach    | 1.88                           | MAR:20 |
|                                                                                    | 15 | Armament:    | AIM-7M, AIM-9M/ P, AIM-120B/ C, Python 3/ 4/ 5 | Hard Points:     | 11/ 8AA                        |        |
|    | 15 | RWR:         | 44 nm AN/ALR-56C Rdr:APG-63PSP«J»              | CMDs/ ECM:       | Yes/ Int ECM                   |        |
|                                                                                    | 15 | Radar Range: | Up:60 nm Down:60 nm ECM:40 nm                  | Vertical:        | Very Gd F-100-PW-220 (47.7k)   |        |
|    | 15 | Notes:       | 1980: Akef, CFT. 1998: Baz DASH.               | Turn Rate °/sec: | 10 - 13/ Instant: 18           |        |
|                                                                                    | 15 |              |                                                | Roll:            | Very Good                      |        |
|    | 15 | Type:        | Fighter                                        | Max Vel. Mach    | 1.88                           | MAR:20 |
|                                                                                    | 15 | Armament:    | AIM-7M, AAM-3/ 4, AIM-9M/ P/ X, AIM-120B/ C    | Hard Points:     | 11/ 8AA                        |        |
|    | 15 | RWR:         | 44 nm J/APR-4 Rdr:APG-63PSP«J»                 | CMDs/ ECM:       | Yes/ Int ECM                   |        |
|                                                                                    | 15 | Radar Range: | Up:60 nm Down:60 nm ECM:40 nm                  | Vertical:        | Very Gd F-100-PW-220 (47.7k)   |        |
|    | 15 | Notes:       | 1981. HMCS.                                    | Turn Rate °/sec: | 11 - 17/ Instant: 18           |        |
|                                                                                    | 15 |              |                                                | Roll:            | Very Good                      |        |
|   | 15 | Type:        | Fighter                                        | Max Vel. Mach    | 1.88                           | MAR:20 |
|                                                                                    | 15 | Armament:    | AIM-7M, AIM-9M/ P/ X, AIM-120B/ C              | Hard Points:     | 11/ 8AA                        |        |
|  | 15 | RWR:         | 44 nm AN/ALR-56C Rdr:APG-63PSP«J»              | CMDs/ ECM:       | Yes/ Int ECM                   |        |
|                                                                                    | 15 | Radar Range: | Up:60 nm Down:60 nm ECM:40 nm                  | Vertical:        | Very Gd F-100-PW-220 (47.7k)   |        |
|  | 15 | Notes:       | 1979. 2 seats. No smoke. HMCS.                 | Turn Rate °/sec: | 10 - 13/ Instant: 18           |        |
|                                                                                    | 15 |              |                                                | Roll:            | Very Good                      |        |
|  | 15 | Type:        | Fighter                                        | Max Vel. Mach    | 1.88                           | MAR:20 |
|                                                                                    | 15 | Armament:    | AIM-7M, AIM-9M/ P/ X, AIM-120B/ C              | Hard Points:     | 11/ 8AA                        |        |
|  | 15 | RWR:         | 44 nm J/APR-4 Rdr:APG-63PSP«J»                 | CMDs/ ECM:       | Yes/ Int ECM                   |        |
|                                                                                    | 15 | Radar Range: | Up:60 nm Down:60 nm ECM:40 nm                  | Vertical:        | Very Gd F-100-PW-220 (47.7k)   |        |
|  | 15 | Notes:       | 1980. 2 seats. No smoke.                       | Turn Rate °/sec: | 11 - 17/ Instant: 18           |        |
|                                                                                    | 15 |              |                                                | Roll:            | Very Good                      |        |
|  | 15 | Type:        | Multi-role Fighter (Strike Eagle, Mud Hen)     | Max Vel. Mach    | 1.88                           | MAR:20 |
|                                                                                    | 15 | Armament:    | AIM-7M, AIM-9M/ P/ X, AIM-120B/ C              | Hard Points:     | 11/ 8AA                        |        |
|  | 15 | RWR:         | 44 nm AN/ALR-56C Rdr:AN/APG-70«J»              | CMDs/ ECM:       | Yes/ Int ECM                   |        |
|                                                                                    | 15 | Radar Range: | Up:60 nm Down:60 nm ECM:40 nm                  | Vertical:        | Med F-100-PW-220 (47.7k)       |        |
|  | 15 | Notes:       | 1989. 2 seats. FLIR, nav pod, tgt pod.         | Turn Rate °/sec: | 8 - 11/ Instant: 15 (0.2 nm Ø) |        |
|                                                                                    | 15 |              |                                                | Vert/ Roll:      | Very Good                      |        |
|  | 15 | Type:        | Multi-role Fighter (Strike Eagle, Mud Hen)     | Max Vel. Mach    | 1.88                           | MAR:20 |
|                                                                                    | 15 | Armament:    | AIM-7M, AIM-9M/ P/ X, AIM-120B/ C              | Hard Points:     | 11/ 8AA                        |        |
|  | 15 | RWR:         | 44 nm AN/ALR-56C Rdr:AN/APG-70«J»              | CMDs/ ECM:       | Yes/ Int ECM                   |        |
|                                                                                    | 15 | Radar Range: | Up:60 nm Down:60 nm ECM:30 nm                  | Vertical:        | Med F-100-PW-229 (58.2k)       |        |
|  | 15 | Notes:       | 1991. 2 seats. FLIR, nav pod, tgt pod.         | Turn Rate °/sec: | 8 - 11/ Instant: 15 (0.2 nm Ø) |        |
|                                                                                    | 15 |              |                                                | Roll:            | Very Good                      |        |
|  | 15 | Type:        | Fighter (Israel, Thunder)                      | Max Vel. Mach    | 2.00                           | MAR:20 |
|                                                                                    | 15 | Armament:    | AIM-7M, AIM-9M/ P, AIM-120B/ C, Python 3/ 4/ 5 | Hard Points:     | 11/ 8AA                        |        |
|  | 15 | RWR:         | 44 nm Elisra SPS-2110 Rdr:AN/APG-70I«J»        | CMDs/ ECM:       | Yes/ Int ECM                   |        |
|                                                                                    | 15 | Radar Range: | Up:60 nm Down:60 nm ECM:40 nm                  | Vertical:        | Med F-100-PW-229 (58.2k)       |        |
|  | 15 | Notes:       | 1999. 2 seats. DASH. CFT.                      | Turn Rate °/sec: | 8-11/ Instant: 15              |        |
|                                                                                    | 15 |              |                                                | Roll:            | Very Good                      |        |
|  | 15 | Type:        | Fighter (Slam Eagle, ROKAF)                    | Max Vel. Mach    | 2.06                           | MAR:20 |
|                                                                                    | 15 | Armament:    | AIM-9X, AIM-120C                               | Hard Points:     | 11/ 8AA                        |        |
|  | 15 | RWR:         | 44 nm ALR-56C(V)1 Rdr:APG-63(V)1«J»            | CMDs/ ECM:       | Yes/ Int ECM                   |        |
|                                                                                    | 15 | Radar Range: | Up:60 nm Down:60 nm ECM:40 nm                  | Vertical:        | Good F-110-GE-129 (58k)        |        |
|  | 15 | Notes:       | 2007. 2 seats. HMCS. CFT. IRST.                | Turn Rate °/sec: | 8 - 11/ Instant: 15            |        |
|                                                                                    | 15 |              |                                                | Roll:            | Very Good                      |        |



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



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

|                                                                                                                  |    |              |                                                           |                  |                                 |        |
|------------------------------------------------------------------------------------------------------------------|----|--------------|-----------------------------------------------------------|------------------|---------------------------------|--------|
| <b>F/A-18D Hornet</b><br>        | 18 | Type:        | Multi-role Fighter                                        | Max Vel. Mach    | 1.6                             | MAR:17 |
|                                                                                                                  | 18 | Armament:    | AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C                      | Hard Points:     | 9/ 8AA + 4 AIM-9 or 120         |        |
| <b>F/A-18E</b><br>               | 18 | RWR:         | 49 nm AN/ALR-67 Radar:AN/APG-65 «I»                       | CMDs/ ECM:       | Yes/ Int ECM                    |        |
|                                                                                                                  | 18 | Radar Range: | Up:51 nm Down:51 nm ECM:20 nm                             | Vertical:        | Very Gd F404-GE-402 (35k)       |        |
| <b>F/A-18F</b><br>               | 18 | Notes:       | 1987. 2 Seats. HMCS.                                      | Turn Rate °/sec: | 14 - 17/ Instant: 22 (0.2 nm Ø) |        |
|                                                                                                                  | 18 | Type:        | Multi-role Fighter (Super Hornet)                         | Roll:            | Very Good                       |        |
| <b>F/A-18E</b><br>               | 18 | Armament:    | AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C                      | Max Vel. Mach    | 1.54                            | MAR:17 |
|                                                                                                                  | 18 | RWR:         | 49 nm ALR-67(V)3 Radar:AN/APG-73 «I»                      | Hard Points:     | 11/ 10AA + 6 AIM-9 or 120       |        |
| <b>F/A-18F</b><br>               | 18 | Radar Range: | Up:51 nm Down:51 nm ECM:20 nm                             | CMDs/ ECM:       | Yes/ Int ECM                    |        |
|                                                                                                                  | 18 | Notes:       | 1995. HMCS.                                               | Vertical:        | Medium F414-GE-400 (44k)        |        |
| <b>F-22A Raptor</b><br>          | 22 | Type:        | Multi-role Fighter (Super Hornet)                         | Turn Rate °/sec: | 11 - 15/ Instant: 15 (0.3 nm Ø) |        |
|                                                                                                                  | 22 | Armament:    | AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C                      | Roll:            | Very Good                       |        |
| <b>F-22A Raptor</b><br>          | 22 | RWR:         | 49 nm ALR-67(V)3 Radar: AN/APG-79 «I»                     | Max Vel. Mach    | 1.54                            | MAR:17 |
|                                                                                                                  | 22 | Radar Range: | Up:51 nm Down:51 nm ECM:20 nm                             | Hard Points:     | 11/ 10AA + 6 AIM-9 or 120       |        |
| <b>F-22A Raptor</b><br>          | 22 | Notes:       | 1995. 2 Seats. AESA rdr N/I. HMCS.                        | CMDs/ ECM:       | Yes/ Int ECM                    |        |
|                                                                                                                  | 22 | Type:        | Multi-role Fighter (Super Hornet)                         | Vertical:        | Medium F414-GE-400 (44k)        |        |
| <b>F-22A Raptor</b><br>          | 22 | Armament:    | AIM-7F/ M, AIM-9M/ P/ X, AIM-120B/ C                      | Turn Rate °/sec: | 11 - 15/ Instant: 15 (0.3 nm Ø) |        |
|                                                                                                                  | 22 | RWR:         | 49 nm ALR-94 Radar: AN/APG-77 «I»                         | Roll:            | Very Good                       |        |
| <b>F-22A Raptor</b><br>          | 22 | Radar Range: | Up:75 nm Down:75 nm ECM:60 nm                             | Max Vel. Mach    | 1.83                            | MAR:20 |
|                                                                                                                  | 22 | Notes:       | 2005. AESA rdr N/I. AN/ALR-56 MLD. Super cruise 1.35. TV. | Hard Points:     | 6/ 6AA + 2 AIM-9                |        |
| <b>F-100D Super Sabre</b><br>   | 43 | Type:        | Fighter                                                   | CMDs/ ECM:       | Yes/ Stealth 6.5 nm             |        |
|                                                                                                                  | 43 | Armament:    | AIM-9M, AIM-120C                                          | Vertical:        | Very Good F119-PW-100 (70k)     |        |
| <b>F-100D Super Sabre</b><br>   | 43 | RWR:         | 49 nm ALR-94 Radar: AN/APG-77 «I»                         | Turn Rate °/sec: | 14 - 26/ Instant: 32 (0.1 nm Ø) |        |
|                                                                                                                  | 43 | Radar Range: | Up:75 nm Down:75 nm ECM:60 nm                             | Roll:            | Very Good                       |        |
| <b>F-100D Super Sabre</b><br>   | 43 | Notes:       | 2005. AESA rdr N/I. AN/ALR-56 MLD. Super cruise 1.35. TV. | Max Vel. Mach    | 1.43                            | MAR:02 |
|                                                                                                                  | 43 | Type:        | Fighter Bomber (The Hun)                                  | Hard Points:     | 6/ 0AA                          |        |
| <b>F-100D Super Sabre</b><br>   | 43 | Armament:    | 4x 20mm Cannons                                           | CMDs/ ECM:       | No / No                         |        |
|                                                                                                                  | 43 | RWR:         | 15 nm APR-126 Radar:APR-25V                               | Vertical:        | Medium J57-P-21/21A (16k)       |        |
| <b>F-100D Super Sabre</b><br>   | 43 | Radar Range: | Up:8 nm Down:8 nm ECM:6 nm                                | Turn Rate °/sec: | 8 - 15/ Instant:23              |        |
|                                                                                                                  | 43 | Notes:       | 1956. Gun tracking radar. Slow pitch.                     | Roll:            | Very Good                       |        |
| <b>F-104DJ Starfighter</b><br> | A  | Type:        | Fighter Bomber (The Hun)                                  | Max Vel. Mach    | 1.89                            | MAR:05 |
|                                                                                                                  | T  | Armament:    | AIM-9B, 20mm cannon                                       | Hard Points:     | 4AA                             |        |
| <b>F-104DJ Starfighter</b><br> | T  | RWR:         | 29 nm APR-25/26 Radar:ASG-14T «I»                         | CMDs/ ECM:       | No / No                         |        |
|                                                                                                                  | T  | Radar Range: | Up:5 nm Down:N/A ECM:2 nm                                 | Vertical:        | Medium J79-GE-11A (15.6k)       |        |
| <b>F-104DJ Starfighter</b><br> | T  | Notes:       | 1958.                                                     | Turn Rate °/sec: | 6 - 9/ Instant: 12 (0.5 nm Ø)   |        |
|                                                                                                                  | T  | Type:        | Fighter Bomber (Thunderchief)                             | Roll:            | Very Good                       |        |
| <b>F-105D Thud</b><br>         | A  | Armament:    | AIM-9B, 20mm cannon                                       | Max Vel. Mach    | 1.97                            | MAR:05 |
|                                                                                                                  | 4  | RWR:         | 15 nm APR-25/26 Radar: NASARR R-14A                       | Hard Points:     | 5/ 2AA +2 AIM-9                 |        |
| <b>F-105D Thud</b><br>         | 4  | Radar Range: | Up:14 nm Down:14 nm ECM:10 nm                             | CMDs/ ECM:       | No / No, AN/ALQ-72 pod N/I.     |        |
|                                                                                                                  | 4  | Notes:       | 1960. RWR Vector.                                         | Vertical:        | Bad J75-P-19W (26.5k)           |        |
| <b>F-105D Thud</b><br>         | 4  | Type:        | Fighter Bomber (Thunderchief)                             | Turn Rate °/sec: | 11 - 16/ Instant: 24 (0.3 nm Ø) |        |
|                                                                                                                  | 4  | Armament:    | AIM-9B, 20mm cannon                                       | Roll:            | Very Good                       |        |



|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>F-111E Aardvark</b><br><br>   | <br>     | Type: Attack (Mark I)<br>Armament: No AA missiles. No gun.<br>RWR: 49 nm AN/APQ-109 Rdr:AN/APQ-113 «I»<br>Radar Range: Up: <u>15 nm</u> Down: <u>15 nm</u> ECM: <u>8 nm</u><br>Notes: 1969. 2 Seats. Smoke. Direct successor to A. Can accelerate in turn. Smoke. | Max Vel. Mach <u>1.45</u> MAR:00<br>Hard Points: 4/0AA<br>CMDS/ ECM: Yes / Int ECM<br>Vertical: Medium TF30-P-3 (37k)<br>Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø)<br>Roll: Medium                  |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>F-111F Aardvark</b><br><br>   | <br>     | Type: Attack (Mark IIB)<br>Armament: No AA missiles. No gun.<br>RWR: 49 nm AN/ALR-62 Rdr:AN/APQ-144 «I»<br>Radar Range: Up: <u>15 nm</u> Down: <u>15 nm</u> ECM: <u>8 nm</u><br>Notes: 1970. 2 Seats. Can accelerate in turn with low burner or mil power. Smoke. | Max Vel. Mach <u>1.56</u> MAR:00<br>Hard Points: 4/0AA<br>CMDS/ ECM: Yes / Int ECM<br>Vertical: Medium TF30-P-100 (50k)<br>Turn Rate °/sec: 13 - 19/ Instant: 24 (0.2 nm Ø)<br>Roll: Medium                |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>F-117A Nighthawk</b><br><br>  |                                                                                                                                                                            | Type: Attack<br>Armament: No AA missiles. No gun.<br>RWR: 44 nm Classified Radar Locator System<br>Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u><br>Notes: 1983. Not detected by AWACS. Can avoid F16 radar to about 1.7nm.                        | Max Vel. Mach <u>0.78</u> MAR:00<br>Hard Points: 2/0AA<br>CMDS/ ECM: Yes/ No, Stealth 1.7 nm<br>Vertical: Bad F404-GE-F1D2 (21k)<br>Turn Rate °/sec: 10 - 14/ Instant: 20<br>Roll: Good                    |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>F-CK-1C Ching-Kuo</b><br><br> | <br>     | Type: Multi-role Fighter (ROCAF)<br>Armament: <b>Tien Chien I, Tien Chien II</b><br>RWR: 44 nm AN/ALR-93(V) Radar: GD-53«I»<br>Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u><br>Notes: 1997. Indigenous Defense Fighter (IDF).               | Max Vel. Mach <u>1.37</u> MAR:17<br>Hard Points: 7/6AA<br>CMDS/ ECM: AN/ALE-47/ No<br>Vertical: Very Good F125-70 (19k)<br>Turn Rate °/sec: 15 - 20/ Instant: 24 (0.2 nm Ø)<br>Roll: Good                  |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>JA 37 Viggen</b><br><br>     | <br>     | Type: Interceptor (Jakt)(SAF)<br>Armament: <b>AIM-9M, AIM-120B, Skyflash</b> , 30 mm<br>RWR: 29 nm SATT Radar: PS46/A «I»<br>Radar Range: Up: <u>30 nm</u> Down: <u>30 nm</u> ECM: <u>15 nm</u><br>Notes: 1978. AA only.                                          | Max Vel. Mach <u>1.66</u> MAR:17<br>Hard Points: 6AA<br>CMDS/ ECM: Yes/ No<br>Vertical: Medium Volvo RM8B (26k)<br>Turn Rate °/sec: 8 - 11/ Instant: 16<br>Roll: Good                                      |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>KF-16C Blk 32</b><br><br> | <br> | Type: Multi-role Fighter (Korean Peace Bridge I)<br>Armament: <b>AIM-7M, AIM-9M/ P, AIM-120B</b><br>RWR: 44 nm ALR-56M Radar:AN/APG-68 «I»<br>Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u><br>Notes: 1986. Green MFDs.                      | Max Vel. Mach <u>1.2</u> MAR:17<br>Hard Points: 9/6AA<br>CMDS/ ECM: Yes/ Int ECM, ALQ-131(V)<br>Vertical: Good F-100-PW-220 (23.8k)<br>Turn Rate °/sec: 14 - 18/ Instant: 24 (0.3 nm Ø)<br>Roll: Very Good |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>KF-16C Blk 52</b><br><br> | <br> | Type: Multi-role Fighter (Korean Peace Bridge II)<br>Armament: <b>AIM-7M, AIM-9M/ P, AIM-120B/ C</b><br>RWR: 44 nm ALR-56M Radar:APG-68(V)7 «I»<br>Radar Range: Up: <u>40 nm</u> Down: <u>40 nm</u> ECM: <u>20 nm</u><br>Notes: 1994. HMCS. TFR. FLIR.            | Max Vel. Mach <u>1.85</u> MAR:17<br>Hard Points: 9/6AA<br>CMDS/ ECM: Yes/ Int ECM<br>Vertical: Very Gd F-100-PW-229 (28.5k)<br>Turn Rate °/sec: 15 - 20/ Instant: 26 (0.3 nm Ø)<br>Roll: Very Good         |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>MB-339</b><br><br>        |                                                                                                                                                                            | Type: Attack (Aermachi, ITAF)<br>Armament: <b>AIM-9M, R.550 Magic</b> , 30mm<br>RWR: 29 nm ELT-156<br>Radar Range: Up: <u>N/A</u> Down: <u>N/A</u> ECM: <u>N/A</u><br>Notes: 1976. 2 Seats. Performs best low and slow.                                           | Max Vel. Mach <u>0.84</u> MAR:08<br>Hard Points: 6/2AA<br>CMDS/ ECM: Yes/ Int ECM, ELT-5 Pod N/I<br>Vertical: Bad RR Viper MK.680-43(4.4k)<br>Turn Rate °/sec: 12 - 23/ Instant: 32<br>Roll: Good          |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>Mirage 2000C</b><br><br>  | <br> | Type: Fighter<br>Armament: <b>R.550 Magic II, R.530D</b><br>RWR: 44 nm SERVAL Radar:CSF-RDI «I»<br>Radar Range: Up: <u>47 nm</u> Down: <u>42 nm</u> ECM: <u>10 nm</u><br>Notes: 1984. x<10nm to keep radar lock. Limits effective range of R530D.                 | Max Vel. Mach <u>1.74</u> MAR:17<br>Hard Points: 9/4AA<br>CMDS/ ECM: Yes/ Int ECM<br>Vertical: Good M53-P2 (21.4k)<br>Turn Rate °/sec: 11 - 16/ Instant: 21 (0.2 nm Ø)<br>Roll: Very Good                  |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |
| <b>Mirage 2000D</b><br><br>  | <br> | Type: Fighter<br>Armament: <b>R.550 Magic II, MICA IR</b><br>RWR: 49 nm SERVAL Radar:Antilope 50 «I»<br>Radar Range: Up: <u>15 nm</u> Down: <u>15 nm</u> ECM: <u>8 nm</u><br>Notes: 1995. 2 Seats.                                                                | Max Vel. Mach <u>1.44</u> MAR:14<br>Hard Points: 9/2AA<br>CMDS/ ECM: Yes/ Int ECM<br>Vertical: Good M53-P2 (21.4k)<br>Turn Rate °/sec: 11 - 16/ Instant: 21 (0.2 nm Ø)<br>Roll: Very Good                  |
|                                                                                                                                                                                                  |                                                                                                                                                                            |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                            |



|                                                                                    |    |           |                                       |               |         |        |
|------------------------------------------------------------------------------------|----|-----------|---------------------------------------|---------------|---------|--------|
|    | 20 | Type:     | Fighter                               | Max Vel. Mach | 1.87    | MAR:14 |
|                                                                                    | 2  | Armament: | R.550 Magic II, MICA EM, MICA IR      | Hard Points:  | 9/6AA   |        |
|    | 20 | Type:     | Fighter (EGM HAF)                     | Max Vel. Mach | 1.87    | MAR:14 |
|                                                                                    | 2  | Armament: | R.550 Magic II, MICA EM, MICA IR      | Hard Points:  | 9/8AA   |        |
|    | 20 | Type:     | Fighter                               | Max Vel. Mach | 1.44    | MAR:08 |
|                                                                                    | 2  | Armament: | R.550 Magic II                        | Hard Points:  | 9/2AA   |        |
|    | 44 | Type:     | Fighter                               | Max Vel. Mach | 1.96    | MAR:17 |
|                                                                                    |    | Armament: | R.550 Magic, R.550 Magic II, R.530D   | Hard Points:  | 5/4AA   |        |
|   |    | Type:     | Fighter                               | Max Vel. Mach | 1.4     | MAR:08 |
|                                                                                    | 3  | Armament: | AIM-9M, R.550 Magic, 2x 30mm          | Hard Points:  | 5/2AA   |        |
|  | 41 | Type:     | Attack/ Unmanned Aerial Vehicle       | Max Vel. Mach | 0.40    | MAR:00 |
|                                                                                    |    | Armament: | No AA Missiles. No Gun.               | Hard Points:  | 7/0AA   |        |
|  |    | Type:     | Foward Air Control/ Attack            | Max Vel. Mach | 0.38    | MAR:07 |
|                                                                                    |    | Armament: | AIM-9M                                | Hard Points:  | 7/2AA   |        |
|  | 22 | Type:     | Multi-role Fighter (FAF)              | Max Vel. Mach | 1.62    | MAR:14 |
|                                                                                    | R  | Armament: | Mica IR, Mica EM, Meteor              | Hard Points:  | 12/10AA |        |
|  |    | Type:     | Fighter Bomber                        | Max Vel. Mach | 1.17    | MAR:07 |
|                                                                                    |    | Armament: | AIM-9M                                | Hard Points:  | 7/2AA   |        |
|  | T  | Type:     | Interceptor (Air Defense Variant)     | Max Vel. Mach | 1.75    | MAR:17 |
|                                                                                    | T  | Armament: | AIM-9M, Skyflash, AIM-120B/C, AIM-132 | Hard Points:  | 10/8AA  |        |

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



### General Notes

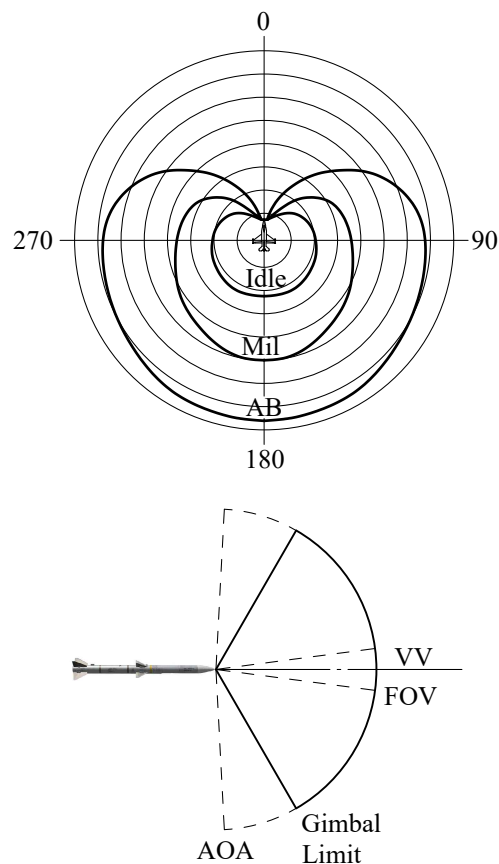
- Break turns should generally be into the missile. Turn AB off when defending against IR missiles.
- Radar missile range: the smaller range number is RTR, larger number is RPI. Longer ranges are possible for most missiles with greater altitude, speed and lofting.
- IR missile range: the first smaller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

### CM Effect # Decoys

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

### Abbreviations

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





**AA-1 Alkali**

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

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

**AA-2B Atoll**

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

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

**AA-2C Adv. Atoll**

Guidance: **IR Rear Aspect**  
 Range Front: 1 - (2) nm  
 Range Rear: **2 - (4) nm**  
 Flare Effect: Very High  
 Max Target g: 6  
 Max Vel.(mach): **3.2** (2,133 kts)

Names: R-13M, K-13M, Obj 380, A-91, PL-2/ PL-3 / PL-5, AA-2  
 Aircraft: Mig-19PM, Mig-21F-13/ bis/MF, Mig-23ML, Mig-27, Q-5, Su-15, Su-17, Su-20, Su-22  
 Notes: 1967. USSR. Brk turn 4g/ flare. (20g, 33g), Max AOA 16°, gmb limit 25°, trkg rate 12.5°/sec, FOV 2°, 35 sec. Seeker Front 1-(2)nm, Rear **2-(7)**.

**AA-6A Acrid**

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

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

**AA-6B Acrid**

Guidance: **IR Rear Aspect**  
 Range Front: 5 - (13) nm  
 Range Rear: **4 - 6 nm**  
 Flare Effect: Medium  
 Max Target g: 6  
 Max Vel.(mach): **3.0** (1,984 kts)

Names: R-40TD  
 Aircraft: Mig-25, Mig-31  
 Notes: 1970. USSR. Break turn 7g, flare. Low maneuverability. (15g), Max AOA 16°, gmb limit 25°, trkg rate 16°/sec, FOV 3°, 65 sec. Seeker Front 5-(13)nm, Rear **13-(38)nm**.

**AA-7A Apex**

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

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

**AA-7B Apex**

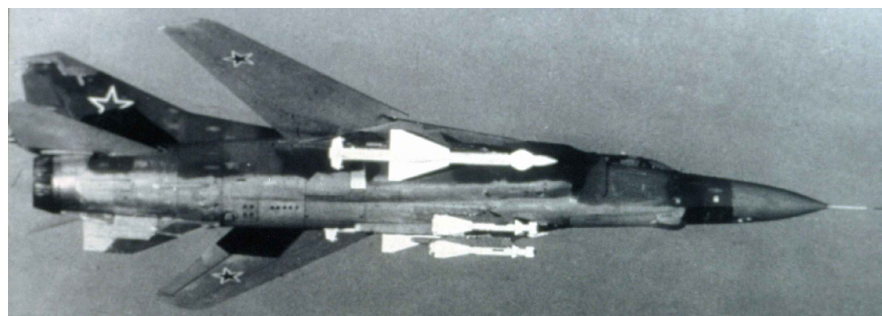
Guidance: **IR Rear Aspect**  
 Range Front: 2.6 - (7) nm  
 Range Rear: **4 - 5 nm**  
 Flare Effect: Medium  
 Max Target g: 7  
 Max Vel.(mach): **2.9** (1,918 kts)

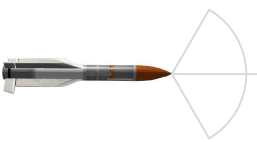
Names: R-23T, Object 360, AA-7B  
 Aircraft: Mig-23ML, Mig-25, Mig-27  
 Notes: 1974. USSR. Break turn 4g, flare. Low maneuverability. Loses speed rapidly in turns. (21g), Max AOA 16°, gimbal limit 25°, tracking rate 16°/sec, FOV 3°, 45 sec. Seeker Front 2.6-(7)nm, Rear **7-(20)nm**.

**AA-8 Aphid**

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

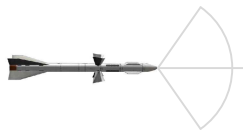
Aircraft: G-4, J-11, Mig-21Mbis/MF/PFM/-93, Mig-23ML, -25, -27, -29A/ G/ M/ S, Mig-31, Su-17, -20, -22, -24M, -25, -27/UB, -39  
 Notes: 1974. USSR. Head on break turn 9g, flare. Minor IRCCM. (30g), AOA 29° 17°, gmb limit 20°, tkg 35°/sec, FOV 3°, 23 sec. Seeker Front 3.5-(8)nm, Rear **3.5-(8)nm**.



**AA-9 Amos**

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

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

**AA-10A Alamo**

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

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

**AA-10B Alamo**

Guidance: **IR all aspect**  
 Range Front: **7 - (20) nm**  
 Range Rear: 5 - 7 nm  
 Flare Effect: Low  
 Max Target g: 9  
 Max Vel.(mach): **3.4** (2,247 kts)

Names: R-27T  
 Aircraft: J-8/B/C/D, J-11, Mig-29G/ M, Mig-31, Su-27/UB, Su-30M/ MKK, Su-33, Su-34, Su-35, Su-37  
 Notes: 1983. USSR. Brk turn 9g, 4-5 flares. IRCCM. (26g), Max AOA 20°, gmbl lmt 40°, trkg rate 22°/sec, FOV 3°, 55 sec. Seeker Front 7-(22)nm, Rear **7-(22)nm**.

**AA-10C Alamo**

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

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

**AA-10D Alamo**

Guidance: **IR all aspect**  
 Range Front: **10 - (25) nm**  
 Range Rear: 8 - 10 nm  
 Flare Effect: Low  
 Max Target g: 9  
 Max Vel.(mach): **3.9** (2,579 kts)

Names: R-27ET  
 Aircraft: J-11, Su-27/ UB, Su-30M/ MKK, Su-33, Su-34, Su-35, Su-37  
 Notes: 1983. USSR. Break turn 9g, 4-5flares. IRCCM. (26g), Max AOA 20°, 26°, gimbal limit 55°, trkg rate 25°/sec, FOV 8°, 60 sec. Seeker Front 10-(31)nm, Rear **10-(31)nm**.

**AA-11 Archer**

Guidance: **IR all aspect**  
 Range Front: **9 - (17)nm**  
 Range Rear: 6 - 8 nm  
 Flare Effect: Very Low  
 Max Target g: 12  
 Max Vel.(mach): **3.4** (2,247 kts)

Names: R-73  
 Aircraft: J-11, Ka-50, Mi-24, -28, Mig-29A/G/M/S, Mig-31, Su-27/ UB, Su-30M/ MKK, Su-33, -34, -35, -37, -39  
 Notes: 1984. USSR. Hd on, high spd, no AB brk turn. TVC. IRCCM. HMCS. (45g), Max AOA 56°, 25°, gmbl lmt 60°, trkg rate 60°/sec, FOV 3°, 40 sec. Seeker F/R **9-(22)nm**.

**AA-12 Adder**

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

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



**PL-7 Thunderbolt**

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

Names: N/A  
 Aircraft: Chengdu J-7G, J-8I, Q-5  
 Notes: ~1982. PLAAF. Break turn 9g, flare. (30g), Max AOA 21°, gimbal limit 45°, tracking rate 16.5°/sec, FOV 3°, 27 sec. Reverse engineered R550 Magic I but not as good. Seeker front 1-(2.5)nm, rear **3-(7)nm**.

**PL-8 Thunderbolt**

Guidance: **IR All Aspect**  
 Range Front: **8 - (15) nm**  
 Range Rear: 3 - 5 nm  
 Flare Effect: Medium  
 Max Target g: 9  
 Max Vel.(mach): **2.5** (1,654 kts)

Names: Licensed copy of Python-3  
 Aircraft: Chengdu J-7G, J-8I, J-15  
 Notes: ~1988. PLAAF. Break turn, flare. Rudimentary IRCCM. Bleeds speed in high g maneuver. (35g), Max AOA 20°, gimbal limit 40°, tracking rate 22°/sec, FOV 3°, 35 sec. IR seeker Front 8-(23)nm, Rear **8-(23)nm**.

**PL-10 Thunderbolt**

Guidance: **IR All Aspect**  
 Range Front: **12 - (18) nm**  
 Range Rear: 5 - 9 nm  
 Flare Effect: Very Low  
 Max Target g: 15  
 Max Vel.(mach): **3.7** (2,445 kts)

Names: Luoyang PL-ASR, Institute 612  
 Aircraft: J-15  
 Notes: 2008. PLAAF. IRCCM. **LOAL N/I**. (50g), Max AOA 35° 47°, gimbal limit 90°, tracking rate 90°/sec, FOV 3°, 35 sec. IR seeker Front 12-(31)nm, Rear **12-(31)nm**.

**PL-12 Thunderbolt**

Guidance: **ARH**  
 Range Front: **15 - 35 nm**  
 Range Rear: 10 - 12 nm  
 Chaff Effect: Very Low  
 Max Target g: 11  
 Max Vel.(mach): **3.8** 10/2.8 15/2.2 20/1.6

Names: Pen Lung, Air Dragon, SD-10, Project 129 or R129  
 Aircraft: JH-7, J-8F, J-10, J-11B, J-15, JF-17  
 Notes: 2005. PLAAF. HOJ. Break turn 9g, chaff, bm, weaving, dive & climb. Crank & pump. (35g), Max AOA 30°, gmb limit 60°, tkg rate 40°/sec, FOV 10°, 80 sec, PB **8-13 nm**. Self lofting.

**PL-15 Thunderbolt**

Guidance: **ARH**  
 Range Front: **15 - 35 nm**  
 Range Rear: 10 - 12 nm  
 Chaff Effect: Very Low  
 Max Target g: 11  
 Max Vel.(mach): **3.5** 10/2.5 15/1.8 20/1.2

Names: Aerial Trident  
 Aircraft: J-20  
 Notes: 2016. PLAAF. HOJ. Break AC rdr lock prior to term phase. Crank & pump. (35g), Max AOA 29°, gmb limit 60°, tkg rate 40°/sec, FOV 15°, 120 sec. PB **9-14nm**. Self lofting. Larger, heavier and a little slower than PL-12 in BMS.





|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AIM-4C Falcon</b><br>         | Guidance: <b>IR Rear Aspect</b><br>Range Front: N/A<br>Range Rear: <u>1.1 nm</u><br>Flare Effect: Very High<br>Max Target g: 3<br>Max Vel.(mach): <u>3.0</u> (1,984 kts)               | Names: Falcon<br>Aircraft: F-89H, F102, F-101, F-106, SAAB Draken<br>Notes: USA. Break turn 5g, flares. (13g), Max AOA 15°, gimbal limit 20°, tracking rate 11°/sec, FOV 2°, 45 sec.                                                                                                                                                   |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-4D Falcon</b><br>         | Guidance: <b>IR All Aspect</b><br>Range Front: <u>1.4 nm</u><br>Range Rear: <u>1.4 nm</u><br>Flare Effect: Very High<br>Max Target g: 4<br>Max Vel.(mach): <u>4.0</u> (2,646 kts)      | Names: Falcon<br>Aircraft: F-101, F-102, F-106, F-4J, SAAB Draken<br>Notes: USA. Break turn 5g, flares. (15g), Max AOA 15°, gimbal limit 25°, tracking rate 12.5°/sec, FOV 2°, 50 sec.                                                                                                                                                 |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-4G Super Falcon</b><br>   | Guidance: <b>IR All Aspect</b><br>Range Front: <u>1.4 nm</u><br>Range Rear: <u>1.4 nm</u><br>Flare Effect: High<br>Max Target g: 4<br>Max Vel.(mach): <u>4.0</u> (2,646 kts)           | Names: Super Falcon, GAR-4A<br>Aircraft: F-101, F-102, F-106, F-4J, SAAB Draken<br>Notes: USA. Break turn 5g, flares. (15g), Max AOA 15°, gimbal limit 25°, tracking rate 12.5°/sec, FOV 2°, 60 sec.                                                                                                                                   |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-7D Sparrow</b><br>         | Guidance: <b>SARH</b><br>Range Front: <u>6 - 7 nm</u><br>Range Rear: 2 - 3 nm<br>Chaff Effect: Low<br>Max Target g: 5<br>Max Vel.(mach): <u>2.1</u> (1,389 kts)                        | Names: Sparrow, AAM-N-6a, AIM-101<br>Aircraft: F-4B/ C/ D/ J/ N/ S<br>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.                                                                                                           |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-7E Sparrow</b><br>         | Guidance: <b>SARH</b><br>Range Front: <u>6 - 10 nm</u><br>Range Rear: 2 - 5 nm<br>Chaff Effect: Very High<br>Max Target g: 5<br>Max Vel.(mach): <u>3.0</u> (1,984 kts)                 | Names: Sparrow, AAM-N-6b<br>Aircraft: F-4B/ C/ D/ J/ N/ S<br>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.                                                                                             |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-7E-2 Sea Sparrow</b><br> | Guidance: <b>SARH</b><br>Range Front: <u>10 - 15 nm</u><br>Range Rear: 3 - 5 nm<br>Chaff Effect: Very High<br>Max Target g: 7<br>Max Vel.(mach): <u>3.3</u> (2,183 kts) 10/1.5         | Names: RIM-7E Sea Sparrow<br>Ships: Basic Point Defense Missile System for ships, F-4B/ C/ D/ EJ/ E-IAF/ J/ K/ M/ N/ S<br>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.                                                |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-7F Sparrow</b><br>       | Guidance: <b>SARH</b><br>Range Front: <u>12 - 17 nm</u><br>Range Rear: 4 - 5 nm<br>Chaff Effect: High<br>Max Target g: 7<br>Max Vel.(mach): <u>3.5</u> (2,315 kts)                     | Names: Sparrow<br>Aircraft: CF/A-18, F-15A, F-16C30 IAF, F-16-C32EAF, F/A-18A/ B/ C/ D/ E.<br>Notes: 1976. USA. Break turn 7g, chaff, beam, weaving, dive and climb. 24nm shots but low PK. Low energy >9nm. (23g), Max AOA 17°, GL 60°, 25°/sec, FOV 7.8°, 75s.                                                                       |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-7M Sparrow</b><br>       | Guidance: <b>SARH</b><br>Range Front: <u>11 - 18 nm</u><br>Range Rear: 6 - 8 nm<br>Chaff Effect: High<br>Max Target g: 7<br>Max Vel.(mach): <u>3.5</u> 10/2.4 15/1.3                   | Names: Sparrow<br>Aircraft: CF/A-18, F-4D/ E/ EJ/ F/ G, F-14A/ B/ D, F-15A/ C/ D/ E/ J, F-16A15/ C25/ C30/ C32, F/A-18A/ B/ C/ D/ E<br>Notes: 1982. USA. Break turn 7g, chaff, beam, weaving, dive and climb. (23g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 75 sec.                                           |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-9B Sidewinder</b><br>   | Guidance: <b>IR Rear Aspect</b><br>Range Front: 1.1 - (3.8)nm<br>Range Rear: <u>2 - 3.5 nm</u><br>Flare Effect: Very High<br>Max Target g: 5<br>Max Vel.(mach): <u>2.6</u> (1,733 kts) | Names: GAR-8, AAM-N-7 Sidewinder IA,<br>Aircraft: F-4B/ C/ D/ J/ N/ S, F-8E, F-104/DJ / G/ J, F-105D<br>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 4 - (10)nm. |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |
| <b>AIM-9D Sidewinder</b><br>   | Guidance: <b>IR Rear Aspect</b><br>Range Front: 1.5 - (3.8) nm<br>Range Rear: <u>4 - 5 nm</u><br>Flare Effect: Very High<br>Max Target g: 7<br>Max Vel.(mach): <u>2.9</u> (1,918 kts)  | Names: AAM-N-7 Sidewinder IC (IR)<br>Aircraft: Navy only, F-4B/ J/ N/ S, F-8E<br>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 5 - (12)nm.                                        |
|                                                                                                                   |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                        |

|                                                                                     |                          |                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>AIM-9E Sidewinder</b> | Guidance: <b>IR Rear Aspect</b><br>Range Front: 1 - (3.8)nm<br>Range Rear: <u>2 - 3.5 nm</u><br>Flare Effect: Very High<br>Max Target g: 6<br>Max Vel.(mach): <u>2.7</u> (1,800 kts)    | Names: Sidewinder<br>Aircraft: Airforce aircraft, F-4C/ D, F-104DJ/ J<br>Notes: 1969, 1972. USAF. Break turn 5g, flare. Easy to evade. (15g), Max AOA 16°, gimbal limit 25°, tracking rate 16.5°/sec, FOV 4°, 20 sec. Seeker Front 1-(3.8)nm, Rear <b>4-(10)nm</b> .                                                                                                 |
|                                                                                     | <b>AIM-9G Sidewinder</b> | Guidance: <b>IR Rear Aspect</b><br>Range Front: 1 - (3.8)nm<br>Range Rear: <u>3 - 4 nm</u><br>Flare Effect: Very High<br>Max Target g: 6<br>Max Vel.(mach): <u>3.0</u> (1,984 kts)      | Names: Sidewinder<br>Aircraft: Navy aircraft, F-4B/ J/ N/ S, F-8E<br>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 <b>5-(12)nm</b> .                                                                                                                      |
|    | <b>AIM-9H Sidewinder</b> | Guidance: <b>IR Rear Aspect</b><br>Range Front: 3 - (6) nm<br>Range Rear: <u>3 - 5 nm</u><br>Flare Effect: Very High<br>Max Target g: 7<br>Max Vel.(mach): <u>3.1</u> (2,050 kts)       | Names: Sidewinder<br>Aircraft: Navy only: CF/A-18, F-4B/ J/ N/ S, F-8E, F/A-18A/ B<br>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 <b>7-(17)nm</b> .                                                                                                     |
|                                                                                     | <b>AIM-9J Sidewinder</b> | Guidance: <b>IR Rear Aspect</b><br>Range Front: 1.5 - (3.1) nm<br>Range Rear: <u>2 - 3.5 nm</u><br>Flare Effect: Very High<br>Max Target g: 8<br>Max Vel.(mach): <u>2.6</u> (1,733 kts) | Names: Sidewinder<br>Aircraft: A-4E/ PTM/ SU, CF/A-18, F-4C/ D, F/A-18A/ B<br>Notes: 1972. USA. Break turn 8g, flare. Easy to evade. (18g, 27g), Max AOA 16°, gimbal limit 25°, tracking rate 16.5°/sec, FOV 3°, 40 sec. Seeker Front 1.5-(3.1)nm, Rear <b>4-(9.8)nm</b> .                                                                                           |
|    | <b>AIM-9M Sidewinder</b> | Guidance: <b>IR All Aspect</b><br>Range Front: <u>8 - (14) nm</u><br>Range Rear: 6 - 8 nm<br>Flare Effect: Low<br>Max Target g: 12<br>Max Vel.(mach): <u>3.2</u> (2,134 kts)            | Aircraft: A-4E/ PTM/ M/ SU, A-7D/ E, A-10, AJ 37, AMX, AV-8B, CF/A-18, F-4D/ E/ EJ/ F/ G/ K, F-5A/ E, F-14, F-15, F-16, F/A-18, F-111C/ G, JA 37, Mirage IIIE, Jaguar, Tornado<br>Notes: 1983. USA. Brk 9g, flare. IRCCM. Smokeless. (30g), Max AOA 30° 20°, gimbal limit 40°, tkg rate 25°/sec, FOV 3°, 40 sec. Seeker range Front 8-(21)nm, Rear <b>8-(21)nm</b> . |
|                                                                                     | <b>AIM-9P Sidewinder</b> | Guidance: <b>IR Rear Aspect</b><br>Range Front: 0 - (2) nm<br>Range Rear: <u>2.7 - (4) nm</u><br>Flare Effect: High<br>Max Target g: 9<br>Max Vel.(mach): <u>2.3</u> (1,520 kts)        | Names: Sidewinder<br>Aircraft: A-4E/ PTM/ M/ SU, A-7D/ E, A-10, CF/A-18, F-4D/ E/ F/ G, F-5A/ E, F-14, F-15, F-16, F/A-18, F-104DJ/ J<br>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 <b>2.5-(7)nm</b> .                                              |
|  | <b>AIM-9X Sidewinder</b> | Guidance: <b>IR All Aspect</b><br>Range Front: <u>11 - (15) nm</u><br>Range Rear: 5 - 8 nm<br>Flare Effect: Very Low<br>Max Target g: 13<br>Max Vel.(mach): <u>3.3</u> (2,183 kts)      | Names: Sidewinder<br>Aircraft: CF/A-18, F-15C/ D/ E/ J/ K, F-16AM MLU/ C/ D, F/A-18C/ D/ E/ F<br>Notes: 2004. USA. Good IRCCM. (40g), Max AOA 51°, 35°, gimbal limit 90°, tracking rate 90°/sec, FOV 4°, 40 sec. IR seeker Front 11.6-(22.8)nm, Rear <b>12-(30)nm</b> .                                                                                              |
|                                                                                     | <b>AIM-54A Phoenix</b>   | Guidance: <b>ARH</b><br>Range Front: <u>20 - 50 nm</u><br>Range Rear: 12 - 16 nm<br>Chaff Effect: Very Low<br>Max Target g: 7<br>Max Vel.(mach): <u>4.0</u> 10/4 20/3.2 30/2.5          | Names: Phoenix<br>Aircraft: F-14A/ B/ D<br>Notes: 1974. USA. HOJ. Break turn 8g, chaff, beam, weaving, dive and climb. (17g), Max AOA 15°, gimbal limit 60°, tracking rate 25°/sec, FOV 10°, 150 sec. PB <b>17-21nm</b> . Self lofting.                                                                                                                              |
|   | <b>AIM-54C Phoenix</b>   | Guidance: <b>ARH</b><br>Range Front: <u>20 - 50 nm</u><br>Range Rear: 12 - 16 nm<br>Chaff Effect: Very Low<br>Max Target g: 7<br>Max Vel.(mach): <u>4.0</u> 10/4 20/3.2 30/2.5          | Names: Phoenix<br>Aircraft: F-14A/ B/ D<br>Notes: 1986. USA. HOJ. Break turn 8g, chaff, beam, weaving, dive and climb. (17g), Max AOA 15°, gimbal limit 60°, tracking rate 25°/sec, FOV 10°, 150 sec. PB <b>20-24nm</b> . Self lofting.                                                                                                                              |



**AIM-120B  
AMRAAM**

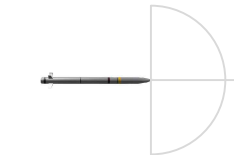
Guidance: **ARH**  
 Range Front: **17 - 30 nm**  
 Range Rear: 12 - 16 nm  
 Chaff Effect: Very Low  
 Max Target g:  
 Max Vel.(mach): **3.3** 10/2.6 15/2.0 20/1.2

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

**AIM-120C  
AMRAAM**

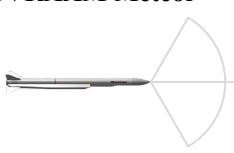
Guidance: **ARH**  
 Range Front: **17 - 30 nm**  
 Range Rear: 12 - 16 nm  
 Chaff Effect: Very Low  
 Max Target g:  
 Max Vel.(mach): **3.5** 10/3.0 15/2.1 20/1.2

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

**AIM-132 ASRAAM**

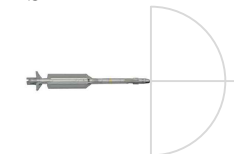
Guidance: **IR All Aspect**  
 Range Front: **12 - (18) nm**  
 Range Rear: 5 - 9 nm  
 Flare Effect: Very Low  
 Max Target g: 15  
 Max Vel.(mach): **3.7** (2,445 kts)

Names: Advanced Short Range Air to Air Missile  
 Aircraft: Tornado F3/ GR4, Typhoon FGR.4  
 Notes: 1998. RAF, RAAF. IRCCM. **LOAL N/I**. (50g), Max AOA 35° 47°, gimbal limit 90°, tracking rate 90°/sec, FOV 3°, 40 sec. IR seeker Front 12-(31)nm, Rear **12-(31)nm**.

**BVRAAM Meteor**

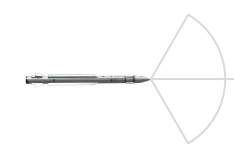
Guidance: **ARH**  
 Range Front: **75 - 80 nm**  
 Range Rear: 40 - 45 nm  
 Chaff Effect: Very Low  
 Max Target g:  
 Max Vel.(mach): **4.2** (2,800 kts)

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

**IRIS T**

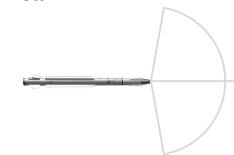
Guidance: **IR All Aspect**  
 Range Front: **9 - 12 nm**  
 Range Rear: 5 - 7 nm  
 Flare Effect: Very Low  
 Max Target g:  
 Max Vel.(mach): **3.5** (2,315 kts)

Names: IRIS T  
 Aircraft: Eurofighter GAF, F-16AM MLU RDAF, F16C52 HAF CFT, Tornado IDS GAF  
 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 - 28nm**.

**Mica EM**

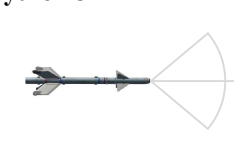
Guidance: **ARH**  
 Range Front: **14 - 22 nm**  
 Range Rear: 6 - 8 nm  
 Chaff Effect: Very Low  
 Max Target g: 13  
 Max Vel.(mach): **3.9** 5/3.2 10/2.0 15/1.0

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

**Mica IR**

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

Names: Mica  
 Aircraft: Mirage 2000SF/ EGM (Likes to shoot from 22nm)  
 Notes: 2007. FAF. 360° launch envelope. Link 16 targeting. **LOAL**, IRCCM, TVC, HMCS. (40g), Max AOA 43°, 30°, gimbal limit 80°, tracking rate 40°/sec, FOV 10°, 65 sec. IR seeker Front 38-(49), Rear **38-(49)**.

**Python 3**

Guidance: **IR All Aspect**  
 Range Front: **2.5 - (7) nm**  
 Range Rear: 3 - (4) nm  
 Flare Effect: Very High  
 Max Target g:  
 Max Vel.(mach): **3.0** (1,984 kts)

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

**Python 4**

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

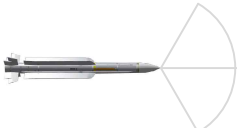
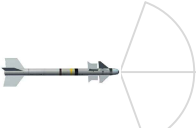
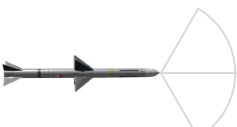
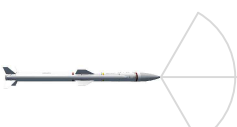
Names: Python-4  
 Aircraft: F-15C Baz IDF, F-15I Ra'am IDF, F-16C-30 IAF/ D-30 IAF/ C-40 IAF/ D-40 IAF, F-16I-52-CFT  
 Notes: 1990. IAF. IRCCM. HMCS. (50g), Max AOA 30°, gimbal limit 90°, tracking rate 90°/sec, FOV 4°, 30 sec. IR seeker Front 8.5-(25)nm, Rear **10-(26.3)nm**.

**Python 5**

Guidance: **IR All Aspect**  
 Range Front: **11 - (15) nm**  
 Range Rear: 5 - 7 nm  
 Flare Effect: Very Low  
 Max Target g:  
 Max Vel.(mach): **3.3** (2,183 kts)

Names: Python-5  
 Aircraft: F-15C Baz IDF, F-15I Ra'am IDF, F-16C-30 IAF/ D-30 IAF/ C-40 IAF/ D-40 IAF, F-16I-52-CFT  
 Notes: 2003. IAF. IRCCM. HMCS. **LOAL**. (50g), Max AOA 30°, gimbal limit 90°, tracking rate 90°/sec, FOV 4°, 45 sec. IR seeker Front 11.5-(35)nm, Rear **13-(35)nm**.



|                                                                                                               |                                                                                                                                                                                |                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>R.530D Super Matra</b><br> | Guidance: <b>SARH</b><br>Range Front: <b>20 - 25 nm</b><br>Range Rear: 6 - 10 nm<br>Chaff Effect:<br>Max Target g: 13<br>Max Vel.(mach): <b>3.8</b> (2,513 kts)                | Names: Super Matra<br>Aircraft: Mirage 2000C, Mirage F1<br>Notes: 1988. FAF. ECCM. (23g), Max AOA 17°, gimbal limit 60°, tracking rate 25°/sec, FOV 7.8°, 100 sec. Limited by supporting AC radar. Hard to keep lock over 10 nm.                |
| <b>R.550 Magic</b><br>       | Guidance: <b>IR All Aspect</b><br>Range Front: <b>8 - (12) nm</b><br>Range Rear: 2 - 3.5 nm<br>Flare Effect: High<br>Max Target g:<br>Max Vel.(mach): <b>2.6</b> (1,178 kts)   | Names: R550 Magic.<br>Aircraft: MB-339, Mirage F-1<br>Notes: 1975. FAF. (35g), Max AOA 23°, 35°, gimbal limit 50°, tracking rate 25°/sec, FOV 3°, 30 sec. IR seeker Front 8-(25)nm, Rear <b>8-(25)nm</b> .                                      |
| <b>R.550 Magic II</b><br>    | Guidance: <b>IR All Aspect</b><br>Range Front: <b>9 - (13) nm</b><br>Range Rear: 3 - 4 nm<br>Flare Effect: Low<br>Max Target g:<br>Max Vel.(mach): <b>3.0</b> (1,984 kts)      | Names: R550 Magic II.<br>Aircraft: Mirage 2000C/ D/ 5F/ EGM/ N, Mirage F-1, Mirage IIIE<br>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 <b>9-(25)nm</b> . |
| <b>Skyflash</b><br>           | Guidance: <b>SARH</b><br>Range Front: <b>10 - 17 nm</b><br>Range Rear: 4 - 7 nm<br>Chaff Effect: Medium<br>Max Target g: 7<br>Max Vel.(mach): <b>4.0</b> 10/1.58 15/1.03       | Names: Skyflash<br>Aircraft: AJ 37, EF-2000 RAF, F-4K/ M, JA 37, Tornado ADV<br>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.                       |
| <b>Tien Chien I</b><br>     | Guidance: <b>IR All Aspect</b><br>Range Front: <b>8 - (14) nm</b><br>Range Rear: 6 - 8 nm<br>Flare Effect: Low<br>Max Target g: 12<br>Max Vel.(mach): <b>3.2</b> (2,134 kts)   | Names: Sky Sword I, TC-1<br>Aircraft: F-CK-1C<br>Notes: 1993. ROCAF. Brk 9g, flare. IRCCM. Smokeless. (30g), Max AOA 30° 20°, gimbal limit 40°, tkg rate 25°/sec, FOV 3°, 40 sec. Seeker range Front 8-(21)nm, Rear <b>8-(21)nm</b> .           |
| <b>Tien Chien II</b><br>    | Guidance: <b>ARH</b><br>Range Front: <b>17 - 30 nm</b><br>Range Rear: 12 - 16 nm<br>Chaff Effect: Very Low<br>Max Target g:<br>Max Vel.(mach): <b>3.3</b> 10/2.6 15/2.0 20/1.2 | Names: Sky Sword II, TC-2<br>Aircraft: F-CK-1C<br>Notes: 1999. ROCAF. HOJ. ECCM. Break AC radar lock prior to terminal phase. Crank & pump. (35g), AOA 27°, gmb lmt 60°, tkg rate 40°/sec, FOV 15°, 80 sec. PB <b>8-13nm</b> . Lofted numbers.  |



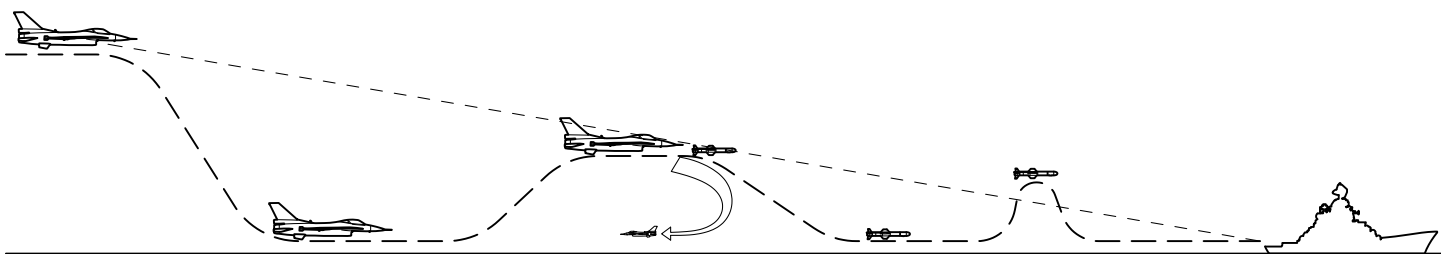
f-16.net

### General Notes

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

### Abbreviations

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



**Kirov**

Tracking: SAM: [Top Pair \(MR-800\)](#), [Top Dome](#)  
 CIWS: [Bass Tilt \(MR-123\)](#)  
 Rdr Lock Range: SAM: FC: 26 nm SA: 57nm (120nm)  
 CIWS: FC: 0 nm  
 Min Range: SAM: 0.8 nm / 6/0, 11/50, 14/100, 16/200  
 Typical Engagement: SAM: [23 nm / 35,000 ft](#) SA-N-6  
 Max Range: SAM: 48 nm / 290,000 ft  
 Typical Engagement: SAM: [4 nm / 16,000 ft](#) SA-N-4  
 Notes: 1980. USSR. No launch warning. No smoke. Names: Pyotr Velikiy.  
 Evade missiles by getting below radar. Max range SA-N-4 9nm.  
 SA-N-4 similar to SA-8. Top Dome Volna 3R41 naval version of Flap  
 Lid 36N85. SA-N-6 similar to SA-10. 2x PK-2 decoy disp. 3x helo.

Type: Guided Missile Cruiser  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA:C/D/E/F FC: J CIWS: K  
 AZ: 180 (180) EL: 90 (90)  
 Targets: 3  
 Weapons: SSM: 20x SS-N-19 Shipwreck  
 SAM: 12x SA-N-6 Grumble  
 SAM: 2x SA-N-4 Gecko  
 AAA: 2x AK-100 100mm flak  
 CIWS: 8x AK-630 30mm  
 ASub: SS-N-14/15or10xType53,  
 2x RBU-1000, 1x RBU-12000

**Kuznetsov**

Tracking: SAM: [3R95 Cross Swords](#)  
 CIWS: [Bass Tilt \(MR-123\)](#)  
 Rdr Lock Range: SAM: FC: 9 nm SA: 57nm  
 CIWS: FC: 2.7 nm  
 Min Range: SAM: 0.5 nm / 35 ft  
 Typical Engagement: SAM: [6.5 nm / 20,000 ft](#) SA-N-9  
 Max Range: SAM: 7 nm / 42,500 ft  
 CIWS: [2.7nm / 10,000 ft](#)  
 Notes: 1995. USSR. Aircraft 33 + 12 helo. BMS unlimited AC. 3R95 has  
 secondary IR guidance.

Type: Aircraft Carrier/ Cruiser  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA: G FC: K CIWS: K  
 AZ: 180 (180) EL: 90 (90)  
 Targets: 4  
 Weapons: SSM: 12x SS-N-19 Shipwreck  
 SAM: 24x SA-N-9 Gauntlet aka  
 3K95 Kinzhal  
 SAM: 8x SA-N-11 Grison 9M311  
 CIWS: 8x GSh-30 30mm  
 CIWS: 6x AK-630 30mm  
 ASub: 1x Uday-1

**Osa II**

Tracking: SSM: Square Tie (MR-331 Rangout)  
 CIWS: Drum Tilt (MR-104)/ Optical  
 Rdr Range: SSM: FC: 40 nm  
 CIWS: FC: 12 nm  
 Min Range: SAM: None  
 Typical Engagement: SAM: None  
 Max Range: SAM: None  
 CIWS: 2nm

Type: Missile Boat  
 ECM BT Range: No Effect  
 Chaff Vuln.: No Effect  
 Bands (System): I  
 Targets: 1  
 Weapons: AZ: 180 (180) EL: 90 (90)  
 SSM: 4x SS-N-2 Styx (P-15U)  
 CIWS: 2x AK-230 30mm

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

**Sovremenny**

Tracking: SAM: [Top Plate](#), [6x Font Dome\(MR-90\)](#)  
 CIWS: [2x Bass Tilt \(MR-123\)](#)  
 Rdr Range: SAM: FC:  
 CIWS: FC: 2 nm  
 Min Range: SAM: 1.6 nm / 140 ft launch / 50 ft trk  
 Typical Engagement: SAM: [16.5 nm / 112,000 ft](#) \* SA-N-7  
 Max Range: SAM: 18.5 nm / 112,000 ft  
 CIWS: 2nm  
 Notes: 1980. USSR. Launch warning. Smoke. ECM, decoys. 1x Helo. In  
 Kuznetsov CSG. Names: Nastoychivyy, Admiral Ushakov,  
 Gremyashchiy, Bystryy. PLAN: CV-16 Liaoning CSG, Hangzhou,  
 Fuzhou, Taizhou, Ningbo. \* PLAN typical engagement is [12nm](#).

Type: Guided Missile Destroyer  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA:D/E FC:H/I CIWS: K  
 AZ: 180 (180) EL: 90 (90)  
 Targets: 4 (40)  
 Weapons: SSM: 2x SS-N-22 Sunburn  
 SAM: 2x SA-N-7 Gadfly  
 SSG: 4x AK-130 130mm  
 CIWS: 4x AK-630 30mm  
 ASub: 2x 533mm torpedos, 2x  
 RBU-1000 rockets

**Type 053H3 CLS**

Tracking: SAM: [Type 360 \(SR60\)](#), [Type 345](#)  
 AAG: [Type 347 G/EFR-1\(Rice Lamp\)](#)  
 Rdr Range: SAM: FC: 30 nm SA: 50  
 AAA: FC: 0 nm  
 Min Range: SAM: 0 nm / 0 ft  
 Typical Engagement: SAM: [8 nm / 15,000 ft](#) HQ-7  
 Max Range: SAM: 8 nm / 20,000 ft  
 AAA: 2.7 nm / 10,000 ft 37mm  
 Notes: 1996. PLAN. Jang Wei II. Launch warning. Smoke. ECM, decoys.  
 Aircraft: Harbin Z-9C. Type 345 radar (MR-35). HQ-7 similar to  
 RIM-7. Beam, chaff. Beam, split-s turn away.

Type: Frigate  
 ECM BT Range: No Effect  
 Chaff Vuln.: Low  
 Bands (System): SA:E/F FC:J Guns: I  
 AZ: 180 (180) EL: 90 (90)  
 Targets: 6  
 Weapons: SSM: 2x YJ-83  
 SSG: 1x PJ33A 100mm  
 SAM: 1x HQ-7 (FM-80)  
 AAA: 4x Type 76A 37mm  
 ASub: 2x 3200 ASW



**Belknap CLS**

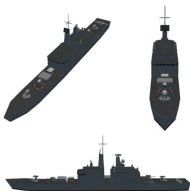
Tracking: SAM: [AN/SPS-48/ 49, AN/SPG-55](#)  
 CIWS: Radar/ FLIR  
 Rdr Range: SAM: FC: 100 nm SA: 100  
 CIWS: FC: 0 nm  
 Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500  
 Typical Engagement: SAM: [39 nm / 469,000 ft](#) SM-2ER  
 Max Range: SAM: 117 nm / 469,000 ft  
 CIWS: 2.7 nm / 10,000 ft  
 Notes: 1964. USN. Smoke. No launch warning. ECM, decoys. 1x Helo.  
 SM-2ER upgrade late 1980s. 1x Mk 10 GMLS. RIM-2 Terrier prior to  
 1980s with 17nm range. Use pop up attack stay under radar.

Type: Guided Missile Cruiser CG  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA:E/F/L FC:G/H/I/J Guns:Ku  
 Targets: 6 AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: RGM-84 Harpoon  
 SSG: 1x Mk 42 127mm  
 SAM: RIM-67 SM-2ER  
 CIWS: 2x Phalanx 20 mm  
 ASUB: 20x RUR-5 ASROC, 2x  
 Mk 46

**Burke CLS FIHA**

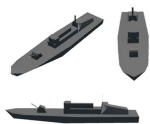
Tracking: SAM: [AN/SPY-1D, AN/SPG-62](#)  
 CIWS: Radar / FLIR  
 Rdr Range: SAM: FC: 73 nm SA: 100 nm  
 AAG: FC: 0 nm SA: 0  
 Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500  
 Typical Engagement: SAM: [39 nm / 469,000 ft](#) SM-2ER  
 Max Range: SAM: 117 nm / 469,000 ft  
 Typical Engagement: SAM: [35 nm / 469,000 ft](#) SM-2MR  
 Notes: 1991. FIHA 1998. USN. Arleigh Burke class destroyer. No smoke. No  
 launch warning. ECM, decoys. Aegis system. VLS 96 cells. 2x Helo.  
 ABM RIM-162 Evolved Sea Sparrow 2009. RIM-66C/D aka SM-2MR  
 max rng 73nm. Use pop up attack stay under radar. 12s LT.

Type: Guided Missile Destroyer DDG  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA: D/E FC: I/J Guns: Ku  
 Targets: 7 (>100) AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: RGM-84 Harpoon  
 LAM: BGM-109 Tomahawk  
 SSG: Mk 45 127mm  
 SAM: RIM-66C/D/ 67/161/162/  
 174A  
 CIWS: 2x Phalanx 20mm  
 ASUB: Mk 46/50/54, RUM-139A

**California CLS**

Tracking: SAM: [AN/SPS-48E 49, AN/SPG-51](#)  
 CIWS: Radar / FLIR  
 Rdr Lock Range: SAM: FC: 29 nm SA: 29 nm (250 nm)  
 CIWS: FC: 0 nm SA: 0  
 Min Range: SAM: 3 nm / 50 ft 17/100, 25/300  
 Typical Engagement: SAM: [15 nm / 78,300 ft](#) SM-1MR  
 Max Rng: SAM: 21 nm / 78,300 ft  
 CIWS: 2.7 nm / 10,000 ft  
 Notes: 1974. USN. Smoke. No launch warning. ECM, decoys. Mk 13 GMLS.  
 2x Helo. Use pop up attack, stay under radar.

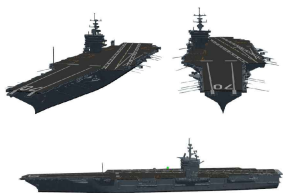
Type: Guided Missile Cruiser CG  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA: E/ F/ L FC: G Guns: Ku  
 Targets: 7 AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: RGM-84 Harpoon  
 SSG: 2x Mk 45 127mm  
 SAM: RIM-66 (SM-1MR)  
 CIWS: 2x Phalanx 20mm  
 ASUB: 6x Mark 46, RUM-139A

**Chamsuri**

Tracking: AAA: STX Radar  
 CIWS:Ku Band Radar, FLIR  
 Rdr Range: AAA: FC: 0 nm SA: 0nm  
 CIWS: FC: 0 nm  
 Min Range: CIWS: 0 nm / 0 ft  
 Typical Engagement: CIWS: [2.7nm / 10,000 ft](#) 20mm  
 Max Range: CIWS: 2.7 nm / 10,000 ft

Type: Patrol Boat  
 ECM BT Range: No Effect  
 Chaff Vuln.: No Effect  
 Bands (System): CIWS: Ku  
 Targets: 1 AZ: 180 (180) EL: 90 (90)  
 Weapons: SSG: 1x Bofors 40 mm  
 AAA: 2x 12.7mm machine guns  
 CIWS: 2x Sea Vulcan 20 mm

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

**Nimitz CVN**

Tracking: SAM: [AN/SPS-48E/ 49\(V\)5, AN/SPQ-9B](#)  
 CIWS: [Radar / FLIR](#)  
 Rdr Lock Range: SAM: FC: 35 nm SA: 44 nm  
 CIWS: FC: 2.5 nm SA: 37  
 Min Range: SAM: 0 nm / 0 ft  
 Typical Engagement: SAM: [8nm / 15,000 ft](#) RIM-7  
 Max Rng: SAM: 8 nm / 26,000 ft  
 CIWS: [2.2 nm / 9,500 ft](#)  
 Notes: USN. USS Enterprise CVN-65 1961. USS Carl Vinson CVN-70 1982.  
 USS Theodore Roosevelt CVN-71 1984. ECM, decoys. 4x Mk-57  
 Mod3 VLS. Beam, chaff. Beam, split-s, turn away. 90 aircraft  
 capacity. BMS unlimited AC.

Type: Nimitz Class Supercarrier  
 ECM BT Range: No Effect  
 Chaff Vuln.: Low  
 Bands (System): SA:E/ F/ L/ I FC: I/ J Guns:Ku  
 Targets: 7 (120) AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: None  
 SSG: None  
 SAM: RIM-7 Sea Sparrow,  
 RIM-116  
 CIWS: 3x Phalanx 20mm  
 ASUB: None

**Farragut CLS**

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

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

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

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

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

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

Type: Guided Missile Destroyer DDG

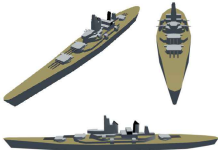
ECM BT Range: No Effect

Chaff Vuln.: Very Low

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

Targets: 7

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

**Iowa CLS BB**

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

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

Min Range: SAM: None

Typical Engagement: SAM: None

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

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

Type: Fast Battleship BB

ECM BT Range: No Effect

Chaff Vuln.: No Effect

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

Targets: 6

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

**Kidd CLS**

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

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

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

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

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

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

Type: Guided Missile Destroyer DDG

ECM BT Range: No Effect

Chaff Vuln.: Very Low

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

Targets: 1

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

**Knox CLS**

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

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

Min Range: SAM: 0 nm / 0 ft

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

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

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

Type: Frigate FF

ECM BT Range: No Effect

Chaff Vuln.: Low

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

Targets: 7

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

**Leahy CLS**

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

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

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

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

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

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

Type: Guided Missile Cruiser CG

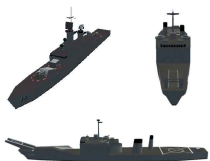
ECM BT Range: No Effect

Chaff Vuln.: Very Low

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

Targets: 1

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

**Newport CLS**

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

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

**Osumi**

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

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

**Perry CLS**

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

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

**Shirane CLS**

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

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

**Spruance CLS**

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

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



**Ticon Mk 26 GMLS**

Tracking: SAM: [AN/SPY-1D](#), [AN/SPG-62](#)  
 CIWS: Radar / FLIR  
 Rdr Lock Range: SAM: FC: 73 nm SA: 100 nm  
 CIWS: FC: 0 nm SA: 0  
 Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500  
 Typical Engagement: SAM: [35 nm / 469,000 ft](#) SM-2MR  
 Max Range: SAM: 73 nm / 469,000 ft  
 CIWS: 2.7 nm / 10,000 ft  
 Notes: 1983-87. USN. Ticonderoga. Smoke. No launch warning. ECM, decoys. Aegis system. 2x Mk 26 GMLS. 2x Helo. ABM RIM-162 Evolved Sea Sparrow 2009. RIM-66C/D aka SM-2MR 1979. At 34nm takes 35s to impact. 12s LT. Use pop up attack, stay under radar.

Type: Guided Missile Cruiser CG  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA: D/E FC: I/J Guns: Ku  
 Targets: 7 AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: RGM-84 Harpoon  
 SSG: 2x Mk 45 127mm  
 SAM: RIM-66C/D  
 CIWS: 2x Phalanx 20mm  
 ASub: 2x Mark 32, 20x RUR-5  
 ASROC

**Ticon Mk41 VLS**

Tracking: SAM: [AN/SPY-1D](#), [AN/SPG-62](#)  
 CIWS: Radar / FLIR  
 Rdr Lock Range: SAM: FC: 73 nm SA: 100 nm  
 CIWS: FC: 0 nm SA: 0  
 Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500  
 Typical Engagement: SAM: [35 nm / 469,000 ft](#) SM-2MR  
 Max Range: SAM: 73 nm / 469,000 ft  
 CIWS: 2.7 nm / 10,000 ft  
 Notes: 1985-92. USN. Ticonderoga. Smoke. No launch warning. ECM, decoys. Aegis system. Mk 41 VLS 122 cells. 2x Helo. ABM RIM-162 Evolved Sea Sparrow 2009. RIM-66C/D aka SM-2MR 1979. 34nm = 35s impact. 12s LT. Use pop up attack, stay under radar.

Type: Guided Missile Cruiser CG  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA: D/E FC: I/J Guns: Ku  
 Targets: 7 AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: RGM-84 Harpoon  
 LAM: BGM-109 Tomahawk  
 SSG: 2x Mk 45 127mm  
 SAM: RIM-66C/D/ 156A/ 161/  
 162/ 174A  
 CIWS: 2x Phalanx 20mm  
 ASub: 2x Mark 32, RUM-139A

**Ulsan CLS**

Tracking: SA: Signaal DA-08  
 CIWS: RTN-10X Orion  
 Rdr Range: SAM: None  
 CIWS: FC: 0 nm SA: 0  
 Min Range: SAM: None  
 Typical Engagement: SAM: None  
 Max Range: SAM: None  
 CIWS: 4.5 nm / 25,000 ft  
 Notes: 1980. RKN. ECM. 2x Mk 141 GMLS. Ship doesn't shoot guns and has no SAMs, no threat in BMS.

Type: Frigate FF  
 ECM BT Range: No Effect  
 Chaff Vuln.: No Effect  
 Bands (System): SA: F FC: I Guns: I  
 Targets: 1 AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: 2x RGM-84 Harpoon  
 SSG: 2x Otobreda 76 mm  
 SAM: None  
 CIWS: 3x DARD0 40mm  
 ASub: 2x Blue Shark Torpedo

**Virginia CLS**

Tracking: SAM: [AN/ASP-48E/ 49](#), [AN/SPG-51](#)  
 CIWS: Radar/ FLIR  
 Rdr Range: SAM: FC: 95 nm SA: 95  
 CIWS: FC: 0 nm SA: 0  
 Min Range: SAM: 3 nm / 50 ft 17/100, 25/300, 32/500  
 Typical Engagement: SAM: [35 nm / 469,000 ft](#) SM-2MR  
 Max Range: SAM: 73 nm / 469,000 ft  
 CIWS: 2.7 nm / 10,000 ft  
 Notes: 1976. USN. No launch warning. Smoke. ECM, decoys. 2x Mk 26 GMLS. 1x helo. Use pop up attack, stay under radar.

Type: Guided Missile Cruiser CGN  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA: E/F FC: G Guns: Ku  
 Targets: 7 AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: RGM-84 Harpoon 1981  
 LAM: BGM-109 Tomahawk  
 SSG: 2x 127mm  
 SAM: RIM-66 Stnd MR  
 AAA: 2x Mk 38 25mm  
 CIWS: 2x Phalanx 20mm  
 ASub: 4x Mk 46

**Wasp LHD**

Tracking: SAM: [AN/SPS-48/ 49](#), [Mk 23](#)  
 CIWS: Radar / FLIR  
 Rdr Lock Range: SAM: FC: 29 nm SA: 51 nm  
 CIWS: FC: 0 nm SA: 0  
 Min Range: SAM: 0 nm / 0 ft 11/50, 15/100, 19/200  
 Typical Engagement: SAM: [8 nm / 15,000 ft](#) RIM-7  
 Max Range: SAM: 8 nm / 26,000 ft  
 CIWS: 2.7 nm / 10,000 ft  
 Notes: 1989. USN. Amphibious assault ship. No launch warning. Smoke. ECM, decoys. 20-22 aircraft. BMS unlimited aircraft. Aircraft types: AV-8B, F-35B, MV-22B, CH-53E, UH-1Y, SH-60F/HH-60H ASW.

Type: Landing Helicopter Dock LHD  
 ECM BT Range: No Effect  
 Chaff Vuln.: Very Low  
 Bands (System): SA: E/F FC: D Guns: Ku  
 Targets: 6 AZ: 180 (180) EL: 90 (90)  
 Weapons: SSM: None  
 SSG: None  
 AAA: 4x Mk38 Mod 2 25 mm  
 SAM: 2x RIM-116 RAM IR  
 SAM: 2x RIM-7 Sea Sparrow  
 CIWS: 3x Phalanx 20mm  
 ASub: None

| AIR DEFENSE VEHICLE THREAT GUIDE - OPFOR - AN/ALR-69(V), AN/ALR-56M |        |          |          |           |            |            |                       |                    |              |                       |                  |          |           |
|---------------------------------------------------------------------|--------|----------|----------|-----------|------------|------------|-----------------------|--------------------|--------------|-----------------------|------------------|----------|-----------|
|                                                                     | RWR    |          | HARM     |           | ALIC       |            |                       |                    |              |                       |                  |          |           |
| SAM                                                                 | S<br>A | F<br>C   | S<br>A   | F<br>C    | S<br>A     | F<br>C     | SA/ EWR               | Tracking           | Min Rng/ Alt | Typical<br>Engagement | Max Range/ Alt   | ECM      | CM        |
| SA-2                                                                | ---    | 2        | 2A       | 2T        | 402        | 202        | Spoon Rest            | Fan Song E/ F      | 4nm/ 300ft   | 15nm/ 230,000ft       | 38nm/ 230,000ft  | E12-F9nm | Med       |
| SA-3                                                                | F      | 3        | F        | 3T        | 403        | 203        | Flat Face             | Low Blow           | 2.7nm/ 150ft | 9nm/ 120,000ft        | 11nm/ 12,000ft   | 6nm      | Med       |
| SA-4                                                                | L      | 4        | 4A       | 4T        | 404        | 204        | Long Track            | Pat Hand           | 4nm/ 500ft   | 18nm/ 80,000ft        | 22nm/ 80,000ft   | 14nm     | Med       |
| SA-5                                                                | B<br>B | 5<br>--- | 5A<br>5A | 5T<br>--- | 405<br>--- | 205<br>--- | Bar Lock<br>Odd Group | Square Pair<br>--- | 7nm/ 1,000ft | 53nm/ 327,000ft       | 190nm/ 327,000ft | 26nm     | Med       |
| SA-6                                                                | F      | 6        | F        | 6T        | 403        | 206        | Flat Face             | Straight Flush     | 2nm/ 550ft   | 10nm/ 101,500ft       | 20nm/ 101,500ft  | 4nm HOJ  | Med       |
| HN-5A                                                               |        |          |          |           |            |            |                       | Rear Aspect IR     | 0nm/ 60ft    | 1.6nm/ 8,000ft        | 2nm/ 10,500ft    | N/A      | Very High |
| SA-7                                                                |        |          |          |           |            |            |                       | Rear Aspect IR     | 0.2nm/ 50ft  | 1.5nm/ 5,000ft        | 2nm/ 12,000ft    | N/A      | Very High |
| SA-8                                                                | ---    | 8        | ---      | 8T        | ---        | 608        | ---                   | OB Land Roll       | 0.8nm/ 80ft  | 4nm/ 16,000ft         | 8.5nm/ 50,000ft  | 14nm     | Med       |
| SA-9                                                                | O      | ---      | D        | ---       | 609        | ---        | Dog Ear               | Rear Aspect IR     | 0.3nm/ 50ft  | 2nm/ 14,500ft         | 3.2nm/ 14,500ft  | N/A      | Very High |
| SA-10                                                               | 10     | 10       | 10A      | 10T       | 410        | 210        | Big Bird              | Flap Lid           | 3nm/ 60ft    | 48nm/ 276,000ft       | 54nm/ 276,000ft  | 36nm HOJ | No Effect |
| SA-11                                                               | D      | 11       | 11A      | 11T       | 411        | 211        | Snow Drift            | OB Fire Dome       | 1.6nm/ 180ft | 12nm/ 90,000ft        | 20nm/ 90,000ft   | 19nm HOJ | Very Low  |
| SA-13 ∞                                                             | O      | ---      | D        | ---       | 609        | ---        | Dog Ear               | OB Snap Shot/ IR   | 0.1nm/ 30ft  | 2nm/ 9,000ft          | 5nm/ 26,800ft    | 4nm      | Very Low  |
| SA-14                                                               |        |          |          |           |            |            |                       | All Aspect IR      | 0nm/ 50ft    | 1.6nm/ 10,000ft       | 3nm/ 12,100ft    | N/A      | High      |
| SA-15                                                               | ---    | 15/M     | ---      | 15T       | ---        | 615        | ---                   | OB Scrum Half      | 0.5nm/ 35ft  | 6.5nm/ 20,000ft       | 7nm/ 42,500ft    | 13nm     | Med       |
| SA-16                                                               |        |          |          |           |            |            |                       | All Aspect IR      | 0.2nm/ 60ft  | 3nm/ 10,000ft         | 3.5nm/ 19,400ft  | N/A      | Very Low  |
| SA-17                                                               | D      | 17       | 17A      | 17T       | 417        | 217        | Snow Drift            | OB Chair Back      | 1.6nm/ 140ft | 17nm/ 79,000ft        | 19nm/ 79,000ft   | 30nm HOJ | No Effect |
| SA-19/ 2S6 ∞                                                        | ---    | A        | ---      | 19T       | ---        | 619        | ---                   | OB Hot Shot/ IR    | 0nm/ 0ft     | 6.5nm/ 10,200ft       | 5.7nm/ 33,000ft  | 7nm HOJ  | Med       |
|                                                                     |        |          |          |           |            |            |                       |                    |              |                       |                  |          |           |

|          | RWR    |        | HARM   |        | ALIC   |        | SA/ EWR |                   |              |                       |                 |            |           |
|----------|--------|--------|--------|--------|--------|--------|---------|-------------------|--------------|-----------------------|-----------------|------------|-----------|
| AAA      | S<br>A | F<br>C | S<br>A | F<br>C | S<br>A | F<br>C |         | Tracking          | Min Rng/ Alt | Typical<br>Engagement | Max Range/ Alt  | Caliber    | CM        |
| KS-12    |        | A/S    | ---    | AAA    | ---    | 692    |         | Fire Can/ Optical | 0nm/ 2,000ft | 5nm/ 28,000ft         | 5nm/ 28,000ft   | 85mm Flak  | Med       |
| KS-19    |        | A/S    | ---    | AAA    | ---    | 692    |         | Fire Can/ Optical | 0nm/ 2,000ft | 5nm/ 33,500ft         | 5nm/ 33,500ft   | 100mm Flak | Med       |
| S-60     |        | A/S    | ---    | AAA    | ---    | 692    |         | Fire Can/ Optical | 0nm/ 2,000ft | 3nm/ 20,900ft         | 3nm/ 20,900ft   | 57mm Flak  | Med       |
| M-1939   |        |        |        |        |        |        |         | Optical           | 0nm/ 2,000ft | 1.3nm/ 8,600ft        | 1.3nm/ 8,600ft  | 37mm Flak  | No Effect |
| M-1992   |        | A      | ---    | ---    | ---    | ---    |         | OB Gun Dish       | 0nm/ 0ft     | 2.5nm/ 10,000ft       | 2.5nm/ 14,000ft | 30mm       | Med       |
| ZU-23    |        |        |        |        |        |        |         | Optical           | 0nm/ 0ft     | 2.0nm/ 9,900ft        | 2.0nm/ 9,900ft  | 23mm       | No Effect |
| ZPU-2    |        |        |        |        |        |        |         | Optical           | 0nm/ 0ft     | 1.8nm/ 9,800ft        | 1.5nm/ 9,800ft  | 14.5mm     | No Effect |
| ZSU-23-4 | O      | A      | ---    | ---    | ---    | ---    | Dog Ear | OB Gun Dish       | 0nm/ 0ft     | 2nm/ 10,000ft         | 3nm/ 16,000ft   | 23mm       | Med       |
| ZSU-57-2 |        |        |        |        |        |        |         | Optical           | 0nm/ 2,000ft | 3nm/ 20,800ft         | 3nm/ 20,800ft   | 57mm Flak  | No Effect |

A/S Alternating A and S flashing on RWR

HOJ Home on jam

OB On board radar

15/M Alternating 15 and M Flashing on RWR

∞ Impossible to evade/ drag missile

| AIR DEFENSE VEHICLE THREAT GUIDE - OPFOR - AN/ ALR-93(V)1 |          |        |                  |              |                       |                  |          |           |
|-----------------------------------------------------------|----------|--------|------------------|--------------|-----------------------|------------------|----------|-----------|
|                                                           | RWR      |        |                  |              |                       |                  |          |           |
| SAM                                                       | S<br>A   | F<br>C | Tracking         | Min Rng/ Alt | Typical<br>Engagement | Max Range/ Alt   | ECM      | CM        |
| SA-2                                                      |          | 72     | Fan Song E/ F    | 4nm/ 300ft   | 15nm/ 230,000ft       | 38nm/ 230,000ft  | E12-F9nm | Med       |
| SA-3                                                      | 1F       | 73     | Low Blow         | 2.7nm/ 150ft | 9nm/ 120,000ft        | 11nm/ 12,000ft   | 6nm      | Med       |
| SA-4                                                      | 1L       | 74     | Pat Hand         | 4nm/ 500ft   | 18nm/ 80,000ft        | 22nm/ 80,000ft   | 14nm     | Med       |
| SA-5                                                      | 15<br>15 | 75     | Square Pair      | 7nm/ 1,000ft | 53nm/ 327,000ft       | 190nm/ 327,000ft | 26nm     | Med       |
| SA-6                                                      | 1F       | 76     | Straight Flush   | 2nm/ 550ft   | 10nm/ 101,500ft       | 20nm/ 101,500ft  | 4nm HOJ  | Med       |
| HN-5A                                                     |          |        | Rear Aspect IR   | 0nm/ 60ft    | 1.6nm/ 8,000ft        | 2nm/ 10,500ft    | N/A      | High      |
| SA-7                                                      |          |        | Rear Aspect IR   | 0.2nm/ 50ft  | 1.5nm/ 5,000ft        | 2nm/ 12,000ft    | N/A      | Very High |
| SA-8                                                      |          | 78     | OB Land Roll     | 0.8nm/ 80ft  | 4nm/ 16,000ft         | 8.5nm/ 50,000ft  | 14nm     | Med       |
| SA-9                                                      | 113      |        | Rear Aspect IR   | 0.3nm/ 50ft  | 2nm/ 14,500ft         | 3.2nm/ 14,500ft  | N/A      | Very High |
| SA-10                                                     | 110      | 710    | Flap Lid         | 3nm/ 60ft    | 48nm/ 276,000ft       | 54nm/ 276,000ft  | 36nm HOJ | No Effect |
| SA-11                                                     | 1D       | 711    | OB Fire Dome     | 1.6nm/ 180ft | 12nm/ 90,000ft        | 20nm/ 90,000ft   | 19nm HOJ | Very Low  |
| SA-13 ∞                                                   | 113      |        | OB Snap Shot/ IR | 0.1nm/ 30ft  | 2nm/ 9,000ft          | 5nm/ 26,800ft    | 4nm      | Very Low  |
| SA-14                                                     |          |        | All Aspect IR    | 0nm/ 50ft    | 1.6nm/ 10,000ft       | 3nm/ 12,100ft    | N/A      | High      |
| SA-15                                                     |          | 715    | OB Scrum Half    | 0.5nm/ 35ft  | 6.5nm/ 20,000ft       | 7nm/ 42,500ft    | 13nm     | Med       |
| SA-16                                                     |          |        | All Aspect IR    | 0.2nm/ 60ft  | 3nm/ 10,000ft         | 3.5nm/ 19,400ft  | N/A      | Very Low  |
| SA-17                                                     | 1D       | 717    | OB Chair Back    | 1.6nm/ 140ft | 17nm/ 79,000ft        | 19nm/ 79,000ft   | 30nm HOJ | No Effect |
| SA-19/ 2S6 ∞                                              |          | 19     | OB Hot Shot/ IR  | 0nm/ 0ft     | 6.5nm/ 10,200ft       | 5.7nm/ 33,000ft  | 7nm HOJ  | Med       |
|                                                           |          |        |                  |              |                       |                  |          |           |

|          | RWR    |        |                   |              |                       |                 |            |           |
|----------|--------|--------|-------------------|--------------|-----------------------|-----------------|------------|-----------|
| AAA      | S<br>A | F<br>C | Tracking          | Min Rng/ Alt | Typical<br>Engagement | Max Range/ Alt  | Caliber    | CM        |
| KS-12    |        | K      | Fire Can/ Optical | 0nm/ 2,000ft | 5nm/ 28,000ft         | 5nm/ 28,000ft   | 85mm Flak  | Med       |
| KS-19    |        | K      | Fire Can/ Optical | 0nm/ 2,000ft | 5nm/ 33,500ft         | 5nm/ 33,500ft   | 100mm Flak | Med       |
| S-60     |        | K      | Fire Can/ Optical | 0nm/ 2,000ft | 3nm/ 20,900ft         | 3nm/ 20,900ft   | 57mm Flak  | Med       |
| M-1939   |        |        | Optical           | 0nm/ 2,000ft | 1.3nm/ 8,600ft        | 1.3nm/ 8,600ft  | 37mm Flak  | No Effect |
| M-1992   |        | 23     | OB Gun Dish       | 0nm/ 0ft     | 2.5nm/ 10,000ft       | 2.5nm/ 14,000ft | 30mm       | Med       |
| ZU-23    |        |        | Optical           | 0nm/ 0ft     | 2.0nm/ 9,900ft        | 2.0nm/ 9,900ft  | 23mm       | No Effect |
| ZPU-2    |        |        | Optical           | 0nm/ 0ft     | 1.8nm/ 9,800ft        | 1.5nm/ 9,800ft  | 14.5mm     | No Effect |
| ZSU-23-4 | 113    | 23     | OB Gun Dish       | 0nm/ 0ft     | 2nm/ 10,000ft         | 3nm/ 16,000ft   | 23mm       | Med       |
| ZSU-57-2 |        |        | Optical           | 0nm/ 2,000ft | 3nm/ 20,800ft         | 3nm/ 20,800ft   | 57mm Flak  | No Effect |

CM Counter measure effectiveness

HOJ Home on jam

OB On board radar

∞ Impossible to evade/ drag missile

**SA Symbols**

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



| AIR DEFENSE VEHICLE THREAT GUIDE - BLUEFOR - AN/ALR-69(V), AN/ALR-56M |          |          |          |           |            |            |                        |                  |              |                       |                  |            |           |
|-----------------------------------------------------------------------|----------|----------|----------|-----------|------------|------------|------------------------|------------------|--------------|-----------------------|------------------|------------|-----------|
|                                                                       | RWR      |          | HARM     |           | ALIC       |            |                        |                  |              |                       |                  |            |           |
| SAM                                                                   | S<br>A   | F<br>C   | S<br>A   | F<br>C    | S<br>A     | F<br>C     | SA/ EWR                | Tracking         | Min Rng/ Alt | Typical<br>Engagement | Max Range/ Alt   | ECM        | CM        |
| Avenger                                                               |          |          |          |           |            |            |                        | All Aspect IR    | 0nm/ 0ft     | 2nm/ 9,500 ft         | 3nm/ 20,000ft    | N/A        | Very Low  |
| Chaparral                                                             |          |          |          |           |            |            |                        | Rear Aspect IR   | 0nm/ 0ft     | 0.2nm/ 100ft          | 1.4nm/ 3,100ft   | N/A        | High      |
| Hawk                                                                  | 50<br>55 | H<br>--- | HA<br>HA | HT<br>--- | 430<br>--- | 230<br>--- | AN/MPQ-50<br>AN/MPQ-55 | AN/MPQ-46<br>--- | 0.5nm/ 200ft | 9-12nm/ 44,000ft      | 18-39nm/ 62000ft | 8-10nm HOJ | Med       |
| KSAM                                                                  | ---      | C        | ---      | ---       | ---        | ---        | ---                    | OB Daewoo        | 0nm/ 0ft     | 5nm/ 10,000ft         | 8nm/ 27,000ft    | 7nm        | Med       |
| LAV-AD                                                                |          |          |          |           |            |            |                        | All Aspect IR    | 0nm/ 50ft    | 4nm/ 10,000ft         | 41.nm/ 20,000ft  | N/A        | Very Low  |
| M2A2/ ADATS                                                           |          |          |          |           |            |            |                        | All Aspect IR    | 0nm/ 50ft    | 4nm/ 10,000ft         | 41.nm/ 20,000ft  | N/A        | Very Low  |
| BSFV-AD/M6 BL                                                         |          |          |          |           |            |            |                        | All Aspect IR    | 0nm/ 50ft    | 4nm/ 10,000ft         | 41.nm/ 20,000ft  | N/A        | Very Low  |
| Mistral                                                               |          |          |          |           |            |            |                        | All Aspect IR    | 0nm/ 50ft    | 3nm/ 10,000ft         | 3nm/ 18,000ft    | N/A        | Very Low  |
| Nike Hercules                                                         | ---      | N<br>PI  | ---      | N<br>---  | ---        | 696<br>--- | ---                    | AN/MPQ-43<br>--- | 3nm/ 3,400ft | 46nm/ 259,000ft       | 70nm/ 259,000ft  | 15nm       | Med       |
| Patriot                                                               | ---      | P        | ---      | P         | ---        | 693        | ---                    | AN/MPQ-53        | 2nm/ 160ft   | 49nm/ 80,000ft        | 91nm/ 80,000ft   | 63nm HOJ   | No Effect |
| Sky Guard                                                             | ---      | P        | ---      | SKY       | ---        | 695        | ---                    | Sky Guard        | 0nm/ 0ft     | 8nm/ 20,000ft         | 11nm/ 23,000ft   | 4nm        | Very Low  |
| Stinger                                                               |          |          |          |           |            |            |                        | All Aspect IR    | 0nm/ 50ft    | 4nm/ 10,000ft         | 41.nm/ 20,000ft  | N/A        | Very Low  |
|                                                                       |          |          |          |           |            |            |                        |                  |              |                       |                  |            |           |
|                                                                       |          |          |          |           |            |            |                        |                  |              |                       |                  |            |           |
|                                                                       |          |          |          |           |            |            |                        |                  |              |                       |                  |            |           |
|                                                                       |          |          |          |           |            |            |                        |                  |              |                       |                  |            |           |
|                                                                       |          |          |          |           |            |            |                        |                  |              |                       |                  |            |           |

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

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

| AIR DEFENSE VEHICLE THREAT GUIDE - BLUEFOR - AN/ ALR-93(V)1 |          |        |                |              |                       |                   |            |           |
|-------------------------------------------------------------|----------|--------|----------------|--------------|-----------------------|-------------------|------------|-----------|
|                                                             | RWR      |        |                |              |                       |                   |            |           |
| SAM                                                         | S<br>A   | F<br>C | Tracking       | Min Rng/ Alt | Typical<br>Engagement | Max Range/ Alt    | ECM        | CM        |
| Avenger                                                     |          |        | All Aspect IR  | 0nm/ 0ft     | 2nm/ 9,500ft          | 3nm/ 20,000ft     | N/A        | Very Low  |
| Chaparral                                                   |          |        | Rear Aspect IR | 0nm/ 0ft     | 0.2nm/ 100ft          | 1.4nm/ 3,100ft    | N/A        | High      |
| Hawk                                                        | 1H<br>1H | 7MQ    | AN/ MPQ-46     | 0.5nm/ 200ft | 9-12nm/ 44,000ft      | 18-39nm/ 62,000ft | 8-10nm HOJ | Med       |
| KSAM                                                        |          | 7C     | OB Daewoo      | 0nm/ 0ft     | 5nm/ 10,000ft         | 8nm/ 27,000ft     | 7nm        | Med       |
| LAV-AD                                                      |          |        | All Aspect IR  | 0nm/ 50ft    | 4nm/ 10,000ft         | 4.1nm/ 20,000ft   | N/A        | Very Low  |
| M2A2/ ADATS                                                 |          |        | All Aspect IR  | 0nm/ 50ft    | 4nm/ 10,000ft         | 4.1nm/ 20,000ft   | N/A        | Very Low  |
| BSFV-AD/ M6 BL                                              |          |        | All Aspect IR  | 0nm/ 50ft    | 4nm/ 10,000ft         | 4.1nm/ 20,000ft   | N/A        | Very Low  |
| Mistral                                                     |          |        | All Aspect IR  | 0nm/ 0ft     | 3nm/ 10,000ft         | 3nm/ 18,000ft     | N/A        | Very Low  |
| Nike Hercules                                               |          | 7N     | AN/ MPQ-43     | 3nm/ 3,400ft | 46nm/ 259,000ft       | 70nm/ 259,000ft   | 15nm       | Med       |
| Patriot                                                     |          | 7P     | AN/ MPQ-53     | 2nm/ 160ft   | 49nm/ 80,000ft        | 91nm/ 80,000ft    | 63nm HOJ   | No Effect |
| Sky Guard                                                   |          | 7R     | Sky Guard      | 0nm/ 0ft     | 8nm/ 20,000ft         | 11nm/ 23,000ft    | 4nm        | Med       |
| Stinger                                                     |          |        | All Aspect IR  | 0nm/ 50ft    | 4nm/ 10,000ft         | 4.1nm/ 20,000ft   | N/A        | Very Low  |
|                                                             |          |        |                |              |                       |                   |            |           |
|                                                             |          |        |                |              |                       |                   |            |           |
|                                                             |          |        |                |              |                       |                   |            |           |
|                                                             |          |        |                |              |                       |                   |            |           |

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

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

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

## AIRCRAFT THREAT GUIDE - OPFOR

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



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

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

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

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





### KTO-Tiger Spirit

#### Objectives

**ROK/ US** wins if:

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

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

**DPRK** wins if:

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

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

### KTO-Rolling Fire

#### Objectives

**ROK/ US** wins if:

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

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

**DPRK** wins if:

Seoul and Pusan are controlled in less than 30 days.

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

### KTO-Iron Fortress

#### Objectives

**ROK/ US** wins if:

Pusan and Seoul are controlled in less than 5 days.

**DPRK** wins if:

Seoul and Pusan are controlled in less than 5 days.

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

See aircraft charts for additional campaign objectives.



### Balkans-Balance of Power

#### Objectives

**Blueforce** wins if:

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

**Opfor** wins if:

Rijeka, Kranj and Ljubljana are controlled.

### Balkans-Under Siege

#### Objectives

**Blueforce** wins if:

Podgorica City, Plav Town, Pec City, Dakovica City, Volkovija Town and Velesta City are controlled.

**Opfor** wins if:

Shkoder City, Kukes Town, Elbasan City and Tirane City are controlled.

### Balkans-Powderkeg

#### Objectives

**Blueforce** wins if:

Beograd City is controlled or if Bijeljina City, Vlasencia City, Novi Sad City, Zrenjanin City, Stepovevac City, Sabac City and Sarajevo Village are controlled.

**Opfor** wins if:

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



| AIRCRAFT THREAT GUIDE - OPFOR (KTO-Tiger Spirit) |        |             |     |                |              |                    |           |           |           |                     |
|--------------------------------------------------|--------|-------------|-----|----------------|--------------|--------------------|-----------|-----------|-----------|---------------------|
| Aircraft                                         | Origin | Role        | MAR | AA Hard Points | SARH WVR     | IR WVR             | SARH BVR  | IR BVR    | ARH BVR   | AIR BASES           |
| J-5                                              | DPRK   | Attack      | 2   | 0              |              |                    |           |           |           | Panghyon,           |
| J-6                                              | DPRK   | Attack      | 2   | 0              |              |                    |           |           |           | Hwangsuwon          |
| J-7G                                             | DPRK   | Fighter     | 8   | 4              | AA-2B        | AA-2C, PL-7, PL-8  |           |           |           | T'aech'on           |
| J-8I                                             | DPRK   | Interceptor | 8   | 4              |              | PL-7, PL-8         |           |           |           | T'aech'on           |
| J-11                                             | PLAAF  | Multi       | 15  | 10             |              | AA-8, AA-11        | AA-10A/ C | AA-10B/ D | AA-12     | Shenyang, Liuhe     |
| J-20                                             | PLAAF  | Fighter     | 17  | 4-6            |              | PL-10              |           |           | PL-12/ 15 | Shenyang            |
| Mig-21MF                                         | DPRK   | Multi       | 8   | 4              | AA-2B        | AA-2C, AA-8        |           |           |           | Hwangsuwon, Orang   |
| Mig-23ML                                         | DPRK   | Multi       | 12  | 4-6            | AA-2B, AA-7A | AA-2C, AA-7B, AA-8 |           |           |           | Iwon                |
| Mig-29A                                          | DPRK   | Multi       | 12  | 6              |              | AA-8, AA-11        | AA-10A    |           |           | Samjiyon-up, Orang  |
| Mig-29S                                          | DPRK   | Multi       | 15  | 6              |              | AA-8, AA-11        | AA-10A    |           | AA-12     | Samjiyon-up         |
| Q-5N                                             | DPRK   | Attack      | 5   | 4              |              | AA-2C, PL-7        |           |           |           | Kaech'on, Panghyon, |
| Su-25                                            | DPRK   | Attack      | 7   | 2              |              | AA-8               |           |           |           | Iwon, Orang         |
| Su-30MKK                                         | PLAAF  | Multi       | 15  | 10             |              | AA-11              | AA-10A/ C | AA-10B/ D | AA-12     | Shenyang, Liuhe     |
| Su-35S                                           | VVS    | Multi       | 15  | 8              |              | AA-11              | AA-10A/ C | AA-10B/ D | AA-12     | Uglovoye            |
| Su-35SK                                          | VVS    | Multi       | 17  | 10             |              | PL-10              |           |           | PL-12     | Liuhe               |

| AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Tiger Spirit) |        |         |     |                |          |              |          |        |             |           |
|----------------------------------------------------|--------|---------|-----|----------------|----------|--------------|----------|--------|-------------|-----------|
| Aircraft                                           | Origin | Role    | MAR | AA Hard Points | SARH WVR | IR WVR       | SARH BVR | IR BVR | ARH BVR     | AIR BASES |
| A-10C                                              | USAF   | Attack  | 7   | 2              |          | AIM-9P/ M    |          |        |             | Haeju     |
| EA-18G                                             | USN    | EW      | 17  | 2              |          |              |          |        | AIM-120C    | Seoul     |
| F-4E ROKAF                                         | ROKAF  | Multi   | 13  | 4-8            |          | AIM-9P/ M    | AIM-7M   |        |             | Gangneung |
| F-5E                                               | ROKAF  | Fighter | 7   | 6              |          | AIM-9P/ M    |          |        |             | Gangneung |
| F-15C                                              | USAF   | Fighter | 20  | 8              |          | AIM-9P/ M/ X | AIM-7M   |        | AIM-120B/ C | Gimpo     |
| F-15E-229                                          | USAF   | Multi   | 20  | 8              |          | AIM-9P/ M/ X | AIM-7M   |        | AIM-120B/ C | Seoul     |
| F-16C Blk 32                                       | ROKAF  | Multi   | 17  | 6              |          | AIM-9P/ M    | AIM-7M   |        | AIM-120B    | Gangneung |
| F-16CM Blk 40                                      | USAF   | Multi   | 17  | 6              |          | AIM-9P/ M/ X |          |        | AIM-120B/ C | Haeju     |
| F-16CM Blk 50                                      | USAF   | Multi   | 17  | 6              |          | AIM-9P/ M/ X |          |        | AIM-120B/ C | Gimpo     |
| F-117A                                             | USAF   | Attack  | 0   | 0              |          |              |          |        |             | Seoul     |
| MQ-9                                               | USAF   | Drone   | 0   | 0              |          |              |          |        |             | Osan      |
|                                                    |        |         |     |                |          |              |          |        |             |           |
|                                                    |        |         |     |                |          |              |          |        |             |           |

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

#### Objectives

ROK/ US wins if:

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

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

DPRK wins if:

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

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

#### BOMBERS AND SUPPORT AC

|         |                        |
|---------|------------------------|
| A-50    | Liuhe, Uglovoye        |
| An-24   | Samjiyon-up            |
| B-2A    | Iwami                  |
| C-17    | Iwami                  |
| C-130H  | Gunsan                 |
| CH-53   | 815th Mech Corps       |
| E-3     | Kadena (Off Map South) |
| E-8C    | Kadena (Off Map South) |
| IL-28   | Iwon                   |
| IL-76M  | Liuhe                  |
| IL-78M  | Uglovoye, Liuhe        |
| KC-10   | Kadena (Off Map South) |
| KC-135R | Kadean (Off Map South) |
| MD-500  | 108th Mech Corps       |
| Mi-26   | Tangch'on              |
| RC-135W | Iwakuni                |
| OH-58D  | 815th Mech Corps       |
| Tu-16   | Liuhe                  |
| UH-1H   | 806th Mech Corps       |

## AIRCRAFT THREAT GUIDE - OPFOR (KTO-Rolling Fire)

| Aircraft | Origin | Role        | MAR | AA Hard Points | SARH WVR     | IR WVR             | SARH BVR     | IR BVR        | ARH BVR   | AIR BASES             |
|----------|--------|-------------|-----|----------------|--------------|--------------------|--------------|---------------|-----------|-----------------------|
| J-5      | DPRK   | Attack      | 2   | 0              |              |                    |              |               |           | Kuum-ni, Ayang-Ni, *1 |
| J-6      | DPRK   | Attack      | 2   | 0              |              |                    |              |               |           | Ich'on, Kalma, *2     |
| J-8I     | DPRK   | Interceptor | 8   | 4              |              | PL-7, PL-8         |              |               |           | Liuhu                 |
| J-11     | PLAAF  | Multi       | 15  | 10             |              | AA-8, A-11         | AA-10A/ C    | AA-10B/ D     | AA-12     | Liuhu, Shenyang       |
| J-15     | PLAAF  | Multi       | 17  | 8              |              | PL-8, PL-10        |              |               | PL-12     | CV-16 Liaoning        |
| J-20     | PLAAF  | Fighter     | 17  | 6              |              | PL-10              |              |               | PL-12/ 15 | Shenyang              |
| Mig-21MF | DPRK   | Multi       | 8   | 4              | AA-2B        | AA-2C, AA-8        |              |               |           | Taetan, Hyon-Ni, *3   |
| Mig-23ML | DPRK   | Multi       | 12  | 4-6            | AA-2B, AA-7A | AA-2C, AA-7B, AA-8 |              |               |           | Kalma, Koksan, *4     |
| Mig-29A  | DPRK   | Multi       | 12  | 6              |              | AA-8, AA-11        | AA-10A       |               |           | Kalma, Sunan, *5      |
| Mig-29S  | VVS    | Multi       | 15  | 6              |              | AA-8, A-11         | AA-10A       |               | AA-12     | Uglovoye              |
| Mig-31   | VVS    | Interceptor | 20  | 8-10           |              | AA-8, A-11         | AA-9, AA-10C | AA-6B, AA-10B |           | Uglovoye              |
| Q-5N     | PLAAF  | Attack      | 5   | 4              |              | AA-2C, PL-7        |              |               |           | Liuhu                 |
| Su-25    | DPRK   | Attack      | 7   | 2              |              | AA-8               |              |               |           | Kalma, Koksan, *6     |
| Su-27    | DPRK   | Multi       | 15  | 10             |              | AA-8, AA-11        | AA-10A/ C    | AA-10B/ D     | AA-12     | Uglovoye              |
| Su-30MKK | PLAAF  | Multi       | 15  | 10             |              | AA-11              | AA-10A/ C    | AA-10B/ D     | AA-12     | Liuhu, Shenyang, *7   |
| Su-33    | VVS    | Multi       | 15  | 10             |              | AA-11              | AA-10A/ C    | AA-10B/ D     | AA-12     | Kuznetsov             |
| Su-35S   | VVS    | Multi       | 15  | 8              |              | AA-11              | AA-10A/ C    | AA-10B/ D     | AA-12     | Uglovoye              |
| Su-35SK  | PLAAF  | Multi       | 17  | 10             |              | PL-10              |              |               | PL-12     | Liuhu                 |

## AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Rolling Fire)

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

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

\*1: Mirim, Hwangju  
\*2: Koksan, Nuch'on-ni, Taebukpo-ri  
\*3: Haeju, Koksan  
\*4: Ongjin, Toksan  
\*5: Suncheon  
\*6: Kuum-ni  
\*7: Uglovoye  
\*8: Seosan

## BOMBERS AND SUPPORT AC

|        |                                 |         |                                       |
|--------|---------------------------------|---------|---------------------------------------|
| A-50   | Shenyang, Uglovoye              | Ka-52K  | Kuznetsov                             |
| AH-1S  | R217, Chuncheon, Wasp LHD-1     | KC-130  | Iwakuni                               |
| AH-64D | Pyongtaeg                       | KC-135R | Kadena (Off Map South)                |
| AH-64E | FRAB, Pyongtaek                 | MD-500  | Chuncheon, R103, R217, Sokcho         |
| An-2   | Nuch'on-ni, Taebukpo-ri         | MD-500  | Hyon-Ni, 4th Inf Corps, 2nd Inf Corps |
| An-124 | Uglovoye                        | MH-60R  | CVN-70 Vinson, Wasp LHD-1             |
| An-24  | Pukch'ang-up, Sondok, Shenyang  | Mi-8    | Hyon-Ni, 4th Inf Corps                |
| C-17   | Off Map South                   | MV-22   | Wasp LHD-1                            |
| C-130H | Gimhae, Seoul, Yokota (Off Map) | Q-5N    | Liuhu                                 |
| CH-47  | FRAB, Pyongtaeg                 | RC-135W | Kadena (Off Map South)                |
| CH-53  | Wasp LHD-1                      | Tu-16   | Liuhu                                 |
| E-2C   | CVN-70 Vinson                   | U-2     | Osan                                  |
| E-3    | Kadena (Off Map South)          | UH-1H   | Chuncheon, R419, Yongin               |
| E-8C   | Kadena (Off Map South)          | UH-1J   | Wasp LHD-1                            |
| IL-28  | Hwangju, Kalma, Kuumni          | UH-60L  | Pyongtaeg, R217, R505, Seoul, Yongin  |
| IL-76M | Puckchang-up                    |         |                                       |
| IL-78M | Uglovoye, Shenyang              |         |                                       |

## Objectives

ROK/ US wins if:  
Kalma and P'yongyang are controlled in less than 30 campaign days or...  
Kalma and P'yongyang are controlled in less than 5 campaign days and DPRK strength is less than 1/10th of allied forces.  
DPRK wins if:  
Seoul and Pusan are controlled in less than 30 campaign days.  
If none of these conditions are met in 30 days then the outcome will be a peace treaty.  
if no major objective is captured in 20 days then the outcome will be a stalemate.

| AIRCRAFT THREAT GUIDE - OPFOR (KTO-Iron Fortress) |        |             |     |                |              |                    |              |               |           |                      |
|---------------------------------------------------|--------|-------------|-----|----------------|--------------|--------------------|--------------|---------------|-----------|----------------------|
| Aircraft                                          | Origin | Role        | MAR | AA Hard Points | SARH WVR     | IR WVR             | SARH BVR     | IR BVR        | ARH BVR   | AIR BASES            |
| J-6                                               | DPRK   | Attack      | 2   | 0              |              |                    |              |               |           | Ich'on, Ongin, *1    |
| J-15                                              | PLAAF  | Multi       | 17  | 8              |              | PL-8, PL-10        |              |               | PL-12     | CV-16 Liaoning       |
| J-20                                              | PLAAF  | Fighter     | 17  | 6              |              | PL-10              |              |               | PL-12/ 15 | Shenyang             |
| Mig-19SF                                          | DPRK   | Attack      | 2   | 0              |              |                    |              |               |           | Ongjin, Sokcho       |
| Mig-21MF                                          | DPRK   | Multi       | 8   | 4              | AA-2B        | AA-2C, AA-8        |              |               |           | Suwon, Chuncheon     |
| Mig-23ML                                          | DPRK   | Multi       | 12  | 4-6            | AA-2B, AA-7A | AA-2C, AA-7B, AA-8 |              |               |           | Gangneung, Gimpo,*2  |
| Mig-29A                                           | DPRK   | Multi       | 12  | 6              |              | AA-8, AA-11        | AA-10A       |               |           | Mirim, Seoul, Sondok |
| Mig-29S                                           | DPRK   | Multi       | 15  | 6              |              | AA-8, AA-11        | AA-10A       |               | AA-12     | Sunan                |
| Mig-31                                            | VVS    | Interceptor | 20  | 8-10           |              | AA-8, A-11         | AA-9, AA-10C | AA-6B, AA-10B |           | Uglovoye             |
| Q-5N                                              | DPRK   | Attack      | 5   | 4              |              | AA-2C, PL-7        |              |               |           | Hyon-Ni, Sunchon     |
| Su-25                                             | DPRK   | Attack      | 7   | 2              |              | AA-8               |              |               |           | Gimpo, Onchon        |
| Su-33                                             | VVS    | Multi       | 15  | 10             |              | AA-11              | AA-10A/ C    | AA-10B/ D     | AA-12     | Kuznetsov            |
| Su-35S                                            | VVS    | Multi       | 15  | 8              |              | AA-11              | AA-10A/ C    | AA-10B/ D     | AA-12     | Uglovoye             |
| Su-35SK                                           | PLAAF  | Multi       | 17  | 10             |              | PL-10              |              |               | PL-12     | Liuhe                |

| AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Iron Fortress) |        |        |     |                |          |                 |           |        |             |                 |
|-----------------------------------------------------|--------|--------|-----|----------------|----------|-----------------|-----------|--------|-------------|-----------------|
| Aircraft                                            | Origin | Role   | MAR | AA Hard Points | SARH WVR | IR WVR          | SARH BVR  | IR BVR | ARH BVR     | AIR BASES       |
| A-10C                                               | USAF   | Attack | 7   | 2              |          | AIM-9P/ M       |           |        |             | Gunsan          |
| AV-8B Harrier II                                    | USMC   | Attack | 7   | 4              |          | AIM-9M          |           |        |             | Gwangju         |
| AV-8B Harrier II+                                   | USMC   | Attack | 17  | 4              |          | AIM-9M          |           |        | AIM-120B    | Wasp LHD-1      |
| CF188                                               | RCAF   | Multi  | 17  | 12             |          | AIM-9H/ J/ M/ P | AIM-7F/ M |        | AIM-120B    | Sacheon         |
| EA-18G                                              | USN    | Multi  | 20  | 2              |          |                 |           |        | AIM-120C    | CVN-70, Gimhae  |
| F-4E ROKAF                                          | ROKAF  | Multi  | 13  | 4-8            |          | AIM-9P/ M       | AIM-7M    |        |             | Pohang          |
| F-16CM Blk 40                                       | USAF   | Multi  | 17  | 6              |          | AIM-9P/ M/ X    |           |        | AIM-120B/ C | Gimhae, Pohang  |
| F-16CM Blk 50                                       | USAF   | Multi  | 17  | 6              |          | AIM-9P/ M/ X    |           |        | AIM-120B/ C | Gunsan          |
| F/A-18C                                             | USN    | Multi  | 17  | 8-12           |          | AIM-9P/ M/ X    | AIM-7F/ M |        | AIM-120B/ C | CVN-70, Sacheon |
| F/A-18D                                             | USN    | Multi  | 17  | 8-12           |          | AIM-9P/ M/ X    | AIM-7F/ M |        | AIM-120B/ C | CVN-70          |
| F/A-18E                                             | USN    | Multi  | 17  | 10-16          |          | AIM-9P/ M/ X    | AIM-7F/ M |        | AIM-120B/ C | CVN-70, Gimhae  |
| F/A-18F                                             | USN    | Multi  | 17  | 10-16          |          | AIM-9M/ P/ X    | AIM-7F/ M |        | AIM-120B/ C | Gimhae          |
| MQ-9                                                | USAF   | Drone  | 0   | 0              |          |                 |           |        |             | Iwakuni         |
| Tornado IDS GAF                                     | GAF    | Attack | 7   | 2              |          | AIM-9M, IRIS-T  |           |        |             | Sacheon         |

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

\*1: Pongsan, Sokcho  
\*2: Haeju, Kwail

#### Objectives

ROK/ US wins if:

Pusan and Seoul are controlled in less than 5 campaign days.

DPRK wins if:

Seoul and Pusan are controlled in less than 5 campaign days.

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

#### BOMBERS AND SUPPORT AC

|         |                           |
|---------|---------------------------|
| A-50    | Uglovoye, Shenyang        |
| AH-15   | Suemal,                   |
| AH-64D  | 2nd Army Base, Wasp LHD-1 |
| An-2    | R113                      |
| An-24   | Kalma, Kuum-ni            |
| B-1B    | Iwami                     |
| B-2A    | Iwami                     |
| C-17    | Iwami                     |
| C-130H  | Gimhae                    |
| CH-47   | Camp Walker               |
| E-2C    | CVN-70 CSG                |
| E-3A    | Kadena (Off Map South)    |
| E-8C    | Kadena (Off Map South)    |
| IL-28   | Hwangjiu, Kuum-ni         |
| IL-76M  | Koksan, Sunan             |
| IL-78M  | Uglovoye, Shenyang        |
| Ka-52K  | Kuznetsov                 |
| KC-135R | Kadena (Off Map South)    |
| MD-500  | Singal                    |
| Mi-8    | Sangwon, Wonju            |
| UH-1J   | Camp Walker               |
| UH-60L  | Suemal                    |



| AIRCRAFT THREAT GUIDE - OPFOR (KTO-Double Dragon) |        |             |     |                |              |                    |           |           |           |                     |
|---------------------------------------------------|--------|-------------|-----|----------------|--------------|--------------------|-----------|-----------|-----------|---------------------|
| Aircraft                                          | Origin | Role        | MAR | AA Hard Points | SARH WVR     | IR WVR             | SARH BVR  | IR BVR    | ARH BVR   | AIR BASES           |
| J-6B                                              | PLAAF  | Fighter     | 2   | 0              |              |                    |           |           |           | Uiju                |
| J-7G                                              | PLAAF  | Fighter     | 8   | 4              | AA-2B        | AA-2C, PL-7, PL-8  |           |           |           | Kwail, Liuhe, *1    |
| J-8I                                              | PLAAF  | Interceptor | 8   | 4              |              | PL-7, PL-8         |           |           |           | Shenyang, Liuhe, *2 |
| J-11                                              | PLAAF  | Multi       | 15  | 10             |              | AA-8, AA-11        | AA-10A/ C | AA-10B/ D | AA-12     | Kaech'on, Kwail, *3 |
| J-15                                              | PLAAF  | Multi       | 17  | 10             |              | PL-8, PL-10E       |           |           | PL-12     | CV-16 Liaoning CSG  |
| J-20                                              | PLAAF  | Fighter     | 17  | 6              |              | PL-10              |           |           | PL-12/ 15 | Shenyang            |
| Q-5N                                              | PLAAF  | Attack      | 5   | 4              |              | AA-2C, PL-7        |           |           |           | Ongjin, Sunan       |
| Su-27                                             | VVS    | Multi       | 15  | 10             |              | AA-8, AA-11        | AA-10A/ C | AA-10B/ D | AA-12     | Uglovoye            |
| Mig-23ML                                          | PLAAF  | Multi       | 12  | 4-6            | AA-2B, AA-7A | AA-2C, AA-7B, AA-8 |           |           |           | Mirim, Pukchang-up  |
| Mig-29S                                           | VVS    | Multi       | 15  | 6              |              | AA-8, A-11         | AA-10A    |           | AA-12     | Uglovoye            |
| Su-30MKK                                          | PLAAF  | Multi       | 15  | 10             |              | AA-11              | AA-10A/ C | AA-10B/ D | AA-12     | Dalian              |
| Su-35S                                            | VVS    | Multi       | 15  | 8              |              | AA-11              | AA-10A/ C | AA-10B/ D | AA-12     | Uglovoye            |
| Su-35SK                                           | PLAAF  | Multi       | 17  | 10             |              | PL-10              |           |           | PL-12     | Shenyang            |

| AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Double Dragon) |        |         |     |                |              |                     |             |        |                |                      |
|-----------------------------------------------------|--------|---------|-----|----------------|--------------|---------------------|-------------|--------|----------------|----------------------|
| Aircraft                                            | Origin | Role    | MAR | AA Hard Points | SARH WVR     | IR WVR              | SARH BVR    | IR BVR | ARH BVR        | AIR BASES            |
| A-10C                                               | USAF   | Attack  | 7   | 2              |              | AIM-9P/ M           |             |        |                | Osan                 |
| F-4E ROKAF                                          | ROKAF  | Multi   | 13  | 4-8            |              | AIM-9P/ M           | AIM-7M      |        |                | Gimpo, Cheongju      |
| F4-EJ                                               | JASDF  | Multi   | 13  | 4-8            |              | AAM-3, AIM-9M       | AIM-7E-2/ M |        |                | Iwami                |
| F-5E                                                | ROKAF  | Fighter | 7   | 6              |              | AIM-9P/ M           |             |        |                | Gangneung, Suwon     |
| F-15CJ                                              | JASDF  | Fighter | 20  | 8              |              | AAM-3, AIM-9M/ P/ X | AIM-7M      |        | AAM-4, 120B/ C | Iwami                |
| F-15K                                               | ROKAF  | Fighter | 20  | 8              |              | AIM-9X              |             |        | AIM-120C       | Daegu                |
| F-16C Blk 32                                        | ROKAF  | Multi   | 17  | 6              |              | AIM-9P/ M           | AIM-7M      |        | AIM-120B       | Jungwon              |
| F-16C Blk 52                                        | ROKAF  | Multi   | 17  | 6              |              | AIM-9P/ M           | AIM-7M      |        | AIM-120B       | Oson, Seosan, Sokcho |
| F-16CM Blk 40                                       | USAF   | Multi   | 17  | 6              |              | AIM-9P/ M/ X        |             |        | AIM-120B/ C    | Gunsan, Osan         |
| F-CK-1C                                             | JASDF  | Multi   | 17  | 6              |              | Tien Chien I        |             |        | Tien Chien II  | Iwami                |
| J-6                                                 | DPRK   | Fighter | 2   | 0              |              |                     |             |        |                | Gunsan, Iwon         |
| Mig-19SF                                            | DPRK   | Attack  | 2   | 0              |              |                     |             |        |                | Iwon,                |
| Mig-21MF                                            | DPRK   | Multi   | 8   | 4              | AA-2B        | AA-2C, AA-8         |             |        |                | Hwangju, Hyon-ni, *4 |
| Mig-23ML                                            | DPRK   | Multi   | 12  | 4-6            | AA-2B, AA-7A | AA-2C, AA-7B, AA-8  |             |        |                | Haeju, Kuum-ni, *5   |
| Mig-29A                                             | DPRK   | Fighter | 12  | 6              |              | AA-8, AA-11         | AA-10A      |        |                | Onch'on, Gunsan      |
| MQ-9                                                | USAF   | Drone   | 0   | 0              |              |                     |             |        |                | Iwakumi              |
| Su-20                                               | DPRK   | Attack  | 7   | 4              |              | AA-2C, AA-8         |             |        |                | Onch'on, Hwangsuwon  |
| Su-25                                               | DPRK   | Attack  | 7   | 2              |              | AA-8                |             |        |                | Gunsan, Kuum-ni, *6  |

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

\*1: Samjiyon-up  
\*2: Kaech'on  
\*3: Shenyang, Samjiyon-up, Uiju  
\*4: Hwangsuwon, Panghyon, Sanghyon, Sondok  
\*5: Mirim, Pukchang-up, Seosan  
\*6: Panghyon

#### Objectives

ROK/ US/ DPRK wins if:

P'yongyang, Kalma, Koksan and Changyon are captured in less than 10 campaign days and PRC strength is less than 1/10th that of allied forces.

DPRK wins if:

P'yongyang, Kalma, Koksan, Changyon, Chongjin and Tan-tung are controlled.

PRC wins if:

P'yongyang, Kaesong, Koksan and either Changyoon or Kalma are controlled in less than 15 campaign days and PRC maintains 1:1 force ratio.

#### BOMBERS AND SUPPORT AC

|         |                                              |
|---------|----------------------------------------------|
| A-50    | Changchun, Shenyang, Uglovoye                |
| AH-1S   | Camp Humphreys                               |
| An-2    | Pongsan, Taebukpo-ri                         |
| An-24   | Gunsan, Hyon-Ni                              |
| An-72   | Shenyang, Uglovoye                           |
| AC-130  | Gunsan                                       |
| C-130H  | Gunsan, Seoul                                |
| CH-47   | Camp Eagle                                   |
| E-2C    | Iwami                                        |
| E-3     | Seoul                                        |
| E-8C    | Seoul                                        |
| IL-28   | Onch'on                                      |
| IL-78M  | Changchun (Off Map), Kuum-ni                 |
| KC-10   | Iwami                                        |
| KC-135R | Seoul                                        |
| MV-22   | Gunsan                                       |
| Mi-8    | Kwail, Ongjin, 3rd Inf, Shenyang, P'Yongyang |
| Mi-8    | 815th Mech, 2nd Artillery, Onch'on           |
| Mi-26   | Uglovoye                                     |
| RC-135W | Iwakumi                                      |
| Tu-16   | Off Map, Shenyang, T'aech'on                 |
| U-2     | Gunsan                                       |
| UH-1H   | R419, Seoul, Songwhan                        |
| UH-60L  | Gunsan                                       |

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

| AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Bear Trap) |        |         |     |                |          |           |          |        |          |                |
|-------------------------------------------------|--------|---------|-----|----------------|----------|-----------|----------|--------|----------|----------------|
| Aircraft                                        | Origin | Role    | MAR | AA Hard Points | SARH WVR | IR WVR    | SARH BVR | IR BVR | ARH BVR  | AIR BASES      |
| A-10A                                           | ROKAF  | Attack  | 7   | 2              |          | AIM-9P/ M |          |        |          | Osan           |
| F-4E ROKAF                                      | ROKAF  | Multi   | 13  | 4-8            |          | AIM-9P/ M | AIM-7M   |        |          | Pyontaek, Osan |
| F-5E ROKAF                                      | ROKAF  | Fighter | 7   | 6              |          | AIM-9P/ M |          |        |          | Gimpo, Wonju   |
| F-16C Blk 32                                    | ROKAF  | Multi   | 17  | 6              |          | AIM-9P/ M | AIM-7M   |        | AIM-120B | Gunsan, Osan   |
| F-16C Blk 52                                    | ROKAF  | Multi   | 17  | 6              |          | AIM-9P/ M | AIM-7M   |        | AIM-120B | Jungwon, Osan  |
|                                                 |        |         |     |                |          |           |          |        |          |                |
|                                                 |        |         |     |                |          |           |          |        |          |                |

ROKAF: Republic of Korea Air Force/ South Korea

USAF: United States Air Force

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

#### Objectives

ROK wins if:

Pusan, Sokcho and Pohang are controlled in less than 8 campaign days.

CIS wins if:

Not pushed out of South Korea within 8 campaign days.

#### BOMBERS AND SUPPORT AC

|         |           |
|---------|-----------|
| A-50    | Uglovoye  |
| AH-64A  | Cheongju  |
| C-17    | Sacheon   |
| C-130H  | Gunsan    |
| E-3     | Seoul     |
| E-8C    | Seoul     |
| IL-76M  | Gangneung |
| IL-78M  | Gangneung |
| Ka-52   | Daegu     |
| Ka-52K  | Kuznetsov |
| KC-135E | Gwangju   |
| KC-135R | Seoul     |
| Mi-8    | Daegu     |
| Mi-26   | Gimhae    |
| Mi-28   | Gimhae    |
| RC-135W | Seoul     |
| Tu-95MS | Uglovoye  |
| Tu-160  | Uglovoye  |
| UH-60L  | Osan      |

| AIRCRAFT THREAT GUIDE - OPFOR (KTO-Mantis at Dawn) |        |         |     |                |          |              |           |         |                   |           |
|----------------------------------------------------|--------|---------|-----|----------------|----------|--------------|-----------|---------|-------------------|-----------|
| Aircraft                                           | Origin | Role    | MAR | AA Hard Points | SARH WVR | IR WVR       | SARH BVR  | IR BVR  | ARH BVR           | AIR BASES |
| F-16AM RDAF                                        | RDAF   | Multi   | 17  | 6              |          | AIM-9M/ P/ X |           |         | AIM-120B/ C       | Sacheon   |
| F-16AM RNLAf                                       | RNLAf  | Multi   | 17  | 6              |          | AIM-9M/ P/ X |           |         | AIM-120B          | Sacheon   |
| F-16CM Bk 50                                       | USAF   | Multi   | 17  | 6              |          | AIM-9P/ M/ X |           |         | AIM-120B/ C       | Gunsan    |
| F-16DM Bk 52                                       | USAF   | Multi   | 17  | 6              |          | AIM-9P/ M/ X |           |         | AIM-120B/ C       | Gunsan    |
| F/A-18C                                            | USN    | Multi   | 17  | 8-12           |          | AIM-9P/ M/ X | AIM-7F/ M |         | AIM-120B/ C       | Gunsan    |
| Mirage 2000D                                       | FAF    | Fighter | 14  | 2              |          | R.550-II     |           | MICA IR |                   | Sacheon   |
| Rafale C                                           | FAF    | Multi   | 14  | 10             |          |              |           | MICA IR | MICA EM           | Gwangju   |
| Tornado IDS GAF                                    | GAF    | Attack  | 7   | 2              |          | AIM-9M       |           |         |                   | Sacheon   |
| Typhoon FGR.4                                      | RAF    | Multi   | 56  | 6-8            |          |              |           | AIM-132 | AIM-120-C, Meteor | Gwangju   |
|                                                    |        |         |     |                |          |              |           |         |                   |           |
|                                                    |        |         |     |                |          |              |           |         |                   |           |
|                                                    |        |         |     |                |          |              |           |         |                   |           |
|                                                    |        |         |     |                |          |              |           |         |                   |           |

| AIRCRAFT THREAT GUIDE - BLUEFOR (KTO-Mantis at Dawn) |        |         |     |                |          |              |           |        |             |               |
|------------------------------------------------------|--------|---------|-----|----------------|----------|--------------|-----------|--------|-------------|---------------|
| Aircraft                                             | Origin | Role    | MAR | AA Hard Points | SARH WVR | IR WVR       | SARH BVR  | IR BVR | ARH BVR     | AIR BASES     |
| AV-8B Harrier II+                                    | USMC   | Attack  | 17  | 4              |          | AIM-9M       |           |        | AIM-120B    | Wasp LHD-1    |
| A-4E                                                 | USAF   | Attack  | 7   | 4              |          | AIM-9J/ M/ P |           |        |             | Osan          |
| A-10A                                                | USAF   | Attack  | 7   | 2              |          | AIM-9P/ M    |           |        |             | Osan          |
| A-10C                                                | USAF   | Attack  | 7   | 2              |          | AIM-9P/ M    |           |        |             | Seosan        |
| F-4E ROKAF                                           | ROKAF  | Multi   | 13  | 4-8            |          | AIM-9P/ M    | AIM-7M    |        |             | Cheongju      |
| F-15C 65th AS                                        | USAF   | Fighter | 20  | 8              |          | AIM-9P/ M/ X | AIM-7M    |        | AIM-120B/ C | Iwami         |
| F-16C Bk 30 AGRS                                     | USAF   | Multi   | 17  | 6              |          | AIM-9P/ M/ X | AIM-7M    |        | AIM-120B/ C | Seosan        |
| F-16C Bk 32 AGRS                                     | USAF   | Multi   | 17  | 6              |          | AIM-9P/ M/ X | AIM-7M    |        | AIM-120B/ C | Seosan        |
| F/A-18A AGRS                                         | USN    | Multi   | 17  | 8-12           |          | AIM-9M/ X    | AIM-7F/ M |        | AIM-120B    | CVN-70 Vinson |
|                                                      |        |         |     |                |          |              |           |        |             |               |
|                                                      |        |         |     |                |          |              |           |        |             |               |
|                                                      |        |         |     |                |          |              |           |        |             |               |
|                                                      |        |         |     |                |          |              |           |        |             |               |

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

#### Objectives

Blueforce wins if:

Cheongju is controlled in less than 5 campaign days.

Redforce wins if:

Cheongju stays controlled within 5 campaign days.

#### BOMBERS AND SUPPORT AC

|          |                    |
|----------|--------------------|
| AC-130H  | Seosan             |
| AH-64A/D | Pyeongtaek         |
| B-1B     | Iwami              |
| B-2A     | Iwami              |
| C-130H   | Seosan             |
| C-160D   | Gunsan             |
| C-160R   | Sacheon            |
| EA-6B    | CVN-70 Vinson      |
| E-2C     | CVN-70 Vinson      |
| E-3      | Gwangju            |
| KC-10    | Iwami              |
| KDC-10   | Sacheon            |
| MH-60R   | CVN-70, Wasp LHD-1 |
| UH-60L   | Sacheon            |
| U-2      | Cheongju           |



## 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              |           |           |         | Dubrovnik, Kastela, Ladevci, *1       |
| J-22       | FRY    | Attack  | 7   |                | AA-2B       | AA-8              |           |           |         | Dubrave, Ladevci, Mostar, Ponikve, *2 |
| Mig-21bis  | FRY    | Multi   | 8   | 4              | AA-2B       | AA-2C, AA-8       |           |           |         | Pleso, Nikola, Tesla                  |
| Mig-21F-13 | FRY    | Fighter | 7   | 2              | AA-1        | AA-2C             |           |           |         | Dubrovnik                             |
| Mig-21MF   | FRY    | Multi   | 8   | 4              | AA-1, AA-2B | AA-2C, AA-8       |           |           |         | Dolac, Kastela, Ubdnia, Zeljava, *3   |
| Mig-29A    | FRY    | Fighter | 12  | 6              |             | AA-8, AA-11       | AA-10A    |           |         | Banja Luka, Batajnica, Dubrave, Kilsa |
| Su-25      | FRY    | Attack  | 7   | 2              |             | AA-8              |           |           |         | St. Paul                              |
| Su-33      | FRY    | Multi   | 15  | 10             |             | AA-11             | AA-10A/ C | AA-10B/ D | AA-12   | Kuznetsov                             |
| Su-39      | FRY    | Attack  | 15  | 6              | AA-2B       | AA-2C, AA-8, A-11 |           |           | AA-12   | Kuznetsov                             |

## AIRCRAFT THREAT GUIDE - BLUEFOR (Balkans Balance of Power)

| Aircraft         | Origin | Role    | MAR | AA Hard Points | SARH WVR | IR WVR          | SARH BVR         | IR BVR  | ARH BVR     | AIR BASES                                |
|------------------|--------|---------|-----|----------------|----------|-----------------|------------------|---------|-------------|------------------------------------------|
| A-10A            | USAF   | Attack  | 7   | 2              |          | AIM-9M          |                  |         |             | Brnik, Cerklje ob Kiri, Matera, Pula, *4 |
| AMX              | ITAF   | Attack  | 7   | 2              |          | AIM-9M          |                  |         |             | Istrana                                  |
| AV-8B Harrier II | USMC   | Attack  | 7   | 4              |          | AIM-9M          |                  |         |             | Rijeka, Varazdin, Wasp LHD-1             |
| CF-188A          | RCAF   | Multi   | 17  | 12             |          | AIM-9H/ J/ M/ P | AIM-7F/ M        |         | AIM-120B    | Padova                                   |
| EA-6B            | USN    | EW      | 0   | 0              |          |                 |                  |         |             | Casale, CVN-71, Secovlje, Tessera, *5    |
| F-14B            | USN    | Fighter | 40  | 8              |          | AIM-9M          | AIM-7M           |         | AIM-54A/ C  | CVN-71                                   |
| F-15C            | USAF   | Fighter | 20  | 8              |          | AIM-9M/ X       |                  |         | AIM-120B/ C | Bolzano, Cervia, Orehova, Padova         |
| F-15E-229        | USAF   | Multi   | 20  | 8              |          | AIM-9M/ P/ X    | AIM-7M           |         | AIM-120B/ C | Miramare, Rivolto, Tessera               |
| F-16AM RNLAf     | RNLAF  | Multi   | 17  | 6              |          | AIM-9P/ M/ X    |                  |         | AIM-120B    | Pula, Amendola                           |
| F-16CM Bk 40     | USAF   | Multi   | 17  | 6              |          | AIM-9M/ X       |                  |         | AIM-120B/ C | Aviano                                   |
| F-16CM Bk 50     | USAF   | Multi   | 17  | 6              |          | AIM-9M/ X       |                  |         | AIM-120B/ C | Brnik, Falconara, Gino Lisa, Palese      |
| F-18C            | USN    | Multi   | 17  | 8-12           |          | AIM-9M/ P/ X    | AIM-7F/ M        |         | AIM-120B/ C | CVN-71                                   |
| F-18D            | USN    | Multi   | 17  | 8-12           |          | AIM-9M/ P/ X    | AIM-7F/ M        |         | AIM-120B/ C | Slovenj, Tessera                         |
| F-104S           | ITAF   | Fighter | 13  | 6              |          | AIM-9M/ P       | AIM-7E-2, ASPIDE |         |             | Amendola, Cervia                         |
| F-117A           | USAF   | Attack  | 0   | 0              |          |                 |                  |         |             | Aviano                                   |
| G-4              | BIH    | Attack  | 7   | 2              |          | AA-8            |                  |         |             | Varazdin                                 |
| Jaguar Gr.3      | FAF    | Multi   | 7   | 2              |          | AIM-9M          |                  |         |             | Padova                                   |
| Mig-19PM         | FUAS   | Fighter | 7   | 4              | AA-2B    | AA-2C           |                  |         |             | Gjader, Kucova                           |
| Mig-21bis        | HRZ    | Multi   | 8   | 4-6            | AA-2B    | AA-2C, AA-8     |                  |         |             | Varazdin                                 |
| Mig-21MF         | FUAS   | Multi   | 8   | 4              | AA-2B    | AA-2C, AA-8     |                  |         |             | Gjader                                   |
| Mig-29A Neutral  | ML     | Fighter | 12  | 6              |          | AA-8, A-11      | AA-10A           |         |             | Satorhely                                |
| Mirage 2000C     | FAF    | Fighter | 17  | 4              |          | R.550-II        | R.530D           |         |             | Grosseto                                 |
| Mirage 2000D     | FAF    | Fighter | 14  | 2              |          | R.550-II        |                  | MICA IR |             | Frosinone                                |
| S-3B             | USN    | Attack  | 0   | 0              |          |                 |                  |         |             | CVN-71                                   |
| Tornado F3       | RAF    | Fighter | 17  | 8              |          | AIM-9M          | Skyflash         | AIM-132 | AIM-120B/ C | Gioia del Colle                          |
| Tornado IDS AMI  | ITAF   | Attack  | 7   | 2              |          | AIM-9M          |                  |         |             | Forlì, Gioia del Colle, Ronchi d. L.     |
| Tornado IDS GAF  | GAF    | Attack  | 7   | 2              |          | AIM-9M, IRIS-T  |                  |         |             | Vicenza                                  |
| U-2              | USAF   | Recon   | 0   | 0              |          |                 |                  |         |             | Signonella                               |

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

RNLAF: Royal Netherlands Air Force (Koninklijke Luchtmacht)

RNOAF: Royal Norwegian Air Force (Luftforsvaret)

USA: United States Army

USAF: United States Air Force

USN: United States Navy

USMC: United States Marine Corps

\*1: Mostar, Podgorica, Tivat, Ubdina, Varazdin, Zeljava, Zemunik

\*2: Varazdin

\*3: Zemunik

\*4: Secovlje

\*5: Urbe

## BOMBERS AND SUPPORT AC

|         |                                                                                                   |
|---------|---------------------------------------------------------------------------------------------------|
| AH-1S   | Casale, Grottaglie, Falconara, Rivolto, Tessera, Varazdin                                         |
| AH-64D  | Cerklje                                                                                           |
| AN-2    | Batajnica, Dubrave, Kilsa, Sarajevo, Sombor                                                       |
| AN-24   | Banja Luka, Batajnica, Dolac, Dubrave, Kilsa, Nikola Tesla, Ponikve, Sarajevo, Sombor, Szeged     |
| B-1B    | Amendola                                                                                          |
| B-2A    | Bolzano                                                                                           |
| B-52H   | Casale, Forlì                                                                                     |
| CH-47   | Aviano, Casale, Cerklje, Miramare, Ostariji, Palese, Ronchi d. L., Slovenj, Varazdin              |
| C-5     | Ampugnano, S. Francesco                                                                           |
| C-17    | Asagio, Borgo Panigale, Fiumicino, Gjirokaster, Guidonia, Peretola, Reggio Calabria, S. Francesco |
| C-130H  | Ciampino                                                                                          |
| E-2C    | CVN-71 Roosevelt                                                                                  |
| E-3     | Bolzano                                                                                           |
| E-8C    | Matarello                                                                                         |
| IL-28   | Tirana                                                                                            |
| KC-10   | Asiago                                                                                            |
| KC-135R | Asagio, Aviano, Capodichino, Galatina, Istrana, Pescara, Ravenna, Ronchi d. L., S. Angelo         |
| MI-8    | Kovin, Dubrovnik, Ladevci, Nagykanizsa, Podgor., S. Paul, ..                                      |
| MI-24   | Nagykanizsa, Varazdin Army Base                                                                   |
| OH-58D  | Amendola, Lagoriste, Rijeka, Varazdin                                                             |
| UH-1J   | Cerklje, Matera, Orehova, Pescara, Secovlje                                                       |
| UH-60L  | Brnik, Cerklje, Gioia d. C., Gino L., Logoriste, Ostarije, SanP.                                  |

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

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

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RNOAF: Royal Norwegian Air Force (Luftforsvaret)

USA: United States Army

USAF: United States Air Force

USN: United States Navy

USMC: United States Marine Corps

\*1: Lapraka, Matera, Palese

\*2: Ronchi dei Legionari

\*3: Pescara, S. Pancrazio

**BOMBERS AND SUPPORT AC**

|         |                                                                                           |
|---------|-------------------------------------------------------------------------------------------|
| AH-1S   | Grottaglie, Lushenje                                                                      |
| AH-64D  | Casale, Tirana                                                                            |
| AN-2    | Sjenica                                                                                   |
| AN-24   | Batajnica, Kovin, Nikola Tesla, Sombor, Szeged                                            |
| B-1B    | Birgi                                                                                     |
| B-2A    | Pantelleria                                                                               |
| B-52H   | Punta Raisi                                                                               |
| CH-47   | Cerrik, Gioia del Colle, Lapraka                                                          |
| C-5     | Ampugnano                                                                                 |
| C-17    | Cervia, S. Francesco, Vicenza                                                             |
| C-130H  | Ciampino                                                                                  |
| CH-47   | Cerrik, Gioia del Colle, Lapraka                                                          |
| E-2C    | CVN-71 Roosevelt                                                                          |
| E-3     | Bolzano                                                                                   |
| E-8C    | Matarello                                                                                 |
| IL-28   | Tirana                                                                                    |
| KC-10   | Asiago                                                                                    |
| KC-135R | Asiago, Capodichino, Guidonia                                                             |
| MI-8    | Cacac, Kastela, Kovin, Ladevci, Mostar, Pleso, Podgorica, Sjenica, S. Paul, Szeged, Uzice |
| MI-24   | Banja Luka, Nagykanizsa, Pleso                                                            |
| OH-58D  | Korce, Galatina                                                                           |
| UH-1D   | Palese                                                                                    |
| UH-J    | Banja Luka                                                                                |
| UH-60L  | Casale, Lushnje, Mifol, S. Pancrazio                                                      |

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

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

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

CAF: Croatia Air Force (Hrvatsko ratno zrakoplovstvo)

EPAF: European Participating Air Forces

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

FRY: Federal Republic of Yugoslavia

FUAS: Forcat Ushtarake Ajore Shqiptare (Albanian Air Force)

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

ITAF: Italian Air Force (AM: Aeronautica Militare)

ML: Magyar Legiero (Hungarian Air Force)

RAF: Royal Air Force (England)

RCAF: Royal Canadian Air Force

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

RNLAF: Royal Netherlands Air Force (Koninklijke Luchtmacht)

USA: United States Army

USAF: United States Air Force

USN: United States Navy

USMC: United States Marine Corps

\*1: Sombor, Tivat

\*2: Sjenica, Tivat

\*3: Gioia del Colle, Grottaglie, Miramare

\*4: San Pancrazio, Urbe

\*5: Latina, Orehova Vas

\*6: Gioia del Colle, Matera

\*7: Palese, Ronchi dei Legionari

**BOMBERS AND SUPPORT AC**

|         |                                                                                               |
|---------|-----------------------------------------------------------------------------------------------|
| AH-15   | Casale, Falconara, Grottaglie, Novo Mesto, Rivolto                                            |
| AH-64D  | Cerklje                                                                                       |
| AN-2    | Batajnica, Dolac, Kovin, Ladevci, Ponikve, S. Paul                                            |
| AN-24   | Batajnica, Dolac, Kovin, Ladevci, Ponikve, Sjenica, St. Paul, Sombor, Szeged                  |
| B-1B    | Birgi                                                                                         |
| B-2A    | Padova                                                                                        |
| B-52H   | Casale, Forli                                                                                 |
| C-5     | Ampugnano, S. Francesco                                                                       |
| C-17    | Asagio, Borgo Panigale, Fiumicino, Guidonia, Orehova Vas, Pantelleria, Peretola, S. Francesco |
| C-130H  | Ciampino                                                                                      |
| CH-47   | Casale, Cerklje, Gioia d. Colle, Gradec, Mirame, Palese, ...                                  |
| E-2C    | CVN-71                                                                                        |
| E-3     | Pantelleria                                                                                   |
| E-8C    | Mattarello                                                                                    |
| IL-28   | Tirana                                                                                        |
| KC-10   | Vicenza                                                                                       |
| KC-135R | Asagio, Aviano, Capodichino, Grottaglie, Pescara, S. Angelo, ...                              |
| Mi-8    | Kastela, Kovin, Ladevci, Mostar, Nagykanizsa, Pleso, Podgorica, ...                           |
| Mi-24   | Banja Luka, Nagykanizsa, Pleso                                                                |
| OH-58D  | Bloska, Casale, Matera, Rijeka                                                                |
| UH-1J   | Banja Luka, Cerklje O. K., Galatina, Matera, Orehova V., Pescara                              |
| UH-60L  | Cerklje A.B., Gino Lisa, Gioia del Colle, San Pancrazio, Zagreb                               |



[illegible]

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

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

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



[illegible]

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

| Air to Ground Missiles |                  |            |                    |                       |            |      |
|------------------------|------------------|------------|--------------------|-----------------------|------------|------|
| Name                   | Guidance         | Range (nm) | Warhead            | Purpose               | Origin     | IOC  |
| AGM-65A Maverick       | TV               | *10        | 126 lb WDU-20/B    | Armor                 | USA        | 1972 |
| AGM-65B Maverick       | TV Magnify       | *10        | 126 lb WDU-20/B    | Armor                 | USA        | 1975 |
| AGM-65D Maverick       | IIR              | *10        | 126 lb WDU-20/B    | Armor                 | USA        | 1983 |
| AGM-65E Maverick       | Laser            | *10        | 300 lb WDU-24/B    | Bunker, Ship, Bridge  | USMC       | 1985 |
| AGM-65G Maverick       | IIR              | *10        | 300 lb WDU-24/B    | Bunker, Ship, Bridge  | USA        | 1988 |
| AGM-84A Harpoon        | ARH              | 70         | 488                | Ship                  | USA        | 1979 |
| AGM-119 Penguin        | IR               | 70         | 250                | Ship                  | RNoAF, USN | 1972 |
| AGM-154A JSOW          | GPS/ INS         | 30         | 145 BLU-97 A/B CEM | Cluster Armor Med.    | USA        | 1999 |
| AGM-154C JSOW          | GPS/ INS/ IR     | 30         | Broach WDU-44/45   | Penetration, Facility | USA        | 2005 |
| AGM-158 JASSM          | GPS/ INS/ DL/ IR | 70         | 1k lbs WDU-42/B    | Facility, Armor       | USA        | 2009 |
| Rampage IAI            | GPS/INS          | 80         | 1,257              | General, Facility     | IAF        | 2019 |

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

| Bombs                |                |            |         |                                |      |  |
|----------------------|----------------|------------|---------|--------------------------------|------|--|
| Name                 | 10% PI/0.1% PI | Range (nm) | Warhead | Purpose                        | IOC  |  |
| BLU-107/B 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 |
| (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).

Blast fragmentation radius that can destroy your jet grows to a typical size of 3,700 feet over 7 seconds then fragments fall to ground for most bombs.

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

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

| Laser Guided Bomb Units |                 |            |                 |             |        |      |
|-------------------------|-----------------|------------|-----------------|-------------|--------|------|
| Name                    | 10% PI/ 0.1% PI | Range (nm) | Warhead         | Purpose     | Origin | IOC  |
| GBU-10I/B Paveway II    | 1,063/ 1,640    | 8          | BLU-109 2,000   | Penetration | USA    | 1970 |
| GBU-10C/B Paveway II    | 1,063/ 1,640    | 8          | MK-84 2,000     | General     | USA    | 1970 |
| GBU-10G/B Paveway II    | 1,063/ 1,640    | 8          | BLU-109/B 2,000 | Penetration | USA    | 1970 |
| GBU-12B/B Paveway II    | 820/ 1,394      | 8          | MK-82 500       | General     | USA    | 1970 |
| GBU-16 Paveway II       | 902/ 1,558      | 8          | MK-83 1,000     | General     | USA    | 1970 |
| GBU-22 Paveway III      | 820/ 1,394      | 8-10       | MK-82 500       | General     | USA    | 1996 |
| GBU-24/B Paveway III    | 1,063/ 1,640    | 8-10       | MK-84 2,000     | General     | USA    | 1983 |
| GBU-24A/B Paveway III   | 1,063/ 1,640    | 8-10       | BLU-109 2,000   | Penetration | USA    | 1983 |
| GBU-27/B Paveway III    | 1,063/ 1,640    | 8-10       | BLU-109/B 2,000 | Penetration | USA    | 1987 |

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

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

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

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

Blast fragmentation radius that can destroy your jet grows to a typical size of 3,700 feet over 7 seconds then fragments fall to ground for most bombs.

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

\* 36kft = 50nm

Pod 1: AN/AXQ-14

Pod 2: AN/ASW-55

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

Pod 4: APK-9



**AIRTAC AI Presets for Fighters**

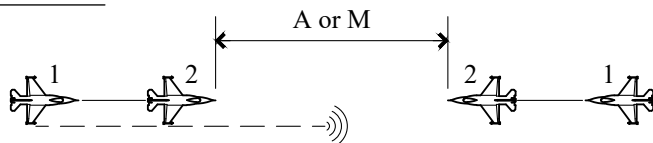
Flight1: 12, 22, 75, 85Y

Flight2: 13, 23, 76, 86Y

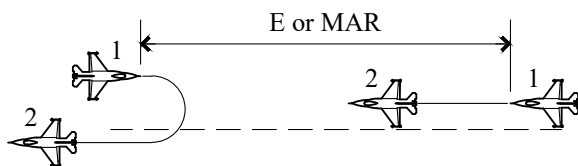
Flight3: 14, 24, 77, 87Y

Flight4: 15, 25, 78, 88Y

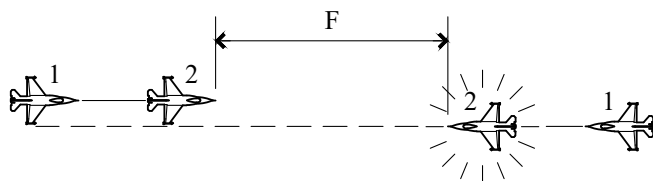
| Fuel Tanks | Target | Range |
|------------|--------|-------|
| No Tanks   | 150nm  | 300nm |
| Center     | 200nm  | 400nm |
| Wing Tanks | 250nm  | 500nm |

**Pole Cues**

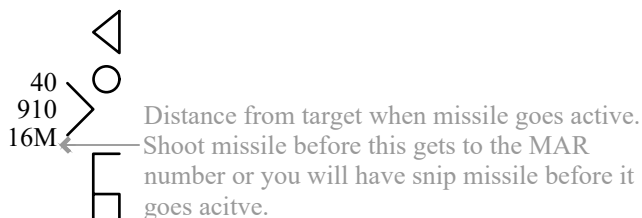
A/M Pole: Distance to target when missile goes active.



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



F Pole: Distance to target at missile impact.

**AN/APG-68 Radar WEZ**

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

M5 TOF for missile currently in air

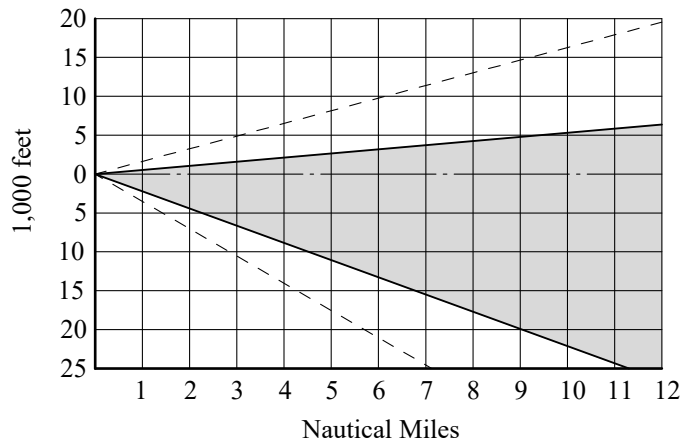
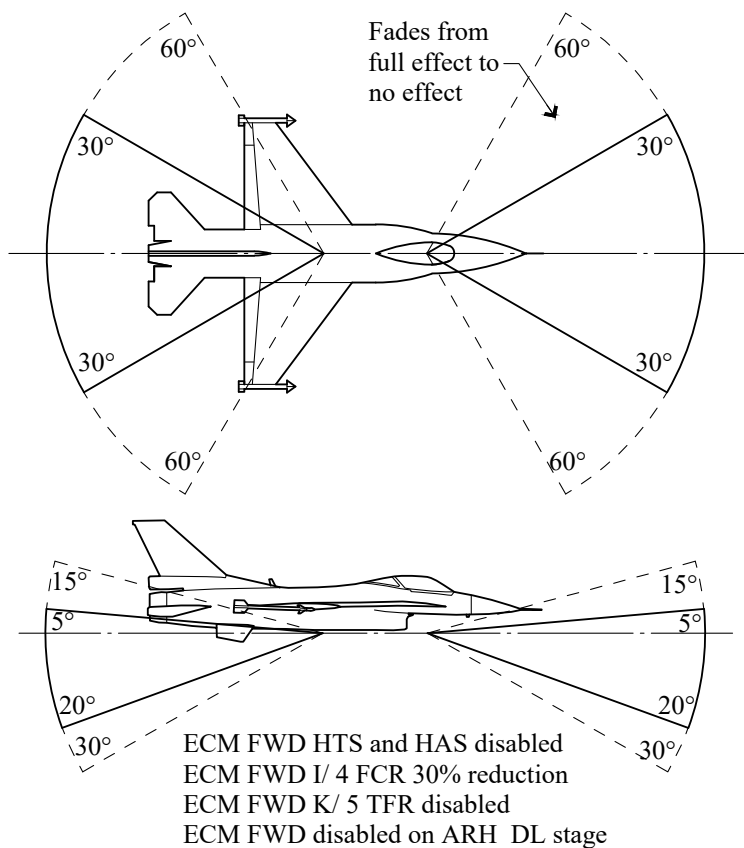
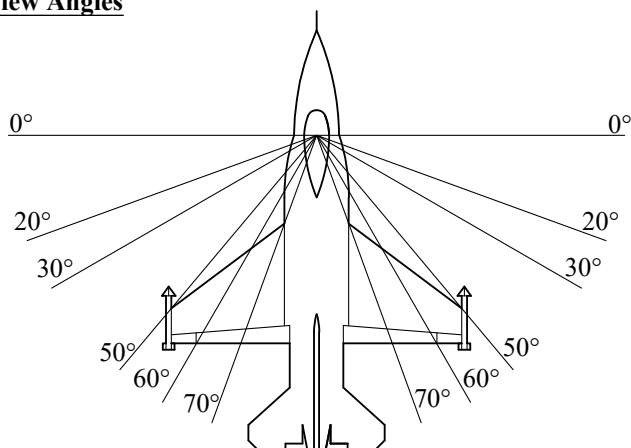
AR 

TA21

F029.9 Distance to target, abort before MAR

100042

014&gt;03

**ECM Coverage****View Angles**

RWR Coverage  $\hat{\mathbf{F}}_{\text{Tr}}^s$



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

 Highest priority when in diamond float mode.

 Aircraft

 ARH Missile

**SAMs, AAA, SHORADs**

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

**Aircraft**

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



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

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

**SAMs**

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

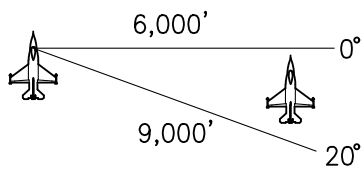
**AAA, SHORADs**

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

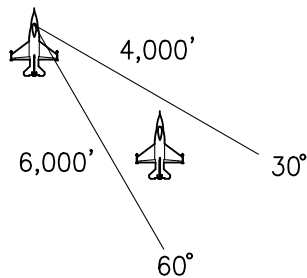
**Aircraft**

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

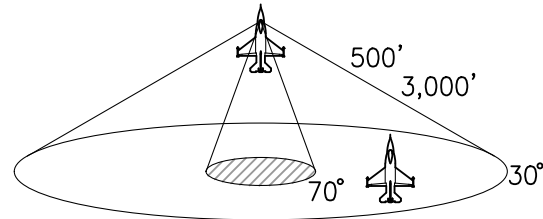
Line Abreast



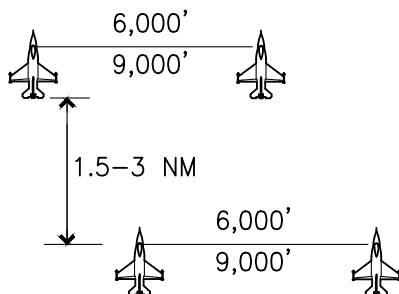
Wedge



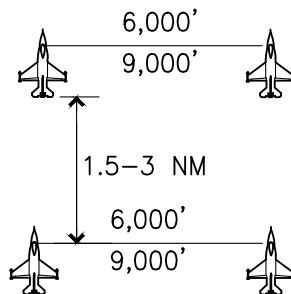
Fighting Wing



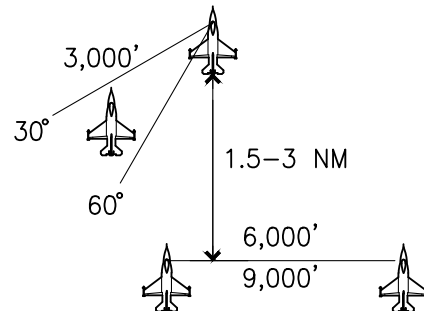
Four Ship Offset Box



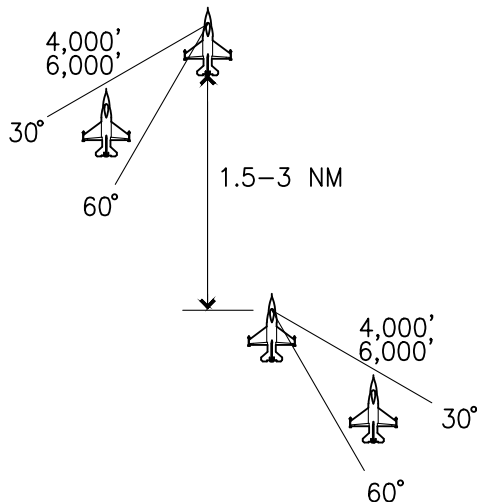
Four Ship Box



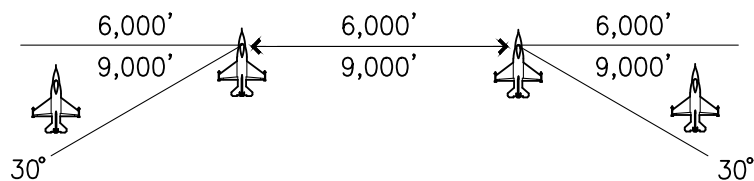
Arrowhead



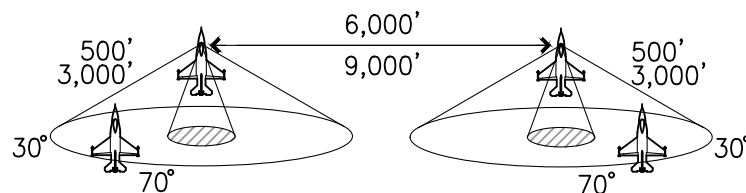
Wedge



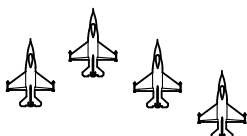
Spread Four



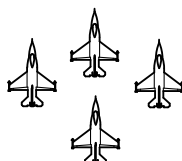
Fluid Four



Fingertip



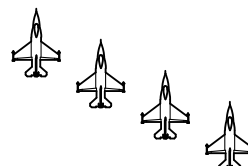
Diamond



Trail



Echelon Right



Spread

