TACTICAL AERIAL COMBAT IN THE 1970's

[1.0] INTRODUCTION

Foxbat and Phantom is a simulation of modern jet combat. The aircraft types available in the game are representative of those aircraft used in the 1970's. *Foxbat and Phantom* is basically a two-Player game, but can be modified to accomodate more than two Players (as many Players as there are aircraft in any particular scenario). Each Player manipulates his aircraft, simulated by die-cut counters, on a grid of numbered hexagons which represents air space. By reference to each particular aircraft's "Aircraft Control Chart," the Players perform certain functions to simulate flight and combat.

Foxbat and Phantom has several scenarios (various possible situations during which aerial combat could take place), one of which is selected to be used each time a game is played. One of the two "Missions" (Radar Intercept or Point Defense) is selected for play in combination with the historically possible scenario. In a Mission, one Player is the "Intruder," the other the "Interceptor." During a Mission, the Interceptor's planes defend airspace against intruding planes. Although specific situations are given, Players may feel free as to the number and type of planes used in "home brewed" scenarios, in order to compare results of "What If?" situations.

[1.1] A CAVEAT

Foxbat and Phantom is a mechanically simple game in actual play. Learning the play, however, is the hard part. Once learned, it's all up to the tactical ability of the Players. In order to make the mechanics simple, long examples of use of Aircraft Control Charts (for Flight) and counters (for Movement on the playing surface) have been put into the rules. It is recommended that Players work with these examples, using the referred-to Aircraft Control Charts and Markers, and that he read through *all* the rules (don't get stuck on one particular thing). Where references are made to other sections ("see...."), ignore these references your *first* time through the rules.

[1.2] GAME SCALE

Each Game-Turn represents 30 seconds of real time. Each hex represents 1000 meters (1093.6 yards) from one hexside to the opposite hexside. Each level of altitude represents 1000 meters. Each level of speed equals 145 kilometers per hour (90 mph).

[1.3] GAME EQUIPMENT INVENTORY

A Complete game of *Foxbat and Phantom* should include:

1 Mapsheet (playing surface)
1 set of die-cut counters
1 Rules folder
1 die
3 23" x 29" sheets containing four perforated sections each, carrying the Aircraft Control Charts for the following planes.

USA:
2 A-7E (*Corsair II*)
1 F-15 (*Eagle*)
1 F-111E
2 F-14A (*Tomcat*)
1 F-4E (*Phantom*)
2 F-5E (*Tiger*)
2 F-104G/S (*Starfighter*)
U.K.:
2 Lightning
FRANCE:
1 Mirage F
2 Mirage III
USSR:
1 Mig-23 (*Foxbat*)
1 Mig-21MF (*Fishbed*)
1 SU-7MF (*Fitter*)
1 SU-11 (*Flagon A*)

[2.0] GAME EQUIPMENT

[2.1] THE GAME MAP

The playing surface represents "air space" over land/water. Although it is not technically a "map," it will be referred to (for the benefit of veteran game players and rules writers) as a mapsheet. The mapsheet is 22" x 34" with a numbered hexagonal grid superimposed upon it to regulate positioning and movement of the Playing pieces. Numbers in the hexagons run from left to right (West to East) in rows, and top to bottom (North to South) in columns.

Imprinted upon the mapsheet is a row of numbered spaces: this is the *Turn Record Chart,* used in conjuction with the Game Turn Marker to keep track of how many turns the game has progressed.

[2.2] THE PLAYING PIECES

The playing pieces are eight sets of differently colored die-cut counters. Each set contains counters upon which are printed plane silhouettes and a number. Each 24 piece set of *Aircraft Altitude* counters represents a single plane and their numbers represent the current altitude level of that plane (when on the mapsheet) from level 1 to level 24. Each set also contains a Current Speed Marker, a Climb Progress Marker, an Acceleration Marker, a Trial Marker, a Missile Remaining Marker (one for Radar-Homing Missiles, one for Heat-Seeking Missiles), and a Missile Marker. Additional counters represent "Bombers" and a Game-Turn marker to indicate the number of Game-Turns that have been played.

[2.3] AIRCRAFT CONTROL CHARTS

Each *Type* of aircraft has its own Aircraft Control Chart. The Aircraft Control Chart is, in effect, the plane's "instrument panel." Up to four of the same type of aircraft may use the same Aircraft Control Chart throughout the game. The Aircraft Control Chart is used to keep track of the "flight status" of each particular plane on the mapsheet.

[2.31] *Level Flight Track* — the second of four tracks of the Aircraft Control Chart, is a row of numbered spaces. The Current Speed Marker is placed in one of the spaces on this track to indicate the speed at which the aircraft is moving (Horizontal speed and movement are the same: speed is reflected by the number of hexagons the aircraft may move through and/or turn within on the mapsheet). Also indicated on the Level Flight Track is the speed which an aircraft type needs in order to go into a "horizonal dive" (the spaces with "DIVE" imprinted above the number compose the *Horizonal Dive Speed Range* of the Level Flight Track).

[2.32] *Vertical Dive Flight Track* — runs parallel to and directly below the Level Flight Track. This row of spaces, each of which contains two numbers, is used when the owning Player decides to have his aircraft go into a "vertical dive." The bottom number in each space indicates the drop in whole altitude levels (to be subtracted from the current altitude level indicated on the aircraft counter) effected when an aircraft executes a vertical dive. The top number in each space (the Dive Vector) indicates the distance (see Movement Allowance, 5.2) in hexes at which the particular aircraft travels while executing a vertical dive. When an owning Player has one of his aircraft execute a vertical dive, he places the Current Speed Marker onto the space on the Vertical Dive Flight Track directly below the position (space) the Current Speed Marker has just been in on the Level Flight Track.

[2.33] *Climb Flight Track* — the top track of numbered spaces on the Aircraft Control Chart, is used when the owning Player wishes his aircraft to gain altitude. The bottom number in each space on his Climb Flight Track indicates the number of altitude *steps* (not levels) the aircraft may climb (as indicated by advancing the Climb Progress Marker on the Altitude Gauge). The top number in each space (the Climb Vector) indicates the horizontal distance (Movement Allowance) which the aircraft travels while climbing.

[2.34] *Turn-Mode Track* — the fourth, bottommost row of numbered spaces on the Aircraft Control Chart is used to indicate the number of hexes the aircraft type must move through in a straight line before it may turn one hexside (while moving at the speed indicated by one of three tracks directly above) in any type of flight: level, climbing, or diving. Each turn of one hexside (60°) expends one Movement Point (see Movement: Turning 5.3).

[2.35] *Altitude Gauge* — a circular track of numbered spaces on the Aircraft Control Chart. Each plane type must spend a certain length of time climbing in *steps* in order to increase altitude by one full *level* (the number indicated on the aircraft counters). When a plane is climbing, it is allocated a certain number of progress steps to climb upwards, dependent upon the speed at which it is moving. Each space on the Altitude Gauge represents one single progress step. The number of spaces through which the Climb Progress Marker may advance on the Altitude Gauge is determined by the bottom number on the Climb Flight Track.

[2.36] *Acceleration Gauge* — the circular track of number spaces upon which the Acceleration Marker is advanced. Each full circle of ten spaces represents an increase of one Movement Point (as indicated by the number on the Level Flight Track).

[2.37] *Acceleration Allowance* — a number on the Aircraft Chart which indicates the maximum number of steps (on the Accleration Gauge) the aircraft type may accelerate during a single Game-Turn. During each Flight-Decision Phase of the current Player-Turn, the owning Player decides whether (and by how much) the aircraft will accelerate *during his next Player-Turn.* For each time the Acceleration Marker has completed a full circle on the Acceleration Gauge (i.e., has come back to or passed the space marked "zero") the Current Speed Marker is advanced during the next Flight-Decision Phase, by one space on whichever track it had been in (Level Flight, Climb, or Vertical Dive).

[2.38] *Weapons Systems Available/Missiles Remaining Track* — The first box on this track indicates the kind of weaponry systems and ammunition the particular aircraft type can use: cannon, radar-homing missiles, and/or heat-seeking missiles. Cannon ammunition is assumed to be unlimited within the time span of the game. The Missile Remaining Track is used to indicate what kind of and how many missiles have been fired. The abbreviations used in the Weapons Systems box are as follows: "R.H." (Radar-Homing Missile); "RPA" (Range Point Allowance, see 7.3); "H.S." (Heat-Seeking Missiles).

[2.39] *Electronic Counter Measure Scale* — This scale indicates the ECM value (the effectiveness of electronic counter measures) of the particular aircraft when it defends against radar-homing missiles. The effectiveness of ECM varies, depending in great part upon who is piloting the firing aircraft and upon the particular situation (scenario).

[3.0] PREPARATION FOR PLAY

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Before beginning the game, Players should decide which of the particular scenarios they wish to play (and which sides) and choose the aircraft as allowed by the scenario. They should also decide whether to use the Radar-Intercept Mission or the Point Defense Mission. The counters should be sorted and then placed on the Aircraft Control Charts and mapsheet as instructed by the particular mission's set-up instructions. The Acceleration and Climb Progress Markers should be placed on the space numbered zero on their respective gauges. The appropriate Missile Remaining Marker(s) should be placed on the highest numbered space on the Missile Remaining Track (If any Inexperienced Pilots are involved in the scenario being played, the owning Player should state which of the counters represent(s) the inexperienced pilot).

Each differently colored twenty-four counter set of Aircraft/Altitude markers should be arranged (in order) off to the right of the Aircraft Control Chart (or to the left if you are left-handed). The single counter from each differently colored set which corresponds to the starting altitude given in the mission instructions should be placed on the map.

NOTE: In order to make the cardstock map lie flat, fold it back along the machine folds. Small pieces of masking tape at the four corners will also aid this.

Also, when separating the perforated Aircraft Control Charts, use extreme care in order not to tear them. It's a good practice to fold them back and forth several times along the perforation and then lay a ruler along the edge as you tear them.

[3.1] GENERAL COURSE OF PLAY

Foxbat and Phantom is composed of *scenarios* and *missions,* variations employing different types of aircraft and different objectives (see Scenarios 14.0, and Missions 11.0 and 12.0). One Player acts as the "Intruder," the other as the "Interceptor." By maneuvering their aircraft either in climbs or dives, and by moving through airspace, Players attempt to avoid being downed (hit) by Enemy aircraft fire, while at the same time, try to inflict hits upon Enemy aircraft. Points are scored for each downed Enemy target aircraft or (in some missions) for getting Friendly planes off the mapsheet.

[3.2] SEQUENCE OF PLAY

Foxbat and Phantom is played in *Game-Turns.* Each Game-Turn is composed of two *Player-Turns* during which the particular Player(s) of one side decides on a method of flight; moves; and if possible, engages in combat with the Enemy. Each Player-Turn is composed of three *Phases:* the *Flight Decision Phase,* the *Movement Phase,* and the *Combat Phase.* The Player whose Player-Turn it is, is referred to as the *Phasing* or *Friendly Player.* The Player whose Player-Turn is not in progress is referred to as the *Non-Phasing* or *Enemy Player.* Any game action taken out of sequence is a violation of the rules.

[3.21] SEQUENCE OUTLINE OF A GAME-TURN

INTRUDER PLAYER-TURN
(The Intruder Player-Turn always comes first.)

A. FLIGHT DECISION PHASE —

1. *Deceleration:* If the Current Speed marker of a given aircraft is in the Horizontal Dive Speed Range of the Climb or Level Flight Track, and

the aircraft did *not* dive in the preceding Intruder Player-Turn, then the aircraft must *gravitationally decelerate,* i.e., move the Current Speed marker to the left one space (see 6.7).

If the Current Speed marker of a given aircraft is in the Climb Track and its Acceleration marker is face-up, then it *may* decelerate using the "fade-back" technique (see 6.6).

If the Acceleration Progress marker of a given aircraft is *face-down,* the aircraft may *not* decelerate this Player-Turn.

2. *Acceleration Effectuation:* If the Acceleration Progress marker of a given aircraft is face down, (indicating a commitment in the preceding Player-Turn to accelerate in this Player-Turn) then the Current Speed marker of the aircraft must be moved to the right, on the Flight Track, the number of spaces equal to the number of times the Acceleration Progress marker entered or passed through the Zero position on the Acceleration Gauge during the Acceleration Commitment segment of the previous Intruder Player-Turn. Turn the Acceleration Progress marker face-up.

3. *Climb:* If the Player wishes to climb (gain altitude) with a given aircraft, he now places its Current Speed marker into the box on the Climb Track that is located directly over its former position on the Level Flight Track or Vertical Dive Track (or if the marker was already in the Climb Track, he simply leaves it in place). He also now moves the aircraft's Climb Progress marker the indicated number of Climb Progress steps as shown by the bottom number in the Climb Track. For every time the Climb Progress marker enters or passes the Zero position on the Climb Progress Gauge, the aircraft gains one whole altitude level (exchange the aircraft marker in play for one showing the proper new altitude).

4. *Dive:* If the aircraft did *not* climb this Player-Turn, then the Player may execute either a Horizontal Dive or a Vertical Dive.

Horizontal Dive: If the aircraft is to execute a horizontal dive, its Current Speed marker should be placed (or be allowed to remain) in the Level Flight Track and the "nose" of the aircraft picture on it should be pointed downwards (this acts as a reminder in the following Player-Turn that a horizontal dive was executed this Player-Turn). If the Current Speed marker is in the Horizontal Dive Speed Range, the aircraft may dive from zero to four levels. If the marker is not in this Speed Range, the dive may only be a one-level dive. Exchange the old aircraft altitude playing piece for one reflecting the new altitude of the aircraft.

Vertical Dive: If the aircraft is to execute a Vertical Dive, its Current Speed marker should be placed in the box on the Vertical Dive Track that is located directly below its former position on the Level Flight or Climb Track (or if the marker was already on the Vertical Dive Track, it is simply left in place). The Player now exchanges the aircraft/altitude piece in play for one which reflects the appropriate drop in altitude levels as indicated by the bottom number in the Vertical Dive Track. Hold on to the old counter until the end of the Combat Phase as a reminder of how many levels the aircraft dived.

5. *Level Flight:* If the aircraft will not climb or vertically dive this Phase, its Current Speed marker is left in place on the Level Flight Track (or is moved to the Level Flight Track from the corresponding position on either the Climb or Vertical Dive Track).

6. *Acceleration Commitment:* The Player now decides if he will accelerate any aircraft (to take effect in his next Player-Turn). If the aircraft's Current Speed marker is now in the Vertical Dive track, this forces the Player to commit that plane to an acceleration of five times its normal Acceleration Allowance. If a given aircraft executed a Horizontal Dive of two or more altitude levels, this also commits it to a mandatory next-Player-Turn acceleration (see 6.2). If the aircraft's Current Speed marker is in the Climb or Level Flight Track, it may voluntarily commit itself to acceleration (to take effect next Player-Turn). In all of the foregoing cases, the Acceleration Progress marker is moved (face down) on the Acceleration Gauge and the Player notes how many times the marker passes or enters the Zero position. Note, that if the aircraft's Current Speed marker is in the Horizontal Dive Speed Range and the aircraft did *not* dive in this Player-Turn, then it may *not* be committed to a next-Player-Turn acceleration (in fact, next Player-Turn it will be forced to gravitationally decelerate).

At this point, all of the decisions which will affect the Intruder's aircraft in this and the following Player-Turn will have been made. All the Speed, Acceleration, and Climb Progress markers should be left as they now are until the next Intruder Player-Turn. Note that none of the pieces on the map have changed their position on the hex grid (only the altitude readings may have been changed).

B. *MOVEMENT PHASE –*

Each Intruder aircraft must now be moved (individually and completely) to the full extent of its Movement Allowance. Dependent upon which track its Current Speed marker is now in, an aircraft's Movement Allowance will either be its Climb or Dive Vector or its Level Flight Speed. Players should use the Trial markers provided to test out their movement before actually touching the aircraft/altitude counter.

C. *COMBAT PHASE –*

After all Intruder aircraft have been moved, the Intruder Player may choose to engage in combat against Enemy aircraft assuming various pre-combat conditions have been fulfilled. Each of the three Intruder aircraft may fire only once per Combat Phase using only one of the weapons systems they have available to them. Each must fire at different targets. Combat is resolved in any order that the Intruder desires, however, "Downed" Enemy aircraft are all removed at the same time, i.e., at the end of this Phase. As the Intruder fires, he must state which Intruder aircraft is firing what weapon system at which Enemy aircraft.

INTERCEPTOR PLAYER-TURN

(The Interceptor Player-Turn always comes last in the Game-Turn).

The Interceptor Player now follows the same sequence as the Intruder (reading "Interceptor" wherever "Intruder" appears in the preceding part of the outline).

D. *INTERCEPTOR FLIGHT DECISION PHASE*

E. *INTERCEPTOR MOVEMENT PHASE*

F. *INTERCEPTOR COMBAT PHASE*

G. *GAME-TURN RECORD:* The Players advance the Game-Turn marker one space on the Turn Record Track, and repeat the "A" to "G" sequence again and again until one Player fulfills his Victory Conditions or until the game is ended by mutual agreement.

[4.0] FLIGHT

GENERAL RULE:

In *Foxbat and Phantom* there are three general kinds of flight: *Level flight, climbing flight,* or *vertical diving flight* (level flight is further categorized by level flight *without* a horizontal dive, or level flight *with* horizontal dive). The type of flight is determined by a change in altitude status: no change in altitude status (in progress steps or full levels) occurs during level-flight-with-no-horizontal-dive; a decrease in altitude occurs during either level-flight-with-a-horizontal-dive, or during vertical dive; an *increase* in altitude occurs during climbing. The kind of flight a particular aircraft is in is represented by the placement of the Current Speed Marker on any of the spaces on the flight tracks: Level Flight Track, Climb Track; or Vertical Dive Track. A change in the kind of flight is represented by moving the Current Speed Marker into another flight track.

[4.1] LEVEL FLIGHT

The Level Flight Track indicates that horizontal flight is taking place: hence there is only one number in each space on this track (this number indicates movement in hexes on the mapsheet, i.e., Movement Allowance in Movement Points).

[4.11] *Maximum Speed* is the number to the farthest right on the Level Flight Track. An aircraft may never (in any kind of flight) exceed its Maximum Speed. *Level Maximum* is the fastest an aircraft may move without having made a dive in the previous Game-Turn.

[4.12] *Minimum Speed* for all aircraft types in Level Flight is always 2. An aircraft may never move below its Minimum Speed.

[4.13] *Speed,* as indicated by the numbers in the spaces on the Level Flight Track, is increased during level flight only by acceleration (see Aircraft Control Charts, 2.36-2.37 and Movement 5.3 and 5.4).

[4.14] An Aircraft may decelerate (decrease speed) while in the Level Flight Track only by Gravitational Deceleration (see Deceleration, 6.7), and this can only occur in the Horizontal Dive Speed Range.

[4.15] *While not in the Horizontal Dive Speed Range* but *in the Level Flight Track, an aircraft may lose one level of altitude at the option of the owning Player* (This is done at the beginning of the Flight Decision Phase by replacing the aircraft counter with one of the number lower). There is no effect on speed (Movement Allowance) when this option is taken.

[4.16] In order to leave level flight, the aircraft's owning Player simply takes the Current Speed Marker from the space on the Level Flight Track and places it in the space either directly above (in order to climb) or directly below (in order to vertically dive).

[4.2] LEVEL FLIGHT WITH HORIZONTAL DIVE

Indicated along the upper ranges of the Level Flight Track are spaces containing the word "DIVE." These spaces indicate the *Horizontal Dive Speed Range.* When an aircraft's Current Speed Marker enters a space on the Level Flight Track within the Horizontal Dive Speed Range, that aircraft may lose any number of altitude levels (from zero to four) from its present altitude level as indicated by changing the aircraft counter's number. The owning (Phasing) Player determines the number of altitude levels dropped by the aircraft (when it is in the Horizontal Dive Speed Range) during the Flight Decision Phase of a particular Player-Turn.

[4.21] In order to reflect that a horizontal dive has taken place, the corresponding aircraft counter should be immediately replaced with a counter of from one to four numbers lower. The Current Speed Marker should be pointed nose down as a reminder. The Acceleration Marker should be advanced face-down on the Acceleration Gauge according to the Horizontal Dive Acceleration Table (see Acceleration, 6.2). [*Example: if at the start of the Movement Phase, the aircraft counter's altitude number is 18, and the Current Speed Marker is in any of the spaces on the Level Flight track in the horizontal dive speed range, and the owning Player desires a drop in altitude for that aircraft equal to three levels, then the aircraft counter is immediately exchanged for another aircraft counter whose number is 15.*]

[4.22] An aircraft which does not execute a horizontal dive while in level flight at a speed within the Horizontal Dive Speed Range automatically loses one Movement Point of its Movement Allowance. [This is called *gravitational deceleration* (see 6.7). The new, decelerated speed (loss of one Movement Point) goes into effect at the start of the *next* Friendly Flight Decision Phase. The current speed within the horizontal speed range is in effect during the Player-Turn this gravitational deceleration commitment takes place.]

[4.23] There is no Movement Penalty (loss of Movement Points) for executing a horizontal dive of from one to four altitude levels.

[4.24] An aircraft may never execute a horizontal dive which would leave it below altitude level one (1).

[4.25] All dives are in terms of whole altitude levels (i.e., the Climb Progress marker is not affected).

[4.3] VERTICAL DIVE

In order to execute a vertical dive, the Current Speed Marker corresponding to the aircraft counter must remain or be placed in the Vertical Dive Track in the space directly below the previous position of the Current Speed Marker on either the Level Flight or Climb Track during the Phasing Player's Flight Decision Phase. The bottom number on the spaces on the Vertical Dive Track indicates the number of altitude levels lost (to be subtracted from the number on the aircraft counter). The top number in the spaces on the Vertical Dive Track (the Dive Vector) represents the new horizontal movement of the aircraft across the mapsheet (in Movement Points).

[4.31] An aircraft may never execute a vertical dive which would leave the aircraft below level one altitude.

[4.32] An aircraft which executes a vertical dive automatically commits itself to an increase of speed equal to five times its Acceleration Allowance (see Accleration, 6.3).

[4.4] CLIMBING

In order to increase altitude, an aircraft may climb. Altitude increases are measured in *steps* (on the Altitude Gauge) as well as levels (the number on the aircraft counter). Climbing always incurs a loss of available Movement Points (horizontal movement on the Mapsheet).

In order to execute a climb, the Current Speed Marker corresponding to the aircraft counter must be placed (or remain) in the Climb Track directly above the previous position of the Current Speed Marker on either the Level Flight Track or the Vertical Dive Track, during the Phasing Player's Flight Decision Phase. The Phasing Player must then advance the Climb Progress Marker through the number of spaces on the Altitude Gauge equal to the

bottom number in the Climb Track space containing the Current Speed Marker. During the Movement Phase of that Player-Turn, the aircraft counter moves through (and/or turns within) the number of hexes on the mapsheet equal to the top number in the space on the Climb Track (the Climb Vector) now containing the Current Speed Marker.

[4.41] Each time the Altitude Marker arrives at or passes zero on the Altitude Gauge, the corresponding aircraft counter is immediately exchanged for one with one number higher.

EXAMPLE: REFER TO MIG-23 AIRCRAFT CONTROL CHART

A Mig-23 is moving at a Level Flight speed of 11. The owning Player decides [during the Flight Decision Phase] that this Aircraft will climb during the Movement Phase. At the beginning of the Movement Phase, the Player places the Current Speed Marker [which had been in the space numbered "11" on the Level Flight Track during the previous Player-Turn] on the space directly above in the Climb Track. The top number in this space is 5. This top number indicates that the aircraft's new Movement Allowance [Climb Vector] is 5, and so the corresponding aircraft counter must be moved straight through exactly 5 hexes. [It may not turn since its Turn Mode is 6 — exception: see 5.32. Don't worry about that now, though.] The bottom number in this space is 13. This bottom number indicates that the Mig-23 must climb 13 progress steps. The Climb Progress Marker is advanced around the Altitude Gauge 1.3 times. Each time the Climb Progress Marker comes to "zero" on the Altitude Gauge, the corresponding aircraft counter is exchanged for another counter with a number one altitude level higher. If, for example, the Mig-23's aircraft counter's number [altitude] were "10" at the beginning of the Flight Decision Phase, and if the Climb Progress Marker had been on the space numbered "1" on the Altitude Gauge, then [after the aircraft went into its climb and the Climb Progress Marker had been advanced around the Altitude Gauge 13 spaces] the aircraft counter would be replaced by one numbered 11. The Climb Progress Marker would rest on the space numbered "4" on the Altitude Gauge. After all these adjustments were made on the Aircraft Control Chart's tracks and Altitude Gauge, the Movement Phase would begin. The Mig-23 aircraft counter would move through 5 hexes on the mapsheet.

[4.42] No aircraft may ever climb above its maximum altitude as indicated on the Aircraft Control Chart (note:maximum altitude = ceiling).

[4.43] It should be emphasized that climbing is always performed in terms of Climb Progress steps as indicated on the Climb Track and recorded on the Climb Progress Gauge. The only way that the Climb Progress marker can be moved is if the Current Speed marker is placed into the Climb Track (and then it may only be moved the specific number of steps indicated by the Climb Track). The Climb Progress marker can never be moved *backwards* on the gauge.

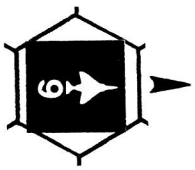
[4.44] It should also be emphasized that the relative position of the Climb Progress marker on the Climb Progress Gauge does not modify the current Altitude level that the aircraft is at. If the Climb Progress marker of Aircraft "B" is set at Step 2, and the Climb Progress marker of Aircraft "C" is set at Step 9, and yet both aircraft have their number 15 aircraft/altitude playing pieces on the map, then both aircraft are considered to be at exactly the same altitude level for all purposes.

[5.0] MOVEMENT

GENERAL RULE:

Movement consists of a particular aircraft using up all of its Movement Points of its current speed (termed "Movement Allowance") by traveling horizontally. This is indicated by the aircraft moving from one adjacent hex to another, or changing direction by turning one hexside. The speed number *is* the Movement Allowance of the aircraft; this Allowance is composed of Movement Points (Movement Allowance of ten = ten Movement Points). Basically, entering a hex or turning one hexside expends one Movement Point.

NOTE: *Although when climbing, diving, or in level flight, an aircraft is, in reality "moving," in these rules the word* movement *always pertains to* horizontal *movement by an aircraft counter from one hex to another on the mapsheet or to an aircraft counter changing its direction while remaining in a single hex* (turning).



[5.1] FACING

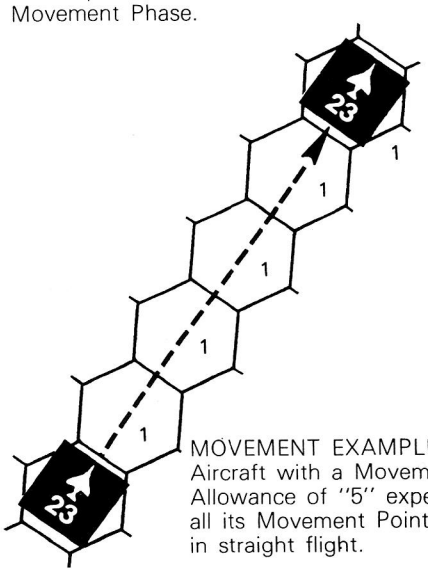
Each aircraft counter should be placed on the mapsheet so that the silhouette's "nose" *faces* in the direction in which the plane is to move. The aircraft counter may only move ahead, i.e., into the hex which the nose of the silhouette faces.

[5.2] MOVEMENT ALLOWANCE (SPEED)

Each aircraft begins the game at the speed indicated by the particular mission to be played. This speed is the aircraft's beginning *Movement Allowance.* Movement Allowance is the summation of *Movement Points* which MUST be expended during the Phasing Player's Movement Phase. The Movement Allowance may be changed by acceleration (effected during the next Game-Turn, although the decision to accelerate is made during the current Flight Decision Phase) or by deceleration (an immediate reduction of horizontal speed due to previous climbing, or a decision to lower speed through gravitational deceleration, see 6.6 and 6.7).

[5.21] One Movement Point is expended by a particular aircraft for each hex which the aircraft enters during the Movement Phase.

[5.22] An aircraft must expend exactly its Movement Allowance (not just a portion of it, nor may it be exceeded) during the aircraft's Movement Phase.



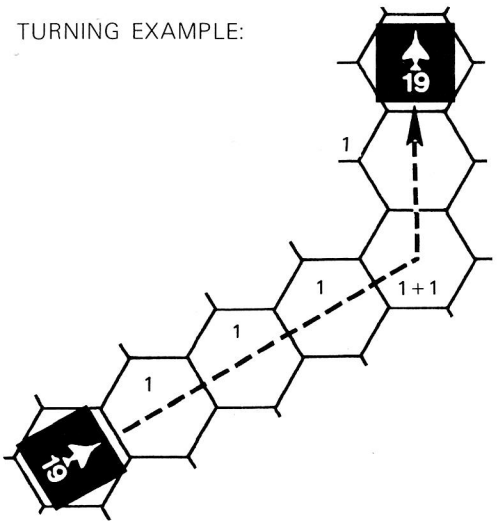
MOVEMENT EXAMPLE: Aircraft with a Movement Allowance of "5" expending all its Movement Points in straight flight.

[5.3] TURNING

Each aircraft type's ability to turn differs. At different speeds, turning ability is affected. In order to account for the effect of speed on the ability to turn from one hexside to another, adjacent hexside, *Foxbat and Phantom* employs a *Turn Mode Track.* The Turn Mode Track's spaces are numbered and the numbers indicate the minimum number of hexes through which a particular aircraft type must move in a straight line (on the mapsheet) before the aircraft may change direction, i.e., turn.

If the Current Speed Marker is in any track (Climb, Level Flight, or Vertical Dive) above a particular number on the Turn Mode Track, the aircraft counter must, in order to turn, move in a straight-line through the number of hexes equal to the number in the corresponding space on the Turn-Mode Track, exclusive of the hex from which it begins moving.

TURNING EXAMPLE:



The Mig-23 in the above illustration is moving horizontally at a speed of 7 (Current Speed Marker is on space numbered 7 on the Level Flight Track). Its corresponding Turn Mode, therefore, is 4. It must move through at least four hexes in a straight direction, and then may, if the owning Player so chooses, turn one hexside. Before it may turn one more *hexside, it must again move* straight *through a minimum of 4 hexes. In the above illustration, all 7 Movement Points have been expended.*

[5.31] For each hexside turned, one Movement Point of the Movement Allowance is expended.

[5.32] An aircraft of any type may always begin its movement during a single Movement Phase by turning (in place) one hexside. It may not turn again until it has moved through the number of hexes equal to its turn mode. This optional beginning turn expends one Movement Point of the Movement Allowance.

[5.33] Straight movement may not be carried over from one Movement Phase to another Movement Phase for the purposes of turning.

[5.34] An aircraft may turn while climbing, diving or while in level flight as long as its horizontal movement (Movement Allowance) is sufficient to allow for turning.

[5.35] Turning is always voluntary (exception: see 8.42).

[5.4] MOVEMENT PROHIBITIONS

[5.41] A single hex may be occupied by two aircraft (no more) at the same altitude levels at the same time only under the following conditions:

(a) When the occupation is during the course of one of the aircraft's movement (the aircraft may never *end* its movement in the same hex as another Friendly or Enemy aircraft while at the same altitude level, except as noted in "b").

(b) During the cannon combat between two opposing aircraft (see Pre-Combat, Cannon 7.13).

[5.42] A single hex may *never* be occupied by more than two aircraft (either Friendly or opposing) which are at the same altitude level (except as noted in 5.41b).

[5.43] Aircraft may voluntarily leave the mapsheet at any time during the game. This may be done to fulfill certain Victory Conditions or merely to avoid being shot down. Aircraft which so exit may not return.

[6.0] ACCELERATION

GENERAL RULE:

Acceleration is an increase in speed in terms of Movement Points. During Level Flight or Climbing, acceleration is *voluntary;* during vertical diving or horizontal diving of two or more levels, acceleration is *mandatory.* Acceleration is effected (i.e., the increase in Movement Points takes place) during the *next* Movement Phase, although the decision or commitment to accelerate is made during the current Flight Decision Phase.

The Acceleration Gauge (and Marker) is used to keep track of acceleration in *Acceleration Progress steps.* The Current Speed Marker indicates speed after acceleration has taken place (i.e., been effected). The *Acceleration Allowance* of each aircraft type is indicated by the Aircraft Control Chart. This number is the normal maximum number of *progress steps* of acceleration usable during level flight to increase speed. It is also used to calculate the increase in speed effected during either a horizontal dive (of one or more levels) or a vertical dive.

[6.1] ACCELERATION — LEVEL FLIGHT

Acceleration during level flight may be up to and including the maximum Acceleration Allowance for a particular aircraft type. The decision to accelerate (or not to accelerate) is made during the Friendly Player's Flight Decision Phase. The implementation of this decision — i.e., the increase in speed — occurs during the Movement Phase of the *next* Friendly Player-Turn.

When the Phasing Player decides that a particular Friendly aircraft will increase its speed during his next Player-Turn, the Phasing Player advances the Acceleration Marker through as many spaces up to and including the number equal to the Acceleration Allowance. The Acceleration Marker should be left on the space to which it has been advanced — face down.

At the beginning of the Friendly Player's *next* Flight Decision Phase, the Friendly Player should turn the Acceleration Marker face-up and advance the Current Speed Marker for the corresponding aircraft on whichever flight

track is to be used during this Friendly Player-Turn. (The Current Speed Marker is advanced by one space on the flight track for each time the Acceleration Marker has arrived at or passed "zero" on the Acceleration Gauge in the previous Player-Turn.)

[6.11] An aircraft may never accelerate beyond its maximum speed (the farthest right number on the Level Flight Track).

[6.12] Acceleration during level flight (without a horizontal dive) is always voluntary (exception: 8.43).

[6.13] If an aircraft, not in the Horizontal Dive Speed Range, but in the Level Flight Track, dives the optional one level, acceleration may be any number of steps from zero, up to and including *twice* the Acceleration Allowance (to be effected in the next Friendly Player-Turn).

[6.14] ACCELERATION AT SUBSONIC SPEEDS

Whenever an aircraft's Current Speed marker is in the Level Flight Track at any speed from "2" through "8" (or in any other track which corresponds to this portion of the Level Flight Track) it is said to by flying at a *subsonic* speed. Aircraft at subsonic speeds can be accelerated to *any* higher subsonic speed simply by having their Acceleration marker reach the zero position once. In all other respects the normal acceleration routine applies (i.e., the acceleration takes effect in the following Player-Turn).

For example, if the aircraft's Acceleration marker reached the zero position once in the previous Player-Turn, and the Current Speed marker is set at "4," it could be moved to the "8" position this Player-Turn. If the Acceleration marker had reached the zero position *twice* in the previous Player-Turn, the aircraft could be accelerated to the "9" position (*supersonic* speed) and from there upward the Acceleration marker must have entered or passed the zero position once for each individual Movement Point of speed increase.

[6.2] ACCELERATION — LEVEL FLIGHT IN HORIZONTAL DIVE SPEED RANGE

An aircraft may execute a horizontal dive of from one to four levels of altitude when it is in the Horizontal Dive Speed Range. Acceleration for each level dived varies according to the following table:

Number of Levels dived in Horizontal Dive Speed:	Multiply Acceleration Allowance by:
0	0 or 1 (*see 6.7*)
1	0, 1, or 2
2	1,2, or 3
3	2, 3, or 4
4	3, 4, or 5

The owning Player immediately decides what amount of acceleration will be effected in the *next* Friendly Player-Turn within the limitations of the above table. As long as he moves his Acceleration marker through the *minimum* number of steps called for by the table, the Player may move the marker through any multiple (or fractional multiple) of his Acceleration Allowance not in excess of the maximum.

EXAMPLE: An aircraft with an Acceleration Allowance of "5" executes a Horizontal Dive of one level. The Player decides to use a multiple of 0.4 and accordingly moves his Acceleration marker (face down) two steps on the Acceleration Gauge.

EXAMPLE: An aircraft with an Acceleration Allowance of "5" executes a Horizontal Dive of three levels. The Player decides to accelerate the minimum amount possible under these circumstances and accordingly moves his marker 10 steps on the gauge.

[6.21] Execution of a horizontal dive is optional and completely at the discretion of the Phasing Player (exception, see 6.72 and 6.73).

[6.22] If the Phasing Player decides *not* to execute a horizontal (or vertical) dive for a particular aircraft which is in the Horizontal Dive Speed Range of the Level Flight Track, acceleration may not take place in his next Player-Turn (see 6.7).

[6.23] Acceleration and Deceleration may not *occur* at the same time.

[6.3] ACCELERATION — VERTICAL DIVE

Acceleration during a vertical dive is *mandatory*. Acceleration during a vertical dive is always (and for all aircraft) *five times* the Acceleration Allowance. The change in speed is effected during the *next* Friendly Player-Turn.

[6.31] An aircraft may not accelerate beyond its maximum speed. [If, as a result of a vertical dive acceleration, the aircraft reaches a point where it may not continue to dive vertically (as indicated by the discontinuation of the Vertical Dive Track), the Current Speed Marker must be placed on the *Level* Flight Track at the new, accelerated speed.]

[6.4] ACCELERATION — CLIMBING

An aircraft may continue to accelerate while climbing, as long as it does *not* decelerate at the same time (in other words, the aircraft's Acceleration Marker may be advanced — face-down — on the Acceleration Gauge only if the climbing aircraft does not "fade-back" or gravitationally decelerate in the next Friendly Player-Turn (see: Deceleration, 6.6 and 6.7). Acceleration while climbing may be from one acceleration step up to and including the full Acceleration Allowance.

[6.5] DECELERATION

Deceleration is a reduction in speed (a decrease in Movement Allowance). Deceleration may occur in one of two ways:

(a) FADE-BACK DECELERATION — If the Current Speed marker begins the Player-Turn in the Climb Track, the Player may reduce his speed (effective immediately) by "fading back" (see 6.6).

(b) GRAVITATIONAL DECELERATION - If the Current Speed marker is in the Level Flight or Climb Track and is within the Horizontal Dive Speed Range and the aircraft did not lose at least one altitude level in the preceding Player-Turn, the aircraft *must* reduce its speed by one Movement Point (effective immediately). If the aircraft was climbing it may alternatively "fade-back" at least one Movement Point (see 6.7).

[6.6] FADE-BACK

If the Current Speed marker of a given aircraft is in the Climb Track at the very beginning of a Friendly Player-Turn, then the Player has the option during the Flight Decision Phase of that Player-Turn to "fade-back" the speed of that plane (decelerate). The lower limit of this deceleration is determined by the topmost number (Climb Vector) in the box of the Climb Track in which the marker begins the Player-Turn. The Current Speed marker may be placed on the Level Flight Track at any Level Speed setting equal to or higher than the Climb Vector value (but it may not be placed at a Level Speed setting higher than the original Level Speed corresponding to its position on the Climb Track). Remember, acceleration and deceleration may not actually take place during the same Player-Turn, so if a commitment to

accelerate was made during the previous Player-Turn then the aircraft may not "fade-back."

[6.61] FADE-BACK EXAMPLE

At the beginning of its Player-Turn a Mig-23's Current Speed marker is located in the box in its climb track which reads as follows:

Climb Vector: 8

Climb Progress: 21

The Level Speed directly corresponding to this box is 18, therefore, if the Player decides to "fade-back," he may set the Current Speed marker of that plane on the Level Flight Track at any speed from 8 to 18 (inclusive).

[6.62] In the Player-Turn in which the "fade-back" is executed the Player may further decide to re-enter the Climb Track (at his new reduced speed) or remain on the Level Flight Track or execute a dive. He may also commit that aircraft to acceleration (to take effect during the *next* Player-Turn).

[6.63] Deceleration by "fade-back" is always voluntary.

[6.7] GRAVITATIONAL DECELERATION

If, at the very beginning of the Player-Turn, the Current Speed marker is in the Level Flight Track or the Climb Track and is within the Horizontal Dive Speed Range (and the aircraft did not lose at least one altitude level in the preceding Player-Turn) then the aircraft must reduce its Speed by one Movement Point (effective immediately). This mandatory reduction of speed is called "gravitational deceleration."

[6.71] If the Current Speed marker is in the Climb Track, speed may alternatively be reduced at least one Movement Point by use of the "fade-back" technique.

[6.72] If, in the preceding Player-Turn, the Player committed his aircraft to a speed increase which brings the Current Speed marker into the Horizontal Dive Speed Range in the present Player-Turn, then he must also have dived at least one level in the preceding Player-Turn.

[6.73] If, in the preceding Player-Turn, the aircraft's current Speed marker was already in the Horizontal Dive Speed Range and the Player also committed the aircraft to a speed increase effective in the present Player-Turn, then the aircraft must have dived at least one level in the preceding Player-Turn.

[6.74] AVOIDING UNWANTED GRAVITATIONAL DECELERATION WITHOUT ACCELERATING

In order to maintain a constant speed while in the Horizontal Dive Speed Range, the Player should execute a one level dive every Player-Turn and use the "zero" multiple of his Acceleration Allowance, i.e., not move his Acceleration marker at all.

Note that it is impossible to climb and still maintain constant speed while in the Horizontal Dive Speed Range.

[6.75] ACCELERATION REMINDER: It should be emphasized that acceleration is always in terms of Acceleration Steps as recorded on the Acceleration Gauge. Each time the marker enters or passes through the zero position on the gauge this translates into an increase of one Movement Point of speed on the Level Flight Track (or the advance of one space on either the Climb or Vertical Dive Track).

[7.0] PRE-COMBAT CONDITIONS

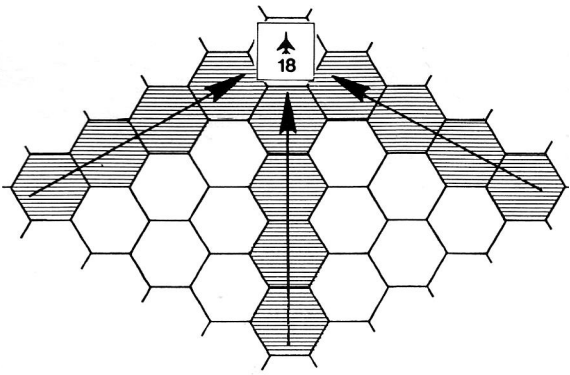
GENERAL RULE:

In order to engage in combat, both the Enemy target aircraft and the Friendly firing aircraft must be in accord with pre-combat conditions: the target aircraft must be *sighted* by the Friendly aircraft; the firing aircraft must have sufficient ammunition to fire; the aircraft involved must be within *range* of each other dependent on the type of ammunition used in the particular combat; the *facing* of both aircraft must meet the limitations for fire of particular ammunition.

[7.1] PRE-COMBAT: CANNON

[7.11] An aircraft which has cannon is assumed to have an unlimited supply of cannon ammunition to fire.

[7.12] In order to fire cannon at an Enemy target aircraft the firing aircraft must have spent the last third of its total Movement Allowance (during that Player-Turn's Movement Phase) in a straight line in the *rear fan* area of the target plane.



In order to fire cannon, the firing aircraft must have spent the last one-third of its Movement Allowance in any one of the shaded straight rows (lines) of hexes.

The entire hex area depicted is the "rear fan area."

[7.13] In order to fire cannon at the Enemy target aircraft, the firing aircraft must end its Movement (and use up all its Movement Allowance) either directly on the same hex as the target aircraft (*range = 0*), or directly adjacent to (and in a hex in the rear fan area of) the target aircraft (*range = 1*).

[7.14] In order to fire cannon, the firing aircraft must face the hex containing the target plane (at a range of one hex) or must face any of the three front hexsides of the target plane (at a range of zero hexes) having entered the hex from one of the three rear fan hexes.

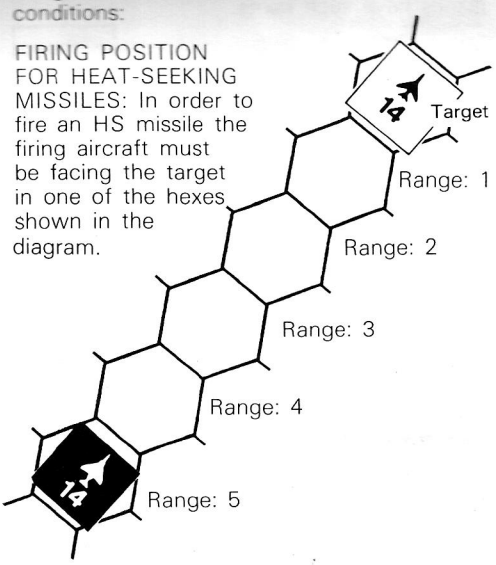
[7.15] When the firing aircraft is diving or climbing to reach the same altitude level as the target, use its Climb or Dive Vector for sighting calculation purposes (i.e., it must have spent the last third of its Vector Movement Allowance moving in a straight line in the rear fan of the target plane).

[7.16] In order to fire cannon, both the firing aircraft and the target aircraft *must* be on the same altitude level during the Combat Phase.

[7.2] PRE-COMBAT: HEAT-SEEKING MISSILES

[7.21] In order to fire a heat-seeking missile at a target aircraft, the firing aircraft must have at least one heat-seeking missile remaining (as indicated on the Missiles Remaining Track). No plane may fire more than one missile per Combat Phase. If a plane uses its cannon it may not also fire a missile in that Combat Phase.

[7.22] In order to fire a heat-seeking missile the firing aircraft must fulfill the following conditions:



(a) The firing aircraft must begin and end its Movement Phase at the same Altitude level as the target aircraft.

(b) The firing aircraft must have expended at least the last third of its Movement Allowance in straight level flight towards the target in the row of hexes directly to the rear of the target.

(c) The firing aircraft must finish its Movement within five hexes (maximum) of the target. It may be closer to the target, but may not be in the same hex as the target.

(d) There may be no other aircraft (Enemy or Friendly) directly between the firing aircraft and the target, at the same altitude.

[7.3] RADAR-HOMING MISSILES

GENERAL RULE:

Radar-homing missiles have flight and movement capabilities of their own. Each aircraft type's radar-homing missile's abilities differ. The abilities of a particular aircraft type's radar-homing missiles is represented by the radar-homing missile's *Range Point Allowance* (RPA), as indicated on the Aircraft Control Chart. The Range Point Allowance is the maximum number of *Range Points* (RP) a radar-homing missile may expend (after being fired) during flight and movement.

[7.31] A radar-homing missile may never exceed its Range Point Allowance. (Radar-homing missiles' Range Point Allowances vary from 10 to 18 dependent on the aircraft type from which the radar-homing missile is fired).

[7.32] A radar-homing missile expends one Range Point for each hex it enters on the mapsheet.

[7.33] A radar-homing missile expends one additional Range Point for every hexside to which it turns after being fired. It always must enter the hex immediately in front of the firing aircraft before turning.

[7.34] A radar-homing missile may turn no more than *twice* after being fired.

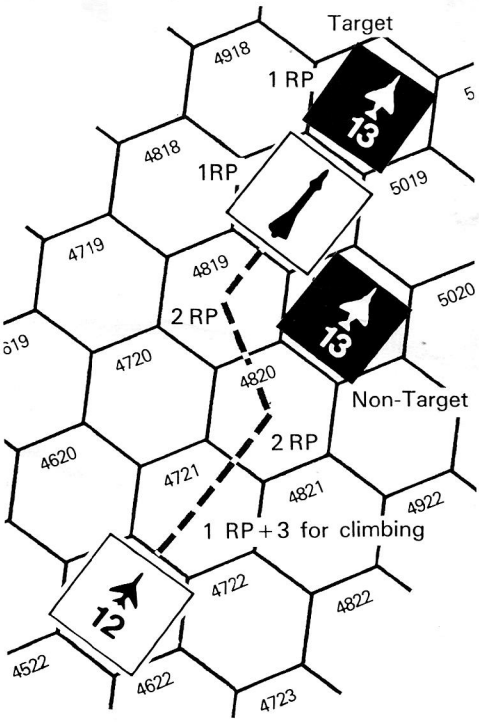
[7.35] A radar-homing missile must enter a hex before it may turn one hexside (i.e., radar-homing missiles all have a Turn Mode equal to one).

[7.36] Radar-homing missiles expend three Range Points for each level of altitude climbed.

[7.37] Radar-homing missiles expend one Range Point for each level of Altitude dived.

[7.38] The *minimum* number of Range Points any radar-homing missile may expend is five Range Points of the Range-Point Allowance.

[7.39] Radar-homing missiles may not fly *through* a hex containing an aircraft (Enemy or Friendly) which is at the same altitude).



In the above example, the firing aircraft is a Mig-23. (Its radar-homing missiles' Range Point Allowance is therefore equal to 10 Range Points). The Mig-23 ends its Movement Phase at hex 4621, altitude = 12. The Mig-23 fires at the target aircraft on hex 5018, altitude = 13. The radar-homing missile enters 4721 and expends one Range Point for entering that hex. It expends one more RP by entering 4820, and another RP as it turns one hexside within 4820. Two more RPs are expended in 4819; one RP in 4919; and one RP is 5018. Because the radar-homing missile has had to climb one altitude level from the firing aircraft (at 12) to the target aircraft (at 13), it thereby expended three more RPs. In the above illustration, the Mig-23's radar-homing missile has expended its total Range Point Allowance (it could have expended any number of Range Points from a minimum of 5 up to its total Range Point Allowance). The missile has also turned twice, the maximum number of times it may turn.

[7.4] PRE-COMBAT: RADAR-HOMING MISSILES

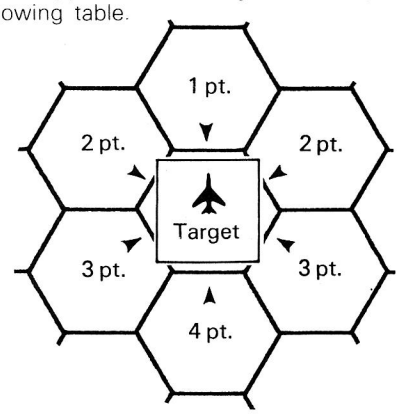
The effectiveness of a radar-homing missile varies depending on the distance (horizontal and vertical) between the firing aircraft and the target, the Turn-Mode of the target aircraft, the angle at which the missile strikes the target aircraft, and the efficiency of *electronic counter measures* (ECM) of the target aircraft. Each of these variables is assigned *Hit Points*, the total of which is added for the purposes of computing combat results.

[7.41] In order to fire a radar-homing missile at a target aircraft, the firing aircraft must have at least one radar-homing missile remaining (as indicated on the Missile Remaining Track). No more than one missile per plane may be fired in a given Combat Phase.

[7.42] Hit Points gained for electronic counter measures (ECM) depend on the scenario being played (see Aircraft Control Charts and 14.0). Note that the higher the ECM rating of the target, the more vulnerable it is.

Players should use the ECM indicator on the ECM Scale of the Aircraft Chart to record the ECM rating of the type of aircraft that they are flying in a given scenario. Note that the ECM value does not change while the game is in progress.

[7.43] The number of Hit Points gained varies with the angle at which the radar-homing missile approaches the target according to the following table.



Approach to target— facing target at:	Hit Points gained:
Direct rear hex	4
Rear fan hex	3
Direct Front hex	1
Front fan hex	2

[7.44] In order to fire a radar-homing missile, the firing aircraft must be a *minimum* of five hexes distant from the target aircraft (it may be further away).

[7.45] During the Movement Phase of the Player-Turn in which a radar-homing missile is fired, the firing aircraft must have spent a minimum of the last one-half of its Movement Allowance moving in a straight line of hexes; i.e., it may not turn during the last half of the preceding Friendly Movement Phase if it is to fire a radar-homing missile. Note that the firing aircraft does not necessarily have to be pointed directly at the target aircraft when fulfilling this condition.

[7.46] The *only* situation during which Combat may occur between aircraft on two different altitude levels is when the ammunition used is a radar-homing missile (see 7.36, 7.37 and 7.48).

[7.47] The Turn-Mode of the target aircraft (during the target aircraft's preceding Movement Phase) is added to the cumulative total of hit points for the purposes of computing resolution of radar-homing missile combat.

[7.48] The distance between the target aircraft and the firing aircraft, in hexes and levels of altitude, count toward the cumulative total of hit points as follows:

Range plus Altitude Differential	Hit Points Added
5	0
6 to 10	1
11 to 15	2
16 or more	3

So, for example, if the firing aircraft were seven hexes distant from the target and four altitude levels higher, then two Hit Points would be added to the total.

[8.0] COMBAT

GENERAL RULE:

Combat occurs during the Combat Phases of either Player-Turn only after pre-combat conditions have been met (dependent upon the particular ammunition fired). Combat consists of one or more of the Phasing Player's aircraft meeting the pre-combat conditions in regard to one or more of the target aircraft, and afterwards firing and computing results of particular combats.

PROCEDURE:

After the pre-combat conditions for the particular type of ammunition to be fired have been met, one of the Phasing Player's aircraft fires upon one of the Enemy target aircraft. The Phasing Player's aircraft fire individually, the Phasing Player designating verbally which of his aircraft is firing at which of the Enemy aircraft, and also designating which kind of ammunition is being fired.

Firing consists of rolling a die (for both cannon and heat-seeking missiles) or of manipulating a radar-homing missile marker from the firing aircraft to the target aircraft, and then rolling the die. After firing, the result of combat is computed by reference to a Combat Results Table for the particular type of ammunition. Target aircraft which are hit are removed from the mapsheet.

[8.01] A single Friendly aircraft may fire only once per Friendly Combat Phase.

[8.02] A single Enemy target aircraft may be fired upon only once per Friendly Combat Phase. This is true even if more than one Friendly aircraft has fulfilled pre-combat conditions on the same target. This is because more than one cannon run or missile firing bearing upon the same aircraft target would seriously interfere with each other (in reality).

[8.1] COMBAT: CANNON

After the pre-combat conditions have been met, the Players refer to the *Cannon Combat Results Table.* The Phasing (firing) Player rolls a die. The result of this die roll is cross-referenced to the range between the target aircraft and the firing aircraft. If the result indicated by the cross-reference is *hit,* the target plane is considered to be destroyed and is removed permanently from the mapsheet (immediately).

[8.11] CANNON COMBAT RESULTS TABLE

Die Roll	RANGE (in hexes distant) 1	0
1	hit	hit
2	—	hit
3	—	hit
4	—	hit
5	—	—
6	—	—

[8.12] The range in hexes between the firing aircraft and the target aircraft must be either "0" or "1" in order for cannon to be fired.

[8.2] COMBAT: HEAT-SEEKING MISSILES

After the pre-combat conditions have been met, the Phasing Player determines the Turn-Mode of the target aircraft (by reference to the target aircraft's Aircraft Control Chart) which had been in effect during the target aircraft's previous Movement Phase. This Target-Turn-Mode is cross-referenced against the range in hexes between the firing aircraft and the target aircraft when the Movement Phase of this Friendly Player-Turn ended and the combat occurs (this range must be within 1 to 5 hexes). The Phasing Player determines the product of this cross-reference on the Heat-Seeking Missile Combat Results Table.

[8.21] HEAT-SEEKING MISSILE COMBAT RESULTS TABLE (See Aircraft Charts)

The spaces in the Heat-Seeking Missile's Combat Results Table are numbered. The numbers indicate the die-roll needed to down the target plane with a heat-seeking missile. A "Hit" result indicates that the target is automatically downed as a result of this combat and the die need not be rolled).

For example, if the firing aircraft were four hexes distant from a target aircraft with a Turn Mode of "6," then a die roll of "3" would result in the destruction of the target.

[8.3] COMBAT: RADAR-HOMING MISSILES

After the pre-combat conditions have been met, the Phasing Player's aircraft (which must be a *minimum* of 5 hexes or levels distant, or a combination of levels and hexes equalling 5) fires the radar-homing missile as represented by tracing the path of the missile's movement on the mapsheet (see 7.3). If the missile has not exceeded its Range Point Allowance (RPA) (the number next to "RH" on the firing aircraft's Aircraft Control Chart), the Phasing Player then adds the total number of Hit Points according to the following schedule:

Consideration	Number of Hit Points added
ECM of target	0 to 9
Angle of approach to target (see 7.43)	1, 2, 3 or 4
Turn Mode of Target Aircraft	1 to 18
Range between Target and Attacker (see 7.48)	1, 2 or 3

The Phasing Player now rolls a die and cross-references the total number of Hit Points against the die-roll result on the Radar-Homing Missile Combat Results Table (dashes indicate that target is not hit).

[8.31] RADAR-HOMING MISSILE COMBAT RESULTS TABLE (See Aircraft Charts)

[8.4] POST COMBAT CONDITIONS: Radar-Homing/Heat-Seeking Missiles.

[8.41] If the target aircraft is hit by a missile, it is immediately removed from play (considered to be shot down).

[8.42] If the target is not shot down, the target aircraft must make an in-place turn of one hexside as its first act of movement in its immediately ensuing Movement Phase.

[8.43] If the target aircraft is not shot down, the owning-Player is mandatorily committed to a full acceleration decision in the Flight Decision Phase of his immediately ensuing Player-Turn. Just as with all acceleration decisions, the actual speed increase takes effect in the following Player-Turn. If the target is already at its Maximum Speed, it is relieved from this requirement.

[9.0] AIRCRAFT AND BACKGROUND DATA

NOTE: The following background data is something of an introduction to the scenarios. The weight and dimension data given after the aircraft name is the plane's maximum takeoff weight (in tons) and its maximum wingspan (in feet). Although many of these aircraft have been operational for over ten years, they have been constantly "upgraded" through modification and the introduction of new components. Some of these aircraft are "third generation" jet fighters. As you can see from each Aircraft Control Chart, some planes are far superior to others. The superiority of some aircraft over others is even greater, in many cases, than is shown in the charts. This is best described through a discussion of the "generations" of jet fighter aircraft.

FIRST GENERATION: These appeared towards the end of World War II and into the mid-1950's. These were basically WW II type "fighters" which used jet propulsion. This gave them more speed, but not much else.

SECOND GENERATION: Beginning in the late 1950's there appeared supersonic jet fighters. These aircraft were further divided into two "schools" of design philosophy. The Russians went for a light weight, fast and maneuverable aircraft. A true "air superiority" fighter. The best example of this is the MIG-21. The United States took another approach. The "multi-purpose" fighter. Not just a good fighter-"Bomber" but a type of aircraft that came to rely more and more on electronic flying and fighting aids. This type of aircraft was, potentially, much more efficient. But it was also much more expensive and required more highly trained pilots. In addition, the increased efficiency as a bomber detracted from the aircraft's ability as a fighter. The first example of this type was the F-104 while the F-4 (Phantom) was the ultimate example of the second generation aircraft. Similar to the F-4 are the British Lightning and the French Mirage series (although French aircraft have a bit of the MIG-21 in them). The American F-5, on the other hand, is a "copy" of the MIG-21 (in theory, but not in practice).

THIRD GENERATION: Even the Russians saw that the American approach was the "wave of the future." Their third generation planes show this. The third generation aircraft can be described as half engine, half electronics with little room (or use, really) for a human operator. Second generation aircraft had already surpassed the ability of the human body to keep up with what the aircraft were capable of. Flesh and blood could not withstand the potential gyrations of aircraft which literally flew "faster than a speeding bullet" (up to 3,000 feet a second and more). Third generation aircraft (such as the MIG 23, Su 11, F-14, F-15 and F-111) were capable of still more speed. But their most outstanding characteristic was the extent of their electronic flying and fighting aids. In some cases these aircraft could not only fly by themselves, but fight as well. It is expected that "fourth generation" aircraft will fly and fight without onboard human pilots. Experiments have already been conducted along these lines and the pilotless aircraft have shown themselves to be clearly superior to piloted aircraft. It's only a matter of time before the "black boxes" replace the pilots they once served.

AIRCRAFT DATA:

UNITED STATES

A7E (*Corsair II*) — 21 tons, 38.7' — Operational since late 1960's. Primarily a bomber but with some fighter capability. Used by USA.

F-104G/S (*Starfighter*) — 15 tons, 21.9' — Early ("G") models operational since late 1950's. Model "S" since late 1960's. Used as both fighter and bomber. Used by most NATO countries as well as Japan.

F-5A/E (*Tiger*) — 11 tons, 26.5' — "B" model operation since late 1960's, "E" model since early 1970's. Employed both as a fighter and bomber. Used by many less-industrialized allies of USA. The F-5 is both cheap (for tight budgets) and easy to operate (for nations lacking a large pool of trained manpower).

F-4E (*Phantom*) — 27 tons, 38.4' — Early models operational since early 1960's. Aircraft constantly upgraded. Employed as both fighter and bomber. Used by USA, Britain, West Germany, Japan and Israel.

F-111E — 45 tons, 63' — Operational since late 1960's. Primarily a bomber but capable of handling fighters. Used by USA.

F-14A (Tomcat) — 28 tons, 64.1' — Operational in mid-1970's. To be employed as both fighter and bomber. Used by USA.

F-15 (Eagle) — 28 tons, 42.8' — Operational in mid-1970's. To be employed primarily as a fighter. Used by USA.

UNITED KINGDOM

Lightning — 25 tons, 34.8' — Operational since early 1960's. Employed both as a fighter and a bomber. Used by Britain, Saudi Arabia and Kuwait.

FRANCE

Mirage III — 14 tons, 27' — Operational since early 1960's. Employed as both fighter and bomber. Used by Belgium, Iraq, Lebanon, France, South Africa, Israel, Pakistan, Peru, Columbia and Libya.

Mirage F — 16 tons, 27.5' — Operational by early 1970's. Employed as fighter and bomber. Used by France and South Africa.

USSR

SU-7MF (Fitter) — 15 tons, 31.2' — Early models operational since late 1950's. Employed primarily as a bomber with limited ability as a fighter. Used by most USSR allies.

SU-11A (Flagon-A) — 26 tons, 31.2' — Operational since late 1960's. Employed almost exclusively as an interceptor fighter by the USSR air defense forces.

MIG-21PF (Fishbed-J) — 10 tons, 23.5' — Early models operational since late 1950's. PF model operational since late 1960's. Employed mainly as a fighter with some use as a bomber. Used by most USSR allies.

MIG-23 (Foxbat) — 32 tons, 41' — Operational since late 1960's. Employed as fighter and bomber. Used by USSR. *Note: As this game goes to press, the Soviet Air Force has changed the numeric designation of the Foxbat from Mig-23 to Mig-25.*

[10.0] MISSIONS: COMMENTARY

There are two basic missions: "Radar Intercept" and "Point Defense." Both of these presuppose a basically visual (as opposed to radar) engagement. Most third generation fighters are equipped to operate in a totally "radar" (or "electronic") environment. But that would be another game. Also, combat in a primarily radar environment has yet to occur on a wide scale. Mixed visual/radar combat has occured on a wide scale, and based upon this experience we can construct a number of mission scenarios.

The Radar Intercept Mission occurs quite frequently. The intruder flies into an area "painted" by enemy radar. Interceptors, guided by the radar information, are directed towards the Intruders. The Intruders have a big disadvantage in not knowing from which direction the enemy Interceptors will come. An interceptor, on the other hand, has a good chance at getting in a "free shot" before the intruder knows where he is. The Radar Intercept Mission has numerous variations depending on where the Interceptors are coming from. Note that the starting positions for the Radar Intercept Missions (RIM) are printed on the map as well as in the missions themselves.

The Point Defense Mission can assume one of two situations. First, that radar is not used or is not needed and that both Intruder and Interceptor know where each other is. Or, secondly, that radar is available to both sides thus giving neither side an advantage. Point Defense presumes that the Interceptor is trying to deny the Intruder access to a particular piece of air space. It is suggested that Players utilize a Point Defense Mission (with a Europe scenario) for their first game. Note that the starting positions for the Point Defense Mission (PDM) are printed on the map as well as in the mission outline.

The "ultimate" *Foxbat and Phantom* mission is not in the game. This mission utilizes "snap-down" missiles and electronic equipment whose exact capabilities are closely guarded secrets. Equally important are the Electronic Counter Measures (ECM) for such weapons. Snap-down missiles have a range of close to a hundred miles. The idea is to attack enemy aircraft from a high distant position. The target pilot will never see the aircraft attacking him. At most, the attacking missile may be seen. The only defense against such weapons is ECM. Not only are details of present ECM unknown, but much more work is being done and needs to be done on effective ECM for snap-down missiles. We have some idea of ECM effectiveness for Radar-homing missiles. But that's as far as we can go in the game. Snap-down missiles will have to wait for more information.

[11.0] RADER INTERCEPT MISSIONS

GENERAL DESCRIPTION:

There are four variations on the Radar Intercept Mission. The differences are in the starting positions (printed on the map), flight and speed. In each of the four variations the Intruding Player determines the *flight pattern* for each of the intruding aircraft. The intruding aircraft move at the speed and flight mode indicated by the mission being played, in the hexes indicated and facing in the direction indicated. Each must continue flying and moving at the same speed, with no altitude change until the aircraft *spots* an intercepting aircraft.

[11.1] THE FLIGHT PATTERN

The Flight Pattern is a pre-determined path of travel which will take the Intruding aircraft from their starting hexes to the exit hexes on the east edge of the map (6102, 6103, 6104). All the Intruding aircraft must remain together (adjacent in a formation) while they are flying in their pattern. The Intruding Player secretly writes his Flight Pattern before any play begins.

[11.11] Writing the Flight Pattern: Taking into account his three starting hexes, starting speed, and destination, the Intruder writes the beginning and finishing hexes and the facing of each of his aircraft for however many Player-Turns it will require to reach the exit hexes and leave the map. Each Player-Turn of the Flight Pattern should be numbered.

Within his Flight Pattern the Intruder may program as many as four one-hexside turning maneuvers to be executed by all aircraft at the beginning of specific Player-Turns. These are "in place" turns as described in 5.32. When the aircraft are programmed to turn they must all turn to the same heading and this new facing should be indicated on the Flight Pattern. The programming of such turning maneuvers is optional; the Player may fly a perfectly straight pattern if desired.

[11.12] SAMPLE FLIGHT PATTERN

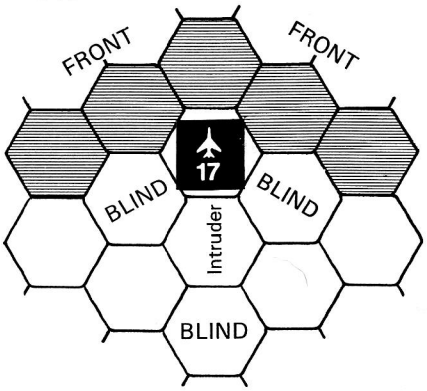
In the following sample, only the center aircraft of the formation of three Intruders is indicated, since the two "wingmen" must always remain adjacent to it while flying the pattern. The notation "T" indicates the occurence of one of the four possible turning maneuvers.

Intruder Player-Turn	Start hex—End hex	Heading NE
1	0232—0730	N(T1)
2	0730—0726	NE(T2)
3	0726—1124	NE
4	1124—1621	NE
5	1621—2119	NE
6	2119—2616	NE
7	2616—3114	NE
8	3114—3611	NE
9	3611—4013	SE(T3)
10	4013—4411	NE(T4)
11	4411—4909	NE
12	4909—5406	NE
13	5406—5904	NE
14	5904—exit 6103	NE

[11.13] Intruders may not vary from their pre-programmed flight pattern nor change speed or altitude until Interceptors are spotted or until the Intruders are fired upon.

[11.2] SPOTTING

All intruding aircraft must conform to their flight patterns, staying at their starting speed and altitude, and may not vary any of these until and unless any one of the intruding aircraft *spots* any one of the intercepting aircraft (or until fired upon by an interceptor). "Spotting" occurs when the intruding aircraft's pilot sees the intercepting aircraft. Whether or not an intercepting aircraft has been spotted is determined by a die-roll and reference to the Spotting Table after determining the range (in hexes) between the intruding and intercepting aircraft involved in spotting, and determining whether the spotting is from the intruding aircraft's *front* or *blind* side.



An intercepting aircraft which appears in any of the hexes in the 240° arc in front of the intruder (within 16 hexes of the intruding aircraft) is considered to be in the *front* side of the intruder as illustrated by the shaded area. An intercepting aircraft which appears in any of the hexes (within 16 hexes of the intruding aircraft) in the rear fan area of the intruding aircraft is considered to be in the intruding aircraft's *blind* side (unshaded in illustration).

[11.21] To determine whether an intercepting aircraft has been spotted, the Intruding Player consults the Spotting Results Table and rolls the die at the end of every Game-Turn (i.e., after the Interceptor's Player-Turn) until the intercepting aircraft is spotted (i.e., when the aircraft to be spotted is within sixteen hexes of the intruding aircraft). The Intruding Player rolls the die once for each intercepting aircraft to be spotted per intruding aircraft, verbally designating which of the Enemy aircraft is to be spotted as well as which of the intruding aircraft is attempting to spot it.

[11.22] Immediately after the verbal designation, the die is rolled, and the result is determined by reference to the Spotting Tables. After all results have been determined *individually,* the Intruder's Flight Decision Phase begins. Note that the die could conceivably be rolled as many as nine times, if all three Interceptors were within 16 hexes of all three Intruders.

[11.23] Spotting (rolling the die) continues for all intruding aircraft only until *one* of the intercepting aircraft is spotted. As soon as any intercepting aircraft is spotted, the game, in effect, begins. The Turn-Record Chart's Game-Turn Marker should be placed on the space numbered one (1). The Intruding aircraft no longer have to maintain the flight pattern or fixed speed and altitude (i.e., they may change direction, speed, and altitude, and break formation).

[11.24] If an intercepting aircraft fires upon an Intruding aircraft before the Intruder has *spotted* the Interceptor, it is no longer necessary (regardless of the result of combat) for the Intruder to maintain the flight pattern, speed or altitude. If combat occurs before spotting, the Game-Turn Marker is placed on the space numbered one (1) on the Turn-Record Track.

[11.25] Separate spotting table results are referred to if the intruding aircraft (attempting

[11.26] SPOTTING RESULTS TABLE

Die Roll	RANGE IN HEXES (from Intruder to Interceptor) 1 to 3	4 to 6	4 to 10	11 to 13	14 to 16	Die Roll
1	FBA	FBA	FBA	FBA	F-A	1
2	FBA	FBA	FBA	F-A	—	2
3	FBA	FBA	F-A	F-A	—	3
4	FBA	FBA	F-A	—	—	4
5	FBA	F-A	—	—	—	5
6	F-A	—	—	—	—	6

HOW TO USE THE SPOTTING RESULTS TABLE AND EXPLANATION OF RESULTS

At the end of every Game-Turn (after the Interceptor's Player-Turn) the Intruding Player rolls the die once for each of his planes which is within 16 hexes of each Interceptor. Cross index the die result with the appropriate range column in each case and read the result:

F = The Interceptor is spotted if it is within the 240° Front area.

B = The Interceptor is spotted if it is within the 120° rear Blind area.

A = The Interceptor is spotted if the Intruder is an F-14 Tomcat or F-4 Phantom and the Interceptor is anywhere within the Front or Blind area.

— = The Interceptor is not spotted.

the spotting) is either a F-4 or F-14 (F-4's and F-14's have two people in the cockpit, and so spotting from them is relatively easier than from other aircraft).

[11.3] RADAR INTERCEPT MISSION "A"

INTRUDER FORCE: Three aircraft
Starting Hexes: 0132, 0232, 0333.
Altitude: 10. *Facing:* Northeast. *Speed: 5 on* Level Flight Track.

INTERCEPTOR FORCE: Three aircraft
Starting Hexes: Use table below.
Altitude: 15. *Facing:* as per table. *Speed:* 2 less than Level Maximum.

[11.31] MISSION "A" STARTING POSITION TABLE

After the Intruder has completed writing his Flight Pattern, the Intruder rolls the die once to determine his starting position, and heading according to the following table:

Die Roll	Interceptor's Starting Hexes	Facing
1	4833,4734,4633	N
2	6131,6132,6133	NW
3	6105,6106,6107	SW
4	4901,5001,5101	S
5	0601,0701,0801	SE
6	0106,0107,0108	SE

[11.4] RADAR INTERCEPT MISSION "B"

INTRUDER FORCE: All data same as mission "A."

INTERCEPTOR FORCE: Three aircraft
Starting hexes: 0812, 0912, 1011.
Altitude: 5. *Facing:* South. *Speed:* On Climb Track position which corresponds with Level Maximum.

[11.5] RADAR INTERCEPT MISSION "C"

INTRUDER FORCE: All data same as mission "A."

INTERCEPTOR FORCE: Three aircraft
Starting hexes: 3803, 3904, 4004.
Altitude: 16. *Facing:* Southwest. *Speed:* Two Movement Points into the Horizontal Dive Speed Range, executing (this Player-Turn) a Horizontal Dive of from one to four levels. Assume aircraft have also been diving before the scenario starts.

[11.6] RADAR INTERCEPT MISSION "D"

INTRUDER FORCE: Three aircraft
Starting hexes: 2820, 2720, 2619.
Starting Altitude: 10. *Facing:* Northeast. *Speed:* 5 on Level Flight Track.

INTERCEPTOR FORCE: Three aircraft
Starting hexes: 0133, 0233, 0334
Starting Altitude: 12. *Facing:* Northeast. *Speed:* Level Maximum.

[11.7] VICTORY CONDITIONS

In all Radar Intercept Missions victory is determined by Victory Points. The Player who has the most Victory Points at the end of the game is declared the winner. Victory Points are scored as follows:

[11.71] For each intruding aircraft which exits the mapsheet through hexes 6102, 6103, or 6104, the Intruder scores 1 Victory Point (maximum of 3).

[11.72] For each Enemy target plane downed, the Player who downs the aircraft receives one (1) Victory Points

[11.73] For each Interceptor aircraft which exits the map (at any point) the Intruder receives on Victory Point. For each Intruder aircraft which exits the map at any point (except the three hexes 6102, 03, or 04) the Interceptor receives one Victory Point.

[11.74] ENDING THE GAME

The game can be brought to a conclusion (and victory established) in two ways. The game ends when:

(a) All the Intruder's aircraft have been shot down and/or exited off the map at hexes 6102, 6103, and/or 6104. The Intruder may exit aircraft from other hexes

(b) All of the Interceptors have been shot down or withdrawn off the map (by flying off the map in any direction). In such a case, any remaining Intruders are automatically considered to have successfully exited the map at 6102, 6103, 6104.

[12.0] POINT DEFENSE MISSION

GENERAL DESCRIPTION:

There is only one version of the Point Defense Mission (although the Intruder's point of entry is varied by use of a table). Basically, the Intruder sends his fighters onto the map to engage and destroy the Interceptor aircraft in order to protect an Intruder Bomber Formation (which enters the map on Game-Turn 11 and attempts to exit off the north edge).

There is no Flight Pattern or Spotting rule to contend with in the Point Defense Mission. The starting positions for the PDM are printed on the map as well as being given below.

INTRUDER FORCE: Three fighter aircraft plus one Bomber Formation representing six aircraft.

FIGHTERS:
Starting hexes: see Point Defense Entry Table.
Altitude: 10. *Facing:* North. *Speed:* 10 in Level Flight.

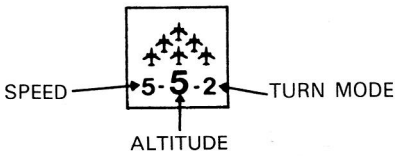
BOMBER FORMATION(arrives Game-Turn 11):
Starting hex: as per Point Defense Entry Table.
Altitude: 5 (invariable). *Facing:* North. *Speed:* 5 (invariable).

Before the game starts, the Intruding Player rolls a die to determine through which hex the intruding fighter planes will enter the mapsheet. One intruding aircraft enters through the hex indicated by the die-roll result; the other intruding aircraft enter in hexes either adjacent to the entry hex, or within two hexes of it at the discretion of the Friendly Player.

POINT DEFENSE ENTRY TABLE

If die roll is:	Intruder's Base Entry hex is:
1	0734
2	1433
3	2134
4	2534
5	2833
6	4233

INTERCEPTOR FORCE: Three aircraft
Starting hexes: 6109, 6110, 6111.
Altitude: 15. *Facing:* Southwest. *Speed: 2 less* than Level Maximum.



[12.1] BOMBER FORMATION

The Bomber Formation is represented by one of the six neutral colored markers with the bomber silhouettes on it. To start with, use the

marker with six bombers on it. As the Bomber Formation incurs losses replace it with a marker showing appropriately fewer aircraft. The Bomber Formation flies within the following limitations:

Altitude: 5 (invariable). *Speed:* 5 (invariable). *Turn Mode:* 2 (invariable). *Electronic Counter Measures rating:* lowest value assigned to any fighter aircraft in that particular scenario group. *Weapons:* none.

Within the above limits, the Bomber Formation flies like any other aircraft. The Bomber Formation enters the game on Intruder Player-Turn 11. At the beginning of Game-Turn 11, the Intruder rolls the die once and refers to the Point Entry Defense Table for the exact hex in which the Bomber Formation will enter the map.

The Bomber Formation may be attacked by the Interceptors in exactly the same fashion as other aircraft (no more than one attack on the whole formation per Combat Phase). Losses are at the rate of one "bomber" per hit reflected by the replacement of the marker with one with one less silhouette on it.

[12.2] VICTORY CONDITIONS

The Intruder's objective is to destroy Interceptor aircraft and to exit the Bomber Formation off the north edge of the map.

The Interceptor's objective is to destroy Intruder fighter and bomber aircraft. Victory is calculated in terms of Victory Points, the victor being the Player with the most points at the end of the game.

INTRUDER VICTORY POINTS—

For each Interceptor fighter destroyed:	1 pt.
For each single "bomber" exited in the north:	1 pt.

INTERCEPTOR VICTORY POINTS—

For each Intruder fighter or single "bomber" destroyed:	1 pt.
For each Intruder fighter which leaves the map prematurely (i.e., before the Bomber Formation exits in the north):	1 pt.

[12.21] ENDING THE GAME

The game ends and the victor determined when *one* of the following conditions are fulfilled:

— The Bomber Formation is either destroyed or exits via the north edge of the map and there are no other Intruder aircraft on the map.

— All Interceptor aircraft have been destroyed or have withdrawn from the map to protect themselves. In this case, any surviving planes in the Bomber Formation are automatically assumed to have exited via the north edge.

[13.0] INEXPERIENCED PILOT RULE

In *Foxbat and Phantom* the same aircraft type may possibly be used by two opposing sides (F-104, F-5, Mirage III). Pilots' general abilities vary among different nations. To account for the disparity in different pilots' training and ability, the *Inexperienced Pilot Rules* have been incorporated into the game.

GENERAL RULE:

If the particular scenario being played indicates that one or more of the aircraft used is piloted by an inexperienced pilot (IP), at the beginning of the game the owning Player should designate which of the planes contains the inexperienced pilot (aircraft sets are marked with a letter-code; this is an aid in determining which of the aircraft contain inexperienced pilots). An inexperienced pilot's abilities to change altitude or to accelerate are limited. Use the Inexperienced Pilot marker on the Inexperienced Pilot Index to record which planes have such pilots.

PROCEDURE:

Throughout the game, immediately before each of the Phasing Player's Flight Decision Phases, the Phasing Player rolls a die once for each inexperienced pilot (if any of his aircraft contain inexperienced pilots). The Phasing Player announces which of the inexperienced pilots he is rolling for. A die roll of either "1" or "2" indicates that the Inexperienced Pilot Rules are in effect for this Player-Turn for that pilot. A die-roll of "3," "4," "5," or "6" indicates that the Inexperienced Pilot Rules are *not* in effect during this Player-Turn, and the aircraft indicated may act in accordance with the regular rules regarding flight and acceleration.

[13.11] If the Phasing Player rolls either a "1" or "2," the plane containing the inexperienced pilot must go into level flight mode.

[13.12] If the Phasing Player rolls either a "1" or "2," the plane containing the inexperienced pilot may not accelerate during the next Friendly Player-Turn (i.e., the Phasing Player may not choose to accelerate during this Flight Decision Phase).

[13.13] If the aircraft containing the inexperienced pilot has been either diving or climbing during the previous Friendly Player-Turn, the aircraft may not continue to climb or dive, but must go into level flight. The aircraft may not make an optional one level dive while not in the horizontal speed range, and may not horizontally dive. Inexperienced pilots may be forced to Gravitationally decelerate, but they may not use the "fade-back" technique.

[13.14] If the Mission being played is the Radar Defense Mission and set-up indicates that aircraft (which contain inexperienced pilots) must begin the mission either climbing or diving, the set-up is changed in favor of the Inexperienced Pilot Rules, that is, the aircraft containing inexperienced pilots must begin the mission ([11.4] Interceptors and [11.5] Intercepters) in level flight at the same speed indicated by the mission.

[14.0] SCENARIOS

(To be used in conjunction with Missions, 11.0 and 12.0).

[14.1] HISTORICAL DATA

There are numerous areas in the world where air combat will take place in the future. Many of these areas have seen air combat in the recent past. In some areas, the fighting goes on right now. The following "situations" in conjunction with the chart give the aircraft likely to be involved as well as ECM (Electronic Counter Measures) level available for protection against Radar homing missiles and the "Inexperienced Pilot" rule applications.

[14.11] HOW TO SET UP A SCENARIO

Chose the area you wish to deal with. Let us say, for example, that it's Europe. You want to set up a Radar Intercept B scenario (there are four Radar Intercept Variants). You want the NATO side to be the Intruder. You may choose from the following aircraft which, according to their notation, can be the intruder for the NATO side; F-4, F-104, A-7, Lightning, F-111, F-14A, Mirage III, Mirage F. Only three of the Warsaw Pact aircraft can be the

Interceptor (MIG-21, MIG-23, SU-11). Unless you are just interested in trying out different types of aircraft against each other you will want an even match. An even match in this case would be two or three F-14A's as the Intruders against three MIG-21's as the Interceptors (You don't have to use three planes on a side all the time; one side can use more or less to "balance" the scenario). Note that all the planes on a given side in a given mission should be all the same type (using the same Aircraft Control Chart). Set the aircraft up according to the scenario instructions and you're ready to play.

[14.12] HOW TO READ THE AIRCRAFT CHARACTERISTICS SUMMARY AND SCENARIO CHART

On the lefthand portion of the chart the various basic characteristics of the aircraft are given for comparison purposes. The righthand portion contains the information which, in conjunction with the Missions, enables the Players to construct game situations. Across the top will be found the various areas of the world where modern aerial combat has or might have taken place. Listed under the names of the opposing sides in a given area are the pilot experience ratings. For example, "1/3IP" indicates that one of the three pilots is "inexperienced." Each side is given three columns on the chart. The first two show what type of missions that particular type of aircraft can fly. "RI" = Radar Intercept; "PD" = Point Defense. The third column gives the ECM rating of that plane in that situation. When the ECM rating is "N," it means no RH missiles are used by the Enemy. The appearance of a dot (•) indicates that the plane may fly that mission in that situation. A dash indicates that it may not.

[15.0] DESIGNER'S NOTES

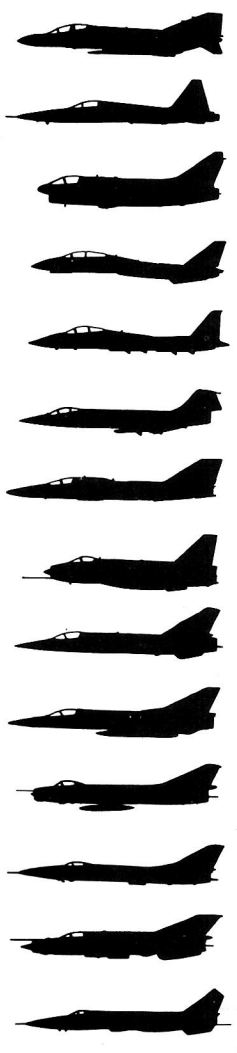
First of all, a few very important qualifications.

Qualification 1: All aircraft's performance characteristics are based upon their high altitude performance (at altitude levels 7 and up). This was done because most aircraft (swing wing craft like the F-111 and F-14 being prominant exceptions) are "optimized" for either high or low altitude performance. As aircraft have become more powerful during the last sixty years the difference in their performance at various altitudes has become more pronounced. This difference was noticeable during World War II. Often it was decisive. But by the 1960's this difference had become critical. Some aircraft that are supreme at high altitudes are often practically sitting ducks at lower altitudes. And sometimes the reverse is also true. Since superior height has always been, and still is, the superior position in air warfare, we opted for portraying air combat at high altitudes. There were other reasons for choosing this method. Aircraft performance varied so much between high and low altitude that two separate aircraft performance charts would have been needed for each aircraft. And then there was the problem of "meshing" the two charts. So we stuck with one chart. The high altitude one.

Qualification 2: Most of the "Official" performance data on the aircraft in *Foxbat & Phantom* is not available. Especially the sort of data we need to design a game. However, air combat between high performance jet aircraft *has* occurred in the last ten years. And it has been written about. Also, considerable technical data has been published. Rarely has the published data been exactly what we needed. But we could look, and dig, and re-assemble. Dave Isby deserves mention here for most of the digging. I had to do most of the assembling. But I had to have something to assemble. Dave provided the pieces to the puzzle. Another team of people digging and assembling may well have come up with different conclusions. To each his own. We think we have arrived at some pretty good and accurate conclusions.

Most remaining comments on technical aspects of the game can be found elsewhere in the rules (9.0—Aircraft and background data; 10.0—Missions:Commentary).

[14.13] AIRCRAFT CHARACTERIS



Acft	Level Max	HDSR
F-4E	15	16 to 25
F-5E	13	14 to 17
A-7	8	9 to 10
F-14	16	17 to 27
F-15A	21	22 to 28
F-104	16	17 to 27
F-111	21	22 to 31
Lightning	16	17 to 24
Mirage F	16	17 to 26
Mirage III	16	17 to 27
Su-7	12	13 to 20
Su-11	18	19 to 28
Mig-21	14	15 to 24
Mig-23	19	20 to 30

We were surprised to discover how simple (at least on "paper") jet aircraft combat was. Actually, air combat has become considerably more complex for the pilots during the last thirty years. The aircraft and their weapons, have become enormously more complex. But because of the speed of these aircraft, we had to use a much different scale than was used for World War II air games. *In Foxbat & Phantom* a hex represents 1,000 meters while each turn represents thrity seconds. As you can see from playing the game, this scale just barely keeps the aircraft on the mapsheet. The maneuvers modern aircraft are capable of are also quite restricted. High speed, and the limitations of the human body, are mainly responsible for this. Some new maneuvers have been developed. The main one to master (in the game, or for real) is the "yo-yo." Basically, this maneuver involves using the aircraft's climb and acceleration characteristics in order to position yourself properly to get a shot off at an enemy aircraft. As in World War II, turning ability is critical. But acceleration and rate of clime can make up somewhat for poor turning. Mastery of the yo-yo implies intelligent use of speed. Most modern fighters have more speed than they can use in aircraft-to-aircraft combat. If you want to rev up your speed and hot-rod around the mapsheet, you can. But

TICS SUMMARY AND SCENARIO CHART

[14.2] EUROPE: *A most likely area for widespread use of many different types of aircraft. The main antagonists would, of course, be NATO and Warsaw Pact air forces.*

[14.3] MIDDLE EAST: *One o more active areas at the mom the Middle East, where the air i of Israel more than hold their against the many times more erous Arab aircraft.*

It is unlikely that the Russian allow the Egyptians to use advanced MIG-23 by themselve more likely that they will be us Russian pilots operating in Eg "colors." Assuming that case u MIG-23 configuration shown i Europe Scenario.

								EUROPE						MIDDLE EAST				
		at Mach I / at Mach II						NATO 0/3IP			WARSAW PACT 1/3IP			ISRAEL 0/3IP			ARAB 3/3IP	
Allw	Ceil	Climb	Dive	Turn	Cann	HSM RHM(RPA)	Role	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD
5	23	12 / 22	8 / 15	4 / 7	•	4 or 4(15)	Intruder Interceptor	• •	• •	2				• •	• •	3		
4	16	14 / 25	8 / 14	4 / 7	•	2 0	Intruder Interceptor										• •	• •
5	16	11 / —	8 / —	2 / —	—	2 0	Intruder Interceptor	• —	• —	4								
5	24	12 / 22	6 / 12	4 / 7	•	4 or 4(15	Intruder Interceptor	• •	• •	0								
0	24	8 / 16	8 / 16	3 / 6	•	4 or 4(15)	Intruder Interceptor	— •	• —	0								
6	18	18 / 35	6 / 12	5 / 8	•	2 + 2(15)	Intruder Interceptor	• •	• •	4								
3	19	14 / 26	8 / 15	5 / 9	•	4 or 4(15)	Intruder Interceptor	• —	• —	0								
4	19	11 / 21	8 / 16	3 / 6	•	2 or 2(12)	Intruder Interceptor	• •	• •	3							• •	• •
4	21	12 / 23	6 / 11	3 / 7	•	2 + 3(18)	Intruder Interceptor	• •	• •	3								
5	24	12 / 22	6 / 12	4 / 7	•	3 or 3(18)	Intruder Interceptor	• •	• •	3				• •	• •	3	• •	• •
	19	13 / 24	6 / 11	6 / 12	•	0 0	Intruder Interceptor				• —	— —	7				• —	— —
	19	14 / 27	9 / 16	4 / 8	— —	2 or 2(10)	Intruder Interceptor				— •	— •	6					
5	21	16 / 30	6 / 11	3 / 5	•	4 0	Intruder Interceptor				• •	• •	6				• •	• •
6	19	9 / 17	8 / 15	4 / 8	•	4 or 4(10)	Intruder Interceptor				• •	• •	5				• •	• •

you're not likely to shoot anyone down that way. Experience has shown that most fighter combat in modern aircraft takes place at 1,000 miles an hour or less (about 11 Movement Points in the game). It's rather frustrating to be in possession of all that speed while not being able to use it. But that's the way it is. In the game as in real life.

The scenarios given in the game are some of the most typical ones that have been, and will be, encountered. Others are possible. With a little imagination you can make them up yourself. We see *Foxbat & Phantom* as being most useful in showing the strengths and weaknesses of the various aircraft available today. The game moves fast and takes less than an hour to play (once you've mastered the novel, but nonetheless, rather simple mechanics). You can then pit various aircraft against one another. You can either use the scenarios given or develop your own. We find this approach quite educational. Some aircraft, of course, will not come off as well as their press reports claim. This is mainly because we are mainly concerned with high altitude dog fighting. But that's where air superiority is decided. And without air superiority no other air mission can be flown.

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[14.4] INDIA/PAKISTAN: *The creation of Bangladesh would appear to put a stop to future India-Pakistan air combat. But some potential still remains. Assume that no Radar homing missiles will be used.*

[14.5] KOREA: *Both North and South Korea are still armed to the teeth and very much ready for a war. If such an unlikely conflict should occur the following air situation would arise. Assume neither side has Radar homing missiles.*

[14,6] GREECE/TURKEY: *Although both these nations belong to NATO, there is a long history [a few thousand years worth] of bad feelings between them. Even now there are occasional threats of war. Both sides are armed with the same types of aircraft. Assume no use of R'H missiles.*

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	INDIA-PAKISTAN						KOREA									SOUTH A
	INDIA 2/3IP			PAKISTAN 2/3IP			NORTH 2/3IP			SOUTH 2/3IP			GREECE TURKEY (BOTH) 2/3IP			SO. AFRICA 0/3IP		
ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM
										• • • •		N						
9										• • • •		N	• • • •		N			
				• • • •		N							• • • •		N			
9																• • • •		N
9				• • • •		N										• • • •		N
9	• — — —		N															
9	• • • •		N				• • • •		N									
8																		

[16.0] CREDITS

Game Design: James F. Dunnigan

Physical Systems Design and Graphics: Redmond A. Simonsen

Game Development: Kevin Zucker,

Rules Composition: Redmond A. Simonsen

Research: David Carpenter Isby, James F. Dunnigan

Graphic Production: Manfred F. Milkuhn, Al Zygier, Marsha Treiber

Printing and Finishing: Reflex Offset, Inc., Freedman Die-cutting, Inc., Apollo Bindery

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CA: *South Africa have created Africa. None of esently armed t. But if they ld probably be inexperienced h Africa has s [which they ricans" do not.*

[14.8] VIETNAM: *There are two parts to this situation. The present, with only the South Vietnamese air force facing the North Vietnamese air force. Then there is the recent past [and to a certain extent, still the present] with US air power. So here we have two powers that could face North Vietnam. Assume that neither of the Vietnamese air forces have Radar homing missiles.*

[14.9] TAWAIN/CHINA: *A very "potential" situation with the Chinese trying to recover the province of Taiwan. Assume neither side has Radar homing missiles.*

RICA			VIETNAM									TAIWAN/CHINA					
			N. VIETNAM 1/3IP			S. VIETNAM 2/3IP			US 0/3IP			CHINA 2/3IP			TAIWAN 1/3IP		
"AFRICA" 3/3IP																	
PD	ECM		RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM
									• • • •		N						
						• • • •		N							• • • •		N
									• — — —		N						
															• • • •		N
									• — — —		N						
• •	9		• • • •		8							• • • •		N			

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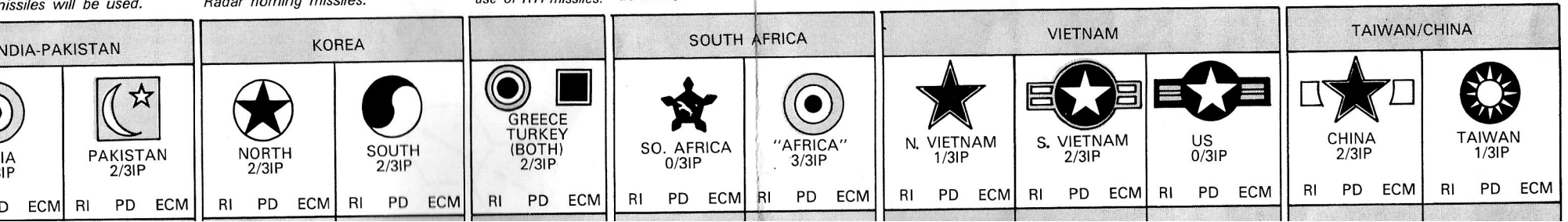

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INDIA-PAKISTAN				KOREA						SOUTH AFRICA				VIETNAM						TAIWAN/CHINA					
			PAKISTAN 2/3IP				NORTH 2/3IP			SOUTH 2/3IP			GREECE TURKEY (BOTH) 2/3IP				SO. AFRICA 0/3IP			"AFRICA" 3/3IP			N. VIETNAM 1/3IP			S. VIETNAM 2/3IP			US 0/3IP			CHINA 2/3IP			TAIWAN 1/3IP		
	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM	RI	PD	ECM
										• • • •		N																• • • •		N					
										• • • •		N	• • • •		N										• • • •		N							• • • •		N
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N				• • • •		N													• • • •		9	• • • •		8							• • • •		N			

[14.2] EUROPE: *A most likely area for widespread use of many different types of aircraft. The main antagonists would, of course, be NATO and Warsaw Pact air forces.*

against the many times more numerous Arab aircraft.

It is unlikely that the Russians will allow the Egyptians to use the advanced MIG-23 by themselves. It is more likely that they will be used by Russian pilots operating in Egyptian "colors." Assuming that case use the MIG-23 configuration shown in the Europe Scenario.

[14.4] INDIA/PAKISTAN: *The creation of Bangladesh would appear to put a stop to future India-Pakistan air combat. But some potential still remains. Assume that no Radar homing missiles will be used.*

Acft	Level Max	HDSR	Accl Allw	Ceil	at Mach I / at Mach II Climb	Dive	Turn	Cann	HSM RHM(RPA)	Role	EUROPE NATO 0/3IP RI	PD	ECM	EUROPE WARSAW PACT 1/3IP RI	PD	ECM	MIDDLE EAST ISRAEL 0/3IP RI	PD	ECM	MIDDLE EAST ARAB 3/3IP RI	PD	ECM	INDIA-PAKISTAN INDIA 2/3IP RI	PD	ECM	INDIA-PAKISTAN PAKISTAN 2/3IP RI	PD	ECM
F-4E	15	16 to 25	5	23	12 / 22	8 / 15	4 / 7	•	4 or 4(15)	Intruder	•	•	2				•	•	3									
										Interceptor	•	•					•	•										
F-5E	13	14 to 17	4	16	14 / 25	8 / 14	4 / 7	•	2	Intruder										•	•	9						
									0	Interceptor										•	•							
A-7	8	9 to 10	5	16	11	8	2	—	2	Intruder	•	—	4															
					—	—	—		0	Interceptor	—	—																
F-14	16	17 to 27	5	24	12 / 22	6 / 12	4 / 7	•	4 or 4(15	Intruder	•	•	0															
										Interceptor	•	•																
F-15A	21	22 to 28	10	24	8 / 16	8 / 16	3 / 6	•	4 or 4(15)	Intruder	—	•	0															
										Interceptor	•	—																
F-104	16	17 to 27	6	18	18 / 35	6 / 12	5 / 8	•	2 + 2(15)	Intruder	•	•	4													•	•	N
										Interceptor	•	•														•	•	
F-111	21	22 to 31	3	19	14 / 26	8 / 15	5 / 9	•	4 or 4(15)	Intruder	•	—	0															
										Interceptor	—	—																
Lightning	16	17 to 24	4	19	11 / 21	8 / 16	3 / 6	•	2 or 2(12)	Intruder	•	•	3							•	•	9						
										Interceptor	•	•								•	•							
Mirage F	16	17 to 26	4	21	12 / 23	6 / 11	3 / 7	•	2 + 3(18)	Intruder	•	•	3															
										Interceptor	•	•																
Mirage III	16	17 to 27	5	24	12 / 22	6 / 12	4 / 7	•	3 or 3(18)	Intruder	•	•	3				•	•	3	•	•	9				•	•	N
										Interceptor	•	•					•	•		•	•					•	•	
Su-7	12	13 to 20	5	19	13 / 24	6 / 11	6 / 12	•	0	Intruder				•	—	7				•	—	9	•	—	N			
									0	Interceptor				—	—					—	—		—	—				
Su-11	18	19 to 28	6	19	14 / 27	9 / 16	4 / 8	— —	2 or 2(10)	Intruder				—	—	6												
										Interceptor				•	•													
Mig-21	14	15 to 24	5	21	16 / 30	6 / 11	3 / 5	•	4	Intruder				•	•	6				•	•	9	•	•	N			
									0	Interceptor				•	•					•	•		•	•				
Mig-23	19	20 to 30	6	19	9 / 17	8 / 15	4 / 8	•	4 or 4(10)	Intruder				•	•	5				•	•	8						
										Interceptor				•	•					•	•							

13] AIRCRAFT CHARACTERISTICS SUMMARY AND SCENARIO CHART

[14.2] EUROPE: *A most likely area for widespread use of many different types of aircraft. The main antagonists would, of course, be NATO and Warsaw Pact air forces.*

[14.3] MIDDLE EAST: *One of the more active areas at the moment is the Middle East, where the air forces of Israel more than hold their own against the many times more numerous Arab aircraft.*
It is unlikely that the Russians will allow the Egyptians to use the advanced MIG-23 by themselves. It is more likely that they will be used by Russian pilots operating in Egyptian "colors." Assuming that case use the MIG-23 configuration shown in the Europe Scenario.

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Acft	Level Max	HDSR	Accl Allw	Ceil	at Mach I / at Mach II: Climb	Dive	Turn	Cann	HSM RHM(RPA)	Role	EUROPE: NATO 0/3IP RI	PD	ECM	EUROPE: WARSAW PACT 1/3IP RI	PD	ECM	MIDDLE EAST: ISRAEL 0/3IP RI	PD	ECM	MIDDLE EAST: ARAB 3/3IP RI	PD	ECM	INDIA-PAKISTAN: INDIA 2/3IP RI	PD	ECM	INDIA-PAKISTAN: PAKISTAN 2/3IP RI	PD	ECM