MODERN AIR COMBAT RULES FOR MINIATURES

Phantoms

Phantoms: Air Combat in the Missile Age

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1.0 Introduction

Phantoms is a quick and easy modern air combat game, it is meant to cover air combat from 1960 to the present. The game was inspired by Avalon Hill's **Mustangs** game. *Phantoms* was created with a hex-mat and miniatures in mind, but could be played a regular hex-map with counters.

Phantoms is designed to realistically portray modern air to air combat without getting bogged down in the complexity of most boardgames on the subject. Gamers will be able to fly multiple aircraft even in large games and complete a scenario in a few hours.

Each turn all aircraft must place maneuver counters, which will govern what their planes can do over the various impulses during a turn. During each impulse, aircraft will move and/or fire, depending upon their current speed. This keeps the game from slowing down and ensures that all gamers are actively involved throughout the turn.

2.0 Game Equipment

Players will need the following equipment to play the game:

Aircraft: This can be miniatures or counters. Each miniature or counter represents one aircraft. The information for each type of aircraft is on the Control Card for that aircraft type.

Gameboard (map): The game is played on a hex-mat or hex-map. The playing area should be a minimum of 12 X 18 hexes.

Control Card: Each card shows the game information for a specific aircraft type. The cards are used to track the current status of aircraft in the game. Each card has room for keeping track of two aircraft.

Markers: You will need the following markers for each aircraft in the game:

8 Maneuver Markers: these are placed on the map to show the maneuver an aircraft is doing.

Several Climb/Dive Markers: these are placed on the map to show when an aircraft is making altitude changes.

1-3 Ammunition Marker(s): placed on the Control Card to show how much ammunition (guns and missiles) an aircraft has left.

An alternative to using markers for the control panels is to laminate them, then use grease pencils to mark speed/altitude changes, damage, and ammunition expenditures.

Dice: The game uses six-sided and ten-sided dice. The "0" on the ten-sided die is read as a 10. Unless stated by the specific rule, the normal die rolled is a ten-sided die.

Rule Contents:

Special points of interest:

- *Impulse system keeps players guessing about their opponent's intentions.*
- *Can be used with 1/300th to 1/144th scale aircraft models.*
- *Fast playing and suitable for group play.*
- *Missile combat, movement are simple systems, yet recreate the speed of jet combat.*

3.0 Sequence of Play

The game starts after setup is complete and is played in a series of Game Turns. Each game turn consists of a number of phases, which are explained below:

1) Set Speed Phase: Each aircraft adjusts its current speed set for the turn (the speed may change during the impulses). Each aircraft may adjust speed within the amount shown on the Normal Engine or Damaged Engine portion of the Speed Chart on the Aircraft Control Card. An aircraft's speed may not exceed the maximum speed for its current condition (Loaded or Level).

2) Break-Off Check Phase: During this phase an aircraft may attempt to break-off from the fighting.

3) Impulse Phase: There are 10 Impulses in each game turn, each Impulse is broken down into the following Segments:

> **Movement Segment:** All air units moving at the same speed as the columns marked with an X must move one hex. Air units that should move, but are Out of Control (OOC) do not move, but check for recovery. Aircraft that reach their Maneuver Marker complete their maneuver and remove the marker. Adjust Aircraft Control Cards for any speed and altitude changes.

> **Fire-Check Segment:** Any aircraft that is on fire (Critical Hit # 8) must check to see if the fire goes out or causes damage to the aircraft.

> **Afterburner Segment:** Players with aircraft that have afterburners declare if they will use the afterburner this Impulse. The side with the Initiative Marker declares afterburner use first. Adjust Aircraft Control Cards for any speed changes.

> **Spotting Segment (optional):** All players attempt to spot enemy aircraft.

> **Missile Impact Segment:** Players check to see if missiles hit their target. Check pilot ejection for aircraft that are destroyed.

> **Gun Segment:** Aircraft that moved and are in the proper arc and range of enemy aircraft may fire guns at the enemy aircraft. The side with the Initiative Marker fires first. Check pilot ejection for aircraft that are destroyed.

> **Break Lock/Missile Launch Segment:** Aircraft that were previously locked onto may attempt to break radar lock. Aircraft may fire a missile at enemy aircraft which are in the proper range and missile arc. The side with the Initiative Marker fires first.

> **Radar Lock Segment:** Players attempt to achieve a radar lock on enemy aircraft.

> **Maneuver Marking Segment:** Aircraft that do not have a maneuver marker on the map must place a marker. The marker is placed at the appropriate maneuver distance from the aircraft. Aircraft that will climb or dive during a maneuver must announce (and place markers for) the number of levels they will climb or dive. The side with the Initiative Marker places maneuver markers first.

> **Impulse End:** Go to the next impulse by repeating Step 3. If the current impulse is Impulse 10, start a new turn by going to Step 1.

4.0 Initiative

At the beginning a game each side rolls one die to determine which side initially has the Initiative Marker. The die roll is modified and the side with the highest modified number controls the Initiative Marker. If the modified die rolls are the same, re-roll until one side has a higher modified number.

The side that has the initiative marker places Maneuver Markers first during the Maneuver Marking Segment of each Impulse (see 6.1.1 Tailing Advantage). Also, the side with the Initiative Marker fires guns and missiles first in the appropriate segment.

A side may pass the Initiative Marker to the other side at the end of any segment during an Impulse.

The modifiers for the initiative roll for the side having the following conditions are:

Ace Pilot: +2   Loaded Aircraft: -2

Only Inexp. Or Green Pilots: -2   Ground or Airborne Controller: +1

5.0 Setting Speed

During the Set Speed Phase, each aircraft adjusts its speed for the upcoming turn. Each aircraft may adjust speed within the amount shown on the Normal Engine (for aircraft with no engine damage) or Damaged Engine (for aircraft with damaged engines) portion of the Speed Chart on the Aircraft Control Card. When setting speed in this phase, an aircraft's speed may not exceed the maximum speed for level flight. If the aircraft is loaded, it may not exceed the maximum loaded speed. An aircraft's speed may change during the Impulse Phase due to maneuvers, climbing, diving or using an afterburner.

6.0 Impulse Phase & Movement

All aircraft movement and combat occurs during the Impulse Phase. During each Movement Segment refer to the Movement Impulse Chart for the current impulse to determine which aircraft will move. All air units moving at the speeds in the columns marked with an X for the current impulse <u>must</u> be moved. Each aircraft is moved into the hex directly in front of it (Exception: aircraft that are out of control do not move). If the aircraft reaches its current maneuver marker and there are no climb/dive markers in the hex, the marker is removed and the aircraft completes the maneuver as described below.

6.1 Placing Maneuver Markers

During the Maneuver Marking Segment, aircraft without maneuver markers <u>must</u> place a maneuver marker. The side with the Initiative Marker places markers first, then the other side (Exception: see rule 6.1.1 Tailing Advantage). The number of hexes in front of the aircraft that the marker is placed is determined by cross-referencing the aircraft's current speed and the desired maneuver on the Maneuver Chart of the aircraft's Control Card. The number shown on the chart is the number of hexes the marker is placed in front of the aircraft. This number may be modified if the aircraft will climb or dive (see rule 6.3 Climbing and Diving During Movement)

6.1.1. Tailing Advantage

If an aircraft that needs to place a maneuver marker is in the hex directly behind and facing toward an enemy aircraft, it <u>does not</u> place its maneuver marker until after the enemy aircraft has placed its marker. In this case the side with the Initiative Marker places maneuver markers for all other aircraft, then the side without the Initiative Marker places maneuver markers and finally any tailing aircraft place their maneuver markers.

6.2 Standard Maneuvers

There are five basic maneuvers that an aircraft can perform. Not all aircraft can perform all the maneuvers shown below and the effect of each maneuver can be different for each type of aircraft. Each maneuver is explained below.

6.0 Impulse Phase & Movement (cont.)

6.2.1 Straight Maneuver:

If this maneuver is chosen, a "Straight" marker is always placed one hex in front of the aircraft. During the appropriate movement segment the aircraft will move into this hex without changing facing. This may be modified if the aircraft will climb or dive.

6.2.2 Normal Turn Maneuver (Right or Left):

If this maneuver is chosen, a "Right Turn" or "Left Turn" marker is placed in front of the aircraft the number of hexes shown on the Maneuver Chart. The number of hexes the marker is placed in front of the aircraft may be modified if the aircraft will climb or dive. When the aircraft reaches the marker during the movement segment, the marker is removed and the aircraft is turned one hexside left or right (depending on the turn type). The aircraft also loses the number of speed points shown on its Maneuver Chart for this maneuver.

6.2.3 Hard Turn Maneuver (Right or Left):

If this maneuver is chosen, a "Right Hard Turn" or "Left Hard Turn" marker is placed in front of the aircraft the number of hexes shown on the Maneuver Chart. The number of hexes the marker is placed in front of the aircraft may be modified if the aircraft will climb or dive. When the aircraft reaches this marker during the movement phase, the marker is removed and the aircraft is turned two hexsides left or right (depending on the turn type). The aircraft also loses the number of speed

points shown on its Maneuver Chart for this maneuver. If the pilot of the aircraft has a Green or Inexperienced Pilot Quality Rating, the controlling player must check to see if the pilot loses control of the aircraft (see section 6.4 Losing Control of an Aircraft).

6.2.4 Sideslip Maneuver (Right or Left):

If this maneuver is chosen, a "Right Slip" or "Left Slip" marker is placed in front of the aircraft the number of hexes shown on the Maneuver Chart. The number of hexes the marker is placed in front of the aircraft may be modified if the aircraft will climb or dive. When the aircraft reaches this marker during the movement phase, the marker is removed and the aircraft is moved one row right or left (depending on the slip type) and back one hex. The aircraft also loses the number of speed points shown on its Maneuver Chart for this maneuver.

6.2.5 Loop Maneuver:

If this maneuver is chosen, a "Loop" marker is placed in front of the aircraft the number of hexes shown on the Maneuver Chart. The number of hexes the marker is placed in front of the aircraft may be modified if the aircraft will climb or dive. When the aircraft reaches this marker during the movement phase, the marker is removed and the aircraft is turned three hexsides. The aircraft also loses the number of speed points shown on its Maneuver Chart for this maneuver. If the pilot of the aircraft has a Green Pilot Quality Rating, the controlling player must check to see if the pilot loses control of the aircraft (see section 6.4 Losing Control of an Aircraft).

6.3 Climbing and Diving During Movement

In addition to plotting the aircraft's move when the maneuver marker is placed, the controlling player may also declare if the aircraft is changing altitude during this maneuver. Whenever an altitude change occurs, the aircraft that changed altitude will also have its current speed adjusted

by the amount shown on the Aircraft Control Card for climbing or diving. The change in altitude is done as follows:

During the Maneuver Marking Phase, the player controlling the aircraft chooses a Maneuver Marker as described above.

The player then announces if the aircraft is climbing or diving during the maneuver and the number of levels that the aircraft will climb/dive.

The player places a number of Climb/Dive markers along the aircraft's flight path equal to the number of levels the aircraft will climb/dive. The player then places the Maneuver Marker for the aircraft, subtracting 1 hex from the placement distance for each level the aircraft will climb or dive.

During the movement segment in which the aircraft moves into a hex with a Climb/Dive marker, the marker is removed (to show that the aircraft has changed altitude) and the altitude and speed of the aircraft are adjusted on the Control Card (if using altitude stands for the aircraft, the altitude stand for the aircraft is also replaced with a new stand showing the new altitude).

This continues until all Climb/Dive markers are removed from the aircraft. The aircraft then continues with normal movement.

The number of levels an aircraft may climb or dive during a maneuver is limited by the number of hexes that the maneuver marker would be placed in front of the aircraft (Example: if an aircraft used a straight maneuver, it would only be able to climb or dive one level). An aircraft may never have its speed increased above its dive speed (although an aircraft may continue to dive when it is at its maximum dive speed). If an aircraft's

6.0 Impulse Phase & Movement (cont.)

speed is reduced to 0 or less, then the controlling player must check to see if the pilot loses control of the aircraft (see rule 6.4 Losing Control of an Aircraft). An aircraft <u>may not</u> climb and dive during the same maneuver.

6.4 Losing Control of an Aircraft

Because of the strains of combat, poorly trained pilots or those that are not familiar with their aircraft may attempt to do too much in the aircraft and subsequently lose control of it.

6.4.1 Loss of Control Checks

If an Inexperienced or Green Pilot makes a Hard Turn or if a Green Pilot makes a Loop Maneuver, the controlling player must check for a loss of control. The player controlling the pilot rolls one die, if the result is 1 - 6 for an Inexperienced Pilot or 1 - 4 for a Green Pilot then the maneuver is completed and play continues normally. If the die roll is outside this range, the pilot has lost control of the aircraft.

If during an Impulse an aircraft's speed is reduced to 0 or less by a maneuver (including climbs), then the player controlling the aircraft must check for loss of control. The player controlling the aircraft rolls one die, if the result is 1 - 8 for an Ace/Experienced/Average Pilot, 1 - 6 for an Inexperienced Pilot or 1 - 4 for a Green Pilot then the pilot does not lose control and the aircraft's speed is set at 1.

If the die roll is outside this range, the pilot has lost control of the aircraft. The die roll is modified by -1 for each speed point less than zero that was caused by the maneuver.

6.4.2 Recovery

An out of control aircraft stays in its current hex at its current speed (an aircraft that had its speed reduced to 0 or less is treated as speed 1). During any impulse in which the aircraft would normally move, the controlling player checks to see if the pilot can recover the aircraft as follows:

The player controlling the pilot rolls one die, if the result is 1 - 8 for an Ace/Experienced/Average Pilot, 1 - 6 for an Inexperienced Pilot or 1 - 4 for a Green Pilot then the pilot recovers the aircraft. If the die roll is outside this range, the aircraft is still out of control.

6.4.3 Loss of Control Effects

If the pilot recovers the aircraft as described above, determine the aircraft's heading and speed as follows:

Roll 1 six-sided die and subtract the number from the aircraft's current speed. This is the aircraft's new speed. If this would reduce the aircraft's speed to ≤ 0, then set the aircraft's speed to 1.

Roll 1 six-sided die to determine the new aircraft facing. The number rolled is the number of hexsides the aircraft is turned from its current heading. Aircraft are always turned clockwise to determine the new heading. The aircraft then continues play normally.

If the pilot does not recover, then reduce the altitude of the aircraft by one level. If this would take the aircraft below altitude level 0, then the aircraft has crashed and is removed from the game (Note: the opposing side gets credit for a kill, even if the aircraft was not fired on).

6.5 Afterburners

Aircraft that are equipped with afterburners may use them during an Impulse to increase speed. During the Afterburner Segment players controlling aircraft equipped with an afterburner declare if they will use the afterburner during the Impulse. If the player chooses to use the afterburner, the aircraft's speed is immediately increased by the amount shown in the Speed Chart of the aircraft Control Card. An aircraft may not exceed its maximum speed for its current condition (level, loaded, or diving). If using an afterburner would cause an aircraft to exceed its maximum speed, the aircraft's speed is set to its maximum speed and all excess acceleration is lost. Each aircraft equipped with an afterburner may use the afterburner a maximum number of times during a game. This number is shown on the Ammunition track on the Control Card. Each time an aircraft uses its afterburner, reduce the number of remaining afterburner uses by one. If an aircraft has a damaged engine or is on fire, it may not use its afterburner.

7.0 Air to Air Combat

There are two types of air to air combat used in *Phantoms*; missile combat and gun combat. Each has its own segment during an Impulse. Only aircraft that moved in the Movement Segment may fire guns during the Impulse. An aircraft may always fire a missile during an Impulse (Exception: aircraft that are out of control or just recovered from being out of control may not fire). An aircraft may attack with either guns or missiles during an Impulse, but not both.

7.1 Missiles

There are two basic missile types: Heat-Seeking and Radar-Guided. The specific rules for each different type of missile are explained below. The rules for firing missiles and checking for impact are covered later. Missiles may not be launched at a target in the same hex and altitude as the firing aircraft.

7.0 Air to Air Combat (cont.)

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7.1.1 Missile Types

7.1.1a Heat-Seeking Missiles

Heat-seeking missiles are divided into 3 sub-types based on the abilities of the missile. These sub-types are Narrow Aspect (HN), Wide Aspect (HW) and All Aspect (HA). Each sub-type can only be fired when the firing aircraft is in a certain position compared to the target aircraft based on the missile sub-type. These positions are shown on the Combat Chart for the appropriate missile sub-type. In order to fire a missile, the firing aircraft must be in one of the positions shown on the chart for that sub-type of missile and facing in a direction shown on the chart. In addition to being in a firing position, heat-seeking missiles may only be fired at targets that are at the same altitude or one altitude level higher or lower. Missiles may not be launched at a target in the same hex and altitude as the firing aircraft.

Each heat-seeking missile has a Hit # which shows the effectiveness of the missile. The Hit # is used when checking for hits during the Missile Impact Segment and may be modified by the position from which the missile was fired.

7.1.1b Radar-Guided Missiles

Radar-guided missiles rely on the radar from their controlling aircraft or their own internal radar to guide them to a target. Before launching a radar guided missile the firing player must achieve a Radar Lock-On, be outside the minimum range for missile, and inside the maximum range for the missile.

A Radar Lock-On is checked for in the Missile Fire Segment before the radar-guided missile is fired. The firing aircraft must be facing so that the target is in its radar cone, then each player rolls a die to check for a successful Radar Lock-On. The die roll for each player is modified as follows:

The player attempting the Lock-On (Attacker) adds:

- + Aircraft's Radar Value
- + 2 Ace Pilot
- + 1 Experienced Pilot
- - 2 Green Pilot
- + 1 if the target aircraft is at a higher altitude
- - 1 if the target aircraft is at a lower altitude
- - 4 if the target aircraft is at altitude 0

The target aircraft (Target) adds:

- + Radar Counter-measures (C/M) rating
  - + 2 Range between aircraft is ≥5 hexes

If the modified Target die roll is greater than or equal to the modified Attacker die roll, then a radar lock-on has not been achieved and a missile cannot be fired

If the modified Attacker die roll is greater than the modified Target die roll, then a radar lock-on has been achieved and a missile may be fired.

Remember; in order to fire a radar-guided missile the range to the target aircraft must be between the minimum and maximum range for the missile. If a radar-guided missile is fired outside of these ranges, it will automatically miss. The range to the target is equal to the number of hexes the firing aircraft is

from the target, plus the difference in altitude between the two aircraft. (Example: An F-15 is attempting to lock onto a MiG-21 that is 3 hexes away. The F-15 is at altitude level 4 and the MiG-21 is at altitude level 1. The range between the F-15 and MiG-21 is 6.)

A player need only check for radar lock once, even if he does not fire the lock-on will be maintained as long as the target remains in the radar cone and the target lock is not broken. The lock is lost if the firing aircraft tries to lock onto another target, if the target moves out of the aircraft's radar cone, or if the target aircraft breaks the lock. (Note: Some aircraft may lock onto and maintain radar locks on several aircraft, this ability is noted in the notes section of the Aircraft Control Card).

A radar-guided missile travels 5 hexes per impulse. So, if the target aircraft is at a range greater than 5, it will take several impulses for the missile to reach the target. During the impulses between the missile launch and until the missile reaches the target, the target aircraft MUST stay in the radar cone of the firing aircraft and the aircraft must maintain a missile lock. If this is not the case, then the missile automatically misses. (Exception: Active Radar Homing missiles do not require the attacking aircraft to maintain a radar lock after launch.)

Each radar-guided missile has a Hit # which shows the effectiveness of the missile. The Hit # is used when checking for hits during the Missile Impact Segment and may be modified by the position from which the missile was fired.

7.1.1c Breaking a Missile Lock

During the Break Lock/Missile Launch Segment aircraft that were previously locked onto may attempt to break the enemy's radar lock. The Break Lock attempt is done in the same manner as a standard radar lock attempt. If the Break Lock attempt fails, the player with the radar lock may fire a radar guided missile and radar-missiles that were previously fired will continue to track. If the target is trying to break the lock of an Active Radar Homing missile, use the missile's radar value instead of the attacking aircraft's radar value.

7.1.2 Missile Launch

In the Missile Launch Segment of the Impulse, all eligible aircraft may fire a missile. An aircraft can only fire 1 missile at 1 target during the Missile Fire Segment (Note: some aircraft may fire more than one missile per impulse or fire missiles at different target aircraft, these aircraft will have this ability noted in the notes section of the Aircraft Control Card). An aircraft can fire either heat-seeking or radar-guided missiles during this segment, but not both.

To be eligible to fire a missile the following conditions must be met:

The aircraft must have missiles available to fire.

• The aircraft must be in firing position (as shown on the appropriate diagram for heat-seeking missiles OR have a lock-on and be within the range restrictions for radar-guided missiles).

• Missiles may not be launched at a target in the same hex and altitude as the firing aircraft.

• If the aircraft climbed during the Impulse, it may not fire at aircraft at lower altitudes.

• If the aircraft dove during the Impulse, it may not fire at aircraft at higher altitudes.

If the aircraft is eligible and the controlling player wishes to fire a missile, the player announces that a missile is being fired, announces the missile's target, and places a marker on the target, to note that it is the target of a missile attack. Then the player moves the ammo marker for the appropriate type of missile to show the expenditure. Players should also note the Hit # for the missile (see specific missile type for this number) modified by the firing position and, for radar-guided missiles, the number of impulses until the missile will reach the target (Note: heat-seeking missiles reach the target on the next impulse).

7.1.3 Missile Impact

In Missile Impact Segment of the Impulse, all aircraft with missile markers on them must check for missile impact.

If a heat-seeking missile was fired at the aircraft, check for impact on the impulse after the missile was fired. If a radar-guided missile was fired at the aircraft, check for impact on the impulse that the missile reaches the target aircraft (a radar-guided missile moves at 5 hexes per impulse).

To determine if a missile hits the target aircraft the player that fired the missile and the player controlling the target aircraft each roll a die and modifies it as follows: (Note: For radar-guided missiles, if the target aircraft is outside the radar cone of the firing aircraft and the missile is not an active homing missile, then the missile automatically misses)

The player that fired the missile (Attacker) adds:

+ Modified Missile Hit # (the specific missile type hit # modified by the firing position modifier)

• +4 if the target aircraft used afterburner in this Impulse (heat-seeking missiles only)

• -2/-3 target aspect(RH missiles only)

• + 4 if firing aircraft is not spotted (optional)

The player controlling the target aircraft adds:

• + Counter-measures (C/M) rating of the aircraft for the missile type (heat-seeking or radar-guided)

• + Pilot Ability for the target aircraft (Green or Inexp. = 0, Average = 1, Experienced = 2, Ace = 3)

• + 3 if the target aircraft just completed or is in the process of doing a Loop or Hard Turn maneuver.

• + 2 if the target air-

craft is at altitude 0

• + 3 if successfully completed Break Contact, but being chased by missile (see rule 7.1.4 Missile Impact vs. Break Offs).

If the modified Target die roll is greater than or equal to the modified Attacker die roll, then the missile has missed

If the modified Attacker die roll is greater than the modified Target die roll, then the missile has hit the target.

If the missile hits the target aircraft, it takes a number of hits equal to the *difference* between the modified Attacker die roll and the modified Target die roll. Mark this number of hits off on the Aircraft Control Card for the target. In addition the target aircraft automatically suffers one Critical Hit and will suffer another Critical Hit for each 3 points of damage done by the missile.

7.1.4 Missile Impact vs. Break Offs

If a missile is due to impact an aircraft that has successfully broken contact, there is still a chance that the missile will hit the aircraft. During the Missile Impact Segment players will check for impact on aircraft that broke contact at the beginning of the impulse first. The check is done normally except that the aircraft that broke contact gets a +3 die roll modifier (in addition to any modifiers for altitude and maneuver).

If an aircraft fired a radar guided missile, but breaks contact before the missile impacts, the missile automatically misses.

7.1.5 Emergency Maneuvers (Optional Rule)

When an aircraft has a missile fired at it, there is a chance the target aircraft can spot the missile and begin emergency maneuvering. The aircraft needs to roll as if for a spotting attempt, adding +3 (early missiles had a big flash and smoke trails). If the missile is spotted (this includes heatseekers which hit that turn), then the target aircraft can replace it's current Maneuver Marker with a Tight Turn or Loop, which will give it the positive modifiers to defeat the missile.

7.0 Air to Air Combat (cont.)

7.2 Gun Attacks

Gunfire takes place in the Gun Segment of the Impulse. An aircraft can only fire at 1 target during the Gun Segment. The side that has the Initiative Marker may attack with all of its aircraft that moved during the impulse, and then the side without the marker may attack. The effects of a gun attack are determined and applied immediately. This means that the player with the initiative may shoot down an enemy plane before it can fire. In order to be eligible to fire the firing aircraft must meet the following conditions:

- The firing aircraft must be equipped with a gun (or gun pod) and have ammunition remaining.

- The firing aircraft must be in a hex adjacent to the target, pointing at the target, and within one altitude level OR in the same hex as the target one altitude level above or below the target OR in the same hex at the same altitude.

- If in the same hex as the target at the same altitude, the firing aircraft must be facing the same direction as the target and be the last aircraft to enter the hex. If the aircraft entered the hex in the same impulse and are facing the same direction, only the slowest aircraft (after all adjustments for maneuvers and climb/dive) may fire.

- If the aircraft climbed during the Impulse, it may not fire at aircraft at lower altitudes.

- If the aircraft dove during the Impulse, it may not fire at aircraft at higher altitudes.

If the aircraft is eligible to fire and the controlling player wishes to use gunfire, the player announces that gunfire is taking place and announces the target aircraft. Then the player moves the ammo marker for the guns to show the expenditure of ammunition.

To determine if gunfire hits the target aircraft the player that fired and the player controlling the target aircraft each roll a die and modify it as follows:

The player that fired guns (Attacker) adds:

- Gun Attack Value (see specific Aircraft Control Card for this number)

- - The number shown on the Gun Firing Position Diagram

- + 4 Ace Pilot

- + 2 Experienced Pilot

- - 2 Green Pilot

- + 4 if firing aircraft is not spotted (optional)

The player controlling the target aircraft adds:

- + Defense Factor of aircraft

- + 2 Ace Pilot

- + 1 Experienced Pilot

- If the modified Target die roll is greater than or equal to the modified Attacker die roll, then the attacker has missed

- If the modified Attacker die roll is greater than the modified Target die roll, then the target has been hit.

If the target is hit, the attacking player compares the *difference* between the modified Attacker die roll and the modified Target die roll to the Gun Combat Information Chart on the Control Card for the attacking aircraft. The number shown under the difference is the number of hits the target aircraft takes. Mark this number of hits off on the Control Card for the target. In addition, the target aircraft will suffer a Critical Hit for each 3 points of damage done by the gunfire.

8.0 Damage Effects

Each aircraft is rated for a certain amount of damage that it can take. There are no restrictions on aircraft performance or operation due to damage, except for the restrictions imposed by critical hits, until an aircraft exceeds its maximum damage level. Once an aircraft's damage exceeds its maximum level (hits move into the gray portion of the damage track), the aircraft is treated as a loaded aircraft for the remainder of the game (with all the speed and maneuver restrictions).

Aircraft are only shot down by Critical Hits. A Critical Hit represents major damage to a section of the aircraft, the way that critical hits are received is explained below. The effects of critical hits are explained on the Critical Hit Table.

There are several ways to score critical hits on the target aircraft:

1. The aircraft takes a hit from a missile; roll once on the Critical Hit Table.

2. For every multiple of 3 damage points (rounded down) inflicted during a single combat, roll once on the Critical Hit Table. (Example: if 6 damage points are inflicted, the attacker would roll twice on the Critical Hit Table, if 5 damage points are inflicted, the attacker would roll once on the Critical Hit Table)

3. If the maximum damage level for an aircraft has been exceeded, the attacker rolls once on the Critical Hit Table for each damage point above the maximum level inflicted on the aircraft. (Example: an aircraft that can take a maximum of 5 damage points and already has 4 damage

8.0 Damage Effects (cont.)

points. It is fired on and has 3 more damage points inflicted on it. The attacking player would then roll 3 times on the Critical Hit Table, once for inflicting 3 damage points and two more times for each damage point over the maximum damage level for the target aircraft.)

For each Critical Hit, the attacking player rolls on the Critical Hit Table. Certain results will have no effect on the aircraft (the damage was to a non-vital section or the damage was not as bad as it could have been), some results will cause the immediate loss of the aircraft and others will limit the maneuverability the aircraft. When a critical hit which limits the ability of the aircraft is scored, mark the hit on the Control Card for the damaged aircraft. The effects of each critical hit are explained on the Critical Hit Table.

8.2 Ejecting

A pilot (or crew) may attempt to eject from an aircraft when it is destroyed. The player controlling the destroyed aircraft rolls one die for the pilot (or crew) and modifies the result. If the modified die roll is greater than or equal to 3, the pilot/crew has successfully ejected from the aircraft. The ejection die roll is modified as follows:

- 2 if the pilot is wounded

- 3 if the aircraft was on fire when the ejection was attempted

- 2 if the aircraft was destroyed by a Major Damage Critical Hit

- 4 if the aircraft was destroyed because it was in a Hard Turn/Loop maneuver when it received a Structural Damage Critical Hit.

9.0 Fire Check Segment

After aircraft move in an impulse, All aircraft that are on fire (Critical Hit # 8) check to see if they can put out the fire. The player controlling the aircraft rolls one die and modifies it based on the aircraft's speed (as below). If the result is >9, then the fire is out and the aircraft continues normal operations. If the result is ≤8, then the fire is still burning. If the result is ≤5, then the player rolls for damage on the Critical Hit Table (if a second Fire Critical Hit is rolled the aircraft is lost).

Modify the Fire Die Roll as follows:

+3 If current speed is >7

+2 If current speed is 6 - 7

+1 If current speed is 4 – 5

+1 If the aircraft dove during the impulse

+2 If Ace Pilot

+1 If Experienced Pilot

-1 If Green Pilot

10.0 Disengaging & Break-Off Checks

An aircraft can leave the map and the game by flying off the map edge or by making a successful break-off attempt. Aircraft that leave the game in either of these manners may not return to the map for the rest of the game.

Flying off the map to disengage is only allowed if playing with a static map (this is determined at the beginning of the game). If players are not playing with a static map, then the aircraft are all shifted on the map a number of hexes to keep all aircraft on the map.

Break-Off Checks are done after Set Speed Phase. In order to attempt a Break-Off Check the aircraft must not have an enemy aircraft in a tailing advantage position. Any aircraft that meet this restriction may attempt to break-off.

To determine if the break-off is successful the player controlling the aircraft that is breaking-off and any enemy player each roll a die and modify it as follows:

The player attempting to break-off adds:

+ 2 If it is Game Turn 1, 2, or 6

+ 4 If it is game turn 7, 8, or greater

- 2 If it is game turn 3, 4, or 5

+ 1 Ace Pilot

- 2 Green Pilot

- + 5 If aircraft is not spotted (optional)

- If the enemy player's die roll is greater than or equal to the modified break-off die roll, then the aircraft was unable to break-off.

- If the modified break-off die roll is greater than the enemy player's die roll, then the aircraft has broken off and is removed from the game. Note: any missiles fired at the aircraft still have a chance to hit the aircraft (see rule 7.1.4 Missile Impact vs. Break Offs).

11.0 Loaded Aircraft

Loaded aircraft have certain speed and maneuverability restrictions placed on them. In *Phantoms* an aircraft is considered loaded if it is carrying air to ground ordnance, loaded external fuel tanks, or has damage that exceeds its maximum damage level. Aircraft that are carrying air to ground ordnance or loaded external fuel tanks may jettison these during any

Maneuver Marking Phase to lose the maneuver and speed restrictions for being loaded.

Loaded aircraft may not exceed the Max. Load Speed noted on the Control Card for the aircraft. They may not do any Hard Turn or Loop maneuvers, all other

maneuvers have one hex added to the number of hexes needed to complete the maneuver and all maneuvers.

12.0 Pilot Quality

There are five levels of Pilot Quality on *Phantoms*: Green, Inexperienced, Average, Experienced, and Ace. Each Pilot Quality type and its effects are explained below:

12.1 Green Pilot

A Green Pilot is one that has minimal training and little to no experience in an aircraft or a poor quality Inexperienced Pilot. This pilot would most likely be found flying for third world nations.

Green pilots must check for loss of control of their aircraft any time that they do a Hard Turn or Loop Maneuver. When trying to Lock-On with Radar Homing missiles, get a radar spot or a visual spot, there is a -2 to the attempt. When firing guns, there is a -2 modifier to all shots. They have a missile defense modifier of 0.

12.2 Inexperienced Pilot

This pilot has standard pilot training, but no advanced training and little to no experience or a poor quality Average

Pilot. This pilot would be found flying for third world nations and possibly as a beginner in more advanced air forces.

Inexperienced pilots must check for loss of control of their aircraft any time they do a Hard Turn. They have a missile defense modifier of 0.

12.3 Average Pilot

This pilot has standard pilot training, some advanced training and some experience. This would be the standard pilot found in most advanced air forces around the world.

Average pilots have no special modifiers for attacks or missile Lock-On attempts. Average pilots have a missile defense modifier of 1.

12.4 Experienced Pilot

This pilot has a high level of experience, with lots of advanced training and some combat time. Some pilots of this quality would be found in NATO nations and the Soviet Union. Most Israeli

pilots would rate as Experienced.

When trying to Lock-On with Radar Homing missiles, there is a +1 modifier to the Lock-On attempt. When firing guns, there is a +2 modifier to all shots. When fired at with guns they have a +1 defense modifier. They have a missile defense modifier of 2.

12.5 Ace Pilot

This pilot has an extremely high level of experience, with lots of advanced training and several combat kills. Some pilots of this quality would be found in NATO nations, the Soviet Union, and Israel.

When trying to Lock-On with Radar Homing missiles, there is a +2 modifier to the Lock-On attempt. When firing guns, there is a +4 modifier to all shots. When fired at with guns they have a +2 defense modifier. They have a missile defense modifier of 3.

13.0 Spotting (Optional)

During the game it is assumed that each side knows that the other side has aircraft in the area and spotting is assumed to occur without any special rules. However, in some cases players may want to use the spotting rules to add realism or show how important it is to know the precise location of the enemy. It will require extra bookkeeping for players to

keep track of which aircraft are spotted. There are two ways to spot in *Phantoms*: Radar and Visual Spotting. Each is explained below.

Players may use their

radar to spot enemy aircraft. To spot an enemy aircraft the spotting player must have enemy aircraft in its radar cone. A player may attempt to spot any number of enemy aircraft with radar.

13.0 Spotting (cont.)

A radar-spotting attempt is made during the Spotting Segment. The player attempting to spot declares which enemy aircraft he will try to spot, then each player rolls a die to check for a successful radar spot. The die roll for each player is modified as follows:

The player attempting to spot (Spotter) adds:

+ Aircraft's Radar Value

+ 2 Ace Pilot

+ 1 Experienced Pilot

- 2 Green Pilot

+ 1 if the target aircraft is at a higher altitude

- 1 if the target aircraft is at a lower altitude

- 4 if the target aircraft is at altitude 0

The target aircraft (Target) adds:

- Radar counter-measures (C/M) rating of the aircraft

- If the modified Target die roll is greater than or equal to the modified Spotter die roll, then a radar spot has not been achieved.

- If the modified Spotter die roll is greater than the modified Target die roll, then a radar spot has been achieved.

A player must check for spotting for each enemy aircraft and if the enemy aircraft moves out of the radar cone of the spotting aircraft the radar spot is lost. The radar spot is also lost if the spotting aircraft goes into a spin. Friendly aircraft may share radar-spotting information.

13.2 Visual Spotting

In certain situations players may want to limit the ability of one side to fire unless they have a visual spot on the target. Visual spotting attempts are made during the Spotting Segment.

Each aircraft may only attempt to visually spot 1 enemy aircraft during each Spotting Segment. The maximum range for visual spotting is 10. The range is equal to the number of hexes the spotting aircraft is from the target, plus the difference in altitude between the two aircraft. The player attempting to spot declares which enemy aircraft he will try to spot, then each player rolls a die to check for a successful visual spot. The die roll for each player is modified as follows:

The player attempting to spot (Spotter) adds:

+ 3 Ace Pilot

+ 2 Experienced Pilot

-2 Green Pilot

+ 3 if spotter has radar spot or Lock-On on the target aircraft OR the spotter has an off-map controller (ground or air)

+2 if the spotter aircraft has an all-round vision canopy

+2 If target aircraft is large

+ 1 if the spotter aircraft has 2 (or more) crew

- 2 if the target aircraft is at altitude 0

The target aircraft (Target) adds:

+ Range between aircraft

+1 if aircraft is small

- If the modified Target die roll is greater than or equal to the modified Spotter die roll, then a visual spot has not been achieved.

- If the modified Spotter die roll is greater than the modified Target die roll, then a visual spot has been achieved.

An aircraft may have a visual spot on any number of enemy aircraft. Generally, friendly aircraft may not share visual spots, but "wingmen" may share visual contacts. At the beginning of the game a pair of aircraft (of the same type) may be designated as "wingmen". These two aircraft may share visual contact information as long as both aircraft are 5 or fewer hexes from each other. If they move outside of 5 hexes they lose the ability to share contacts,

but still retain all current contacts. The wingmen relationship is re-established when the aircraft move within 5 hexes of each other.

Visual spots are lost in the following situations:

- If the enemy aircraft moves out of the 10 hex range for spotting.

- If an aircraft fires guns at a target, the aircraft loses the visual spot of all enemy aircraft, except the target. Exception: wingmen rule described above).

- If an aircraft goes into a spin it loses all visual spots.

14.0 Countermeasures

Countermeasures are somewhat abstracted in *Phantoms* and can represent flares, internal jamming mechanisms, external pods, and even national training. This section provides some recommended countermeasure values that players can use when they are designing their own scenarios. The values given are guidelines and players can feel free to modify the values depending on their scenario.

There are two types of countermeasures in *Phantoms*; IR (infrared) and Radar countermeasures. IR countermeasures are used to defend against attacks by heat-seeking missiles. Radar countermeasures are used to defend against radar lock-on attempts and to defend against attacks by radar-guided missiles. The countermeasure values are given below and are organized by era and country, country type, or group.

Before 1960		
Country/Group	**Radar**	**IR**
US	1	1
Russia	0	1
NATO	1	1
Warsaw Pact	0	0
2nd World	0	0
3rd World	0	0

1960 to 1969		
Country/Group	**Radar**	**IR**
US	2	1
Russia	1	1
NATO	1	1
Warsaw Pact	0	0
2nd World	0	0
3rd World	0	0

1970 to 1979		
Country/Group	**Radar**	**IR**
US	3	3
Russia	2	2
NATO	2	2
Warsaw Pact	1	2
2nd World	1	2
3rd World	0	0

1980 to 1989		
Country/Group	**Radar**	**IR**
US	4	4
Russia	3	4
NATO	3	4
Warsaw Pact	3	3
2nd World	2 or 3	3
3rd World	2	2

1990 to current		
Country/Group	**Radar**	**IR**
US	6	6
Russia	4	4
NATO	5	5
2nd World	4	4
3rd World	2	3

14.0 Stealth (optional)

For those gamers who wish to explore the new era of air combat featuring stealth fighters, use these optional rules:

- When attempting to use radar to spot or acquire a lock on to fire a radar guided missile, and when defending against radar guided missiles, the stealth target aircraft rolls 1D6 and adds that to the radar countermeasures rating.

- The normal +3 modifier for having ground control/AWACs assistance in spotting is reduced to a +1.

- These rules apply to aircraft such as the F-22, F-35, and F-117. Other aircraft with stealth materials, but not true stealth aircraft, such as the Eurofighter and Rafaele should be given additional modifiers to be decided by the referee for the scenario.

Note: If you're thinking this makes a F-22 almost impossible to kill with radar guided weapons, you're correct! Your best chance is to close the range, don't lose visual contact, and use heat-seekers.

15.0 5 Impulse System (Optional Rule)

By Gordon Colter

This system cuts down the 10 impulse game turn into only five impulses. Aircraft moving faster than Speed 6 can sometimes move twice in an impulse. Your group will need to come up with rules for marking maneuvers twice in a turn, but it will play much faster. Remember, radar guided missiles will move much faster using this system.

	Speed									
Impulse	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1			x	x	x	x	x	xx	xx	xx
2		x		x	x	x	xx	xx	xx	xx
3	x		x		x	x	x	x	xx	xx
4		x		x	x	xx	xx	xx	xx	xx
5			x	x	x	x	x	x	x	xx

15.1 Hidden Maneuver Markers (Optional Rule)

While the basic Phantoms rules prefer that all maneuver markers are placed out in the open(which is why gaining the initiative is so important), a much more challenging game can be had by having all maneuver markers hidden. Once an aircraft reaches the marker it is flipped over and the aircraft performs that maneuver. The exception to this is if an aircraft is deemed to be tailing another aircraft, the disadvantaged aircraft must tell his/her opponent that the maneuver marker is a left/right turn or straight. You don't have to reveal if it's a loop or tight turn, just the basic direction. This makes the game much more challenging as both sides need to guess and anticipate what their opponents will be doing. It also make for a much more chaotic game, which is a pretty accurate portrayal of modern air combat.

This will, however, make the Initiative segment pretty unnecessary except to determine who shoots first in the same hex.

15.2 Missile Launch Rolls (Optional Rule)

Early air to air missiles were notorious for failing on launch. Whenever a missile is fired a D10 is rolled. After modifiers are applied , if the number is higher than the missile's launch number, the launch has failed and that missile is lost. As the technology improved, the chances of this happening are greatly reduced.

U.S./NATO (1960-1975)	8
Warsaw Pact/Russia (1960-75)	7
U.S./NATO (1976-1990)	9
Warsaw Pact/Russia (1976-1990)	8
U.S./NATO (1990-Present)	10
Others (1990-Present)	9

Modifiers

Firing aircraft in tight turn or loop   +1

Firing aircraft at Level 2 or higher, firing at enemy at Level 0 or 1(1960-85)   +1

Heatseeker fired at enemy aircraft in sun arc +1(1960-1980)

Game Reference Chart p.1

Game Turn Track

1 (+1)	2 (+1)	3 (-2)	4 (-2)	5 (-2)	6 (+2)	7 (+4)	8 (+4)

Break Off modifiers are shown in parentheses. Other modifiers:

+1 Ace pilot

-2 Green pilot

+5 if aircraft not spotted(optional)

Movement Impulse Chart

Im-pulse	Speed 1	2	3	4	5	6	7	8	9	10
1				X	X	X	X	X	X	X
2			X				X		X	X
3		X				X		X	X	X
4				X	X		X	X	X	X
5	X		X		X	X	X	X		X
6								X	X	X
7				X	X	X		X	X	X
8		X						X	X	X
9			X			X	X		X	X
10				X	X	X	X	X	X	X

Sequence of Play (page 2)

1) Set Speed Phase
2) Break-Off Check Phase
3) Impulse Phase
- Movement Segment
- Fire-Check Segment
- Afterburner Segment
- Spotting Sement (optional rule)
- Missile Impact Segment
- Gun Segment
- Break Lock/Missile Launch Segment
- Radar Lock segment
- Maneuver Marking segment

4) Impulse End

D10 Critical Hit Table (p 16)

1-3	Minor Damage
4	Pilot Wounded
5-6	Structural Damage
7	Engine Hit
8	Fire Check
9-10	Major Damage

Losing Control of an Aircraft & Recovery Checks

Condition   **Loss of Control Checks**   **Recovery Checks**

Hard Turn:	Safe	OOC
Green	1 - 4	5 - 10
Inexperienced	1 - 6	7 - 10

Recovered	OOC
1 - 4	5 - 10
1 - 6	7 - 10

Loop	Safe	OOC
Green	1 - 4	5 - 10

Recovered	OOC
1 - 4	5 - 10

0 Speed	Safe	OOC
Green	1 - 4	5 -10
Inexperienced	1 - 6	7 - 10
Average/ Experi-enced/ Ace	1 - 8	9 - 10

Recovered	OOC
1 - 4	5 - 10
1 - 6	7 - 10
1 - 8	9 - 10

Game Reference Charts p.2

Heat Seeking Missile Charts
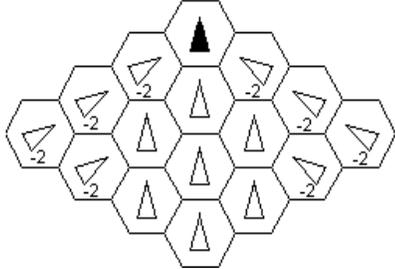
Wide Aspect
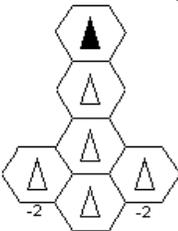
Narrow Aspect

All Aspect

Gun Firing Modifiers

Firing at different altitude	-2
Firing at spinning aircraft	+2
Firing aircraft in Hard Turn/Loop	-3
Firing aircraft in Turn/Slideslip	-2
Pilot quality: Green	-2
Pilot quality: Experienced	+2
Pilot quality: Ace	+4
Pilot wounded	-1
Firing at an Ace:	+2(for target)
Firing at Experienced	+1(for target)
Gun Position Modifiers:	(see chart)
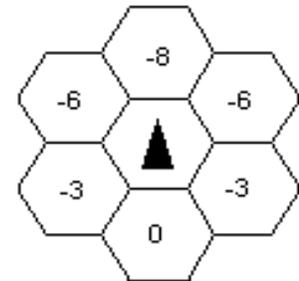
Gun Position Modifiers Diagram

Heat-Seeking Attack Modifiers

Attacker adds:

+ Modified Missile Hit # (the missile hit # modified by the firing position modifier)

+ 4 if the target aircraft used afterburner in this Impulse

+ 4 if firing aircraft is not spotted (optional)

Defender adds:

+ IR Counter-measures (C/M) rating of the aircraft

+ Pilot Ability for the target aircraft (Green or Inexp. = 0, Avg = 1, Exp = 2, Ace = 3)

+ 3 if the target aircraft just completed or is in the process of doing a Loop or Hard Turn maneuver.

+ 2 if the target aircraft is at altitude 0

+ 3 if successfully completed Break Contact, but being chased by missile (see rule 7.1.4).

Radar Guided Missiles: Lock On Modifiers

+ Aircraft's Radar Value

+ 1 Experienced Pilot

+ 1 if the target aircraft is at a higher altitude

- 4 if the target aircraft is at altitude 0

+ 2 if range between aircraft is ≥5 hexes

+ 2 Ace Pilot

- 2 Green Pilot

- 1 if the target aircraft is at a lower altitude

+ Radar Counter-measures (C/M) rating of the aircraft (target only)

Radar Arc

Radar Guided Missiles: Hit # Modifiers

Attacker Adds:

+ Missile Hit #

Firing from target's front aspect: -3

Firing from target's side aspect: -2

+ 4 if firing aircraft is not spotted (optional)

Defender Adds:

+ Radar Counter-measures (C/M) rating of the aircraft

+ Pilot Ability for the target aircraft (Green or Inexp. = 0, Avg = 1, Exp = 2, Ace = 3)

+ 3 if the target aircraft just completed or is in the process of doing a Loop or Hard Turn maneuver.

+ 2 if the target aircraft is at altitude 0

+ 3 if successfully completed Break Contact, but being chased by missile (see rule 7.1.4).

Critical Hit Results

Roll anytime hit by a missile or 3 or more points damage are scored or aircraft damage level is exceeded)

Roll	Effect	Roll	Effect
1-3	Minor Damage, no effect	7	Engine Hit, use Damaged Engine on Control Card. 2nd hit = Treat as #10
4	Pilot Wounded, no more Hard Turns or Loops (may complete current maneuver, but if Hard Turn or Loop check for spin as Inexp.), -1 when firing, -2 for eject. 2nd hit = Pilot Killed, remove aircraft.	8	Fire, check to see if put out Fire-Check Segment. Must roll >9 to put out fire. If ≤5 roll for critical hit. If second Fire critical hit, aircraft destroyed. -3 for eject.
5-6	Structural Damage, no more Hard Turns or Loops (if doing Hard Turn or Loop aircraft breaks up, -4 for eject). 2nd hit = Treat as #10	9-10	Major Damage, aircraft is lost, remove from game. -2 for eject.

Eject Survival Roll D10

If the modified die roll is greater than or equal to 3, the pilot/crew has successfully ejected from the aircraft

- 2 if the pilot is wounded

- 3 if the aircraft was on fire when the ejection was attempted

- 2 if the aircraft was destroyed by a Major Damage Critical Hit

- 4 if the aircraft was destroyed because it was in a Hard Turn/Loop maneuver when it received a Structural Damage Critical Hit.

Fire Check Table D10

≥9 Fire is out/≤8 Fire continues/≤5 Critical Hit

+3 If current speed is >7

+2 If current speed is 6 - 7

+1 If current speed is 4 – 5

+1 If the aircraft dove during the impulse

+2 If Ace Pilot

+1 If Experienced Pilot

1 If Green Pilot

Pilot Skill Summary

Green

Green pilots must check for loss of control of their aircraft any time that they do a Hard Turn or Loop Maneuver. When trying to Lock-On with Radar Homing missiles, get a radar spot or a visual spot, there is a -2 to the attempt. When firing guns, there is a -2 modifier to all shots. They have a missile defense modifier of 0.

Inexperienced

Inexperienced pilots must check for loss of control of their aircraft any time they do a Hard Turn. They have a missile defense modifier of 0.

Average

Average pilots have no special modifiers for attacks or missile Lock-On attempts. Average pilots have a missile defense modifier of 1.

Experienced

When trying to Lock-On with Radar Homing missiles, there is a +1 modifier to the Lock-On attempt. When firing guns, there is a +2 modifier to all shots. When fired at with guns they have a +1 defense modifier. They have a missile defense modifier of 2.

Ace

When trying to Lock-On with Radar Homing missiles, there is a +2 modifier to the Lock-On attempt. When firing guns, there is a +4 modifier to all shots. When fired at with guns they have a +2 defense modifier. They have a missile defense modifier of 3.

Phantoms Missile Data

Heat Seeking	Sub-Type	Hit #	Notes
AIM-9B Sidewinder	HN	6	US
AA-2a/b Atoll	HN	5	USSR/Russia
AA-3b Anab	HN	6	USSR/Russia
AIM-4 B/C Falcon	HN	5	US, only used by US Air Force
Matra 530	HN	6	France
Firestreak	HN	5	UK
Red Top (early)	HN	7	UK
Shafir	HN	5	Israel
PL-2	HN	5	PRC, Chinese copy of AA-2
AIM-9D – J Sidewinder	HW	6/7	US, D-F model = 6, G-J model = 7
AIM-4D Falcon	HW	6	US, only used by US Air Force
R 550 Magic	HW	7	France
Red Top (late)	HW	7	UK
Shafir 2	HW	7	Israel
AA-6b Acrid	HW	7	USSR/Russia
AA-7 Apex	HW	7	USSR/Russia
PL-7	HW	6	PRC
AIM-9 L/M	HA	9/10	US
Magic 2	HA	9	France
Python 3	HA	9	Israel
AA-8a Aphid	HA	7	USSR/Russia
AA-10b Alamo	HA	9	USSR/Russia
AA-11 Archer	HA	10	USSR/Russia
Sky Sword I	HA	7	ROC

Radar Guided	Min Range	Max Range	Hit #	Notes
AIM-4 E/F Falcon	3	8	6	US, only used by US Air Force
AIM-7E Sparrow	4	32	7	US
AIM-7 F/M Sparrow	4/3	62	9	US
AIM-120 AMRAAM	2	80	12	US, Active Radar homing missile: firing aircraft does not need to maintain radar lock or target in forward arc after missile is launched. This missile has a radar value of 7.
AIM-54c Phoenix	3	120	10	US, Active Radar homing missile: firing aircraft does not need to maintain radar lock or target in forward arc after missile is launched. Large warhead: roll twice on critical hit table. This missile has a radar value of 6.
Matra 530	4	20	6	France
Skyflash	3	62	8	UK
AA-2c Atoll	3	7	5	USSR/Russia
AA-3a Anab	3	9	6	USSR/Russia
AA-5	4	36	7	USSR/Russia
AA-6a Acrid	4	36	6	USSR/Russia, Large warhead: roll twice on critical hit table
AA-7a Apex	3	26	7	USSR/Russia
AA-10a Alamo	3	60	9	USSR/Russia
PL-8	4	36	6	PRC
Sky Sword II	3	30	6	ROC

Examples of Play

1. Gun Combat

A Mig-21 at altitude 5 is shooting at an F-4 at altitude 4. The Mig pilot is Green while the F-4 pilot is Experienced.
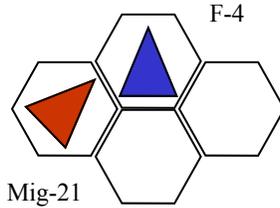
Since the Mig-21 is one hex away and there is less than one level of altitude difference, the Mig can take the shot. The factors are added up as follows:

Mig-21

Mig-21 Cannon rating:	+6
Gun Angle:	-3
Green Pilot:	-2
Firing at a different altitude:	-2

Final die roll modifier: -1

F-4

|	
Defense vs. Guns:	+4
Experienced Pilot:	+2

Final die roll modifier: +6

The Mig-21 player rolls 1D10 and gets a 9, which after the modifiers becomes a 8(9[die roll]-1[modifiers]=8). The F-4 player rolls 1D10 and gets a 1, which when adding the modifiers becomes a 7(1[die roll]+6[modifers]=7). The difference in the gun combat is one. Cross referencing the result on the Mig-21's Gun Combat Table results in 2 points of damage to the F-4.

If the Mig-21 had scored one more point of damage, the F-4 player would have had to roll for a Critical Hit. Likewise, if the F-4 had been in a Loop or a Hard Turn, the F-4 would have been almost impossible to hit from that angle.

2. Heat Seeking Missile Combat

Over the landings at San Carlos in the Falklands a British Sea Harrier fires a Sidewinder at an Argentine Skyhawk. Both pilots are average and the Skyhawk has jettisoned it's bombs and is doing a Hard Turn. The factors add up as follows:
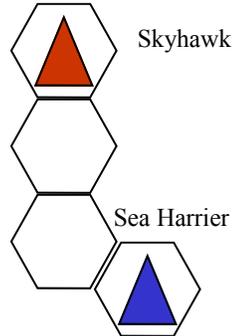
Sea Harrier

AIM-9L:	+7
Position Modifier:	+0

Final die roll modifier: +7

Skyhawk:

Countermeasures:	+2(1980-89 3rd World)
Hard Turn:	+3

Final die roll modifier: +5

The Sea Harrier player rolls 1D10 and gets a 5, which with the modifiers for the AIM-9D becomes a 12(5 + 7[AIM-9D]). The Skyhawk players rolls 1D10 and gets a 4, which becomes a 9 after the modifiers(4 +5[Countermeasures + Hard Turn]). The final difference is 3, which means that the Skyhawk takes three damage points and an automatic critical hit from the missile. The Skyhawk also takes an additional critical hit because of taking three hits in the same turn. More than likely the Skyhawk will tumble out of the sky in flames.

3. Radar Homing Missile Combat

An Israeli F-15 over the Bekaa Valley fires an AIM-7 Sparrow at an approaching (head on)Syrian Mig-23. The F-15 pilot is Experienced while the Mig-23 pilot is average.

F-15

Front Aspect	-3
AIM-7	+7

Final die roll modifier: +4

Mig-23

Average pilot:	+1
Countermeasures	+3

Final die roll modifier: +4

The F-15 player rolls a 6, which added to the final modifier ends up as a 10. The mig-23 player rolls a 7, which added to the final modifier ends up as an 11. Since the defender(Mig-23) roll is higher than the attacker's(F-15), the missile misses it's target.

4. Radar Lock

A Pakistani F-16 is on a border patrol when an Indian SU-30 crosses the border. The F-16 tries to lock up the SU-30 in case he needs to take a missile shot. The F-16 is head on with a range of 20 hexes and is at altitude 4. The SU-30 is at altitude 5 and both pilots are average.

F-16

Radar Value:	+6
Range >5 hexes:	+2
Target at higher altitude:	+1

Final die roll modifier: +9

SU-30

Countermeasures:	+4

Final die roll modifier: +4

The F-16 player rolls a 5, which added to the modifiers ends up as a 14. The SU-30 player rolls a 7, which added to the final modifier ends up as an 11. The F-16's total is greater than the SU-30's, so the F-16 has "locked up" the SU-30.

Getting Started

So now that you've read the rules and want to play, how do you get started? The best way is to decide on a conflict such as the Arab-Israeli Wars, Vietnam, Iran-Iraq, or any war where airpower was extensively used. Then, you need to determine a figure scale and the availability

of the miniatures that you need. This will have a big effect on what you can or cannot play. If you want to do the Falklands conflict in 1/200th scale, you may have to rethink your plans because there aren't that many miniatures in that scale for that period.

Once you've decided on a period and scale, then you need to decide which miniatures to buy. There are several manufacturers with widely varying styles. GHQ and CinC both make beautiful 1/285th models, but they have many parts and easily break with excessive handling during a game. Other companies have miniatures that are average, but with a good paint job they are great as game pieces and can survive rough handling.

Next, you need to figure out how you want to simulate altitude. Our group, like many others, uses brass tubing cut to certain lengths to show the levels of altitude. A piece of brass wire that will fit

inside the tubing is glued on to the aircraft model. In this way the altitude tubes can be changed easily in a few seconds. We also paint a number of stripes around one end of the tube that show the

altitude level. This is visually the best method as players can easily differentiate the height levels between aircraft.

You can also just base your planes at one height, then use some type of markers to show the altitude level. There is more information on this at the Air Pirates group on Yahoo.

The other major part of the game is naturally what you will be playing on. Again, there are more options than can possibly be discussed here. The most common is a fabric mat, approximately 5' x 9' with 5" hexes marked on the mat. This gives plenty of room for jets to maneuver and allows for multiple aircraft in the same hex. These mats can cost around $75-100 if you don't want to buy the fabric, sew it, then mark several hundred hexes on your own!

Another method is using the 1" hex mats sold for various other games. These can be made of paper, cardboard, fabric, or vinyl. Prices vary greatly, but you can pick up almost any size and color. Another alternative are hex tiles that are used for a variety of games. These can be assembled into a number of game boards that can be used for air gaming.

You will also need a set of maneuver markers for each aircraft. There are some in the Files section on the Air Pirates Yahoo group or you can make your own. Then, a number of aircraft control cards need to be printed out. At first we used counters to mark ammo, speed, altitude, etc…, but we found out that it was much easier to just laminate the aircraft control cards and use grease pencils to mark things.

Once you've accomplished the above, you're ready to play. For your first game it may be best advised to do a battle with cannon armed aircraft only, say some Mig-17s against some F-105s, just to test the system out. In your next battle add in some heat seeking missiles, then finally in your third battle add in

radar and radar seeking missiles. It's best to start slow and get the main game systems down before you get into missiles, as they do add a bit of complexity. Overall, though, the main idea is to have fun and Phantoms does a great job of simulating the excitement of modern jet combat, but without the added on complexity.

1/300th Aircraft Manufacturers

GHQ

CinC

Navwar

Scotia-Grendel

Yahoo Groups

Air Pirates: This egroup focuses on the Phantoms and Mustangs rules for miniatures and is very helpful. There is an extensive files section with additional rules, aircraft data cards, scenarios, and more.

The Miniatures Page

www.theminiaturespage.com

THE site for miniatures wargaming with updated news, manufacturer listings, and numerous discussions about air combat in miniature.

Board Games

There are two outstanding board games that are still in print that deal with Vietnam era jet combat. While significantly more complex than Phantoms, they are great for scenario ideas, tactics, and reference material.

GMT Games-**Downtown**

Clash of Arms-**The Speed of Heat**

INTRUDERS is the air to ground supplement for Phantoms. SAMs, AAA, air to ground weapons, a mission generator, and a solitaire system are available for you to do some "Terrain Alteration" scenarios with your Phantoms aircraft.

The Yahoo Air-Pirates group is very active in discussing air combat, history, and promoting the Mustangs and Phantoms miniatures rules. There are scenarios, optional rules, markers, and aircraft data cards available in the Files section.

Designer Notes-Final Thoughts

The *Phantoms* rules originally started as a way for my local miniatures group to use their modern jet miniatures in a game. We had been playing our miniatures conversion of Avalon Hill's *Mustangs* for a while and wanted a similar system for our jet miniatures. We tried converting several already existing board games to miniatures, but weren't happy with the results. So, the challenge went out to create a set of rules that would use all the equipment we already had (flight stands, hex mats, etc.), be easy enough to play at game conventions, and still resemble air combat.

My first attempt to meet these goals was basically a direct port of the *Mustangs* system to modern jets. But after a couple playtests, I found wasn't really happy with how it turned out. So I went back to the drawing board, throwing out those items that didn't work (or that I didn't like) and keeping those that did. I also looked through my other air games to see about incorporating rules I liked.

I started out by expanding the impulses to 10, with the corresponding increase in speed to give a better feel of fast moving jets. Next, I really wanted to give the game more three-dimensional action. I always felt *Mustangs* was too limiting in with the ability of planes to change altitude and wanted the new rules to allow the jets to take better advantage of altitude changes. A few other changes were made, including a change in the gunfire and damage system, to get the rules ready to playtest.

It took a little while to make sure the kinks were worked out, but the changes played well and the rules were still easy enough for new players to quickly pick up. It was really fun to watch players try to exploit altitude changes during the turn (as opposed to waiting until the Change Phase). With a few more additions, these rules went on to cover the Korean War as *MiG Alley Ace*.

Using the baseline rules of *MiG Alley Ace*, I started work on a version with missiles, radar, countermeasures, and all the other chrome associated with modern jet warfare. These additions added an extra layer of complexity and I wanted to make sure that they wouldn't overwhelm the system. The missiles also added a couple of aspects that hadn't been considered before; one of which was how to handle missiles against aircraft that successfully break off from the action. The rule that is now in place (rule 7.1.4 Missile Impact vs. Break Offs), was added when we were testing the rules with Israeli Mirage IIIs vs. Egyptian MiG-21s over a battle area that included pyramids as low level obstacles. A MiG-21 was being chased by a Mirage; the Mirage finally got in range to take a missile shot, but because the shot was taken at the end of the turn, the MiG had a chance to break off before the missile would impact on the next impulse. The MiG succeeded in breaking off and the rule, originally known as the 'Paul and the Pyramid' rule (named after Paul Hannah, the player that made the successful roll and rationalized that the missile had hit a nearby pyramid instead of his MiG), was added; showing me the extra dimensions involved with missile combat.

After the *Phantoms* rules were completed, my group used them for a few convention games and in our own games, but there wasn't a lot of interest in the rules until after the Air Pirates Yahoo group started to expand. I had posted the rules on the group and had a few people asked about them, but it wasn't until early 2003 when interest in the rules really grew. This caused me to make some rule changes/clarifications, add some new aircraft, and led Matt Irsik to write the *Intruders* Vietnam supplement for the rules. Matt's supplement kicked off another burst of interest in the rules and a reformatting of the rules into the version you are now reading.

If you have any questions or comments about the rules, feel free to post them on the Air Pirates Yahoo group. I or one of the other group members will do our best to respond.

Dave Schueler

After years of playing Air Superiority and The Speed of Heat, our group felt it was impossible to play modern jet combat as a group game because of the complexity. We then came across Phantoms and haven't looked back. Our group has successfully had up to eight players with a total of around 20 jets complete a scenario in under four hours. Phantoms is enjoyable, realistic within historical tolerances, and you can have new gamers playing in a matter of minutes. Hopefully, the rules system will continue to grow and attract new gamers to this exciting period.   Matt Irsik