**TONKIN GULF YACHT CLUB**
**NAVY OVER VIETNAM 65-68**

**Quick Reference Chart (QRC) Page 1**

**AIR-TO-AIR MISSILE SUMMARY** (B5.6)

<table>
<thead>
<tr>
<th>MISSILE TYPE</th>
<th>REAR TARGET</th>
<th>SIDE TARGET</th>
<th>FRONT TARGET</th>
<th>MAL-FUNCTION @10</th>
<th>DMG DICE @10</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA-2 Atoll, AIM-9B Sidewinder</td>
<td>7+ 3 10</td>
<td>No</td>
<td>No</td>
<td>1-3</td>
<td>3 / 5</td>
<td>No launch after Ext. Turn, any Split-S, or Immelman Use Narrow Arc for rear arc of the Target</td>
</tr>
<tr>
<td>AIM-9D Sidewinder</td>
<td>6+ 3 12</td>
<td>No</td>
<td>No</td>
<td>1-2</td>
<td>4 / 6</td>
<td>No launch after Ext. Turn, any Split-S, or Immelman +1 to Malfunction &lt;=1967</td>
</tr>
<tr>
<td>AIM-9C &quot;Mini-Sparrow&quot;</td>
<td>9+ 4 10</td>
<td>12 8 20</td>
<td>11 16 40</td>
<td>1-4</td>
<td>3 / 5</td>
<td>No launch after Ext. Turn, any Split-S, or Immelman</td>
</tr>
<tr>
<td>AIM-7D Sparrow</td>
<td>9+ 6 15</td>
<td>12 8 30</td>
<td>11 16 60</td>
<td>1-4</td>
<td>5 / 7</td>
<td>No launch after Ext. Turn, any Split-S, or Immelman</td>
</tr>
<tr>
<td>AIM-7E Sparrow</td>
<td>9+ 4 20</td>
<td>11 6 40</td>
<td>10 12 80</td>
<td>1-3</td>
<td>5 / 7</td>
<td>No launch after Ext. Turn, any Split-S, or Immelman</td>
</tr>
</tbody>
</table>

**AIR-TO-AIR MISSILE RULES**

Direct Hit: If modified die roll is 2+ more than the to-hit “n” number then use damage dice to the right of slash.

Evasive Action: Target must pass an Awareness Check upon missile launch to identify threat. If successful, the target may elect to execute evasive action and use the defensive modifier (-1) against the incoming missile(s) but then must commit to making an Extreme Turn or Special Maneuver in the next move bringing its nose closer (both in all and distance) to the firing platform. If there is more than one attacking missile, resolve each attack separately including evasive action threat identification; take evasive action based on the last missile attack resolved from the greater distance. Half or Full-Load aircraft must immediately drop ordnance to execute. Aircraft that have declared firing at the start of the Air-to-Air Fire Segment may not take evasive action.

Missile Vertical Envelope: TAL up/down envelope = Hex Range /2, round up.

IR Missile Close Targeting: If other aircraft are within 3-hexes of the target of an IR Missile, within missile envelope (all and range), and present the same or better target profile to the shooter (rear is best defense) then a special maneuver may be executed.

ECM Limits: ECM is effective against all attacking RHM and RHS unless otherwise noted in the scenario.

**GUNS AIR-TO-AIR FIRE SUMMARY** (B5.7)

**AMMUNITION DEPLETION TABLE** (B5.7)

**AIRFRAME ARC DIAGRAM**

**AIR-TO-ROCKET SUMMARY** (V10.52)

**ROBUSTNESS TABLE** (B6.2)

**DAMAGE EFFECT**

- **Engine Damage (Even)** Jet / Prop
  - 4 - Max Speed (min 1); No Burner
  - Crew Check to Climb: Failure = OOC
- **Climb Factor reduced to ¾ or ½**
- **+1 to all Checks**

**GREEN or POOR CREW CONCLUSION RULES** (B3.6.10 Optional)

If a Green (0+) or Poor (-1) crew attempts a Special Maneuver with a 120° turn, they must take a skill check. If passed they execute the move as plotted. If failed roll 1d6.

- 1: Immediately Out of Control
- 2-3: Opposite 120° turn
- 4-6: Standard 180°
**PLAY SEQUENCE** (B Intro)

**TAILING DECLARATION PHASE** (simultaneous)

**MOVE PLOTTING PHASE** (simultaneous)

- Formation Status Segment: Break-up/Drop-out of formation

**MOVEMENT PHASE** (in Move Group order)

- Move Segment: execute move in Move Group order with Pilot Reaction; then make final speed & altitude adjustments
  - Move Group 1: OOC, Bombers, Helos, Green (+0)
  - Move Group 2: Skilled (-1) crew
  - Move Group 3: Veteran (+2) crew
  - Move Group 4: Ace (+3) crew

**DETECTION PHASE** (simultaneous)

- Radar Search & Visual Spotting Segment: attempt to locate friendly or enemy aircraft using radar search and visual spotting

**FIRE PHASE** (simultaneous within each segment)

- Anti-Aircraft Fire Segment: fire SAMs, AAA batteries
  - Lock-on: resolve SAM lock-on
  - Anti-Radiation Aircraft (ARM) Fire: declare fire & SA-2 counter
  - SAM Fire: resolve SAM missile fire
  - Anti-Aircraft Artillery (AAA) Gunfire: resolve surface-to-air gunfire
  - AAA and SAM Suppression Recovery: recover any recover any

- Air-to-Air Fire Segment
  - Declare Boring and Fire Targets
  - Missile Fire: resolve missile fire
  - Air-to-Air Gunfire: resolve air-to-air gunfire

- Surface Attack Segment: resolve surface attacks

**ANTHI-AIRCRAFT ARTILLERY (AAA) SUMMARY**

<table>
<thead>
<tr>
<th>AAA Type</th>
<th>Max Range</th>
<th>Dmg Dice</th>
<th>CASL</th>
<th>CASL/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHT (25-50mm)</td>
<td>11°/12</td>
<td>5 hexes</td>
<td>6d6</td>
<td>6d3</td>
</tr>
<tr>
<td>MEDIUM (50-70mm)</td>
<td>10°/11</td>
<td>10 hexes</td>
<td>4d10</td>
<td>4d10</td>
</tr>
<tr>
<td>HEAVY (75mm+)</td>
<td>11°/12</td>
<td>20 hexes</td>
<td>2d20</td>
<td>LOW – V HIGH</td>
</tr>
</tbody>
</table>

**MODIFIERS**

- **+1 Radar Directed Guns (Medium & Heavy Guns)** + Target ECM vs Radar Directed
- **+1 Flying Under Overcast (V9.0)**

**NEAR-MISS:** Half number of Damage Dice, optional Extreme Turn

Low Alt: Max range is 3 hexes if the target is at TAL 1 in S. LOw CAb over rough/unlevel

**Light & Medium AAA:**

- Pick a target, roll to hit by battery firing, roll for damage and robustness as normal
- Heavy AAA:
  - Blast affects all aircraft in Target Hex and one hex adjacent to Target Hex

**Lucky Hit Table (86.3)**

<table>
<thead>
<tr>
<th>Pilot Killed</th>
<th>Plane Crashed</th>
<th>Pilot Wounded</th>
<th>Crew Check to save aircraft</th>
<th>plane must abort, fail and crash</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Cannon (RIM/THM) vs SAM / AAA**

<table>
<thead>
<tr>
<th>Canon</th>
<th>Pilot Killed</th>
<th>Crew Checks</th>
<th>Pilot Wounded</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMG</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>HMG</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>IRS-M</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**Anti-Aircraft Artillery (AAA) Summary**

<table>
<thead>
<tr>
<th>AAA Type</th>
<th>Max Range</th>
<th>Dmg Dice</th>
<th>CASL</th>
<th>CASL/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHT (25-50mm)</td>
<td>11°/12</td>
<td>5 hexes</td>
<td>6d6</td>
<td>6d3</td>
</tr>
<tr>
<td>MEDIUM (50-70mm)</td>
<td>10°/11</td>
<td>10 hexes</td>
<td>4d10</td>
<td>4d10</td>
</tr>
<tr>
<td>HEAVY (75mm+)</td>
<td>11°/12</td>
<td>20 hexes</td>
<td>2d20</td>
<td>LOW – V HIGH</td>
</tr>
</tbody>
</table>

**Radar Rules**

- **Radar Search:** Radar detects Hidden Aircraft in Radar Search & Visual Spotting Segment.

- **Anti-Rumors:** Aircraft uses arcs specified above for Radar Searchs. Lock-on is only possible in the front arc. Each radar has a maximum detection distance (in hexes) listed in the Aircraft stats or scenario. Aircraftradar detects TAL upward = ½ hex range (round up). Lock-on: Spotting platform missile “Lock-on” to one target in its front arc prior to launch of RH Missiles. The target is locked-on until it fills the board or flies out of the Lock-on platform’s front arc. Lock-on is also lost if the locking aircraft executes an extreme turn/special maneuver, is out of control, or the locking platform is damaged. While Lock-on a target the spoiler may get target. Radar Searchs.

- **Lock-on and Fire:** The locking aircraft or SAM may fire RH missiles immediately.

- **Grounds Radar:** Grounds radars have 360° arcs and are assumed to be at TAL 1.

- **RWR:** Target is informed of radar Lock-on if it has a RWR.

**SPORTING SPOTTING**

- **Spotting Range:** Range set by spotting radars at TAL 1-3 SURFACE LOW CAB and below spotters or at the same altitude.

- **Poor Visibility Aircraft:** V6: spotting range for targets in spotting rear arc; targets in rear arc and below may not be spotted. Awareness check passed on 10+ in rear arc.

- **Radar Malfunction (Radar Search Only):** If double 1s are rolled.

**_Loaded Aircraft Rules (83.1)**

- **Half-Load:** -1 Agility. -1 Maximum Speed. ½ Climbing Factor. Aircraft moderately laden with weapons and/or drop tanks. Half-Load that drop load is 2/3 at start of move.

- **Full-Load:** +1 Agility. +1 Acceleration. +2 Maximum Speed. ½ Climbing Factor. Aircraft heavily laden with weapons and/or drop tanks.

**Lucky Hit: Additional Damage**

- **A** = Afterburner Damaged – The aircraft may not use afterburner for the remainder of the mission.
- **B** = Pilot Blackout – The aircraft must make random moves and check Crew Check passed (check at start of subsequent moves). Roll 40 for aircraft move where “+” is the current aircraft speed on -1/2 turn, on 3-4 an

- **D** = Debris – The nearest aircraft within 3 hexes (if any) in the target’s tail arc and at the same TAL or TAL lower immediately suffers a hit with 2d8 damage (as if from HMG fire) due to debris from weapons impact.
- **E** = Possible Ordinance Explosion – A roll of d6 loaded with heavy weapons (bombs, rockets, torpedoes) on 1-3 the weapons explode. If an explosion occurs, any aircraft within 2 hexes must roll on the Lucky Hit Table Cannon column.
- **H** = Crew Hero – Take a Crew Check. If passed the aircraft has been impressed by events in the battle, from this point forward firing is one Crew Skill level better and Ammunition depletion is one level worse.
- **O** = Oxygen System Hit – Roll a d6/d6 if flying at MEDIUM TOCAB above; on 1-3 the oxygen system malfunctions. The aircraft must immediately attempt to exit the board by dive no matter if it is a friendly edge or not.
**SURFACE ATTACK SUMMARY (C3.0)**

<table>
<thead>
<tr>
<th>Bomb-load of Attacker:</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>+0 Light (500-1500lb)</td>
<td></td>
</tr>
<tr>
<td>+1 Med (1501-4000lb)</td>
<td></td>
</tr>
<tr>
<td>+2 Heavy (4000lb+)</td>
<td></td>
</tr>
</tbody>
</table>

**Zuni Rocket Modifiers: (V10.51)**

(replace base rocket modifiers w/ below, max TAL LOW CAB)

-3 16 rockets (4 full LAU-10 pods)
-2 8 or 6 rockets (2 full LAU-10 pods or 3 LAU-33/35 stations)
-1 4 rockets (1/2 LAU-10 pods or 2 LAU-33/35 stations)
-1 2 rockets (1 1/4 LAU-10 pods or 1 LAU-33/35 station)
-1 Range > 6 hexes (max range 12)

**General Modifiers:**

- +n Aircrew Skill
- +1 Dive Bombing/Strafing Attack (3 hexes)
- -1 Attacking at TAL 1 or 2 S. LOW CAB Speed 5+
- -1 Point Target (small target; radar, bunker, etc)
- -1 or +1 Special Equipment & Training

**Formation Rules (C1.0)**

- A formation must consist of at least two (2) aircraft (Formation Leader & Wingmen).
- Formations are determined at the start of the game. If a formation must break-up it may not be reformed.
- Formations must move at one less than the maximum speed of the slowest undamaged aircraft in the formation or may move at speed 1 if maximum speed is 1.
- Aircraft in formations must fly at the same Tactical Altitude Level.
- At the start of the Move Plotting Phase, players determine if any Wingmen will voluntarily drop-out of formation and what formations will voluntarily Break-up.

**Formation Example (part 1)**

1. Formation flying at Speed 3 (max speed 4 & Move Chart B)
2. Flight Leader climbs and turns to left (L32 turn code); reduces speed to 2.
3. Wingmen climb and move into formation hexes (R44 and F39 turn code)
4. Wingmen in formation hexes (Lt. grey hexes)

**Formation Example (part 2)**

1. Formation flying at Speed 2 (max speed 4 & Move Chart B)
2. Flight Leader Extreme Turn right (R25 turn code)
3. Wingmen must both voluntarily break formation as they are not able to move to Formation hexes (so must fly straight and level at start speed of formation leader).
PRE-GAME TABLES (V4.0)
United States Navy: The Eroding Edge
The number of skilled (+1) aircrews in the scenario

<table>
<thead>
<tr>
<th>Year</th>
<th>2-4</th>
<th>5-8</th>
<th>9-12</th>
<th>&gt;12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1965</td>
<td>0</td>
<td>1d2-1</td>
<td>1d2</td>
<td>1d3</td>
</tr>
<tr>
<td>1966</td>
<td>1d2-1</td>
<td>1d2</td>
<td>1d3</td>
<td>2d2</td>
</tr>
<tr>
<td>1967</td>
<td>1</td>
<td>1d3</td>
<td>2d2</td>
<td>2d3</td>
</tr>
<tr>
<td>1968</td>
<td>1</td>
<td>2d2</td>
<td>2d2</td>
<td>3d2</td>
</tr>
</tbody>
</table>

Vietnamese Peoples Air Force: Physical Weakness
Roll 1d6. If that roll is less than the number of green (+0) and poor (-1) pilots then 1 pilot is physically weak, and must make skill checks for all extreme turns or special maneuvers at speed 5 or greater. If the test is failed treat as "Blackout" in lucky hits. If greater than six green (+0) and poor (-1) pilots, only roll for the excess, one pilot is automatically physically weak.

POST-GAME RESOLUTION SEQUENCE
1. Neutral and Unfriendly Board Edge Exit (A6.2)
2. Carrier Recovery (V5.2) USN Only
   a. Recovery Skill Check (Damaged Aircraft only)
3. Combat Search and Rescue (V5.3) USN Only
   a. Ejection Check
   b. Ejection Location
   c. CSAR Recovery

NEUTRAL AND UNFRIENDLY BOARD EDGE EXIT (A6.2)
All aircraft that exit a non-friendly edge are considered lost in the scenario rules. A fuel check and a skill check are always made on exit. Only roll for the excess.

MODIFIERS

<table>
<thead>
<tr>
<th>General Modifiers</th>
<th>Specific USN Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crew Quality</td>
<td>+1 Year 1965</td>
</tr>
<tr>
<td>-1 Exit Neutral Edge</td>
<td>-2 Exit Unfriendly Edge</td>
</tr>
<tr>
<td></td>
<td>+1 Damaged</td>
</tr>
<tr>
<td></td>
<td>-1 Year 1967</td>
</tr>
</tbody>
</table>

- If the Crew Check succeeds, the VPAF aircraft safely returns to base.
- If the Crew Check is failed the aircraft is damaged.
- If previously damaged the aircraft is destroyed.
- If the Crew Check is failed by four or more the aircraft is destroyed.
- Damaged USN aircraft attempt Carrier Recovery (V5.2).
- Destroyed roll for crew survival C6.0.
- Ejected USN crew roll for Ejection Location with a -2 modifier (V5.3).

CARRIER RECOVERY (V5.2)
Damaged or Bingo USN aircraft must take a skill check.

TYPE OF DAMAGE

AIRFRAME DAMAGE OR LUCKY HIT (WINGS OR CONTROL SURFACES)
Tough to Kill Bonus: +1 Die Roll Modifier. Delicate Hydraulics Penalty: -1 Die Roll Modifier.
- Passed: The damaged aircraft has landed on the carrier.
- Failed: Pilot must eject. Ejection Location: Deep Water. Critical Fail by four or more: Pilot must eject immediately.

ENGINE DAMAGE OR LUCKY HIT (FUEL OR ENGINE) OR BINGO FUEL
Bingo Fuel Bonus:
- All Bingo fuel checks +2 Die Roll Modifier.
- Additional +1 Die Roll Modifier, if exit off a friendly edge.
Twin Engine Bonus: +1 Die Roll Modifier (NA for Bingo or Fuel)
A-4 Single Wing Tank Penalty: -1 Die Roll Modifier (Lucky Fuel Hit)
- Passed: The damaged engine keeps running.
- Failed: The engine flames out. Pilot must eject. Critical Fail by four or more: Pilot must eject immediately.

If more than one type of damage due to “Lucky Hits” or Bingo and Damage make a single Carrier Recovery check, apply modifiers by type and take the worst result.

SAFE EJECTION & EJECTION LOCATION (V5.3)
Ejection Check: Roll 2d6, on a 2 the crew is killed, and wounded on a 3 (wounded crew suffer -2 Die Roll Modifier)
F-4 and A-6 crews make a single die roll for both crew members for Ejection and Rescue

<table>
<thead>
<tr>
<th>Target Location</th>
<th>Inland</th>
<th>Coastal/Over Gulf</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inland High Population</td>
<td>Inland Low Population</td>
</tr>
<tr>
<td>1</td>
<td>Inland: Low Population</td>
<td>Feet Wet: Coastal</td>
</tr>
<tr>
<td>2</td>
<td>Feet Wet: Coastal</td>
<td>Feet Wet: Deep Water</td>
</tr>
<tr>
<td>3-7</td>
<td>Feet Wet: Deep Water</td>
<td>Feet Wet: Deep Water</td>
</tr>
</tbody>
</table>

Modifiers
- +1 Bingo
- -1 Route Pack 6
- -1 Critical Failure

COMBAT SEARCH AND RESCUE RECOVERY (V5.4)
CSAR ROLL 2D6

<table>
<thead>
<tr>
<th>Recovery Location</th>
<th>Crew Recovered *</th>
<th>CSAR Combat Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inland: High Population</td>
<td>&gt;= 11</td>
<td>&lt;=3</td>
</tr>
<tr>
<td>Inland: Low Population</td>
<td>&gt;= 8</td>
<td>2</td>
</tr>
<tr>
<td>Feet Wet: Coastal</td>
<td>&gt;= 5</td>
<td>2</td>
</tr>
<tr>
<td>Feet Wet: Deep Water (SAR)</td>
<td>&gt;2</td>
<td>N/A</td>
</tr>
</tbody>
</table>

On Table CSAR
- Within 8 hexes of strike target, or flank or SAM position: >= 11 <=3
- Any other table area: >= 9 2
- Any on table water zone, excluding Hanoi or Haiphong: >= 6 2

-2 Wounded Crew (applies only to recovery not SAR combat loss)
- * +3 VP per successful CSAR roll, excluding Deep Water (V3.1)

Notes
If more than one CSAR attempt is being attempted on a table with different locations, the USN player determines the order of resolution.

No Recovery Attempt: An aircrew shut down over Hanoi or Haiphong, no SAR mission may be attempted. Aircrew is automatically captured.

CSAR Combat Loss: If a "CSAR Combat Loss" is rolled, make an immediate skilled (+1) crew check:
- Passed: CSAR aircraft is damaged and must recover per standard rules. The type damage is determined by passed roll, with doubles being a lucky hit.
- Failed: CSAR aircraft is shot down, no further CSAR attempts may be made on table.

VPAS score standard VPs for lost or damaged CSAR aircraft treat as "Other Aircraft" for VPs.