RULES OF PLAY

TABLE OF CONTENTS

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Component List

A complete game of *Red Storm* contains:

- Two 22″ x 34″ maps
- 4½ die-cut countersheets
- One Rules Booklet (this manual)
- One Scenario Booklet
- One Appendices Booklet
- Five Player Aid Cards (four 11″ x 17″; one 8½″ x 11″)
- Three Aircraft Data Charts (two 11″ x 17″; one 8½″ x 11″)
- Two 10-sided dice
- Flight, Air Defense, and Campaign log sheets

1.0 Introduction

Red Storm is a game of air warfare over a hypothetical mid-1987 battlefield in the central portion of the North Atlantic Treaty Organization (NATO) front in Germany. Both sides attempt to gain air superiority while also conducting ground support along the front and deep strikes into the enemy rear area. In doing so, both sides confront significant challenges. The NATO side is constantly outnumbered in the air and faces a daunting array of AAA and SAM on the ground, especially near enemy troop concentrations. The Warsaw Pact (WP) side has superior numbers of aircraft, but of generally lower quality than NATO. While the NATO air defense system is not as extensive as the WP one, the WP player will still be challenged in trying to "go deep" against NATO targets in rear areas. Both sides must also deal with the rough terrain and rainy weather of central Germany, which makes many operations more difficult.

1.1 Players

For the full game experience, two players are required, one to play the WP and one to play NATO forces. However, rules for two forms of solitaire play and special solitaire scenarios are provided as well.

Depending on the scenario, one or both sides will control "Raid" forces consisting of strike, escort, jamming support, and other aircraft. At the same time, both sides will normally control aircraft tasked with intercepting enemy aircraft. Finally, both sides field an array of AAA and SAM systems on the ground, including radar-guided AAA, radar-guided SAMs, and IR-guided SAMs. Success for both sides will depend on destroying targets on the ground and attriting the enemy in the air.

1.2 Rules

The rules include standard, advanced, and optional rules. Advanced rules add detail and make for a more complete simulation. Optional rules add more realism but also increase complexity. Players learning the game may choose to skip the advanced and optional rules until they are familiar with the standard game mechanics.

1.21 Rule Conventions

Rules are numbered. Cross-references to other rules are listed [in square brackets]. Design notes describe some of the background and thought processes behind the rules.

1.22 Learning Red Storm

New players may wish to start by playing the introductory scenario and walking through the examples of play. These tell you which rules sections to read first and summarize some of the more important combat rules.

1.3 Glossary of Game Terms

2ATAF. 2nd Allied Tactical Air Force.

4ATAF. 4th Allied Tactical Air Force.

AAA. Anti-aircraft artillery, also termed "flak."

AAP. Aircraft Availability Points

Abort. Flights that are no longer able to conduct their missions may 'Abort' and run for home.

ADC. Aircraft Data Chart, a play aid that lists the performance and capability data for aircraft.

Aggression Value. A value representing pilot training, leadership, and élan. It acts as a modifier for numerous flight actions.

Arcs/Hemispheres. Arcs are 60° areas around a flight. The three forward arcs of an aircraft flight make up the forward hemisphere, and the three rear arcs constitute the rear hemisphere.

ARB. Anti-Runway Bombs.

ARM. Anti-Radiation Missile.

Army Ground Units. Armor, Mech, Artillery, HQ, Supply, or Missile ground units.

ASM. Air-to-Surface Missile.

Attack. Air-to-Air Combat [11.0], AAA [14.0], SAM [15.0], or Air-to-Ground [17.0] attacks against enemy units.

Beam Arc. The combined area of the Forward and Rear Beam Arcs on each side (right and left) of the flight.

BDA. Bomb Damage Assessment.

BE. Belgium (Royal Belgian Air Force).

BVR. Beyond Visual Range.

CAN. Canada (Royal Canadian Air Force).

Campaign. A campaign consists of a number of scenarios that take place over one or more days.

CAP. Combat Air Patrol.

CAS. Close Air Support.

CBU. Cluster Bomb Unit.

CSAR. Combat Search and Rescue.

DRM. Die Roll Modifiers.

Disordered. Flights which are scattered and uncoordinated.

Dummy Flight. A fog of war term used to denote a flight that does not consist of real aircraft. Dummy flights are used to confuse the enemy player on the location of real flights.

Dummy SAM. A decoy SAM, usually consisting of mock ups or other fake vehicles and radars.

East Germany. The portion of the map "inside" (i.e., on or east/on or north) the international border shown on the map is considered East Germany. All other hexes on the map are considered to be in West Germany.

Enemy/Friendly. Friendly units are all units assigned to the player by the scenario or campaign. An enemy unit is a unit controlled by the other player.

EO Tracking. A backup tracking method for SAMs in high intensity jamming environments.

EOGB. Electro-Optical Guided Bomb (GBU-15, KAB-500KR, AJ.168, and similar weapons).

EOGM. Electro-Optical Guided Missile (AGM-65 Maverick, AS-10 Karen, and similar weapons).

EWR. Early Warning Radar.

FAC. Forward Air Controller.

Fire Can. A WP Radar AAA system.

Flight. A unit of 1-4 aircraft or cruise missiles of the same type.

FLIR. Forward Looking Infrared. An advanced sensor carried by some NATO aircraft.

FRG. Federal Republic of Germany (West Germany, German Air Force).

GDR. German Democratic Republic (East Germany, Air Forces of the National People's Army).

Ground Units. Army Ground Units, AAA, SAM, and EWR units.

HAS. Hardened Aircraft Shelter.

HARM. High-Speed Anti-Radiation missile.

HAWK. Homing-All-the-Way-Killer. US SAM system.

IRM. Infrared Missile, a heat-seeking air-to-air weapon.

IR SAM. Infrared-Guided SAM.

ISR. Intelligence, Surveillance, and Reconnaissance.

IP. Initial Point. Start point for a Bomb or Recon Run.

IRST. Infrared Search and Track.

Laden. A flight carrying air-to-ground ordnance.

Large Aircraft. Large aircraft are those noted on the ADCs.

LGB. Laser Guided Bomb.

LOAL. Lock-On After Launch.

LOS. Line of Sight.

NA. Non-applicable.

NATO. North Atlantic Treaty Organization.

NE. Netherlands (Royal Netherlands Air Force).

PGM. Precision Guided Munition. A generic term covering EOGM, EOGB, LGB, and ARM weapons.

Play Area. The portion of the map in play for a particular scenario.

Printed AAA. The map-printed AAA concentrations at NATO and WP airfields.

QRA. Quick Reaction Alert. Aircraft on the ground ready to take off.

Radar-Equipped AAA. A term used to refer to both Radar AAA (Fire Cans) and Mobile AAA (Gepard, Vulcan, 2K22).

Raid. A Raid is an individual mission in which flights enter the map or take off from a base, conduct combat or other taskings, and return to base.

RHM. Radar Homing Missile, a radar-guided air-to-air weapon.

ROE. Rules of Engagement.

RWR. Radar Warning Receiver.

SAM. Surface to Air Missile.

Scenario. One or more Raids flown by either or both players tied together on a specific date.

SAR. Synthetic Aperture Radar.

SEAD. Suppression of Enemy Air Defenses.

SSR. Scenario Special Rule, a special rule that applies only to that scenario.

TFR. Terrain Following Radar.

UK. United Kingdom (Royal Air Force).

US. United States (United States Air Force).

USSR. Union of Soviet Socialist Republics (Soviet Air Forces).

VP. Victory Points.

WP. Warsaw Pact.

1.4 Scale

Hexes are 2.5 nautical miles across (2.88 miles/4.63 kilometers). Movement points are multiples of roughly 150 knots (approx. 172 mph/278 kph). Game turns are 1 minute long. There are five altitude bands, representing the flight's height above the ground: Deck (0-2,500 feet), Low (3,000-8,000 feet), Medium (9,000-21,000 feet), High (22,000-50,000 feet), and Very High (50,000+ feet).

1.5 Dates

Red Storm scenarios represent battles taking place as part of a hypothetical war between the forces of the Warsaw Pact and the North Atlantic Treaty Organization in May/June of 1987. Dates are listed by day/month.

2.0 Game Equipment

2.1 Dice

Red Storm uses ten-sided dice, with 0 read as 10 and not zero. Some rolls are the sum of two dice, generating numbers between 2 and 20. Tables on the Player Aid Cards (PAC) have dice symbols printed after the title. One die symbol means one die is rolled. Two dice symbols mean two dice are rolled.

2.11 Die Roll Modifiers

Some tables require players to apply die roll modifiers. These are added to or subtracted from the dice result.

2.2 Map

The game map portrays the central portion of the NATO/WP front in West Germany and East Germany. The red line running from roughly 6302-5821-5632-7733 is the international border between West and East Germany. The portion of the map "inside" (i.e., on or east/on or north) the international border shown on the map is considered East Germany. All other hexes are considered West Germany.

2.21 Hex Grid

A hex grid has been superimposed on the maps to regulate the position and movement of the playing pieces. Where a four-numbered map reference is given, the first two digits (00xx) indicate the hex column on the map, while the last two digits (xx00) indicate the hex row.

Distances on the map are counted in hexes. To calculate a distance, trace the shortest possible path from one map hex to another and count the number of hexes the path enters.

When counting the distance to a flight occupying a hexside, count to the nearer of the hexside's two hexes and vice versa (count from the nearer hex when counting distance from the flight on a hexside to another hex).

2.22 Terrain Features

A terrain key describes the features on the map. Land, Rough, Mountain, Urban, Airfield, Road, or Highway artwork indicates types of terrain. Water artwork indicates rivers and lakes. Major Bridges on the Rhine are depicted for target purposes only and have no other effect on play.

A hex with no Rough or Mountain artwork is a Land hex. A hex with any portion of Rough or Mountain artwork is considered a Rough or Mountain hex, respectively. If a hex has both Rough and Mountain artwork, it is considered a Mountain hex.

Design Note: *Rough terrain represents hills reaching up to about 1,000 feet in relation to the surrounding area. Mountain terrain represents terrain with peaks over 2,000 feet with numerous valleys and other areas where aircraft can try to avoid radar detection.*

In addition, hexes with any portion of Urban artwork are also Urban hexes, a hex with any portion of a Road or Highway is also a Road hex, a hex with an airfield is also an Airfield hex, and a hex with major or minor river artwork is also a River hex. Hexes may have more than one status.

Examples: *Hex 5126 is simultaneously considered a Land, Urban, Road, River, and Airfield hex for various game purposes. Similarly, hex 5132 is considered a Rough, Urban, and Road hex. Hex 1025 is a Land, Urban, River, and Road hex.*

The terrain type extends to the hexsides so that flights on hexsides are "in" that terrain.

2.3 Playing Pieces

Carefully remove the counters from the sheets of colored die-cut playing pieces. Counters come in four general types: air units, ground units, chits, and markers.

2.31 Air Units

Air units are called flights and represent small groups of 1-4 aircraft. US flights are light blue, UK flights are brown, Canadian flights are light brown, FRG flights are gray, Belgian flights are light green, Netherlands flights are light orange, GDR flights are dark green, and USSR flights are yellow.

US

UK

Canadian

FRG

Belgian

Netherlands

GDR

USSR

2.32 Ground Units

Ground unit types include: AAA concentrations [14.2], Radar AAA [14.5], Mobile AAA [14.6], SAM units [15.0], EWR units [10.25], and NATO/WP Army Ground Units [27.0].

AAA

Radar AAA

Mobile AAA

SAM

EWR

NATO Ground

WP Ground

2.33 Chits

Initiative chits are used to order the movement of flights. They come in two types: large (LG) and small (SM).

Large

Small

2.34 Markers

All other counters are markers for indicating the status of air or ground units, or act as a reminder for the players of the game turn, weather state, or random events.

2.4 Charts and Tables

Various charts and tables are provided for the player as references and to resolve certain game functions.

2.5 Scenarios

Players have a choice of game scenarios. Scenarios are listed in the scenario book and describe the forces and special rules for one or more Raids [8.0].

2.6 Order of Battle

The Orders of Battle (OOB) in Appendix A list the composition of NATO and WP Raids and missions. When planning a Raid, use the OOB tables to determine the units and aircraft types used. If the OOB tables are not used, then the composition of the forces will be detailed in the scenarios themselves.

2.7 Planning Map

The Planning Map is a reduced-size copy of the two main maps and is used to plot Raid flight paths [8.31] before starting play.

2.8 Aircraft Data Charts (ADC)

The Aircraft Data Charts list all the movement and combat information for the aircraft. In cases where the ADC aircraft listing or aircraft notes differ from the rules or player aid information, the ADC information takes precedence.

2.81 Data

The ADC data includes the number of crew members, the runway rating [9.0], the aircraft's fuel allowance [20.0], the aircraft's bomb attack strength [16.12], the bombsight modifier, and the Radar Warning Receiver (RWR) rating and the aircraft's defensive jamming strength and type [19.2].

The aircraft's air search radar, if any, is listed, along with its performance specifications. Radar search range is shown [in brackets] and search range modifiers are shown as X+: -Y with "X" being the range at or beyond which the negative "Y" modifier applies to radar search [10.22] attempts. Lookdown [10.23] performance is also listed, with "LD" for aircraft with no Lookdown restrictions, "LD (LTD)" for aircraft affected by Lookdown only at targets at Deck/Low altitudes, and just "No LD" for aircraft subject to Lookdown against all targets at lower altitude. Aircraft with "TS" notation have Track-while-Scan capability [10.22].

The aircraft's Combat throttle, Dash throttle, and maneuver ratings for each altitude band are listed. There are four numbers separated by a slash: one each for Low, Medium, High, and Very High altitude bands. (Low altitude band numbers are also used for aircraft flying at Deck). Where there are two rows of numbers, the bottom is for laden flights and the top for clean flights [16.2].

The ordnance column lists special ordnance that may be carried [16.11]. The number of ordnance shots is given (in parentheses) [16.14]. The capabilities column lists any special abilities the aircraft possesses. Air-to-air lists all the air-to-air weapons the aircraft may carry [11.12]. The depletion number [11.34] for each weapon is given in {brackets}.

2.82 Notes

The notes section lists which notes are applicable to that aircraft type. These notes cover a wide range of information, including jamming capability, ordnance details, carriage limits, etc.

2.9 Flight Logs

Flight Log Sheets are used by the NATO and WP players to track the status of air units [4.2].

3.0 Sequence of Play

A scenario consists of one or more Raids. In some scenarios both sides conduct Raids simultaneously. Air units of both sides may start in the air, at an airfield, or off-map. They will attack ground targets, perform recon, or conduct air-to-air combat and return to base or exit the map. Both players also defend with air units and ground units (AAA and SAMs).

Each Raid must be planned in advance. After setting up the map and components, the Raid is then played out. Scenarios are divided into game turns. During each turn the players follow a Sequence of Play in which they conduct various game actions.

The Sequence of Play for a scenario is as follows. Where several activities are listed for a phase, perform them in the order indicated.

3.1 Prior to Scenario

Before the start of play, both players go through the following steps. More detail on each step is outlined in the Scenario Setup [31.0] rules.

Weather Phase. Determine the weather conditions [22.0] for the scenario.

Ground Planning Phase. The scenario will specify which player sets up first: they choose, if allowed, the Air Defense Status; they determine map locations for SAMs, dummy SAMs, dummy Radars, AAA concentrations, Radar-Equipped AAA, Early Warning Radars, and Army Ground Units. They then record all this on their Log Sheet. The second player then does the same.

ISR Phase. The scenario will designate which players roll on the ISR Table. The results determine how many AAA and SAM units start the scenario located on the map, and how many set up hidden.

Ground Deployment Phase. Both players set up non-hidden AAA, Army Ground Units, and located SAMs on the map.

Raid Planning Phase. Both players generate their flights using the units specified in the scenario or the Order of Battle tables. Both players determine their target(s) and plot the flight path for their Raid(s). Log Sheets for aircraft are filled out. Both players may plot Orbit Points [8.36], Rally Points [8.35], and other control measures. Both players may assign Standoff Jamming flights to Early Warning Jamming [19.35]. All of this information is kept secret from the other player.

SEAD Phase. The scenario will designate which players roll on the SEAD Table. The results will allow players to conduct a number of attacks on AAA and SAM units prior to the start of play in an effort to suppress enemy air defenses.

Early Warning Phase. Check the scenario to determine which player, if any, rolls on the Early Warning Table. That player then provides Raid information to the other player based on the result.

Air Deployment Phase. The first player sets up flights (including dummies) starting on the map as well as those entering on the first game turn near their ingress hexes [8.31]. The

second player then does the same. Detection states of flights are set according to the Early Warning Level. If there is no Early Warning Level, flights at Medium/High/Very High are detected and flights at Low/Deck are undetected.

Radar Phase. Both players, first player first, may switch on any Radar-Equipped AAA, SAM, or EW radars. AAA concentrations may be activated [14.3] for both players, with the first player doing so first.

3.2 During the Scenario

During a scenario, proceed through these phases each turn:

Random Event Phase. One player rolls two dice and checks for Random Events [21.0]. No random event takes place on the first turn.

Jamming Phase. Each player, NATO first, places or adjusts Standoff and/or Spot Jamming markers [19.32, 19.33, 19.34]. Each player, NATO first, rolls for Early Warning Jamming [19.35], if capable.

Detection Phase. Roll to detect undetected flights. Standard [10.2], visual [10.21], aircraft radar search [10.22], and EW Radar [10.25] detection attempts are resolved.

Movement Phase. Flights enter/exit Defensive Wheels [7.11, 11.43]. Players roll to determine initiative and draw Initiative chits [5.2]. Flights move in initiative order. During movement, flights may engage enemy air units [11.2]. AAA and SAMs may fire on moving flights [14.4, 14.5, 14.6, 14.75, 15.3, 15.44, 15.53, 15.54]. Air-to-Ground attacks take place [17.0]. Recon Runs take place [24.1]. At the end of the phase, flights at Deck altitude on the enemy side of the Front are subject to automatic Small Arms AAA attack [14.76].

Fuel Phase. Flights that used Dash throttle or engaged in Standard air-to-air combat note the fuel usage on their flight logs [2.9]. Recover aircraft that have landed or left the map [20.2].

SAM Location Phase. Both players roll to locate SAM units [15.13].

Track Phase. All detected NATO flights on the Deck in Rough terrain, all detected flights on the Deck and in/adjacent to Mountain terrain, and all helicopters and cruise missiles at Deck automatically become undetected [10.3]. Both players roll on the Track Table to determine which other detected enemy flights, if any, become undetected [10.3].

SAM Acquisition Phase. Switch on SAM radars attempting quick acquisition [15.22]. SAM units attempt to acquire or maintain acquisition on enemy flights [15.21]. Resolve preemptive ARM attacks [17.60].

Admin Phase. Flights roll for Disorder recovery [13.11]. Split flights [4.14]. Roll to remove Shutdown markers [17.53]. Switch Radar AAA and Mobile AAA on or off [14.52, 14.62]. Switch SAM radars on or off [15.2]. Remove SAM Launch markers [15.32], Radar AAA Fired markers [14.63], Zoom Climb markers [6.33], and Anti-Radar Tactics markers [15.26]. Generate dummy counters [4.13]. Make flights Ready or move them into revetments at airfields [9.12]. Refuel/Rearm flights on the ground [9.16]. Roll for loss of AAA suppression [18.21]. Activate AAA [14.3]. Parachuting crewmen land [26.1]. Roll for crew capture [26.1]. Roll for crew rescue [26.2]. Both players set up any flights that will enter the map next game turn off-map near their ingress hex [8.31].

After the Admin Phase has finished, begin a new game turn.

3.3 During Flight Movement

The sequence of events during a flight's movement is as follows:

Set Throttle and Declare Speed. Set Combat or Dash throttle for the flight [6.2]. Consult the ADC. Note any ordnance speed limits [16.23]. Declare speed for the Movement Phase.

Spend Movement Point. Spend movement point (or points) to remove a Maneuver marker [6.35]. Spend a movement point to remove a BVR Avoid marker [6.36] or SAM Avoid marker [6.37]. Conduct Anti-Radar Tactics [15.26], move into a new hex, turn (including free turns), climb, or dive [6.31].

AAA and SAM Attacks. After a flight completes spending a movement point in any way (including any turns/free turns or altitude changes), the enemy player may declare AAA [14.0] or SAM [15.0] attacks on the flight. Resolve all AAA attacks before resolving any SAM attacks.

Flight Attacks and Combat. After all AAA and SAM attacks are resolved against a flight in a hex, the moving player may then start a Bomb Run [17.2] or Recon Run [24.0], conduct an air-to-ground attack [17.3] [17.5] [17.7], conduct Recon [24.0], or attempt to engage in air-to-air combat [11.0].

3.4 Completing the Scenario

The scenario finishes when the last WP or NATO flight in the Raid(s) has left the map, returned to base, or is destroyed. Players may also agree to end a scenario at any time. After scenario play has finished, conduct the following phases:

Recovery Phase. Roll for recovery of any remaining on-map flights [20.2].

Bomb Damage Assessment Phase. Roll for all non-assessed air-to-ground damage [18.1, 24.0].

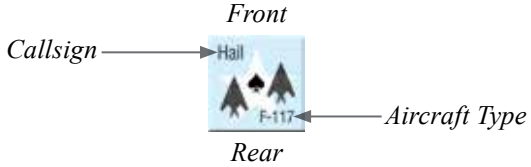
Victory Phase. Players total VPs [32.1], compare them, and check for scenario victory [32.2].

4.0 Air Units

Air units represent flights of between one and four aircraft, all of the same type. The number of aircraft in a flight is determined by the scenario or the OOB tables.

4.1 Flights

Flights have the characteristics of the aircraft that make up that flight, as described on the ADC [2.8]. Flight counters have a front (or forward) and rear edge.



Flights have a callsign designation. This should be noted on the Log Sheet. The flight counter also indicates the general type of aircraft in the flight.

All flight counters have two sides: the detected side, bearing a Heart, Spade, or Diamond suit icon along with the flight's callsign and aircraft type, and the undetected side, with a slightly darker color bearing a question mark ("?") icon, a generic aircraft silhouette, and the callsign.

Detected *Undetected*

4.11 Generic Counters

Until it is Visually Identified [10.4], a flight is represented on the map by a generic counter. Generic counters are identified by letters or a three-digit number. Players should note the letters/number of each flight's generic counter on the Log Sheet.

Detected *Undetected*

No callsign or aircraft type is listed on a generic counter. When a flight is Visually Identified [10.4], replace the generic counter with the actual flight counter.

4.12 Dummies

A scenario may allocate each player a number of dummy flights. The number provided for a side is the maximum number that side may have in play at any time. Dummies use generic counters. Dummies contain no aircraft and only exist to confuse the other player. These may be moved as if they were real units. They may also "dummy jam" [19.52] as if they were equipped with defensive jammers (however, they may not use Standoff or Spot Jamming). They may not engage, attempt visual or radar detection, or attack enemy flights or ground units.

Detected [10.1] or Visually Identified [10.4] dummy flights are immediately removed from the map. They are also removed if any AAA [14.0] achieves a combat result on them, a SAM gets Full Acquisition on them, or a SAM attacks them. Dummies may be voluntarily removed at any time. Removed dummies can reappear through dummy generation [4.13]. Neither player is required to have the full allotment of dummies on the map.

4.13 Dummy Generation

In the Admin Phase dummies may be generated in the same hex and altitude band and with the same heading as an undetected generic flight counter (Exception: Not flights with a Full Acquisition marker [15.27]). Each undetected generic flight counter may generate one dummy every Admin Phase.

When a dummy is generated, that flight may secretly swap its current generic counter for the dummy counter. Note the flight's new generic ID on the Log Sheet in that case.

4.14 Splitting Flights

A flight of three or more aircraft may split into two flights in the Admin Phase. This may only be done if there is a Crippled aircraft in the flight. Add a new flight counter to the map at the same altitude and with the same heading and create a flight log for the new flight.

The new flight must comprise of all the Crippled aircraft and one non-Damaged aircraft (if this cannot be achieved, the flight may not split). The other flight contains the remaining aircraft. The new flight is identical to the "parent" flight in terms of fuel, ammo, facing, detection status, morale status, Aggression Value, etc.

4.2 Log Sheets

Each flight has a space on the Log Sheet noting the flight's name, generic counter, task, Aggression Value and various ordnance and formation states. These states apply to all aircraft in the flight. In addition, there are check boxes to note fuel expended in a scenario. Log Sheets should be filled out in the Raid Planning Phase.

4.21 Aircraft Boxes

The Log Sheet has four boxes numbered one to four. Each box represents the status of one aircraft in the flight.

Aircraft with empty boxes are operational and undamaged. A diagonal slash through a box indicates the aircraft is Damaged. A crossed-out box indicates the aircraft has been Crippled. A crossed out and circled box means it has been Shot Down. Black out a box if the aircraft does not exist in the flight.

4.22 Visual ID Information

Players keep the information on their Log Sheets secret from their opponent. However, if a flight is Visually Identified [10.4], the following information must be given:

a) The type of aircraft (not the exact variant; i.e. "F-4" not "F-4G").
b) The total number of aircraft.
c) The number of Damaged and Crippled aircraft.
d) Whether the flight is clean or laden.

4.3 Arcs and Hemispheres

Arcs are 60° areas around a flight. There are six 60° arcs around a flight (see arc diagram on Player Aid Card 3). The three forward arcs of an aircraft flight constitute the forward hemisphere, and the three rear arcs constitute the rear hemisphere. The arc diagram shows the arcs for a distance of two hexes from the flight. For distances greater than this, extend the shaded/clear arc boundaries as far as needed.

An enemy flight or ground unit is within an arc if more than half the hex is contained in an arc zone. If an enemy flight or ground unit is on a boundary that splits the hex in half, the "attacking," "detecting," or "jamming" flight or ground unit (i.e., a flight detecting an enemy flight with radar, a flight attacking in air-to-air combat, a flight attacking a ground unit, a ground unit attacking a flight, or a flight conducting jamming) chooses which arc the enemy flight or ground unit falls into for the purposes of that attack/detection attempt/jamming.

5.0 Initiative

Red Storm uses a chit draw system to regulate movement order. Players will alternate drawing chits, each of which will require movement of 0 to 5 flights. At the beginning of each Movement Phase a die is rolled to determine initiative. The initiative winner chooses who draws the first chit.

5.1 The Chit Pool

The WP and NATO players both use a "chit pool" consisting of numbered Initiative chits, usually kept in a cup or other opaque container. Chits are drawn from the pool during play. The chits are double-sided with a Large Force side and a Small Force side. The player checks the value on the appropriate side based on how many flights and dummies they have in play. Players may not look at the chits while drawing. After a chit has been drawn, the player reveals it to both players and moves flights equal to the chit value. The chit is then immediately placed back in the cup.

5.2 Drawing Initiative Chits

At the beginning of the Movement Phase, before any chits are drawn, roll a die to determine initiative. On a roll of 6 or less, the NATO player has the initiative and decides whether to draw a chit first or second. On a roll of 7 or higher, the WP player has the initiative and decides whether to draw a chit first or second.

The player for the side moving first then draws a chit and references the "Small" or "Large" side in accordance with [5.22]. Chits have values from 0 to 5. The resulting value is the number of flights (real or dummy) the player must move. The player may choose which flights to move and in which order. Once flights equal to the chit value have moved, play passes back to the other player who must draw a chit and move the requisite number of flights. Play passes back and forth between the players until all flights on the map have moved.

No flight may move more than once per Movement Phase. If all flights on one side have moved, play passes to the other player who must move all remaining flights (no more chit draws are needed).

Optional Rule: When playing Red Storm via PBEM, players may treat the "0" value chits as "1" chits in order to speed play.

5.21 Non-Chit Pool Usage

Due to the long ranges of many air-to-air missiles and SAMs in *Red Storm*, use of the chit pool is recommended at all times. However, if both players' flights are far apart (i.e., more than 15 hexes away) and out of SAM range, players may, at the start of a Movement Phase, agree to speed up that Movement Phase by not using the chit pool. Instead, the WP player moves all WP flights first, followed by the NATO player moving all NATO flights.

5.22 Large Force and Small Force Chit Pools

There are two chit pools: Large Force (10 or more flights) and Small Force (9 or fewer flights). All airborne flight counters (including dummies) and flights placed off-map in the previous Admin Phase and set to enter this turn count for force pool size. Flights that start the turn on the ground are not considered for the force pool count until they become airborne.

6.0 Movement

6.1 Counter Placement

Flight counters are placed on the map either in the center of a hex or on hexsides facing a hex corner.

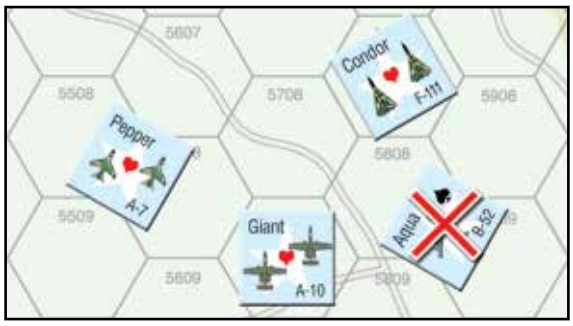


Illustration: *Counter placement on the map. Note the leftmost flight is on a hexside, facing a hex corner. (In this picture its front edge overlaps the corner it is facing.) The rightmost flight is crossed out because it is not facing a corner.*

6.11 Flight Facing

Flights must face their front sides toward hexsides or hex corners. When moving, move flights into the hex directly ahead, unless they are pointing at a hex corner, in which case move them onto or off the hexside.

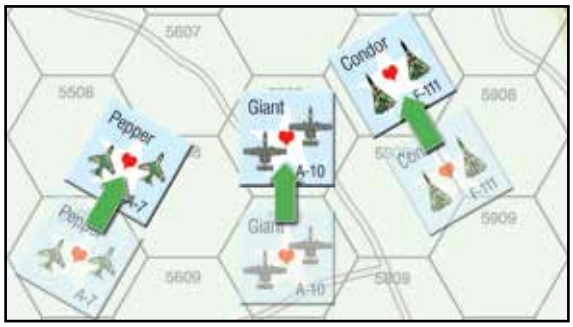


Illustration: *Counters moving into hexes or onto a hexside.*

Turning changes facing. Each hex corner or hexside turned is an increment of 30°.

Illustration: *From left to right in this sequence, a flight turns 30, 60, then 90° clockwise.*

A flight that turns while occupying a hexside moves into the hex in the direction of the turn.

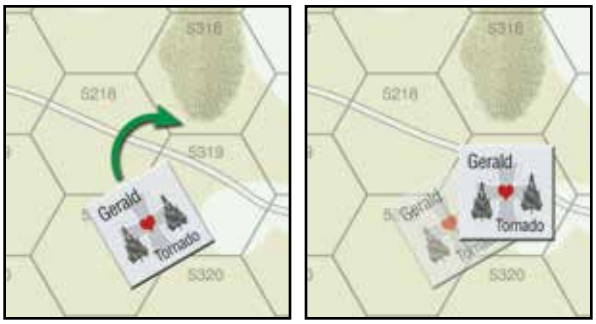


Illustration: *A flight on a hexside turns 30° clockwise. It moves into the hex in the direction of the turn and is now facing 30° away from its original heading.*

6.12 Hexsides

For the purposes of attacks and stacking, a flight occupying a hexside occupies both hexes sharing that hexside. Attacks against the flight can be made into either hex (attacking player choice). When attacking a flight on a hexside, the attacking player designates which hex the attack takes place in. Treat the flight as if it occupies that hex, without changing its location or facing. If a flight is forced to Scatter [13.2] or perform SAM avoidance [15.33], immediately slide it sideways into the designated hex before scattering or avoiding.

Illustration: *Cobra flight (F-15) occupies hexes A and B for the purposes of combat. It can be attacked in hex A by the flak barrage and in hex A or B by the SAM. If an attack by the SAM into hex B results in SAM avoidance, the flight will slide into that hex, as indicated by the green arrow.*

Air-to-air attacks by a flight on a hexside can be made from either hex. If the attack results in an engagement slide the flight into the hex the attack takes place from.

Air-to-ground attacks can be made from a hexside (do not slide the flight) provided the target is not in either adjacent hex. In other words, flights cannot "bomb sideways."

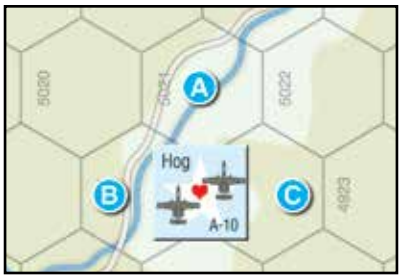


Illustration: *Hog flight (A-10) cannot bomb "sideways" into B or C.*

6.13 Altitude

Flights can be in one of five altitude bands. From lowest to highest they are: Deck, Low, Medium, High, and Very High. Mark the altitude of each flight by placing an Altitude marker on or near it.

Deck *Low* *Medium* *High* *Very High*

6.2 Movement Points

Flights move in the Movement Phase by spending movement points (MP). A flight's total MP for the Movement Phase is known as its speed. A flight's speed is determined by its aircraft type, altitude, and throttle selection.

The ADC lists maximum speed values in two columns for Combat and Dash throttle. Values are listed for each altitude band and for clean and laden flight (Low band values are also used at Deck altitude). Flights carrying air-to-ground ordnance are laden [16.2] (Exception: Shrike ARMs [17.55]). Laden flights may be further limited by ordnance speed limits [16.23] depending on what they are carrying. Aircraft use the speed value for the altitude band in which they begin the game turn. If no value is listed for an altitude band, the aircraft cannot enter or move in that band.

To move a flight, first decide whether to use Combat [6.21] or Dash [6.22] throttle. Then announce the flight's total MP before it begins to move. This MP total is the flight's speed for the game turn. The flight must expend all its MP when moving.

6.21 Combat Throttle

If Combat throttle is selected, announce MP equal to the maximum Combat speed, or one less than this number. A flight's speed may never be less than one MP.

On the game turn that landing begins, a flight may announce MP between one and the maximum Combat speed, inclusive [9.14].

6.22 Dash Throttle

If Dash throttle is selected, announce MP between the Combat and maximum Dash speeds, inclusive. Flights with Crippled [12.22] aircraft may not select Dash throttle.

6.3 Movement

6.31 Movement Actions

Each of the following actions costs one movement point:

- Move. Move one hex straight ahead. On entering a hex the flight may do one or both of the following: (a) make a free turn up to the allowance indicated on the Turn Table [6.32]; (b) freely descend one altitude band.
- Turn. Turn up to the flight's maximum turn value. On completing a Turn action the flight may freely descend one altitude band.
- Climb. Climb one altitude band. On completing a Climb action the flight may make a free turn up to the allowance indicated on the Turn Table. Subsequent climbs in the same

Movement Phase cost two movement points [6.33]. Flights that declared Anti-Radar Tactics [15.26] cannot climb.

- Dive. Dive to any lower altitude band. On completing a Dive action the flight may make a free turn up to the allowance listed on the Turn Table.
- SAM Avoidance. Perform SAM avoidance [15.33].
- Anti-Radar Tactics. Perform Anti-Radar Tactics [15.26].
- Remove Marker(s). Remove BVR Avoid [6.36] or SAM Avoid [6.37] markers.

Flights may climb or dive more than once in the same hex but may not expend MP to climb and dive in the same hex.

6.32 Turning

The Turn Table lists a free turn allowance, based on the flight's speed, that applies whenever a flight moves a hex, climbs, or dives. On entering a hex or spending a movement point to climb or dive, a flight may freely change facing at no MP cost up to its free turn allowance (Exception: Not directly after making an air-to-ground attack [17.2]).

Speed (MP)	Free Turn		Max Turn in Same Altitude Band	
	Day	Night	Day	Night
1-2	90º	60º	180°	60º
3-4	60º	60º	120°	60º
5-8	30º	30º	90º	60º
9+	0º	0º	30º	30º

If a flight wishes to turn greater than its free turn allowance in a hex at the same altitude band, it must pay one MP as a Turn action [6.31]. The Turn Table lists the maximum amount a flight can turn in a hex at the same altitude band, based on its speed. A flight cannot add this maximum to the free turn allowance; the maximum is the limit for all turning in that hex and altitude band.

Under Night [23.0] conditions, free turn limits are lower and the max turn limit in a hex is 60°, or 30° at a speed of 9 or more.

A flight that turns more than the free turn allowance loses defensive jamming capability [19.21] until after it spends a subsequent MP.

Flights may not make consecutive turns in the same hex and altitude band. They must leave the hex or change altitude band before turning again.

A flight that uses its last MP to turn in a hex (free or max) should be marked with a Max Turn marker as a reminder.

A flight that begins its Movement Phase in a hex and altitude band it did not turn in during the previous Movement Phase may expend its first MP to turn up to its maximum turn allowance.

6.33 Zoom Climbs

A flight that climbs twice or more in the Movement Phase is executing a Zoom Climb. The second and subsequent altitude bands climbed costs two MP per band, not one. Place a Zoom Climb marker on the flight.

In addition, defending flights that commence Standard air-to-air combat [11.24.d] against a higher altitude enemy flight are considered to have Zoom Climbed prior to the combat, and receive a maneuver rating penalty [11.42].

Laden flights and flights at Combat throttle cannot Zoom Climb. Flights that have Zoom Climbed suffer combat penalties for the remainder of the game turn. The penalties apply from the moment the second climb takes place.

Remove Zoom Climb markers at the end of the turn.

6.34 Mountain Terrain

Flights already at Deck altitude may not enter Mountain hexes (Exception: Flights with Terrain Following Radar [23.22] and Helicopters [25.1]). If already at Deck altitude and forced to enter a Mountain hex as a consequence of Scatter, treat it like the edge of the map [13.2].

6.35 Maneuver Markers

Maneuver markers are placed on flights after scattering in Standard air-to-air combat (see [13.2] for exceptions). Do not place markers on flights already marked with Maneuver markers. A flight that begins its movement with a Maneuver marker must expend half its MPs (rounded up) to remove the marker before it expends any other movement points.

6.36 BVR Avoid Markers

BVR Avoid markers are placed on defending flights after BVR combat [11.3]. A flight that begins its movement with a BVR Avoid marker must spend one MP to remove the marker before it expends any other movement points.

6.37 SAM Avoid Markers

SAM Avoid markers are placed on defending flights that take a SAM avoidance [15.33] result but have no movement points left to conduct SAM avoidance. A flight that begins its movement with a SAM Avoid marker must spend one MP to perform a SAM avoidance maneuver before it expends any other movement points.

6.38 Multiple Markers

Should a flight find itself with multiple markers (Maneuver, BVR Avoid, and/or SAM Avoid) at the start of its movement, the order of removal is Maneuver, BVR Avoid, then SAM Avoid.

6.39 Entering and Exiting the Map

It costs one MP to enter the map. However, players may elect to spend more MPs to enter if they wish (so as to stagger the entry of flights, for example).

Flights exit by moving off the map edge at a cost of one MP.

6.40 Large Aircraft Climbing

In most cases, it takes large aircraft more than one game turn to climb between altitude bands. To change altitude, flights must expend MP on climbing for the required number of game turns to climb to the next band. Only one MP per turn may be spent climbing (Zoom Climb [6.33] is not allowed). On the expenditure of the last required MP, the large aircraft flight climbs to the next altitude band.

The game turns required for large aircraft to climb between bands are as follows: Deck to Low takes 1 turn; Low to Medium takes 4 turns; Medium to High takes 8 turns.

6.4 Stacking

Stacking occurs when a flight occupies the same hex and altitude band as another flight. Flights occupying hexsides are stacked with flights in both hexes [6.12], but not with flights on different hexsides of the same hex.

Stacking is permitted during movement to allow flights to move through each other, but a flight's last movement point cannot be used to stack it with another friendly flight. A flight is also prohibited from attempting an air-to-air combat engagement [11.2] that will result in it being stacked with another friendly flight at the start of the potential combat.

Friendly flights may remain stacked at the end of movement only as a result of Scatter [13.2], SAM avoidance [15.33], or use of a Defensive Wheel [7.1] formation.

Flights may stack with enemy flights without restriction.

7.0 Formations

Flights may fly in special formations during movement. A formation is a state that provides special benefits.

7.1 Defensive Wheel

Design Note: *While less likely to be used in the 1980s due to long-range air-to-air weapons, there are some circumstances where Defensive Wheels may make sense for flights loitering over an important location, so the rules are included here.*

7.11 Entering Defensive Wheels

Non-Disordered flights of aircraft listed on the ADCs as capable of entering Defensive Wheel may enter a Defensive Wheel formation at the beginning of the Movement Phase, before any other flights move. Place a Defensive Wheel marker on the flight. Only a dummy or a flight comprising two or more of an allowed aircraft type may form a Defensive Wheel. If a Defensive Wheel is reduced to a single aircraft, the Defensive Wheel marker is removed. Multiple flights of the same aircraft type may enter a Defensive Wheel and stack in the same hex and altitude band. Additional flights (up to a maximum of eight total aircraft in the wheel) may subsequently join the formation the instant they enter the hex at the same altitude.

Flights in a Defensive Wheel do not expend MP. The player cannot move flights in Defensive Wheels or count them toward the number of flights moved for initiative purposes.

7.12 Defensive Wheel Benefits

Flights in a Defensive Wheel have no heading. All arcs are treated as the forward beam arc for combat purposes and the flight is at Combat throttle while in the wheel.

Flights in a wheel never suffer the penalties of Disadvantage and attackers can never claim Surprise against them [11.43]; they do not Scatter and cannot be marked with a Maneuver marker. However, if a flight exits the wheel as a result of becoming Disordered in combat it is scattered and marked with a Maneuver marker as normal.

In air-to-air combat an attacker rolls once to engage all the flights in a Defensive Wheel and can split shot opportunities between different targets in the stack (declare targets before resolving the shots). Regardless of the number of flights in a wheel, a wheel rolls once on the Maneuver Table for shots against the enemy.

Flights in a Defensive Wheel may be attacked in BVR combat [11.2]. However, flights in the Defensive Wheel are never marked with BVR Avoid markers [6.36] and may not conduct BVR combat themselves.

Flights in a Defensive Wheel may not use Radar Search [10.22] or IRST visual search capability [10.21].

7.13 Exiting Defensive Wheel

Flights may exit a Defensive Wheel formation at the beginning of any Movement Phase, before any flights on the map move. To exit, remove the marker from the flight(s). Each flight may face in any heading desired. The flight may subsequently move as normal in that Movement Phase.

8.0 Raid/Task Planning

8.1 Raids

A Raid is an organizational term for a group of units that operate together. A Raid comprises several flights conducting different tasks.

The task describes in general terms the primary role of the units in that Raid. Types of tasks include: Bombing, SEAD, CAP, Close Escort, Fast FAC, Rescue Support, Recon, Escort Jamming, Standoff Jamming, CSAR, and Transport.

Some Raids start on the map, some use ingress/egress hexes, and some start with a number of Raid flights on the map with the remaining ones entering later. Flights from the same Raid do not all have to enter at the same time or on the same game turn. Flights that exit more than five hexes from their egress hexes must make a recovery roll [20.2].

8.2 Tasks

Tasks are listed below. The Air-to-Ground entry lists the ground targets the flight is allowed to attack. If "None" is listed, the flight may not attack ground targets. If the Air-to-Air entry lists "Attack and Defend," the flight may freely attack or defend against enemy flights; if it lists "Defend," the flight may not initiate air-to-air combat.

Task	Behavior
Bombing	*Air-to-Ground:* Raid targets in the target hex and AAA/SAM targets in/within two hexes of target hex. *Air-to-Air:* Defend *Other:* Abort if all air-to-ground ordnance jettisoned.
SEAD	*Air-to-Ground:* SAM, EWR, AAA *Air-to-Air:* Defend *Other:* Abort if all air-to-ground ordnance and gun ammo jettisoned/depleted.
Rescue Support	*Air-to-Ground:* SAM, EWR, AAA *Air-to-Air:* Attack and Defend *Other:* Abort if all air-to-ground ordnance and gun ammo jettisoned/depleted.
CAP	*Air-to-Ground:* None *Air-to-Air:* Attack and Defend *Other:* Abort when all air-to-air weapons depleted.
Close Escort [8.343]	*Air-to-Ground:* None *Air-to-Air:* Attack and Defend *Other:* May not voluntarily move > 6 hexes from escorted flight. May not initiate combat when > 6 hexes from escorted flight. Abort if all escorted flights abort.
Recon	*Air-to-Ground:* None *Air-to-Air:* Defend *Other:* Only Recon-capable aircraft may fly this task. Abort if any aircraft in flight is Crippled.
Escort Jamming [8.341]	*Air-to-Ground:* None *Air-to-Air:* Defend *Other:* Abort if any aircraft in flight Damaged or Crippled, or if all escorted flights abort.
Standoff Jamming [8.342]	*Air-to-Ground:* None *Air-to-Air:* Defend *Other:* May not voluntarily move within 5 hexes of Front. Abort if any aircraft in flight Damaged or Crippled.
CSAR	*Air-to-Ground:* None *Air-to-Air:* Defend *Other:* Only helicopters may fly this task. Abort if any aircraft in flight is Crippled.
Transport	*Air-to-Ground:* None Air-to-Air: Defend *Other:* Crippled aircraft must abort.
Laser Designation	*Air-to-Ground:* None *Air-to-Air:* Defend *Other:* Abort if any aircraft in flight Crippled.
Chaff Laying	*Air-to-Ground:* None *Air-to-Air:* Defend *Other:* Abort if all chaff expended or jettisoned (exception: Multirole aircraft [8.37]).
Fast FAC	*Air-to-Ground:* None *Air-to-Air:* Defend *Other:* Abort if any aircraft in flight Crippled.

8.3 Flight Navigation

Flights tasked with Bombing, Recon, or Transport are restricted in how they move. They must follow a path defined by waypoints on the map.

8.31 Flight Path

Plot the flight path and all waypoints on the Planning Map in the Raid Planning Phase [31.5].

Each Bombing, Recon, or Transport flight in a Raid has a flight path. This is a series of imaginary straight lines drawn on the map that connect to make a path. The flight path starts at the ingress hex for the Bombing, Recon, or Transport-tasked flights and ends at an egress hex. By drawing a straight line from the ingress hex to the various waypoints the flight path can be drawn in a "join-the-dots" fashion. When plotting waypoints, players should keep in mind the maximum turns allowed at various speeds or night conditions [6.32].

A flight path may include up to eight waypoints total (ten for Recon flights). All flight paths for a Raid must share the following four waypoints: Ingress, Release Point, Rejoin Point, and Egress. The path may also include four additional waypoints inserted as desired in between these four mandatory waypoints.

There are three sections in every flight's flight path: Ingress to Release Point; Release Point to Target to Rejoin Point; and then Rejoin Point to Egress. All flights in the Raid share the same first and last segments (Ingress to Release and Rejoin to Egress).

However, for the middle section (Release Point to Target to Rejoin Point) each Bombing, Recon, or Transport flight may plot its own individual waypoints. This middle section must pass close enough to the target hex so that a Bombing or Recon flight can attack/reconnoiter the target hex based on the Attack Profile [17.3] or Recon Run [24.1] for the flight or flights attacking/reconnoitering that target. It does not have to enter the actual target hex. Transport-tasked flights will have scenario designated waypoint requirements for their "target" hex.

Ingress and Egress waypoints must be on the map edge (or the playing area edge for scenarios where only a portion of the map is used) within the area designated in the scenario. Release and Rejoin waypoints must be within 15 hexes of any of the Raid's target hexes. Other waypoints may be placed anywhere.

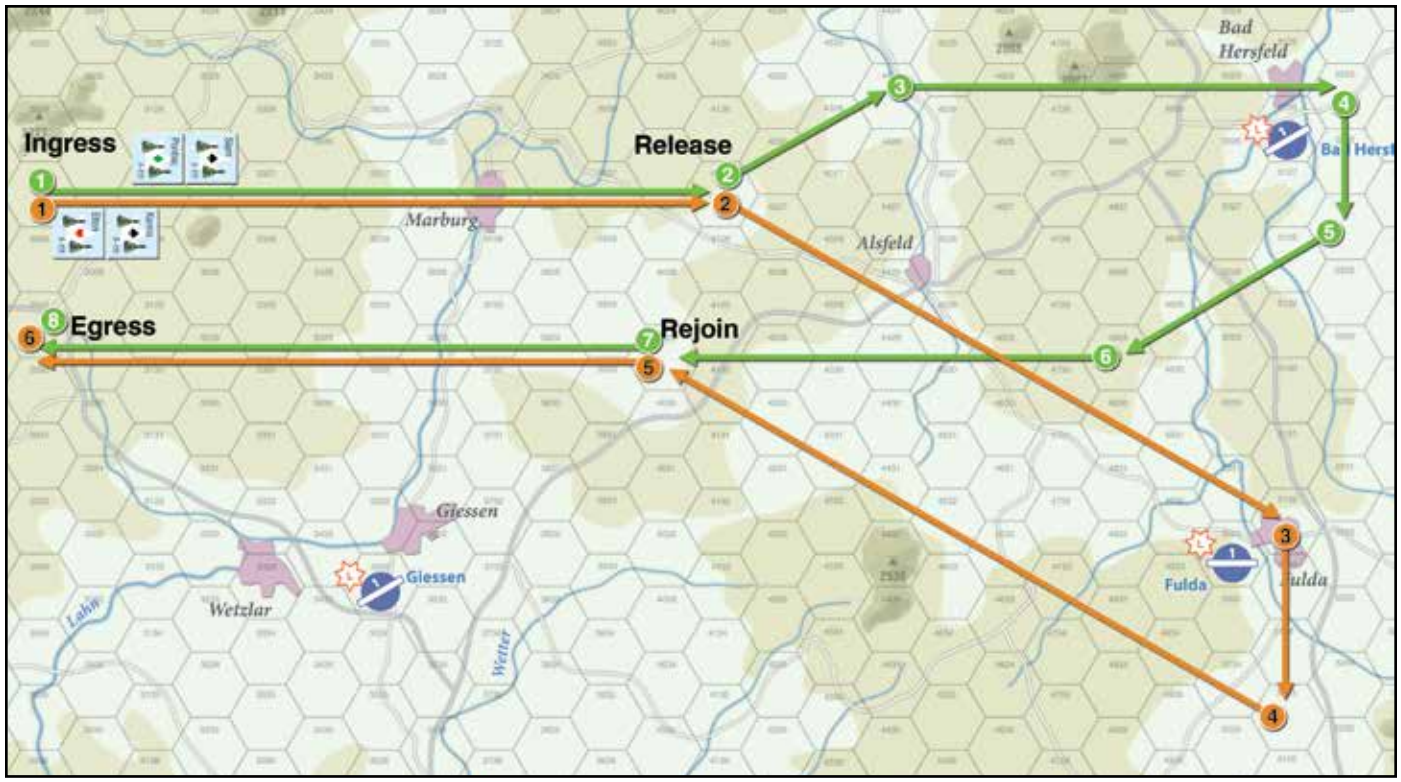
Design Note: *The idea here is that each Raid sticks together to get to the Release Point, then the flights in the Raid will spread out to attack their targets, and finally link back up at the Rejoin Point for the final run to the Egress Point.*

8.32 Navigating the Flight Path

Flights tasked with Bombing, Recon, or Transport follow their flight path, from the ingress hex to egress hex.

Bombing, Recon and Transport flights start within two hexes of the ingress hex. They must fly directly to their next waypoint, following the line plotted on the Planning Map. No flight may intentionally stray more than two hexes from this line.

Each hex moved into must be closer to the next waypoint than the last hex. When a flight moves within two hexes of a waypoint it has 'reached' that waypoint and must begin moving to the next



Example: *The NATO player is planning a daytime Deep Strike Raid with 4 x F-111 flights. The west map edge for the scenario is hex column 29xx. All flights in the Raid use the same plotted Ingress (2927), Release (4127), Rejoin (4029), and Egress (2929) waypoints as shown. The path for all four flights is the same from the Ingress waypoint to the Release waypoint. However, from the Release Point Slam and Pontiac flights follow their green flight path that allows them to hit their target near Bad Hersfeld in hex 5025 via their waypoints at 4425, 5225, 5227, and 4829 and then move to the common Rejoin waypoint at 4029. The two other F-111 flights (Karma and Elton) follow the orange flight path so they can hit their target in 5134 and then proceed to the same Rejoin waypoint at 4029 used by the other flights in the Raid. From there, all four flights follow the same path from the Rejoin waypoint to the Egress waypoint. Note that Slam and Pontiac flights use the max eight waypoints (green ones) total while Karma and Elton flights only used six (orange ones).*

one in order. Again, the flight must follow the line projected between these two points.

If a Recon, Bombing, or Transport flight becomes Disordered, it may resume its mission on removal of the Disordered marker [13.11] at a Rally Point [8.35] and then rejoin the flight path at its nearest waypoint.

8.33 Near Target Hex

Within three hexes of the target, Bombing and Recon flights move freely, without restriction. They must return to the flight path as soon as possible once they move four or more hexes from the target.

8.34 Other Taskings

Flights tasked with SEAD, CAP, Rescue Support, Escort Jamming, Standoff Jamming, CSAR, Laser Designation, Chaff Laying, or Fast FAC do not have to follow a flight path and may move freely, without restriction.

8.341 Escort Jamming Tasking

Flights tasked with Escort Jamming are dedicated to protecting specific Bombing or SEAD flights in a Bombing or Deep Strike Raid. They may move freely, without restriction. However, if all escorted flights in their assigned Raid are eliminated or Aborted, then the Escort Jamming flight Aborts as well. If not assigned to a specific Raid by the scenario, Escort Jamming flights are not required to Abort due to the status of Bombing or SEAD flights.

8.342 Standoff Jamming Tasking

Flights tasked with Standoff Jamming are very high value assets that would not be allowed within enemy SAM range. They must stay at least 5 hexes from the enemy side of the Front [29.0] at all times. Players may choose to allocate Standoff Jamming flights to Early Warning Jamming [19.35].

8.343 Close Escort Tasking

Flights tasked with Close Escort are dedicated to protecting Bombing flights in a Bombing or Deep Strike Raid and are under tight ground control. They may not voluntarily move more than six hexes from an escorted Bombing flight in their Raid. If they do so involuntarily, they must move back within six hexes of an escorted flight as soon as possible. They may not initiate combat if more than six hexes from an escorted flight. They are released from this restriction if they Abort. If all escorted flights in their assigned Raid are eliminated or Aborted, then the Close Escort flights Abort as well.

8.344 Multiple Raids

Some scenarios may specify that there are multiple Raids on the map at the same time. Each Raid has different targets and plots a separate flight path from the other Raids.

8.35 Rally Point

Scenarios may specify that a player plots Rally Points. Rally Points are specific locations where flights plan to reorganize so they can continue operations. Flights within one hex of a Rally Point receive a beneficial +8 modifier for Disorder recovery rolls [13.11].

Rally Points may be plotted in any hex containing Urban terrain or part of a River. Additionally, all friendly open airfields may be used as Rally Points. Rally Points must be at least ten hexes from a side's target hex/hexes (if any) and this may eliminate a friendly open airfield as a legal Rally Point.

8.36 Orbit Points

Scenarios may specify that a player plots Orbit Points. Orbit Points are specific locations where defensive or Raid forces form up. The players use these Orbit Points to set up airborne flights at the beginning of a scenario.

Unless otherwise specified in a scenario, Orbit Points may be plotted in any hex on the friendly side of the Front [29.0] and at least ten hexes from the Front. Orbit Points are also considered Rally Points [8.35] for the purpose of recovery rolls [13.11].

8.37 Multirole Aircraft

Flights with aircraft designated on ADCs as Multirole aircraft tasked with SEAD or Chaff Laying may change their task to CAP after they use or jettison all air-to-ground ordnance [16.0] or chaff [17.68]. This task change can occur at any time during a turn once this condition is met.

8.4 Flight Abort

Flights Abort as a consequence of morale, random events, damage, lack of ordnance, or depletion of air-to-air ammunition (which includes guns). The player may choose to Abort a flight at any time. Note the Abort state on the flight Log Sheet. Optionally, use an Abort marker to mark the flight.

Any flight that Aborts may move freely, unrestricted by the flight path rules. Aborted flights cannot initiate air-to-air combat or conduct air-to-ground attacks. There are no specific restrictions on Aborted behavior because there are too many variables that would influence it, but an Aborted flight should avoid all combat and attempt to land at an eligible airfield [9.14]/[28.0] or exit the playing area on the west (NATO) or east (WP) edge.

8.5 Advanced Navigation Rules

8.51 Plotting Altitude

When plotting the Raid the player must note the altitude band used by all Bombing, Recon, and Transport-tasked flights and the flight path hexes in which the altitude band changes. Bombing, Recon, and Transport-tasked flights must fly at the plotted altitudes, climbing and diving as necessary to match any changes in the plot.

A flight cannot voluntarily deviate from the plotted altitude except to conduct Anti-Radar Tactics [15.26]. If it does so, it must return to the plotted altitude as soon as possible once it is no longer marked with an Acquisition marker [15.21].

If forced to deviate from the plotted altitude due to air-to-air combat [11.3] or SAM avoidance [15.33], it must return to the plotted altitude as soon as possible.

Bombing, Recon, and Transport flights may freely change altitude within three hexes of the Raid's target.

9.0 Airfield Operations

9.1 Airfields

Airfields are rated based on runway length, with Class 1 being the shortest and Class 5 the longest. Airfield class is indicated by a number on the map symbol. Airfield takeoff direction is indicated by the direction of the white lines on the airfield symbol. A player can have air units on the ground at airfields. Flights on the ground are always undetected.

Design Note: *The rating here is a function of runway length. Class 1 airfields are those with runways < 2,500 feet. Class 2 are those 3,000 - 4,500 feet. Class 3 are those 5,000 - 6,000 feet. Class 4 are those 6,500 - 8,000. Class 5 are the largest with runways of 8,500 feet or more.*

9.11 Airfield Operations

Flights can take off from and land at airfields. Airfields allow the take off and landing of one flight per turn. Airfields may not be used for both takeoffs and landings in a single turn.

Airfields are "open" or "closed." The scenario will indicate which airfields are closed and the status of their inherent AAA; all others are open. Flights may only take off and land at open airfields. Each aircraft has a runway rating indicated on its ADC entry. Flights may take off/land at any airfield rated equal to or greater than the aircraft's runway rating. Helicopters [25.1] may take off/land at any class of friendly airfield. Aircraft may only rearm/refuel [9.16] at an airfield of their nationality (see Appendix B for list).

Open Class 1 or 2 airfields may launch and recover up to 3 flights per scenario. Open Class 3+ airfields may launch and recover any number of aircraft during a scenario. Open airfields become closed the moment an Attack Success of 1 or more [17.42] is achieved against the runway target in the airfield's hex.

A closed airfield may still recover one flight per scenario (if otherwise allowed for that aircraft type) as an emergency landing field to avoid possible flight loss from fuel depletion or combat damage.

9.12 Flights on the Ground

Flights may begin a Raid on the ground at an airfield. Flights on the ground may not move except to take off.

Flights on the ground are in one of three states: Ready, Unready, and Revetted. More than one flight may be Ready at an airfield with all other flights Unready or in Revetments.

Flights may be made Unready at any time. Just landed flights are Unready.

Revetted flights take five game turns to be made Unready. Changing to Unready state is noted in the Admin Phase; the flight is Unready on the fifth Admin Phase after commencement.

Unready flights take five game turns to move into Revetments. Changing to Revetted state is noted in the Admin Phase; the flight is Revetted on the fifth Admin Phase after commencement.

Unready flights take five game turns to change to Ready state. Changing to Ready state is noted in the Admin Phase; the flight is Ready on the fifth Admin Phase after commencement.

Mark flights on the ground with Ready, Unready, and Revetted markers. Ready and Unready flights are considered to be in aircraft parking areas and are Target Profile D; Revetted flights are Target Profile B or Target Profile A if in Hardened Aircraft Shelters (HAS). Unless otherwise noted in a scenario, aircraft Revetted at Class 3 or higher airfields are in HAS; aircraft Revetted at Class 2 or lower airfields (and at all temporary airfields [28.0], regardless of class) are not in HAS. Any number of flights may be in Revetments at an airfield.

Any damage to a flight on the ground means that it cannot take off or fly for the remainder of the scenario.

9.13 Takeoff

It takes two game turns to take off. Ready flights (including dummies) may take off in any Movement Phase. Place the flight on the airfield flipped to its undetected side. It must be facing in the direction of one of the runways printed on the edge of the airfield hex. Flights may only take off at an airfield rated equal to or greater than the aircraft's runway rating.

On the first turn of movement, the flight remains on the airfield hex at Deck altitude. The flight may not initiate air-to-air combat on the first turn of movement. On the second turn of movement, the flight moves a number of MP equal to half (round up) of its speed. On the third and subsequent turns of movement, it moves normally.

9.14 Landing

It takes three game turns to land. Once landing has begun the procedure cannot be stopped or interrupted unless the flight is attacked in any way, in which case it reverts to normal movement.

Flights may only land at an airfield rated equal to or greater than the aircraft's runway rating. To begin landing the flight must be at Deck altitude and at Combat throttle. On the game turn landing begins the flight may select any speed between 1 and their maximum Combat speed [6.21]. The flight must end movement in a hex adjacent to the airfield, with the airfield in its forward arc, and pointed in the same direction as one of the runways.

Next game turn, instead of regular movement, the flight advances into the airfield hex, without changing altitude. On the following turn, instead of regular movement, it lands. A flight that has landed is Unready and must be made Ready before it can take off again in that scenario. Remove any Disordered [13.11] or Abort [8.4] marker on the flight.

9.15 Maneuver Restriction

Flights have their maneuver ratings reduced to 1 while taking off and landing. The penalty lasts from the moment takeoff commences and the flight is placed on the map until the end of the second Movement Phase of flight [9.13]. It lasts from the moment landing begins until the aircraft is on the ground.

9.16 Refuel and Rearm

Flights tasked with CAP [8.2] may land during a scenario, rearm and refuel, and take off again. Flights with any other task (Bombing, SEAD, etc.) may not take off after landing.

To do so, a flight must land at a Class 2+ airfield of their nationality (see Appendix B) and remain in an Unready state during five Admin Phases (including the one in the turn it lands). Note the flight is rearming/refueling in the Admin Phase. It completes rearming/refueling on the 5th Admin Phase following commencement and changes to Ready state. It may Take off [9.13] in the Movement Phase of the following turn.

Damaged or Crippled aircraft in such a flight may not use this procedure and must instead remain in Unready status on the ground after landing; Split [4.14] them into a separate flight, leaving all non-Damaged/non-Crippled aircraft in the original flight. A flight taking off after rearming/refuelling must have at least two aircraft.

Upon takeoff, adjust the flight's Log Sheet to reflect full fuel [20.0], full air-to-air loadout [11.12], and number of aircraft if it changed.

Example: *A flight of 4 x MiG-29s depletes all its air-to-air weapons and becomes Disordered on Turn 3 of a scenario. Also, one of the MiG-29s is Damaged, and another is Crippled. On Turn 6, it lands at a Class 4 WP airfield. On Turn 11, it may take off again as a two aircraft CAP flight with full fuel and air-to-air weapon loadout. It is no longer Disordered, having removed the marker when it landed. The Crippled and Damaged MiG-29s may not refuel, rearm, or take off. They must be placed into Unready status upon landing. Note that if the flight had 3 Damaged/Crippled aircraft that the single remaining MiG-29 would not be allowed to take off again.*

9.17 Airfield Sub-Targets

In some scenarios, airfields and temporary airfields are considered to have multiple "sub-targets" in the airfield hex. Each sub-target must be attacked, and take damage, separately.

Sub-target types vary by SSR, but may include: Runways (Profile A), Hardened Aircraft Shelters (Profile A), Aircraft Revetments (Profile B), Aircraft Parking Areas (Profile D), Hangars (Profile C), and Fuel Storage (Profile B or C).

10.0 Detection

10.1 Detection States

Flights are either detected or undetected. Mark undetected flights by flipping the flight counter to its undetected side (with the "?"). A detected flight is flipped to its detected side (with the Heart, Spade, or Diamond icon).

10.11 Detection Levels

Each scenario will assign a separate Detection Level to the WP and NATO players, lettered from A (best) to F (worst). The Detection Level column may be shifted by random events and Early Warning Jamming [19.35].

10.2 Detecting Flights

Each Detection Phase, both players roll two dice for each undetected enemy flight on the map and consult the Detection Table. Use the column corresponding to the player's Detection Level and modify the roll if any of the listed modifiers apply.

The result will be 'no effect' (the flight remains undetected), or 'detection'. Flip detected flights to their detected side. If the detected flight is a dummy, remove it from the map [4.12].

In addition to regular detection rolls, players may make visual detection attempts, aircraft radar searches, and early warning radar searches against enemy flights.

10.21 Visual Detection

A player makes a visual detection roll for each enemy flight within four hexes and in line of sight [22.1] of a non-Disordered friendly flight. Choose one eligible friendly flight to make the visual detection attempt. Roll on the Visual column and apply the Visual Detection modifiers. Make only one visual detection attempt per enemy flight in each Detection Phase regardless of the number of friendly flights eligible to visually detect. (Exception: WP flights with IRST sensors may make a second such attempt if the enemy flight is in the WP flight's forward arc.)

Visual detection attempts at night are limited [23.12]. All NATO flights may make visual detection attempts at night, but only at a reduced range of two hexes. Only WP flights with IRST sensors may make visual detection attempts at night, but only in their forward arc at a range of four hexes or less.

10.22 Radar Search Detection

Both players may make an additional detection attempt for each enemy flight within range and the forward arc of a non-Disordered, radar-equipped friendly flight. Lookdown [10.23] may prohibit radar search. See ADCs for aircraft radar ranges and modifiers.

Choose an eligible flight to make the search attempt. Roll on the appropriate Radar Search column and apply the Radar Search modifiers. Make only one radar search attempt per enemy flight regardless of the number of friendly flights eligible to search.

A flight with Track-while-Scan radar capability noted on the ADC (a "TS" notation in the radar section) with an undetected enemy flight in its forward arc in the Detection Phase may make a second radar search attempt if the first radar search attempt fails. Regardless of how many Track-while-Scan flights could search, only one additional radar search attempt is allowed for any one enemy flight.

10.23 Lookdown

Lookdown applies if the target flight is at a lower altitude band. However, some aircraft have sophisticated radars that make Lookdown non-applicable in some conditions.

Aircraft ADCs list Lookdown performance for flights with search radars: "LD" for aircraft with no Lookdown restrictions, "LD (LTD)" for aircraft affected by Lookdown only at targets at Deck or Low altitudes, and "No LD" for aircraft subject to Lookdown against all targets at lower altitude bands.

If Lookdown does apply, the flight may not make a radar search [10.22] or attempt to engage in BVR combat [11.3] against that target.

10.24 Jamming

Detected enemy flights with defensive jamming capability [19.2] must be indicated to the other player. If jamming is lost for any reason, that must also be indicated.

10.25 Early Warning Radars

Both sides may be allocated Early Warning Radar (EWR) units to augment their detection capabilities. The EWR will provide an additional detection check on the B column with appropriate modifiers for any aircraft within 20 hexes of the EWR or within 10 hexes if on the Deck. EWRs are Profile D targets [17.13].

10.3 Track Phase

At the start of the Track Phase, all NATO detected flights at Deck altitude in a Rough hex, all detected flights at Deck altitude and in/adjacent to a Mountain terrain hex, and all detected helicopter/cruise missile flights at Deck altitude, become undetected and are flipped over to their undetected sides.

Each player then rolls two dice and consults the Track Table, using the column corresponding to their Detection Level. The result on the table will be 'no effect', or one or more symbols: a Heart, Spade, or Diamond.

Each detected flight counter has a Heart, Spade, or Diamond printed on it. If a symbol is rolled, all enemy detected flight counters with matching symbols become undetected and are flipped over to their undetected sides.

If the result is in {curly brackets} it only applies to enemy flights at Deck altitude, enemy flights in a chaff corridor [19.4], and enemy flights at Low altitude and on their side of the Front [29.0].

10.4 Visual Identification

Flights use generic flight counters [4.11] until they are visually identified, at which point they are replaced with the actual flight counter.

In Day conditions, flights are visually identified the instant any of the following conditions occur:

a) The flight enters Standard air-to-air combat [11.3].

b) A non-Disordered enemy flight is within one hex, has a line of sight, and is within one altitude band of the flight.

c) An enemy AAA [14.0], SAM [15.0], or Army Ground Unit [27.0] unit is within one hex and has line of sight to the flight.

In Night [23.0] conditions, flights are only visually identified if they enter Standard air-to-air combat [11.3] or if they enter the hex of an enemy SAM, AAA, or Army Ground Unit at Low or Deck altitude and there is a line of sight to the flight.

Note that successful visual detection rolls [10.21] do not result in visual identification. Likewise, visual identification does not result in detection: undetected flights may be visually identified and yet remain undetected. Visually identified dummies [4.12] are removed from the map.

11.0 Air-to-Air Combat

Flights may attack enemy flights in air-to-air combat. There are two types of air-to-air combat: Standard air-to-air combat ("dogfights") and Beyond Visual Range (BVR) air-to-air combat. For both types, a flight must first successfully engage an enemy flight. If successful it can then maneuver for a shot. Shots are resolved to determine damage. Follow the appropriate (Standard or BVR) Air-to-Air Combat Sequence on Player Aid Card 1.

11.1 Air-to-Air Weapons

11.11 Weapon Class

The ADC lists the types of air-to-air weapons an aircraft can carry. There are three classes of air-to-air weapons: Guns, IR Missiles (IRM) and Radar Homing Missiles (RHM).

11.12 Air-to-Air Loadout

Some ADC entries list multiple air-to-air weapons. Flights may carry one type of each class of weapon, so a flight may never carry more than one type of IRM, RHM, and Gun. Choose weapons in the Raid Planning Phase [31.5] when selecting aircraft to be used during the scenario [3.1].

A weapon that depletes its ammo [11.34] cannot be used for the rest of the scenario (Exception: Refuel and Rearm [9.16]). The flight no longer has that weapon type.

11.13 Combat Values

Each weapon has a Standard combat value listed in the Air-to-Air Weapon Charts on the ADCs. Selected weapons also have a BVR combat value listed, indicating they can be used in BVR combat. (Note that most such weapons have a lower combat value for BVR attacks). The range of each BVR weapon is shown in terms of where the attacking flight is in relation to the target. If the attacker is in the forward arc of the target use the range listed for "forward," if in the forward or rear beam arcs, use "beam," and if in the target's rear arc use "rear."

11.2 Engagement

A flight may attempt to engage an enemy flight during its own movement. The moving flight is the attacker and the non-moving flight is the defender. Engagement must be rolled to determine whether combat can begin [11.22].

A flight may not attempt to engage the same enemy flight in Standard air-to-air combat more than once per Movement Phase. However, if the attacking flight fails to engage a flight it may try to engage another flight in a different hex or altitude band later in that Movement Phase.

A flight may attempt to engage only one enemy flight in BVR combat per Movement Phase (Exception: F-15 flights [11.44]). However, unlike Standard air-to-air combat, if its first BVR combat engagement attempt fails, it may continue moving and make additional BVR engagement attempts against that same enemy flight.

A flight that attempts BVR engagement on an enemy flight, regardless of the result, may also attempt to engage that same enemy flight (only) in Standard air-to-air combat later in the same Movement Phase. The BVR combat must take place before the Standard air-to-air combat.

11.21 Engagement Prerequisites

Attacking and defending flights must meet certain conditions before an attacking flight may make an engagement attempt.

11.211 Standard Air-to-Air Combat Engagement Prerequisites

A flight may not attempt to engage in Standard air-to-air combat unless it has moved at least one hex or changed altitude in the Movement Phase. The engagement attempt itself costs no additional movement points. The following conditions must also be met:

a) The defender must be detected and not stacked with a friendly flight.

b) The defender must be within one hex (inclusive) of the attacker and in the same altitude band, or the band immediately below.

c) If in different hexes, the attacker must have the defender in its forward arc. (Arcs do not prevent engagement if the flights are in the same hex).

d) The attacker must have an undepleted air-to-air weapon.

e) The attacker must not be Disordered, Aborted, have performed SAM avoidance [15.33] or declared Anti-Radar Tactics [15.26] in the current turn.

f) All AAA [14.0] or SAM [15.3] attacks against the attacking flight in its current hex have been resolved.

11.212 BVR Air-to-Air Combat Engagement Prerequisites

A flight may not attempt to engage in BVR air-to-air combat unless it has moved at least one hex or changed altitude in the Movement Phase. The engagement attempt itself costs no additional movement points. If making multiple BVR engagement attempts in a Movement Phase, the flight must move one hex or change altitude between attempts. The following conditions must also be met:

a) The defender must be detected.

b) The defender must be in range of an undepleted BVR weapon.

c) If the attacker is using an IRM, there must be a line of sight [22.1] to the enemy flight.

d) BVR Rules of Engagement [11.26] must allow the BVR engagement attempt.

e) Lookdown [10.23] must not prevent engagement (some aircraft are exempt, see ADCs).

f) The attacker may not be in a Defensive Wheel [7.1] formation.

g) The attacker must have the defender in its forward arc.

h) The attacker must not be Disordered, Aborted, have performed SAM avoidance [15.33] or declared Anti-Radar Tactics [15.26] in the current turn.

i) All AAA [14.0] or SAM [15.3] attacks against the attacking flight in its current hex have been resolved.

11.22 Engagement Roll

For Standard air-to-air combat, if the prerequisites [11.211] have been met, the attacker and defender make separate engagement rolls. The engagement value used for the roll is shown on the Engagement Table and is based on the detection status of the enemy flight and whether it is day or night. If a flight has no line of sight to the target [22.1], use night values. Roll two dice on the Engagement Table and modify as indicated. If the result is equal to or greater than the engagement value, the flight's engagement attempt is successful.

For BVR combat, if the prerequisites [11.212] have been met, only the attacker makes an engagement roll (Exception: F-15 flights automatically pass BVR engagement rolls [11.44]). The engagement value used for the roll is shown in the BVR column of the Engagement Table. Roll two dice on the Engagement Table and modify as indicated. If the result is equal to or greater than the engagement value, the flight's BVR engagement attempt is successful.

11.23 Engagement Roll Modifiers

For Standard air-to-air combat, modifiers for Aggression Values [31.53], Disorder [13.11], altitude difference, Slash Attacks [11.52], rear hemisphere, haze [22.3], mist [22.5], and night [23.0] apply to the engagement rolls.

For BVR combat, only the attacker's Aggression Value, and any altitude difference between the flights applies.

11.24 Engagement Results

For Standard air-to-air combat, there are four possible results of the engagement rolls:

a) If the attacker's engagement attempt succeeds but the defender's does not, combat commences. The attacker has Surprise and the defender is Disadvantaged. Move the attacking flight to the defender's altitude band.

b) If both the attacker's and defender's engagement attempts succeed, combat commences but there is no Surprise or Disadvantage. Move the attacking flight to the defender's altitude band.

c) If both the attacker's and defender's engagement attempts fail, no combat takes place (do not resolve combat or post-combat effects) and the attacker continues its movement.

d) If the defender's engagement attempt succeeds but the attacker's does not, the defender can choose to commence combat. Note that the defender cannot choose to commence combat if it has no air-to-air weapons; is Disordered, Aborted, and/or marked with a Maneuver marker; or participated in air-to-air combat (Exception: BVR combat) earlier that Movement Phase. If combat begins, move the defending flight to the attacker's altitude band; if the attacker is higher, the defender is considered to have Zoom Climbed [6.33]. There is no Surprise or Disadvantage. If the defender does not begin combat, treat as result c. above—no combat takes place.

For BVR combat, there are only two possible results of the engagement roll:

a) If the attacker engages successfully, proceed to resolve the BVR combat. There is no Surprise or Disadvantage [11.25] in BVR combat.

b) If the attacker fails to engage, it continues movement.

11.25 Surprise and Disadvantage

In Standard air-to-air combat, the engagement roll may give the attacker the advantage of Surprise and bonuses in combat and morale. The defending flight may start the engagement Disadvantaged, resulting in penalties to combat and morale.

In Standard air-to-air combat, a flight can jettison its air-to-ground ordnance prior to combat being rolled, so as to permit the use of its clean maneuver values [16.2]. Disadvantaged flights cannot jettison.

Defensive Wheels never suffer Disadvantage penalties and attackers can never claim Surprise against them [11.43].

11.26 BVR Combat Rules of Engagement

BVR combat is permitted only when the rules of engagement allow. Random events may prevent BVR combat, otherwise the following rule applies: if the attacker is in the defender's forward arc or forward/rear beam (see Player Aid Card 3), the shot is not permitted if a friendly flight is within three hexes of the target. If the attacker is in the defender's rear arc, the shot is not permitted if a friendly flight is within one hex of the target.

11.3 Combat

If Standard air-to-air combat commences as a result of engagement, it uses up all of the attacking (not defending) flight's remaining MPs (Exceptions: Slash Attacks [11.52]; Attacks on Cruise Missiles [17.75]). All flights involved in combat are Visually Identified [10.4]. The combat takes place in the defender's hex and altitude. If the defender is on a hexside, the attacker determines which adjacent hex the combat takes place in. Both flights are moved into the combat hex, retaining their current orientation.

If BVR combat commences as a result of engagement, neither flight uses any MPs in the combat. The moving flight's movement is paused while resolving the BVR combat.

11.31 Maneuver

For Standard air-to-air combat, each attacking and defending flight in a combat rolls for maneuver. (Exception: Defensive Wheels roll once regardless of the number of flights in the wheel). Roll two dice, modify as indicated and consult the Maneuver Table, cross-referencing the roll on the Air-to-Air column with the number of undamaged aircraft in the flight.

Always use the 1 aircraft column if:

a) Rolling for a Defensive Wheel [7.1, 11.43].

b) The flight is Disordered [13.11].

c) The flight is making multiple attacks [11.51].

For BVR combat, only the attacker rolls on the Maneuver Table using the BVR column on the table. Apply only the modifiers listed on the BVR Combat Maneuver Table and cross reference the final roll with the column for the number of non-Damaged aircraft in the attacking flight.

The value obtained from the Maneuver Table is the number of shot opportunities the flight has. Shot opportunities are resolved using the shot resolution system [11.33]. If a flight has no air-to-air weapons it may not roll for maneuver or take shots at enemy flights.

11.32 Soviet Doctrine

WP flights use the 1 Maneuver column for each 1- or 2-ship flight, and the 2 Maneuver column for each 3- or 4-ship flight, when they are the attacker in Standard or BVR air-to-air combat (Exception: This rule does not apply to MiG-29 and Su-27 flights). All WP flights use the Maneuver column for the actual number of aircraft if they are the defender in an engagement.

11.33 Shot Resolution

Consult the Shot Resolution Table. To resolve a flight's shot, select an air-to-air weapon to shoot with, roll two dice, and modify based on the weapon's air-to-air combat rating (see ADCs) and whether or not the flight has one or more additional undepleted air-to-air weapons (does not apply to BVR combat shots).

Shots are resolved in any order as determined by the players. Allocate and apply damage [12.1] [12.2] after all shots have been rolled. A player may refuse to roll for a shot if desired.

11.34 Ammo Depletion

After all shots in a combat have been resolved, roll one die for each flight that resolved a shot. Roll per flight that took a shot, not per shot taken. If a flight resolved multiple shots, subtract one from the roll for each shot after the first.

Look up the depletion number of the chosen weapon. If the result is equal to or less than the depletion number, that weapon is depleted and can no longer be used by that flight in combat [11.12] (Exception: Refuel and Rearm [9.16]).

If the modified result is 1 or less, a second weapon (if the flight has one) is also depleted. The owning player may choose any other non-depleted air-to-air weapon carried by the flight to deplete.

For BVR combat, only the BVR weapon used can deplete. No other weapons deplete, even if the depletion roll is 1 or less.

11.35 Damage Allocation and Post-Combat Procedures

After rolling for Ammo Depletion, follow the steps, as applicable, under Damage Allocation [12.1] and Post-Combat Procedures [13.0] to complete the air-to-air combat.

11.4 Special Combat Rules

The following rules cover special combat situations.

11.41 Disengagement

In Standard air-to-air combat, prior to the maneuver rolls the defending flight can elect to disengage. Disengaging flights do not roll for maneuver and take no shots. Flights attacking a disengaging flight apply a negative modifier to their maneuver roll.

Disengaging flights do not Scatter and are not marked with a Maneuver marker after combat [6.35]. They apply a -2 modifier to their Morale Table roll.

11.42 Climbing Before Combat

In Standard air-to-air combat, decrease a flight's maneuver rating [2.81] by one if it climbed in that Movement Phase. Decrease the rating by two instead if the flight Zoom Climbed [6.33]. A flight's maneuver rating may never be less than zero.

11.43 Defensive Wheels

Defensive Wheels [7.1] engage and fight as if they were a single flight. When rolling to engage, roll once for all flights in the wheel. If successful, roll once on the Maneuver Table, using the 1 column [11.31]. Attackers may not claim Surprise advantage against Defensive Wheels [11.25]. Flights in Defensive Wheels do not suffer Disadvantage penalties and do not Scatter [13.2].

11.44 F-15 Flights in BVR Combat

If all prerequisites [11.212] are met, F-15 flights automatically succeed with any BVR engagement attempt. In addition, F-15 flights may attempt to engage two different enemy flights in BVR combat in the same Movement Phase. They may then attempt to engage either of those two flights in Standard air-to-air combat in that same Movement Phase.

11.45 Rear Guns

Rear guns cannot be used to initiate air-to-air combat. Aircraft with rear guns do not apply geometry modifiers to their roll on the Maneuver Table.

11.5 Advanced Combat Rules

11.51 Multiple Attacks

If an attacking flight comprises two or more aircraft, it may try to engage two enemy flights in Standard air-to-air combat if it meets the prerequisites for attacking both. The attacker rolls to engage each defending flight separately. Each defending flight rolls separately to engage the attacker.

If combat occurs, the attacker rolls two combats; one against each enemy flight. In each case the attacker uses the 1 column of the Maneuver Table. Both defenders roll for shots against the attacker as normal. The attacker rolls for depletion [11.34] for both combats, applying the worst result for any weapon. The attacker also rolls a Morale Check [13.1] for both combats, applying the worst result for the attacking flight. For the purposes of the attacker's Scatter roll [13.2] the attacker chooses which combat hex to scatter from.

Following a multiple attack, the attacker is automatically Disordered in addition to any other combat or morale result.

11.52 Slash Attacks

A slash attack is a type of Standard air-to-air combat. To attempt a Slash Attack the attacker must be in Dash throttle and cannot have climbed prior to the attack in that Movement Phase. The target cannot be on the Deck. The attack must be made from the target's rear hemisphere. Announce the Slash Attack before rolling for engagement.

Apply the Slash Attack modifier to the engagement roll. If the attacker does not achieve Surprise then reduce the attacker's number of shot opportunities in the combat by one, to a minimum of zero. The attacker (only) does not Scatter [13.2] or place a Maneuver marker [6.35] following combat and continues movement.

Design Note: *A "Slash Attack" is an engagement technique where an intercepting flight would dive onto the enemy flight from behind at high speed, fire, and then rapidly accelerate away. Its advantage in game terms is not having to scatter or be marked with a Maneuver marker, thus allowing the flight to keep moving after the combat and move at full speed the following turn as well.*

12.0 Air Unit Damage

12.1 Damage Allocation

Randomly allocate Damaged/Crippled/Shot Down aircraft results from AAA, SAM, or air-to-air combat among the aircraft in a flight by rolling a die on the Damage Allocation Table for each Damaged/Crippled/Shot Down result, cross referencing with the total number of aircraft in the flight. If there are multiple results from one combat to apply and a Shot Down result is rolled, continue to roll on the original column for all results from that combat.

The result is the number (1, 2, 3, 4) of the aircraft affected. If the result is C# and a Crippled aircraft is present, allocate the damage to any Crippled aircraft (attacking player's choice) in the flight. Otherwise allocate the result to the numbered aircraft indicated. Note the damage result on the flight log [4.21].

If a combat generates multiple damage results, roll to allocate each one separately. Results may be allocated in any order selected by the attacker. If a Damaged/Crippled aircraft is Damaged or Crippled again, its damage level is increased by one level (from Damaged to Crippled, Crippled to Shot Down). Apply the effects of damage before allocating the next result.

If a Shot Down aircraft receives another Shot Down, Damaged, or Crippled result from the same combat, ignore that Damaged/Crippled/Shot Down result. The Shot Down aircraft, in effect, "absorbs" multiple damage results in this combat.

Example: *The NATO player (the attacker) must allocate one Damaged, one Crippled, and one Shot Down result to a flight of four WP MiG-27s, one of which (the #3 aircraft) was already Crippled the turn before this combat took place. The NATO player decides to allocate the Damaged result first, hoping to hit the already-Crippled MiG-27 (the #3 aircraft in the flight). A roll of "5" results in a "3" on the 4 aircraft column of the Damage Allocation Table. This means MiG-27 #3 takes the Damaged result. Since aircraft #3 is already Crippled, this added Damaged result will shoot it down. The NATO player now rolls to allocate the Crippled result from the combat, again rolling on the 4 column. Even though one of the MiG-27s has already gone down, the WP flight had four aircraft when this combat started, and the original column is used throughout Damage Allocation. This time the roll is a "1," indicating MiG-27 #1 is now Crippled. Finally, the NATO player rolls to allocate the Shot Down result, rolling a "6," giving a "C3" result. If there were no Crippled aircraft in the flight, this Shot Down result would be ignored because aircraft #3 has already been Shot Down during this combat. However, since aircraft #1 is Crippled, the "C3" result has to be applied to aircraft #1, shooting it down. The WP player adjusts the Log Sheet for the flight to show aircraft #1 and #3 Shot Down (#2 and #4 are still in the air, undamaged).*

If a flight loses one or more aircraft in a combat, in subsequent combats "renumber" the remaining aircraft so the flight conforms to the appropriate column of the Damage Allocation Table.

Example (continued): *Two turns later, this same unlucky flight of MiG-27s takes a "K" result from a NATO SAM attack. Since the flight had only two aircraft at the start of the SAM attack, the NATO player rolls on the "2 aircraft" column of the Damage Allocation Table. Aircraft #2 is now considered aircraft #1, and aircraft #4 is now considered aircraft #2. A roll of "8" indicates a "C2" result. Since neither remaining MiG-27 is Crippled, aircraft #2 (originally aircraft #4) takes the K (Shot Down) result.*

12.2 Damage Effects

12.21 Damaged Aircraft

Damaged aircraft are not counted toward the total aircraft available to make air-to-air or air-to-ground attacks. Damaged aircraft must immediately jettison all air-to-ground ordnance [16.21].

12.22 Crippled Aircraft

Crippled aircraft are treated the same as Damaged aircraft, except a flight with one or more Crippled aircraft may not select Dash throttle [6.22] on future game turns. Flights with Crippled aircraft may be split in the Admin Phase [4.14].

12.23 Shot Down Aircraft

Shot down aircraft are removed from the flight. If all the aircraft in a flight are Shot Down the flight is eliminated. The flight's remaining air-to-ground ordnance is adjusted to reflect the loss of the aircraft [16.22]. Shot down aircraft may generate bailed out crew members [26.1].

13.0 Post-Combat Procedures

Following Damage Allocation [12.1] in any Standard air-to-air combat, regardless of results, attacking and defending flights perform the following actions in order:

(1) Conduct a Morale Check [13.1] (both flights) on the Air-to-Air Combat column.

(2) Scatter [13.2] (both flights, but NA to Slash Attack [11.52] attacking flights, Disengaging defending flights [11.41], and Defensive Wheel [7.1] defending flights).

(3) Place Maneuver markers [6.35] (both flights, but NA to Slash Attack [11.52] attacking flights and Disengaging [11.41] defending flights).

(4) Place Disordered [13.11] or Abort [8.4] markers depending on the Morale Check results (both flights).

(5) Remove any Acquisition [15.21], BVR Avoid [6.36], SAM Avoid [15.33], Anti-Radar Tactics [15.26], or Zoom Climb [6.33] markers the flights had at the start of the combat (both flights).

(6) Become undetected [13.3] (both flights).

(7) Roll for Bailouts [26.1] for any Shot Down aircraft (both flights).

(8) Mark off one fuel point [20.1] (both flights).

(9) Damaged or Crippled aircraft jettison ordnance [16.21].

Following BVR Combat shot resolution [11.33] (including Ammo Depletion check [11.34] and Damage Allocation [12.1], if any), regardless of the results, the defending flight (only) performs the following actions in order:

(1) If any BVR shots occurred, conduct a Morale Check [13.1] on the BVR column.

(2) Place Disordered [13.11] or Abort [8.4] markers depending on the Morale Check results.

(3) If any BVR shots occurred, place a BVR Avoid Marker [6.36] (Exceptions: NA to flights in Defensive Wheel [7.1] or Cruise Missiles [17.7]).

(4) Roll for Bailouts [26.1] for any Shot Down defending aircraft.

(5) Damaged or Crippled aircraft jettison ordnance [16.21].

Following any AAA or SAM combat that inflicts damage or losses, the defending flight (only) performs the following actions in order:

(1) Conduct a Morale Check [13.1] on the AAA/SAM column.

(2) Place Disordered [13.11] or Abort [8.4] markers depending on the Morale Check results.

(3) Roll for Bailouts [26.1] for any Shot Down defending aircraft.

(4) Damaged or Crippled aircraft jettison ordnance [16.21].

These procedures take place immediately, before any other movement or combat action is performed.

13.1 Morale Checks

All attacking and defending flights in an air-to-air combat conduct a Morale Check after combat has been resolved even if no shots occurred by either side (Exception: Only defending flights in BVR combat [11.3] conduct Morale Checks, and only if any shots occurred). Flights that take damage or losses from AAA or SAM attacks also conduct a Morale Check.

To conduct a Morale Check, roll two dice and consult the Morale Check Table. Modify the roll as indicated. Apply damage/loss modifiers only for aircraft Damaged or lost in the just-resolved combat. Refer to the column for Standard air-to-air combat, BVR air-to-air combat, or AAA/SAM combat as appropriate.

Apply the results, including possible Jettison Check. Reduce the flight's Aggression Value by the amount in the Aggression Value column (but never below -3).

13.11 Disordered State

Flights that become Disordered are noted as such on the flight log. Optionally, mark the flight with a Disordered marker.

Disordered flights cannot enter Defensive Wheels [7.1] and immediately leave such upon becoming Disordered. They may not visually detect [10.21], radar search [10.22], initiate air-to-air combat [11.0], or make air-to-ground attacks [17.0]. Modifiers apply to engagement and air-to-air combat.

Flights can recover from Disorder in the Admin Phase. Disordered flights roll two dice and add their Aggression Value. Modify the roll by +8 if in or adjacent to a Rally Point [8.35]. On a final 20 or more, remove the Disordered status.

Do not roll for Disorder recovery if the flight was:

- Attacked by SAM or AAA that turn.
- Engaged in air-to-air combat that turn.
- Acquired by a SAM at any time during that turn.

13.2 Scatter

After Standard air-to-air combat Morale Checks [13.1], flights scatter from their hex. Roll a die for each flight in the combat and follow the instructions in the scatter diagrams. If instructed to descend an altitude band and the flight is on the Deck, do not descend further.

If forced to scatter off-map, or into a Mountain hex while on the Deck [6.34], keep rolling until a legal movement result occurs.

Scatter is NA to attacking flights conducting a Slash Attack [11.52] and defending flights either Disengaging [11.41] or in a Defensive Wheel [7.1].

13.3 Post-Combat Detection Status

Following a Standard air-to-air combat, all participating flights immediately become undetected. Flip the counters to the undetected side. Flights participating in BVR combat [11.3] do not change detection status.

14.0 Anti-Aircraft Artillery

14.1 AAA Types

There are three types of AAA in *Red Storm*: AAA Concentrations (Light, Medium, Heavy), Radar AAA (Fire Can), and Mobile AAA (2K22/Gepard/Vulcan). The latter two categories are referred to collectively as "Radar-Equipped AAA."

14.2 AAA Concentrations

AAA concentrations are ground units and come in three densities: Light, Medium, and Heavy. The WP uses all three densities. NATO only uses Light AAA. AAA concentrations are available in scenarios and are represented on the map by counters or by printed AAA at airfields. There can be no more than one concentration in a hex [31.21].

14.21 AAA as Targets

AAA concentrations are Target Profile C [17.13].

14.22 AAA Points

In the Ground Planning Phase, the WP player may receive AAA points. These can be spent to upgrade printed AAA or purchase additional AAA concentrations.

The WP player may spend AAA points upgrades as follows: Light to Medium (1), Medium to Heavy (2).

When activated, place a counter of the upgraded density over the printed concentration on the map.

WP AAA points may also be used to purchase additional AAA concentrations for the following cost in AAA points:

Light (1), Medium (2), Heavy (4).

14.3 AAA Activations

AAA concentrations are either active or inactive. The player chooses when to activate AAA. Once active, AAA concentrations cannot become inactive. Inactive AAA concentrations can be activated only at the following times:

a) The Radar Phase [31.9].

b) The Admin Phase [3.2].

c) When a flight enters a hex adjacent to the concentration.

d) When a flight expends an MP while adjacent to the concentration.

When an AAA concentration is activated, flip the AAA counter to its active side. When activated, hidden AAA is revealed and placed on the map. Once revealed, AAA cannot become hidden again.

14.4 AAA Barrage

An active AAA concentration projects a flak barrage zone into its hex and all adjacent hexes. Roll a barrage attack on a flight (whether friendly or enemy, detected or undetected) immediately each time the following applies:

a) It enters a hex in a barrage zone via movement, Scatter, or SAM avoidance. (Exception: Fighter/AAA deconfliction [14.74].)

b) It changes altitude band in a barrage zone as a result of movement, Scatter, or SAM avoidance. Note that a flight that enters a barrage zone and descends an altitude band in the same movement point is only attacked once.

c) It expends an MP turning in a barrage zone.

d) It presses a dive bombing attack [17.31] in a barrage zone.

e) It successfully engages an enemy flight in Standard air-to-air combat [11.2] in a barrage zone. Use the defending flight's hex and altitude for the barrage attack.

14.41 Resolving Flak Barrages

Roll two dice on the AAA Table using the column for the density of AAA being projected into that hex, cross referencing with the flight's altitude. If the barrage roll is as a result of a change in altitude [14.4.b], the owner of the AAA may choose to attack at either the altitude where the flight started or where it ended.

If more than one AAA concentration projects its barrage into the hex, the owning player chooses one concentration (only) to make the barrage attack.

If the roll is equal to or greater than the number listed, the target flight is hit. If the target is hit, roll for damage on the Barrage column of the AAA Damage Table. Roll two dice and apply the AAA barrage modifiers to obtain the damage result.

A "D" damages one aircraft; "C" cripples one aircraft; "K" shoots down one aircraft [12.2]. If more than one result is listed (e.g., "K,C,D"), all are applied to the flight in the order chosen by the AAA owner. Use the Damage Allocation Table [12.1] to allocate the results within the flight and conduct any applicable Post-Combat Procedures [13.0].

14.42 Air-to-Ground Modifier

An AAA barrage also applies as a modifier, listed on the AAA Table (in parentheses), to those bombing air-to-ground attacks where the Bomb Run [17.2] passes through the AAA barrage zone [17.42]. Apply the modifier even if AAA fails to hit the flight. Where more than one AAA barrage zone affects the bombing flight during its Bomb Run, apply the greatest AAA barrage modifier. AAA modifiers are reduced by 1 (toward 0) for each level of suppression on the concentration.

14.5 Radar AAA

Fire Can represents special WP AAA ground units possessing radar.

14.51 Radar AAA Deployment

The WP player may be allocated a number of Fire Can (WP) Radar AAA in a scenario. In the Ground Planning Phase [31.2], the WP player plots the location of Fire Can units on the Log Sheet. Fire Can units must be placed in hexes already containing map printed or purchased AAA concentrations. The maximum number of Fire Can units permitted in a hex varies with the density of the AAA concentration: Light (1), Medium (2), Heavy (3). Note that adding Radar AAA to a hex with a AAA

concentration does not affect the AAA concentration itself, which operates separately from the Radar AAA.

14.52 Radar AAA Status

During the ISR Phase [31.3], players determine how many Radar AAA set up on the map and how many remain hidden. Hidden Radar AAA units remain hidden until they switch their radars on. Radars are switched on or off in the Admin Phase; flip the counter to its "on" or "off" side. Radars can also switch on in the Movement Phase when a flight expends an MP for any reason [6.31] within attack range of the Radar AAA. Radar AAA units with their radars off may not attack enemy flights. When a Radar AAA switches its radar on, place a Fire Can counter on the map; the unit has been located and may be attacked. A located Fire Can never becomes hidden again.

14.53 Radar AAA Attacks

A Radar AAA unit with its radar switched on may attack once per game turn, during enemy movement. It may attack an enemy flight within two hexes following the expenditure of an MP (this may be the same MP that led to its radar being turned on), or immediately after the target has scattered or performed SAM avoidance. Radar AAA attacks are limited to altitudes that the AAA concentration in their hex can reach. Resolve all flak barrage attacks on the flight first before rolling Radar AAA attacks.

Roll two dice on the AAA Table using the Fire Can column referenced with the target flight's altitude. If the roll is equal to or greater than the number listed, the flight is hit and damage should be determined using the Fire Can column of the AAA Damage Table. Roll two dice and apply the Radar AAA modifiers to obtain the damage result.

A "D" damages one aircraft; "C" cripples one aircraft; "K" shoots down one aircraft [12.2]. If more than one result is listed (e.g., "K,C,D"), all are applied to the flight in the order chosen by the Radar AAA owner. Use the Damage Allocation Table [12.1] to allocate the results within the flight and conduct any applicable Post-Combat Procedures [13.0].

14.54 Air-to-Ground Modifier

Radar AAA attacks apply a modifier, listed on the AAA Table (in parentheses), to those bombing air-to-ground attacks where the bombing flight is attacked by Radar AAA [17.42] during the Bomb Run. Apply the modifier even if Radar AAA fails to hit the flight. Where more than one Radar AAA affects the bombing flight during its Bomb Run, apply the single greatest Radar AAA modifier.

14.55 Fire Can as Targets

Fire Can units are Target Profile C [17.13].

14.6 Mobile AAA

Many ground units in the game have organic Mobile AAA capability; see [27.1] and Organic AAA Table (Player Aid Card 3). Additional separate Mobile AAA may be allocated in a scenario. The WP Mobile AAA is the 2K22. NATO Mobile AAA includes the Gepard (FRG/BE) and Vulcan (US).

14.61 Mobile AAA Deployment

In the Ground Planning Phase, the player secretly plots the location of all Mobile AAA units on the Log Sheet.

14.62 Mobile AAA Status

Mobile AAA units remain hidden (not placed on the map) until they switch their radar on. When a separate Mobile AAA switches its radar on, place a 2K22/Gepard/Vulcan counter on the map; the unit has been located and may be attacked. Radars are switched on or off in the Admin Phase; flip the counter to its "on" or "off" side. Radars can also switch on in the Movement Phase when a flight expends an MP for any reason [6.31] within attack range of the Mobile AAA. A located Mobile AAA never becomes hidden again. For an organic Mobile AAA unit, flip its parent ground unit over to its "radar on" side (the side with a white circle).

14.63 Mobile AAA Attacks

Once its radar is switched on, a Mobile AAA unit is considered to be active at all times unless the Mobile AAA fails an ARM Morale Check [17.53] or has been suppressed, damaged, or destroyed. A Mobile AAA with its radar on may attack once per game turn during enemy movement. It can attack an enemy flight within one hex following the expenditure of an MP (this may be the same MP that led to its radar being turned on) or immediately after the target has scattered or performed a SAM avoidance maneuver. Resolve all flak barrage and Radar AAA attacks on the flight before resolving Mobile AAA attacks.

Roll two dice on the AAA Table using the appropriate column for the type of Mobile AAA referenced with the target flight's altitude. If the roll is equal to or greater than the number listed, the flight is hit and damage should be determined using the Mobile AAA column of the AAA Damage Table. Roll two dice and apply the Mobile AAA modifiers to obtain the damage result.

A "D" damages one aircraft; "C" cripples one aircraft; "K" shoots down one aircraft [12.2]. If more than one result is listed (e.g., "K,C,D"), all are applied to the flight in the order chosen by the Mobile AAA owner. Use the Damage Allocation Table [12.1] to allocate the results within the flight and conduct any applicable Post-Combat Procedures [13.0].

14.64 Air-to-Ground Modifier

Mobile AAA attacks apply a modifier, listed on the AAA Table (in parentheses), to those bombing air-to-ground attacks where the bombing flight is attacked by Mobile AAA [17.42] during the Bomb Run. Apply the modifier even if Mobile AAA fails to hit the flight. Where more than one Mobile AAA affects the bombing flight during its Bomb Run, apply the single greatest Mobile AAA modifier.

14.65 Mobile AAA as Targets

Organic Mobile AAA must be targeted separately from their parent ground unit. Both separate and organic Mobile AAA are Target Profile C [17.13].

14.7 Additional AAA Rules

14.71 Organic Small Arms Barrages

All WP and NATO ground units, other than SAM/EWR units, project a Small Arms flak barrage. No extra counters are placed to indicate this flak. The barrage zone only occupies the counter's hex, not the adjacent hexes. Organic Small Arms barrages are always activated. They are not considered AAA concentrations [14.2] and are never suppressed. However, if their parent unit is destroyed, they are no longer in effect.

14.72 Organic SAM/EWR Light AAA

All EWR units [10.25] and all non-hidden SAM units [15.1], including dummies, project Light AAA barrages. The barrage zone only occupies the counter's hex. Organic Light AAA is always activated. They are not considered AAA concentrations [14.2] and are never suppressed. However, if their parent unit is destroyed, they are no longer in effect.

14.73 Organic Mobile AAA

Some Army Ground Units may also have an organic Mobile AAA (Gepard, Vulcan, or 2K22). For the purposes of applying damage from air-to-ground attacks, this Mobile AAA is considered to be a separate unit from the "parent" ground unit.

If the parent unit is damaged at any level, do not apply that damage to the organic Mobile AAA. If the parent ground unit is destroyed, use one of the 2K22, Vulcan, or Gepard units to note the location of the Mobile AAA in the hex.

If the organic Mobile AAA radar is suppressed, damaged, or destroyed, do not apply those results to the parent unit. Instead, flip the ground unit to its side without the white circle.

14.74 AAA Deconfliction

Friendly flights (including dummies) that enter a hex at Deck altitude are not attacked by a friendly AAA barrage unless they entered as a consequence of Scatter or SAM avoidance.

14.75 Inherent AAA/IR SAM Zones

A large number of NATO and WP ground units equipped with Radar AAA and IR SAM capability are not represented on the map in many scenarios. To reflect this, some scenarios designate a zone for Inherent AAA/IR SAM attacks [30.0]. Any flights at Low or Deck altitude on the enemy side of the Front that spend an MP in the zone are automatically subject to a Gepard (NATO side) or 2K22 (WP side) Mobile AAA attack. Resolve the attack as if at 0 hex range. However, any flight may only be attacked by this inherent Gepard/2K22 capability once per game turn. Unlike other AAA attacks, these attacks do not result in Visual Identification [10.4] of the flight.

14.76 Automatic Small Arms AAA at Deck

At the end of any Movement Phase, any flight that is at Deck altitude on the enemy side of the Front is attacked by a Small Arms AAA barrage. Unlike other AAA attacks, these attacks do not result in Visual Identification [10.4] of the flight.

Design Note: *In a NATO/WP conflict, there would be hundreds of military units on both sides beyond those represented by counters on the map. They would all have heavy-caliber machine guns, other small arms, and IR SAMs. Any flight at Deck altitude on the "wrong" side of the Front has a very good chance of taking fire. This rule also models the numerous obstacles to flight (power lines, communications towers, hills, etc.) that are also found all over central Germany and could cause problems for flights at very low altitude over unfamiliar terrain.*

15.0 SAMs and Radars

SAM units are ground units that can attack flights with missiles.

Each SAM unit is identified by a letter, number, or combination of the two printed on its counter. Most SAMs use three counters: a SAM Warning marker for when it is unlocated; a SAM unit counter for when it is located, and an Acquisition marker to mark acquired targets. Some SAMs have two Acquisition markers. IR SAMs use only one counter: the SAM unit counter.

15.1 SAM Deployment

Each side may be allocated a number of SAM units by the scenario. In addition, they may be allocated a number of dummy SAMs [15.14] and dummy Radars [15.15]. In the Ground Planning Phase [31.2] the player secretly notes the location of SAM units and dummies. For each SAM unit, fill out a SAM entry on the SAM log. This should note the unit's ID letter, hex, Target Profile, and shots remaining. For dummy SAMs and dummy Radars, simply note the location.

Radar On

Radar Off

15.11 SAM States

SAM units may be in one of three states: located, unlocated, or hidden (Exception: IR SAMs [15.44] have only two states: located or hidden). Show a located SAM unit by placing a SAM counter on the map. Show an unlocated SAM unit by placing a SAM Warning marker on the map when the SAM radar is turned on [15.12] for the first time. Hidden SAM units do not appear on the map.

Located SAM units can be attacked by any flight whose tasking permits it [8.2]. Unlocated SAM units may only be attacked by flights using ARM ordnance [17.5]. Hidden SAM units may not be attacked.

During the ISR Phase [31.3] both sides will determine how many SAM units set up on map as located units at the start of the scenario. The remaining SAM units begin the game hidden.

15.12 SAM Warning

When hidden SAM units switch their radar on, place a SAM Warning marker on the map in the SAM unit's hex. When the unit is located, remove the SAM Warning marker and replace it with

the SAM unit of the appropriate SAM type. Each SAM Warning marker is identified by a letter or number on its counter; this ID does not correspond to the ID of the SAM unit it represents. When placing a SAM Warning marker, note the SAM Warning ID on the SAM log of the corresponding SAM unit.

SAM Warn On

SAM Warn Off

Example: *The WP player has a hidden SA-11 (ID "G") in hex 6313. When it turns its radar on, the WP player places WP SAM Warning marker #1 on the map in the SA-11's hex, noting on the SAM log that SAM Warning marker #1 corresponds to SA-11 "G." This will keep the NATO player guessing about what type of SAM it is as long as possible.*

15.13 SAM Location

In the SAM Location Phase both players may try to locate unlocated SAMs marked with SAM Warning markers. Roll for each unlocated SAM within the line of sight and SAM Detection range of a flight (based on the RWR rating). Increase the range by five hexes if there is a SAM Launch marker on the SAM.

Roll one die and modify as indicated on the SAM Location Table. If the roll is equal to or greater than 10, the SAM is located, and the SAM Warning marker is replaced with the corresponding SAM unit counter. Otherwise it remains unlocated.

15.14 Dummy SAM Sites

Scenarios may supply either side with dummy SAM units. Dummy SAM units use any non-IR SAM unit counters and always set up located [31.32] on their Radar Off side. Dummy SAM sites have no radar and cannot switch on/off or fire SAMs. Dummy SAM sites can be attacked and destroyed like regular SAM units; however, they never count for VPs.

Example: *The WP player is allocated one dummy SAM for a scenario. To confuse the NATO player about the location of the potent SA-12 SAM, the WP player selects an unused SA-12 marker for the dummy SAM. As a dummy SAM, it automatically sets up located on the map, on its Radar Off side.*

15.15 Dummy Radars

Scenarios may supply either side with dummy radar units. Dummy radars use regular SAM unit counters and SAM Warning markers and must set up hidden. Dummy radars behave as regular SAM units in all respects except they have no ammo and cannot fire SAMs.

Dummy radars can acquire targets with their radar, switch their radar on and off, and be forced to shut down by ARM attacks. They can be attacked, damaged, and destroyed like regular SAM units. Dummy radars never count for VPs.

Example: *The NATO player is allocated one dummy radar in a scenario. It sets up hidden. During the scenario, the NATO player turns the radar on, placing a SAM Warning marker. In a later turn, the WP player locates the SAM Warning marker [15.13]. When this occurs, the NATO player swaps in an unused Patriot SAM counter and continues to acquire targets, turn the radar on/off, etc., all in an effort to confuse the WP player. The only thing the dummy radar cannot do is actually fire a SAM at a target.*

15.16 SAM Units as Targets

SAM unit target classes are listed on the SAM Data Table.

In some scenarios, SAM sites are considered to have multiple "sub-targets" in the hex. Each sub-target must be attacked, and take damage, separately. Sub-target types vary by SSR but may include: Command Bunkers (Profile A), Missile Storage (Profile B), Launchers (Profile C), and Fire Control Radars (Profile D).

SAMs have organic Light AAA [14.72]. In scenarios where SAM sites have sub-targets, disregard [14.72] with regard to damage to the organic AAA. Instead, this organic Light AAA is considered a separate sub-target. It is attacked and takes damage separate from other sub-targets in the hex.

15.2 SAM Radars

SAM units may only acquire and attack flights if their radar is switched on. Radars are switched on or off in the Admin Phase; flip the counter to its "on" or "off" side. In the Movement Phase, some SAMs can switch their radar on to conduct a Lock-On After Launch (LOAL) attack [15.51]. Radars can also switch on in the SAM Acquisition Phase if they attempt a quick acquisition [15.22]. Anti-radiation missiles (ARMs) can force SAM radars to Shutdown [17.53].

15.21 SAM Acquisition

SAM units must acquire their target flight on radar (Exceptions: LOAL [15.51], IR SAMs [15.44], Anti-Radar SAMs [15.53], EO Tracking [15.54]) before they can fire. In the SAM Acquisition Phase, a SAM may make one attempt to acquire one enemy flight, or maintain/improve one existing acquisition on one flight, provided the flight is within its acquisition range (Exceptions: A SAM marked with a SAM Launch marker, and with an Acquisition marker on a flight, must attempt to maintain acquisition [15.24] on that same flight (i.e., it may not switch and try to acquire another flight); a Phased Array Radar SAM [15.45] may make two attempts to acquire or maintain acquisition on two enemy flights, one attempt per flight).

Design Note: *The real-world guys in a SAM command truck aren't as omniscient as the game player. It's quite likely, once they have a target acquired and engage it, they would try to stay on that track rather than dump it and try to acquire other aircraft nearby.*

15.22 Acquisition Prerequisites

Each SAM unit may only acquire one target at a time (Exception: Phased Array Radar SAMs, see SAM Data Table). The target flight must be within acquisition range. It must not be masked by terrain [15.25].

If the SAM radar is switched off at the start of the SAM Acquisition Phase, it may try a "quick acquisition." Quick acquisition may only be attempted against detected flights. The SAM radar switches on immediately and applies the quick acquisition penalty modifier.

15.23 Resolving Acquisition

To resolve acquisition, roll two dice on the SAM Acquisition Table. Apply modifiers as indicated and consult the column corresponding to the target's current status: detected, undetected, or acquired by that SAM unit. Attempts to maintain acquisition on flights that are both undetected and already acquired are resolved on the Acquired column. Cross reference with the result column:

No Acquisition - The target is not acquired. Do not place an Acquisition marker. If already acquired, remove the SAM Acquisition marker from the target.

Partial Acquisition - Place the Partial Acquisition marker matching the SAM unit's ID on the target.

Full Acquisition - Place the Full Acquisition marker matching the SAM unit's ID on the target.

Partial Acquisition

Full Acquisition

In cases where a SAM unit is represented on the map by a SAM Warning marker, use the SAM Acquisition marker corresponding to the SAM unit's ID, not the SAM Warning marker's ID.

15.24 Maintaining/Losing Acquisition

To maintain or improve an existing acquisition, the SAM must roll on the Target Acquired column (even if the flight is undetected) and adjust the SAM's Acquisition marker based on the result.

An Acquisition marker must be removed the moment a SAM unit's radar is switched off, its target reaches a distance greater than the acquisition range, Terrain Masking [15.25] applies, or the flight engages in Standard air-to-air combat [11.2]. A player may also voluntarily remove friendly Acquisition markers at any time. (Exception: A SAM's Acquisition marker(s) may not be voluntarily removed if the SAM is marked with a SAM Launch marker.)

15.25 Terrain Masking

During the Movement Phase, if a target flight enters a Rough or Mountain hex at Deck altitude, the Acquisition marker is removed before any SAM attack can be made. Note that just diving to Deck altitude in a Rough/Mountain hex does not remove the Acquisition marker before a SAM attack. The flight must move into a Rough/Mountain hex while already at Deck altitude to do so.

Also, if the target is on the Deck and at any time there is a Mountain hex between the SAM unit and the flight, remove the marker. Draw a straight line between the center of the SAM unit's hex and the center of the flight's hex or hexside. If this line crosses any part of the Mountain hex (including along the hexsides), acquisition is lost.

15.26 Anti-Radar Tactics

Flights with RWR capability which are acquired can declare Anti-Radar Tactics at the beginning of their movement. The flight's first MP must be used to dive to Deck altitude. If already at Deck altitude, do not dive but still spend one MP. If the flight cannot spend its first MP to conduct Anti-Radar Tactics due to the need to first remove a Maneuver, BVR Avoid, and/or SAM Avoid marker, Anti-Radar Tactics may not be used.

Place an Anti-Radar Tactics marker on the flight. Apply the Anti-Radar Tactics modifier to all acquisition rolls made against the flight that game turn. After expending the first MP, and before any SAM attacks can be launched, SAMs that have acquired the flight must roll to maintain acquisition [15.24]. The result of the roll may never improve the acquisition level.

A SAM never rolls more than once for Anti-Radar Tactics in a flight's Movement Phase. However, it still rolls as normal to maintain acquisition on the flight in the SAM Acquisition Phase.

After a flight conducts Anti-Radar Tactics, it may not climb, initiate air-to-air combat, or make air-to-ground attacks during that Movement Phase. They also lose Defensive Jamming [19.21] for the remainder of the turn. Aircraft noted as having Poor SAM Defense may not employ Anti-Radar Tactics.

Remove Anti-Radar Tactics markers at the end of the turn in the Administrative Phase.

15.27 Dummy Flight and SAM Interaction

Any SAM may attempt acquisition on a dummy flight as per the normal rules. Dummies have the option to "dummy jam" [19.52] using a jamming modifier as if they had a defensive jamming strength of 2n or 3d, if desired.

Design Note: *Dummies do not represent actual aircraft, so there is no actual "dummy jamming" going on. Instead, this rule ensures dummy flights are not easily "sorted out" from real flights simply because they have no defensive jamming modifiers applied during various game functions.*

If the result is Partial Acquisition, then the dummy is not revealed, and a Partial Acquisition marker is placed. If the SAM subsequently fires on the target, then the dummy is revealed and removed from play. If the acquisition result is Full Acquisition, then the dummy is removed from play. If no Acquisition takes place, the dummy counter remains in play.

No dummies may be spawned from a flight that is marked by a Full Acquisition marker even if the flight is undetected. Flights marked by a Partial Acquisition marker may still spawn dummies (if eligible) and the SAM player must declare which flight will retain the acquisition marker when the dummy is spawned.

15.3 SAM Attacks

SAM units may fire at enemy flights up to their attack range.

15.31 SAM Fire Prerequisites

SAM units may only fire at flights during the Movement Phase following the target's expenditure of a movement point, or immediately after it has scattered or performed SAM avoidance. Resolve SAM attacks after all AAA attacks have been resolved.

Acquisition: SAMs may only fire at acquired flights (Exceptions: LOAL [15.51], IR SAMs [15.44], Anti-Radar SAMs [15.53], EO Tracking [15.54]). SAMs may fire no more than once per game turn (Exception: Phased Array Radar SAMs [15.45]). SAMs may not fire at targets that are at less than minimum range. No more than two SAM units may attack the

same flight in a game turn (Exception: IR SAMs [15.44] do not count against this limit).

Deconfliction: SAMs may not fire if an airborne friendly flight (including a dummy) is within four hexes of the target flight. Only a Safe Passage Corridor [15.43] would allow the SAM to fire on an enemy flight within four hexes of a friendly flight/dummy. This limitation does not apply to IR SAMs [15.44].

Optional Rule: SAM Friendly Fire. A player may take SAM shots not otherwise allowed due to Deconfliction. However, if the SAM attack result is a "Miss," then the player must immediately conduct another SAM attack roll against the friendly flight closest in hexes to the original target (opposing player decides ties), even if it is out of range of the firing SAM. This "friendly fire" SAM attack is conducted with no modifiers on the SAM Attack Table. If the result is "Possible Hit," roll on the SAM Defense Table with no modifiers. If the result is "Roll SAM Damage," roll on the Full Acquisition column. Apply a -3 DRM to any Morale Checks on the friendly flight from the SAM attack.

15.32 Resolving SAM Attacks

Before resolving a SAM attack, the attacking player may choose to fire a "salvo" of SAMs to obtain an improved modifier on the SAM Attack Table. This uses more ammo [15.34].

To resolve a SAM attack, the player rolls two dice and applies the attack modifiers as indicated. Look up the result on the SAM Attack Table. It will give either a "Possible Hit" or "Miss" result.

If the result is Possible Hit, the defending player rolls two dice on the SAM Defense Table and applies defense modifiers. Results are as follows:

- **Roll SAM Damage.** The SAM attack may score a hit. Roll on the SAM Damage Table.
- **SAM Avoidance.** The SAM attack misses and the target flight must perform a SAM avoidance maneuver [15.33]. Aircraft noted as having Poor SAM Defense treat this result as "Roll SAM Damage."
- **Miss.** The attack is negated by the flight's defensive tactics. The SAM attack misses.

If the result of the attack is "Roll SAM Damage," roll one die on the SAM Damage Table, using the column for Full or Partial Acquisition as appropriate. Use the Damage Allocation Table [12.1] to allocate any Damaged, Crippled, or Shot Down results. Also conduct any Post-Combat Procedures [13.0], as applicable.

After resolving the attack, mark the SAM unit with a SAM Launch marker. The flight may continue movement if it has MP remaining.

15.33 SAM Avoidance

If the flight must perform a SAM avoidance maneuver, consult the SAM Avoidance chart on Player Aid Card 1. Turn and move the flight into either of the indicated hexes, as though conducting regular movement, and dive one altitude band (if not already on the Deck).

The SAM avoidance maneuver uses up one MP. If the flight has no MP remaining, place a SAM Avoid marker. In its next Movement Phase, the flight must conduct the SAM avoidance maneuver to remove the marker [6.37].

Flights that perform a SAM avoidance maneuver, or are marked with a SAM Avoid marker, must immediately roll to see if they jettison air-to-ground ordnance [16.21]. Roll once for each aircraft in the flight, on a 1-6 the aircraft jettisons all its air-to-ground ordnance. On a 7+ it does not. Any flight that conducts SAM avoidance must also remove Standoff Jamming markers and any of its Spot Jamming [19.3] markers on ground units. They cannot initiate air-to-air combat or make air-to-ground attacks during that Movement Phase.

15.34 SAM Ammo

SAM units have a variable number of shots based on their type. Each regular attack uses up one shot. A salvo uses two shots. A SAM unit that has fired all of its shots is depleted and may be marked with a SAM No Ammo marker. Depleted SAM units may not fire for the remainder of the scenario.

Optional Rule: Consistent resupply of missiles to SAM units would be very difficult in a major war. To reflect this, during the Ground Planning Phase [31.2], each player secretly rolls 1d10 for each friendly SAM: on a 1, the SAM has no ammo, on a 2-5 the SAM has 50% normal ammo (round down), on a 6+ the SAM has a full ammo load.

15.4 Additional SAM Rules

15.41 Air-to-Ground Modifier

SAM attacks apply a modifier, listed on the Air-to-Ground Attack Table, to those bombing air-to-ground attacks where the bombing flight is attacked by one or more SAM units during the Bomb Run. Apply the modifier only if there is a SAM Attack Table result of Possible Hit during the flight's Bomb Run. Miss results do not generate the air-to-ground modifier. Only apply the modifier once regardless of the number of Possible Hit SAM attacks.

15.42 High Altitude Targets

For the purposes of resolving SAM attack rolls [15.3] and determining if burn-through [19.22] applies, add one to the range in hexes from the SAM to the target if that target is at High altitude. Add three to the range if the target is at Very High altitude.

Example: *The NATO player announces a Patriot SAM attack on a MiG-25 that is four hexes away from the Patriot. However, the MiG-25 is at Very High altitude, so the range to the MiG-25 for the purposes of burn-through [19.22] and this SAM attack is seven hexes. If the MiG-25 were at High altitude, the range would be considered five hexes for those purposes.*

15.43 Safe Passage Corridors

Each player may plot Safe Passage Corridors during the Planning Phase if allowed by SSR. These passages allow the player to have flights and SAMs active in the same area.

A Safe Passage Corridor is twenty hexes long by one hex wide and must have an altitude of Deck, Low, Medium, or High assigned to it. The corridor may include one "turn" of 30°. The airspeed for a Safe Passage Corridor is always limited to three

and/or four MPs; however, if a friendly flight has not yet moved in a Movement Phase, it is considered to be at the appropriate speed for the corridor. All hexes of the Safe Passage Corridor must be on the friendly side of the Front.

A friendly flight in a Safe Passage Corridor hex, and at the appropriate altitude/speed for that corridor, may be ignored for the purposes of SAM Fire Prerequisites [15.31], allowing SAMs to fire on enemy flights that would normally be too close to a friendly flight to permit the attack.

15.44 Infrared (IR) Homing SAMs

IR Homing SAM units are normal SAMs, with the following exceptions:

- IR SAMs do not have SAM radars [15.2] and do not acquire targets.
- IR SAMs only have two states [15.11]: hidden and located. They always set up hidden and never use SAM Warning markers.
- IR Tracking Attack. An IR SAM with LOS to an enemy flight may attack it. Announce the shot, reveal (if hidden) the IR SAM, and resolve on the SAM Attack Table. The IR SAM automatically becomes located [15.11] after the attack. Altitude, range, salvo fire, and IR SAM-specific DRM apply to the SAM Attack [15.32] Table normally.
- IR SAM shots do not count against the two SAM attacks per flight per turn limitation [15.31].
- IR SAMs may ignore friendly flights for the purpose of SAM deconfliction [15.31].
- IR SAMs ignore Radar Suppressed damage results [18.22]

Design Note: *By the late 1980s both NATO and the WP fielded short-range IR-homing SAMs in an effort to enhance short range air defense and avoid the effects of electronic jamming. These systems are often cued to a target by local warning radars but use optical/infrared tracking for engagement.*

15.45 Phased Array Radar SAMs

Certain SAMs have advanced Phased Array radars. These powerful radars allow acquisition of two enemy flights at the same time and engagement of two acquired flights in the same Movement Phase. See SAM Data Table. They are also more resistant to jamming [19.31] than other radars.

However, Phased Array SAMs also have a limited 120° arc in which they can acquire and attack enemy flights. Only flights that are within this arc may be acquired or attacked. If a flight is acquired and moves entirely outside this arc, immediately remove the Acquisition marker. During the Ground Planning Phase [31.2] players must plot a 120° arc from the center of the SAM's setup hex. This arc cannot be changed during a scenario and is formed by selecting 3 adjacent hexes.

Example: *The NATO player has placed a Patriot SAM (with a Phased Array radar) in hex 4038. During setup, the Patriot's 120° radar arc is defined to include the three adjacent hexes shown (4037, 4138, 4139). The Patriot may only acquire and attack enemy flights inside this arc. So, a flight in 4237 could be acquired/attacked, but an enemy flight outside this arc, such as in hex 4040, could not be acquired or attacked. An acquired enemy flight moving from 4036 (inside the arc) to 3936 (outside the arc) would have its Acquisition marker immediately removed.*

Design Note: *The Patriot AN/APQ-53 and SA-12 9S32 "Grill Pan" radars were among the first phased array radars for land-based SAMs. Both used very powerful, narrow, and agile radar beams, and were thus much less vulnerable to noise and barrage jamming techniques. However, unlike dish arrays they did not rotate, which meant they could not provide 360° coverage.*

15.5 Advanced SAM Rules

15.51 Lock-On After Launch

Some SAM units, as designated on the SAM Data Table, may perform Lock-On After Launch (LOAL) attacks. Only SAM units with their radar off may attempt LOAL attacks. The target must be detected. No acquisition is required prior to the attack, though all other prerequisites apply.

Declare the LOAL attack and switch the SAM radar on. Then roll to acquire the target, applying the Lock-On After Launch modifier. If the result is "No Acquisition," the attack fails. Otherwise mark the target with the appropriate Acquisition marker and resolve the attack as normal. Regardless of the acquisition's success, the attack always expends one shot of ammo (two if a salvo [15.32] is declared) and results in the placement of a SAM Launch marker.

15.52 Mobile SAMs

Some SAMs are designated as Mobile SAMs on the SAM Data Table (any SAM not designated as "Mobile" is "Non-Mobile"). Mobile SAM units may move during a scenario. Every five turns, players may move them one hex during the Admin Phase. If they are hidden at the time of movement, they remain hidden. If they are not hidden, they must switch their radars off to move. They become hidden in their new hex. They may not move into a hex where they would not be allowed to setup.

15.53 Anti-Radar SAMs

Certain SAMs, as designated on the SAM Data Table, may conduct special Anti-Radar SAM attacks against enemy flights marked with Standoff Jamming [19.3] markers. The SAM radar must be on. They engage such flights using normal SAM attack procedures and prerequisites, with the following exceptions:

- The target flight must have a Standoff Jamming marker on it.
- The target flight does not need to have an Acquisition marker on it.
- Eligible SAMs with an Acquisition marker on a flight marked with Standoff Jamming may conduct an anti-radar attack in lieu of a standard attack.
- If the SAM Friendly Fire Optional Rule [15.31] is used, a Miss result has no further effect.
- The SAM may not use salvo fire [15.32].
- When the attack is announced, the player targeted by the Anti-Radar SAM attack rolls one die. If the roll is 7 or less (+1 DRM if no LOS to the SAM) the targeted player may immediately remove the Standoff Jamming marker from the targeted flight (including any Spot Jamming markers [19.34] for that flight). If the Standoff Jamming marker is removed, the Anti-Radar SAM attack automatically misses with no other effect. If the final roll is 8 or more, or if the defending player chooses to keep the Standoff Jamming marker on the flight, the Anti-Radar SAM attacks the target. Resolve the attack normally on the SAM Attack Table [15.32] as if the SAM had Partial Acquisition on the flight. SAM Defense Table DRM for Standoff/Spot Jamming and Defensive Jamming are NA.

15.54 Electro-Optical Tracking

Certain SAMs, as designated on the SAM Data Table, may perform Electro-Optical (EO) Tracking attacks. Only SAMs with their radar on may attempt EO Tracking attacks. EO Tracking attacks are not allowed at Night [23.0]. The target must be detected, at a range of four or fewer hexes, and in line of sight [22.1] of the SAM. The SAM must not currently have an Acquisition marker on an enemy flight; (if not marked with a SAM Launch marker, the SAM may voluntarily remove an Acquisition marker [15.24]). All other prerequisites apply.

Declare the EO Tracking attack and then roll to acquire the target, applying appropriate modifiers, including EO Tracking. If the result is "No Acquisition," the attack fails.

Otherwise mark the target with the appropriate Acquisition marker and resolve the attack as normal. Regardless of the acquisition success, the attack always expends one shot of ammo (two if a salvo [15.32] is declared) and results in the placement of a SAM Launch marker.

Design Note: *This capability represents the backup optical tracking (usually TV-based) some SAMs had in the late 1980s to help deal with intense jamming environments. These systems allowed the SAM to be fired based on an aircraft being tracked visually, and then illuminated by the SAM's fire control radar just before the terminal phase of the engagement.*

16.0 Air-to-Ground Ordnance

16.1 Ordnance

Flights tasked with Bombing, SEAD, or Rescue Support carry air-to-ground ordnance. Players must "load" each individual aircraft in a flight with ordnance and note each aircraft's load on the flight's Log Sheet [2.9]. Any one aircraft in a flight may only carry one type of ordnance.

16.11 Ordnance Types

There are several types of ordnance, some of which are only available via SSR. Ordnance types are as follows:

- **Bombs:** High explosive and incendiary bombs [16.12].
- **LGB:** Laser-guided bombs [17.35] [17.36].
- **EOGM:** Electro-Optical guided missiles [17.37].
- **EOGB:** Electro-Optical guided bombs [17.38].
- **HARM:** NATO Anti-Radiation missile [17.54].
- **Shrike:** NATO Anti-Radiation missile [17.55].
- **Kh-25MP:** WP Anti-Radiation missile [17.56].
- **Kh-58:** WP Anti-Radiation missile [17.57].
- **Kh-28M:** WP Anti-Radiation missile [17.58].
- **AS.37:** NATO Anti-Radiation missile [17.59].
- **CBU:** Cluster bombs [17.61].
- **Rocket Pods:** Rocket pods and rockets [17.63].
- **Anti-Runway:** Anti-Runway bombs [17.64].
- **MW-1A/JP233:** NATO Anti-Runway munitions [17.65].
- **MW-1B/KMGU:** NATO/WP Anti-Vehicle munitions [17.66].
- **Nuke:** Air-dropped nuclear weapons [17.67].
- **Chaff:** Large chaff pods/dispensers [17.68].
- **AS-6:** WP long-range, high altitude cruise missile [17.71].
- **BGM-109G/AS-15:** NATO/WP long-range, terrain-following cruise missiles [17.72].
- **AGM-69:** NATO high speed, nuclear cruise missile [17.73].

LGB, EOGM, EOGB, and the six types of ARMs are collectively referred to as "Precision Guided Munitions" (PGM)

[16.14]. Each remains a separate ordnance type for carriage limits [16.15].

In addition to the listed ordnance, aircraft may make strafing attacks if they are armed with undepleted air-to-air gun weapons.

16.12 Bomb Ammunition

Bomb ordnance loads are expressed as a bomb attack strength. ADCs list the per-aircraft bomb attack point limit. Note that some aircraft have an x/y bomb point rating, with the lower of the two numbers used when the aircraft is part of a Deep Strike Raid. Note the number of points carried by each aircraft on the flight log.

When making a bomb attack, each aircraft in a flight may expend some or all of its bomb attack strength in increments of whole or half strength points. When the flight makes a bomb attack, these expended points are subtracted from each participating aircraft's bomb attack strength.

16.13 Strafing Ammunition

Flights that are strafing [17.39] roll for depletion as if the flight had just conducted air-to-air combat and fired four shots with its gun [11.34]. However, only the gun can deplete.

16.14 PGM Ammunition

LGB, EOGM, EOGB, and ARMs are listed on the ADC as having a number of "shots" (in parentheses) per aircraft loaded with that PGM. Note the number of shots carried by each aircraft on the flight log.

When making a PGM attack, each aircraft in a flight may expend some or all of its PGM shots. Each shot represents one attack roll. Each PGM shot is resolved separately and deducted from an individual aircraft's load. When all of a flight's PGM shots are expended, it may not make any more attacks with that ordnance.

Design Note: *Each "shot" of EOGM represents three or four missiles such as AGM-65 Maverick or Kh-25ML Karen missiles with EO, laser, or IR guidance. For LGB/EOGB, each shot equates to two large guided bombs using laser or EO guidance. For ARMs, each shot represents firing two ARMs at a radar target.*

16.15 Mixed Loadouts

Flights tasked with Bombing, SEAD, or Rescue Support may carry more than one type of ordnance. However, any one flight may only carry two different types of ordnance. In addition, any individual aircraft in a flight may only carry one type of ordnance. Flights carrying JP233, MW-1, KMGU, AS-6, or Nuke ordnance may not have mixed loadouts.

For mixed loadout flights, players may split up the flight's capacity by aircraft, with each aircraft able to carry one of the weapons listed on the ADC and the Order of Battle Table.

Examples: *A flight of 4 x MiG-27Ks could carry two LGB shots and six regular bomb points. Alternately, the same flight could have two LGB shots and two EOGM shots, or one LGB shot and nine CBU points. A flight of 2 x F-4G could carry two HARM shots and two points of CBUs.*

When allocating mixed loadouts, players must specify on the Log Sheet which aircraft in the flight have which ordnance.

Examples (continued): *For the MiG-27Ks above, the player could designate aircraft #1 and #2 as carrying the LGB shots and aircraft #3 and #4 carrying the EOGM shots. For the F-4Gs above, the player could designate aircraft #1 as carrying the two HARM shots and aircraft #2 as carrying the two CBU bomb attack strength points.*

In all cases, players may only load types of ordnance that they are allowed to load for a given flight based on Scenario Special Rules, the ADC, and/or the Order of Battle Table. If an aircraft from a flight with a mixed loadout is forced to jettison air-to-ground ordnance, is Shot Down, or the flight splits due to a Crippled aircraft, players must note which specific ordnance type/amount is no longer available for that flight.

Design Note: *This is a major downside of mixed loadouts for flights—if the wrong aircraft gets Shot Down, Damaged, or Aborted, a flight may no longer have the right type of ordnance it needs to carry out the Raid's mission.*

16.16 Ordnance Availability

The Order of Battle Tables include information for determining what ordnance is available for a given flight. In general, players roll for each flight to determine what types of ordnance may be loaded (bombs, PGMs, ARMs, other). In addition, scenarios may specify that a particular type of ordnance is allowed or required to be carried.

16.2 Carrying Ordnance

Flights with any aircraft in them carrying air-to-ground ordnance are classed as "laden" until all ordnance are expended or jettisoned, at which point they become "clean." Laden flights use laden Movement Point and Maneuver values. As soon as flights jettison or expend all their ordnance, they use the clean values [6.2]. (Exception: Flights carrying Shrike ARMs [17.55] and no other ordnance are treated as clean.)

16.21 Jettisoning Ordnance

At any time during movement, ordnance may be jettisoned. Ordnance may also be jettisoned prior to Standard air-to-air combat [11.25]. SAM avoidance maneuvers [15.33] and some Morale Check [13.1] results require all aircraft in a flight to roll to see if they jettison all air-to-ground ordnance. Roll once for each aircraft in the flight, on a 1-6 the aircraft jettisons all its air-to-ground ordnance. On a 7+ it does not.

Damaged and Crippled results [12.2] require individual aircraft in a flight to jettison ordnance. In both cases, reduce the flight's remaining bomb points [16.12] or PGM shots [16.14] based on the bomb points or PGM shots currently carried by the specific aircraft, if any.

Example: *A flight with four aircraft and twelve bomb points (three points carried per aircraft) takes a Crippled result on aircraft #3 from a SAM attack. This forces aircraft #3 to jettison its bomb load. The player would note the Crippled result on the flight's Log Sheet and indicate that #3 no longer has bomb points. This reduces the flight's remaining bomb point load from twelve to nine due to aircraft #3 jettisoning its ordnance.*

Example: *A flight with four aircraft and a mixed loadout [16.15] is carrying two LGB shots and two EOGM shots. It suffers two Damage results from a SAM attack, allocated to aircraft #1 and #2. The player checks the log and sees that aircraft #1 and #2 were both loaded with an LGB shot (with aircraft #3 and #4 loaded with the EOGM shots). The player would reduce the LGB shots remaining to zero, leaving the flight with only the two EOGM shots carried by aircraft #3 and #4.*

16.22 Shot Down Aircraft

When a flight loses an aircraft due to a Shot Down result, adjust the flight's Log Sheet to reflect the loss of the Shot Down aircraft's air-to-ground ordnance.

16.23 Ordnance Speed Limits

Flights laden with Bombs [16.12], Anti-Runway Bombs [17.64], CBU [17.61], LGB [17.35], EOGB [17.38], or Chaff [17.68] ordnance may not select a speed [6.2] greater than four.

Flights laden with Rockets [17.63], ARMs [17.5], EOGM [17.37], MW-1A [17.65], MW-1B [17.66], JP233 [17.65], KMGU [17.66], or Nuke [17.67] ordnance may not select a speed [6.2] greater than five.

For flights with mixed loadouts [16.15], the lowest carried ordnance speed limit determines the maximum speed of the entire flight.

17.0 Air-to-Ground Attacks

17.1 Attacks

Non-Disordered flights can attack ground targets during the Movement Phase. An "attack" means conducting a Bomb Run [17.2], launching ARMs [17.5], or launching Cruise Missiles [17.7]. In general, a flight may only conduct one attack against one target in a game turn, although the single attack on a target may include more than one shot of a PGM [16.14]. In addition, in a hex with multiple sub-targets (usually airfields or SAM sites), a flight may attack multiple sub-targets during a single Bomb Run by assigning individual aircraft in the flight to different sub-targets in the hex, but only one attack profile [17.3] may be used during the run. A flight that declared Anti-Radar Tactics [15.26] or performed a SAM avoidance [15.33] maneuver earlier in that turn cannot make air-to-ground attacks.

17.11 Tasking Restrictions

Flights tasked with Bombing may attack any targets in the Raid's target hexes. They may also attack AAA concentrations, Radar AAA, Mobile AAA, and located SAM units within two hexes of the Raid's target hex. They may not attack any other targets.

Units tasked with SEAD or Rescue Support may attack any EWR, AAA, or SAM unit.

17.12 Ordnance Restrictions

Flights must have ordnance of the correct type to launch an air-to-ground attack. Bombs may be used against any target. JP233, MW-1, KMGU, and Nukes may only be used against Raid targets. ARMs may only be used against Radar-Equipped AAA, EWR, and SAM units. Flights with guns but no ordnance may conduct strafing attacks [17.39].

17.13 Target Profiles

Ground targets are rated by their Target Profile, as described in the rules or scenarios. Target Profiles are a measure of the target's vulnerability to attack, ranging from D (most vulnerable) to A (least vulnerable). Target Profiles modify attack rolls.

17.2 Bomb Runs

To attack, the flight must first complete a Bomb Run. The flight starts its Bomb Run at an Initial Point (IP), which can be any hex on the map. Announce the Bomb Run is starting, and the target(s) in the hex being attacked. Then move the flight from the IP directly toward the target hex without turning. When the flight reaches the target hex (or the hex from which the attack on the target hex is made), and after all AAA/SAM attacks have been resolved, the attack takes place.

The attack usually takes place within the target's hex, but some ordnance types permit attacks from one or more hexes away. For attacks from one or more hexes away from the target hex, the target must be in the forward arc of the attacking flight at the moment of the attack. Once the attack has been executed, the flight finishes its remaining movement. Free turns are not permitted directly after an attack (i.e., before another MP is expended).

During a Bomb Run, if a flight is marked with a BVR Avoid or SAM Avoid marker or is forced to turn / change altitude for any reason (i.e., SAM avoidance [15.33] or Scatter [13.2]), the Bomb Run is canceled. If this occurs, the flight may temporarily depart from its flight path [8.31] and move as necessary to conduct another Bomb Run on the target. After completion of the run, or if the player decides to skip the target, the flight must return to its flight path.

17.3 Attack Profiles

There are many different attack profiles, based on the type of ordnance and other conditions. The attack profile specifies the conditions to be met to make the attack. If any of these conditions are not met, no attack is allowed with that ordnance.

Attack profiles are defined as either visual or blind bombing. Visual bombing attacks require a line of sight [22.1] to the target throughout the Bomb Run. Blind bombing attacks do not require a line of sight.

17.31 Dive Bombing Profile

Visual bombing attack. IP is one hex from target. The flight must be at Low altitude or higher. The attacker may announce that they are "pressing" an attack, which gives a bonus attack modifier. However, the defender gets an additional AAA barrage attack just before the bombing attack [14.4]. Apply the Dive Bombing modifier.

Design Note: *The "diving" here is assumed to take place within the flight's altitude band, so the flight is not required to change altitude via a dive [6.31] during the Bomb Run.*

17.32 Level Bombing Profile
Visual bombing attack. IP is one hex from target. No climb or dive permitted during the attack. Apply the Level Bombing modifier. (Exception: Rocket Pod [17.63] attacks using Level Bombing Profile apply a separate modifier, listed on the Air-to-Ground Attack Table.)

17.33 Radar Bombing Profile
Radar bombing capability required. Blind bombing attack. IP is two hexes from target. No climb or dive permitted during the attack. Apply the Radar Bombing modifier.

Design Note: *This attack method uses the aircraft's radar, and often a radar beacon, to locate and attack the target, so only aircraft with advanced air-to-ground radar modes can use this method.*

17.34 Toss Bombing Profile
Radar bombing capability required. Blind bombing attack. IP is three hexes (Deck/Low) or five hexes (Med/High) from target. Target is attacked from two (Deck/Low) or three (Med/High) hexes away. The flight must have declared it is moving at a speed of four MP or more (but still within ordnance speed limits [16.23]). No climb or dive permitted during the attack. Apply the Toss Bombing modifier.

17.35 LGB Level Profile
LGB ordnance only. Visual bombing attack. IP one hex from target. No climb or dive permitted during the attack. Attacks not permitted from Deck altitude. No attacks permitted where line of sight passes through cloud layer. Apply LGB Level Profile modifiers.

17.36 LGB Toss Profile
Only NATO flights with +2 or better bombsight. LGB ordnance only. Visual bombing attack. IP three hexes from target (Deck or Low altitude only). Target is attacked from two hexes away. No attacks permitted where line of sight passes through cloud layer. The flight must have declared it is moving at a speed of four MP. No climb or dive permitted during the attack. Apply LGB Toss Profile modifiers.

17.37 EOGM Profile
EOGM ordnance only. Visual bombing attack. IP three hexes away from target, but target must be attacked from one or two hexes away. Attacks are not permitted from High altitude. No attacks are permitted where the line of sight passes through a cloud layer, mist, or haze. Apply EOGM Profile modifiers.

17.38 EOGB Profile
EOGB ordnance only. Visual bombing attack. IP eight hexes from the target, but target must be attacked from five hexes away. Attacks only permitted from Medium altitude. Attacks are not permitted where the line of sight passes through a cloud layer, mist, or haze. Apply EOGB Profile modifiers.

17.39 Strafe Profile
No ordnance required, but the flight must have an undepleted gun weapon. Visual bombing attack. IP is one hex from the target. Attack only allowed at Deck altitude and at Combat throttle. No bombing permitted during the attack. All aircraft with guns may strafe Profile C or D targets. Aircraft with 27mm or 30mm guns may also strafe Profile B targets. Profile A targets may not be attacked via strafing. After the attack, roll for depletion [11.34] on the flight's gun as if it took four shots (a -3 DRM). However, only the gun can deplete.

17.4 Resolving Attacks
Resolve attacks as follows:

17.41 Determine Attack Column
First find the column the flight uses on the Air-to-Ground Attack Table. Flights with bomb ordnance declare which individual aircraft in the flight with bombs are attacking and how many bomb points each aircraft is expending for this attack. Total the bomb points allocated, multiply based on the type of bomb/target type if appropriate and use the highest numbered column that is equal to or less than the attack value. Update flight logs [2.9] to show the ordnance expended.

Strafing flights calculate the column as for flights with bomb ordnance. However, the "bomb" strength for a strafing attack is .5 per aircraft attacking with 20mm or 23mm guns or 1 per aircraft with 27mm or 30mm guns.

For PGM attacks, declare which individual aircraft in the flight are attacking and how many PGM shots each aircraft is expending for this attack. Each PGM uses a specific column: EOGM use the EOGM column, EOGB and LGB use the EOGB/LGB column, ARMs use the ARM column. Update flight logs [2.9] to show the ordnance expended.

17.42 Attack Roll
Roll two dice and modify the roll as indicated using the appropriate modifiers for the type of Bomb Run conducted. Look up the result on the attack column of the Air-to-Ground Attack Table. PGMs roll once for each shot declared [16.14].

A "-" result is a miss. If the attack success result is 1 or more, place a marker equal to the attack success on the target hex. If more than one attack is made on a target, place a separate marker for each attack (do not "add them"). Roll for damage resolution at the appropriate time [18.1].

17.5 Anti-Radiation Missiles
Anti-Radiation Missiles (ARMs) may be used to attack Radar-Equipped AAA (Fire Can, 2K22, Gepard, Vulcan), EWR, and SAM units (including dummy Radars) that have their radars switched on. ARMs may not be used against any other type of target.

17.51 ARM Types
Anti-Radiation Missiles come in six types: HARM, Shrike, Kh-25MP, Kh-58, Kh-28M, AS.37. Aircraft may only carry one type of ARM.

17.52 ARM Launches
All ARMs have a minimum range of one hex. ARMs may have up to three maximum ranges: one for launch from Deck/Low, one for launch from Med/High, and one for a "lofted" launch from Med/High if allowed. A flight may only launch one ARM

type per game turn, though it may launch multiple shots of that ARM type at the same target in a single attack.

When an ARM is launched, the player indicates if it is a normal or lofted ARM launch, the launching flight, and the number of shots. They do not have to declare the target or ARM type. The target and ARM type are noted and not revealed until the opposing player has declared which unit(s) will voluntarily shut down their radars [17.53]. Only then is the target declared and the ARM attack resolved.

ARM launches are blind bombing attacks. There is no IP for an ARM Bomb Run. Instead the flight may fire after expending any MP (including resolution of any AAA/SAM attacks caused by that MP expenditure) provided the target is in a launch arc designated in the weapon description.

17.53 Radar Shutdowns

ARMs may only be launched at targets that have their radars switched on (Exception: Pre-emptive ARM launches [17.60]).

Provided the launching flight is detected, the player targeted by the ARM may voluntarily shut down Fire Can, SAM, and/or EWR radars in the launching flight's forward hemisphere the moment an ARM weapon is launched. Mobile AAA may not voluntarily shut down. The Fire Can, SAM, or EWR radar is switched off and the unit is flipped to its radar off side. Place a Radar Shutdown marker on each affected unit.

Design Note: *Mobile AAA, such as 2K22s or Vulcans, are tactical units and are unlikely to be tightly integrated into the local air defense network that would provide warning of an ARM launch.*

If the player does not, or cannot, voluntarily shut down the targeted radar, roll an ARM Morale Check immediately after the target is declared to see if the targeted radar crew detects the launch and turns off the radar. Roll an ARM Morale Check for each ARM shot launched at the target. For each check, roll one die. If the final roll is equal to or less than 5, the radar shuts down. Add 1 to the roll if the launching flight is undetected. Subtract 1 from the roll if the ARM is launched from 10 or greater hexes away. If a radar shuts down, mark it with a Shutdown marker.

Some ARMs may still attack after radar Shutdown (voluntary or otherwise). Apply the Shutdown radar modifier to the ARM attack.

Units with a Shutdown marker may not attack, turn their radar on, move or (for EWR units) attempt detection. They may attempt to remove the Shutdown marker in the Admin Phase. Roll a die. On a result of 5 or greater remove the marker, otherwise it remains in place. If the marker is removed, the radar may now be turned on. Roll each Admin Phase until removed.

17.54 HARM

The launch arc for a HARM (AGM-88A) is the flight's forward hemisphere. Maximum range is six hexes (Deck/Low), twelve hexes (Med/High), or eighteen hexes (lofted from Med/High). HARM may continue to attack after a radar Shutdown [17.53].

17.55 Shrike

The launch arc for a Shrike (AGM-45B) is the fight's forward arc. Maximum range is three hexes (Deck/Low), six hexes (Med/High), or nine hexes (lofted from Med/High). Do not resolve the attack after a radar Shutdown [17.53].

For the purposes of carrying ordnance [16.2], Shrikes count as an air-to-air weapon, and thus do not prevent carriage of other non-ARM air-to-ground ordnance on the same aircraft or have to be jettisoned [16.21] like other air-to-ground ordnance. See ADC notes.

17.56 Kh-25MP

The launch arc for a Kh-25MP is the flight's forward arc. Maximum range is six hexes (Deck/Low), nine hexes (Med/High), or twelve hexes (lofted from Med/High). Kh-25MP may continue to attack after a radar Shutdown [17.53].

17.57 Kh-58

The launch arc for a Kh-58 is the flight's forward arc. Maximum range is eight hexes (Deck/Low), sixteen hexes (Med/High), or twenty-four hexes (lofted from Med/High). Kh-58 may continue to attack after a radar Shutdown [17.53]. Kh-58s may only be fired at EWR and SAM units (including SAM Warning markers). They may not be fired at Radar AAA or Mobile AAA.

17.58 Kh-28M

The launch arc for a Kh-28M is the flight's forward arc. Maximum range is twenty-six hexes (Med/High); they may not be fired at Deck/Low. Do not resolve the attack after a radar Shutdown [17.53]. Kh-28Ms may only be fired at EWR and SAM units (including SAM Warning markers). They may not be fired at Radar AAA or Mobile AAA.

17.59 AS.37 Martel

The launch arc for an AS.37 is the flight's forward arc. Maximum range is nine hexes (Deck/Low) or twelve hexes (Med/High). Do not resolve the attack after a radar Shutdown [17.53]. AS.37s may only be fired at EWR and SAM units (including SAM Warning markers). They may not be fired at Radar AAA or Mobile AAA.

17.60 Preemptive ARM Launches

ARMs may be launched pre-emptively at SAM units (including SAM Warning markers) or Radar-Equipped AAA whose radars are turned off. Pre-emptive launches may only be conducted from Medium or High altitude. Pre-emptive ARMs do not resolve the attack until the SAM Acquisition Phase. An attack is resolved only if the target SAM or Radar-Equipped AAA unit switches its radar on. If the target does not switch on its radar, it is not attacked, and the ARM is expended for no effect.

17.6 Special Munitions

17.61 Cluster Bomb Units

Cluster Bomb Units (CBU) come in two types: anti-personnel (AP) and anti-tank (AT). See the CBU Capability Table on Player Aid Card 3 for aircraft types eligible to carry CBUs of either type. Flights eligible to carry CBU may substitute CBU of the appropriate type for bombs.

All CBUs are treated as normal bombs, however, the bomb strength of AP CBU is doubled versus AAA (all types), SAM, EWR, HQ, Supply, and aircraft on the ground targets. Strength is halved versus other targets. AP CBU attacks are not allowed from above Medium altitude.

AT CBU bomb strength is doubled versus AAA (all types), SAM, EWR, Armor, Mech, Artillery, and Missile targets. Strength is halved versus other targets. Only Level Bombing Profile attacks at Low or Deck altitude are allowed for AT CBU.

17.62 AAA Suppression

Flights attacking AAA concentrations with bombs (or CBU) may split their attack value in any way the attacker wishes between the AAA concentration and any Fire Can units in the hex. Roll the attacks and determine the results separately.

17.63 Rocket Pods

All WP aircraft capable of carrying bombs, and some NATO aircraft (see ADCs), may substitute Rocket Pods for bombs. Bomb strength of rockets is doubled versus AAA (all types), SAM, EWR, HQ, Supply, and aircraft on the ground targets. Strength is halved versus other targets. They may be employed with two different attack profiles. Dive Bombing profile may be used at Low altitude. Level Bombing may be used at Deck altitude. No other profiles may be used. Level Bombing profile attacks with rockets receive a favorable +1 DRM.

17.64 Anti-Runway Bombs

Special anti-runway rocket-assisted bombs (ARB), such as the US/French BLU-107 Durandal, the French BAP.100, Soviet BETAB-500, and other rocket-assisted bombs. Flights capable of carrying ARB may substitute ARB for bombs.

Anti-runway bombs are treated as normal bombs; however, the bomb strength is tripled versus runways and non-runway attacks are not allowed. Only Level Bombing profile attacks at Low or Deck altitude are allowed for Anti-Runway Bombs. Only aircraft specifically designated on the ADCs may carry them.

17.65 MW-1A/JP233

The JP233 is a special UK Anti-Runway ordnance. The FRG MW-1A (Mehrzweckwaffe-1) is the FRG equivalent. Flights capable of carrying them may substitute MW-1A/JP233 for bombs.

MW-1A/JP233 are treated as normal bombs, however, the bomb strength with both munitions vs. runways is quadrupled and non-runway attacks are not allowed. Only Level Bombing profile attacks at Deck altitude are allowed for MW-1A/JP233.

17.66 MW-1B/KMGU

The MW-1 also came in an anti-armor variant with magnetic mines (designated here as the "MW-1B" to avoid confusion). The KMGU is the WP equivalent. Flights capable of carrying them may substitute MW-1B/KMGU for bombs.

MW-1B/KMGU are treated as normal bombs, however, bombing strength is triple versus AAA (all types), SAM, EWR, Armor, Mech, Artillery, and Missile targets. Strength vs other targets is normal. Only Level Bombing profile attacks at Deck altitude are allowed for MW-1B/KMGU.

17.67 Nukes

Aerial-delivered nuclear bombs varying in strength from 100 to 300 kilotons. Only available by Scenario Special Rule. Only Radar Bombing profile attacks from High altitude or Toss Bombing profile attacks are allowed for Nuke ordnance. No attack may be made if a friendly flight other than the attacking flight is in or adjacent to the target hex. Cruise missiles [17.7] with Nuke warheads follow the specific attack profile for the type of cruise missile attacking, however cruise missile attacks occur regardless of the presence of friendly flights in/adjacent to the target hex.

There is no need to roll on the Air-to-Ground Attack Table; the Nuke attack is automatically successful if the bombing aircraft or cruise missile is not Shot Down, forced to jettison, or Crippled prior to the attack. Place a Nuke Attack marker in the target hex.

All ground units/SAM/EWR/AAA, airfields, sub-targets, and/or flights on the ground in the target hex are inflicted with Total Destruction [18.2]. All ground units/SAM/EWR/AAA adjacent to the target hex receive Heavy Damage [18.2]. Also, any airborne flight (other than the flight conducting the attack) in or adjacent to the target hex at the moment of the attack immediately Aborts and all aircraft in the flight are Damaged. For the remainder of the scenario, no Mobile SAMs or flights may enter the target hex. If forced to do so, the flight Aborts and all aircraft in it are Damaged.

17.68 Chaff

Chaff "bombs," pods, and rockets lay down chaff corridors. May only be carried by certain aircraft tasked with Chaff Laying or Escort Jamming (see ADCs). Unlike other ordnance, they are expended as a flight moves, spreading the chaff corridor [19.41] over multiple hexes.

17.69 Laser Designation Flights

Flights tasked with Laser Designation [8.2] and noted on the ADCs as being capable of laser designation may laser designate targets for other flights if they meet certain conditions. Each aircraft in the flight is considered to be equipped with a laser designation pod, but the flight may still use clean ratings.

For a flight to laser designate for another flight, it must be at Medium or Low altitude; not Disordered or marked with a Maneuver/BVR Avoid/SAM Avoid marker; have at least one aircraft in the flight not Damaged/Crippled; be four or fewer hexes from the target hex; have the target hex in its forward hemisphere; and have a line of sight to the target that does not pass through a cloud layer [22.4], haze [22.3], or mist [22.5]. Any time a laser designation flight meets these conditions, a Target Lased marker may be placed on the target hex.

A flight whose aircraft type requires laser designation to attack with LGB may only conduct a LGB Level [17.35] or LGB Toss [17.36] profile attack while its target is marked with a Target Lased marker.

17.7 Cruise Missiles

17.71 AS-6 Kingfish

The AS-6 (KSR-5M) is a WP cruise missile only available by Scenario Special Rule. It must be launched from High altitude and has a maximum range of sixty hexes (minimum range twenty hexes). Unlike other ordnance, it is represented by a flight counter. Each "shot" of AS-6 ammo on the ADC is one missile; a counter represents up to four AS-6 missiles.

AS-6 launches are Blind Bombing profile attacks. However, there is no IP for an AS-6 Bomb Run. Instead the carrying flight may launch AS-6s after expending any MP at High altitude. When launched, place the AS-6 counter in the launching flight's hex on its undetected side at the same altitude and heading as the launching flight. Each turn thereafter, it moves like a flight with a speed of 12. They only fly at High altitude. Each AS-6 flight may only make two turns (each a maximum of 60°) between the launch hex and the target hex.

Upon reaching its target hex, the flight attacks with a bomb strength of 2 per AS-6 missile. After all AAA and SAM fire in the target hex, resolve each missile's attack individually (i.e., a flight of four AS-6 missiles would roll four times on the Air-to-Ground Attack Table on the 2 Attack Value column). The attack is considered a Dive Bombing profile Bomb Run from Medium altitude (it dives from High to the target), but the only modifiers that apply are the +1 for "pressing the attack" (and thus is subject to another AAA roll, if applicable) and the modifier for Target Profile (A, B, C, D). After resolving each missile's attack, eliminate the AS-6 flight.

AS-6s may also carry Nuke warheads (see [17.67] and scenarios). For AS-6s with Nukes, use the normal air-to-ground sequence when the AS-6 enters the target hex, including AAA and SAM fire. Unless all the AS-6 missiles in the flight are Shot Down in/prior to the target hex, the Nuke attack automatically succeeds. See [17.67] for effects. After resolving the Nuke attack, eliminate the AS-6 flight.

17.72 BGM-109G GLCM/AS-15 Kent

The BGM-109G GLCM (Ground Launched Cruise Missile) is a NATO nuclear-tipped cruise missile only available by Scenario Special Rule. The AS-15 Kent is the WP equivalent. They cannot be carried by any aircraft. Unlike other ordnance, it is represented by a flight counter. Each flight counter represents one or two GLCM/AS-15 missiles as defined in the scenario.

GLCM/AS-15 flights may only move at Deck altitude at a speed of 3. They always start scenarios in the air. Plot their routes as if they were flights tasked with Bombing, except that there is no return from the target and they are limited to four waypoints (maximum turn of 60° in any hex).

GLCM/AS-15 missiles attack with a Nuke warhead [17.67]. Use the normal air-to-ground sequence when the GLCM/AS-15 enters the target hex, including AAA and SAM fire. The attack is considered a Level Bombing profile Bomb Run at Deck altitude. Unless the GLCM/AS-15 is Shot Down in/prior to the target hex, the Nuke attack automatically succeeds. See [17.67] for effects. After resolving the Nuke attack, eliminate the GLCM/AS-15 flight.

At the start of the Track Phase [10.3], all detected GLCM/AS-15 flights at Deck altitude become undetected, regardless of the terrain they occupy.

17.73 AGM-69 SRAM

The AGM-69 SRAM (Short-Range Attack Missile) is a NATO supersonic nuclear-tipped missile only available by Scenario Special Rule. It may be launched from High altitude with a range of thirty-four hexes, or from Deck altitude with a range of seventeen hexes. Unlike other ordnance, it is represented by a flight counter. Each counter represents two AGM-69 missiles, and each "shot" of SRAM on the ADC represents one missile.

SRAM launches are Blind Bombing profile attacks. However, there is no IP for an SRAM Bomb Run. Instead the carrying flight may launch SRAMs after expending any MP at High or Deck altitude. When launched, place the SRAM counter in the launching flight's hex on its undetected side at the same altitude and heading as the launching flight.

When launched at High altitude, the SRAM moves like a flight with a speed of 15 and must stay at High altitude. When launched from Deck altitude, it moves like a flight with a speed of 8 and must stay at Deck altitude. Regardless of launch altitude, each AGM-69 flight may only make two turns (each a maximum of 60°) between the launch hex and the target hex.

SRAMs only carry Nuke warheads (see [17.67] and scenarios). Use the normal air-to-ground sequence when the SRAM enters the target hex, including AAA and SAM fire. If the SRAM enters the target hex at High, the attack is considered a Dive Bombing profile Bomb Run from High altitude. If it enters at Deck, it is considered a Level Bombing profile Bomb Run at Deck altitude. Unless the SRAM is Shot Down in/prior to the target hex, the Nuke attack automatically succeeds. See [17.67] for effects. After resolving the Nuke attack, eliminate the SRAM flight.

At the start of the Track Phase [10.3], all detected SRAM flights at Deck altitude become undetected, regardless of the terrain they occupy.

17.74 BQM-74C

The BQM-74C is a target drone converted into use for deception operations. It is unarmed but carries equipment to magnify its radar signature to resemble that of a fighter-size aircraft. It is intended to confuse enemy radar operators and encourage them to keep their radars on so they can be targeted by SEAD aircraft.

BQM-74C cannot be carried by any aircraft. They are represented by flight counters that set up in the air at the start of a scenario or enter later. Each counter represents two or four BQM-74C drones.

BQM-74C flights may only move at Medium altitude at a speed of 3. They have a range of forty-eight hexes. Determine a notional target hex for each flight (this does not have to be an actual Raid target hex), and then plot their routes as if they were flights tasked with Bombing, except that there is no return from the "target" and they are limited to four waypoints (maximum turn of 60° in any hex). Once they reach their forty-eight hex range, they are removed from play.

BQM-74C flights only use generic flight counters [4.11]. Once they are visually identified [10.4], take a SAM Avoid [15.33]

result, or are successfully engaged in air-to-air combat [11.0] they are removed from play. They are considered to be tasked with Bombing [8.2] for all purposes. The WP player does not score any VP for shooting down a BQM-74C.

Design Note: *The BQM-74C is essentially a "real" dummy flight, with the critical difference being that it is not removed when it is detected.*

17.75 Cruise Missiles in Combat

Detected cruise missile flights can be engaged by aircraft in air-to-air combat [11.0]. A successful engagement roll by the attacking flight is required, but the cruise missile flight does not roll for engagement and is automatically Surprised [11.25]. In air-to-air combat, cruise missiles have a maneuver rating as listed on the ADCs, but do not roll on the maneuver table, take Morale Checks, Scatter, or have BVR Avoid markers placed on them. They have an Aggression Value of 0, which may not increase or decrease for any reason. In Standard air-to-air combat they automatically attempt to disengage [11.41].

Cruise missiles may be Damaged, Crippled, and Shot Down normally (Exception: any Damaged or Crippled result is treated as a Shot Down result). The defending cruise missile flight remains detected (an Exception to post-combat procedures [13.0]). Flights attacking cruise missile flights do not take Morale Checks, Scatter, or have Maneuver markers placed on them.

Cruise missiles can be acquired and attacked by SAMs and AAA. The SAM Defense Table modifier for no line of sight to the SAM does not apply. Any SAM Avoidance result is considered a Miss instead. They do not take Morale Checks [13.1] for SAM/AAA attacks and may not be voluntarily Aborted.

18.0 Ground Target Damage

Resolve damage against ground targets as follows:

18.1 Damage Rolls

Damage resolution for a target is rolled in the following circumstances:

a) Roll immediately for damage to AAA concentrations, Radar AAA, Mobile AAA, SAM units, EWR, and flights on the ground.

b) For all other targets, roll damage resolution in the Bomb Damage Assessment Phase at the end of the scenario, after all Recon tasks (if any) have been completed. In campaigns [34.0] only roll in the Campaign BDA Phase for those targets that have been photo-reconnoitered for BDA.

18.2 Resolving Damage

To resolve damage, roll two dice for each success marker and cross-reference with the column on the Damage Table corresponding to the attack's success value. The results are as follows:

NE: No Effect. No effect on target.

S: Slight Damage. Target is slightly damaged. Radar-Equipped AAA, EWR, and SAM units are suppressed for 1d10 turns; AAA concentrations are marked with suppression level 1. For a flight on the ground, one aircraft in the flight is considered Shot Down [12.23]; there are no crew losses or Morale Checks for the flight.

H: Heavy Damage. Target is heavily damaged. Radar-Equipped AAA, EWR, and SAM units are Damaged and immediately shut down their radar for the remainder of the scenario; Damaged SAMs may not fire for the remainder of the scenario; AAA concentrations are marked with suppression level 2. For a flight on the ground, two aircraft in the flight are considered Shot Down [12.23]; there are no crew losses or Morale Check for the flight.

T: Total Destruction. Target is destroyed. Radar-Equipped AAA, EWR, and SAM units are destroyed and removed from the map. AAA concentrations are marked with suppression level 3. For a flight on the ground, three aircraft are considered Shot Down [12.23]; there are no crew losses or Morale Checks for the flight.

Damage is not cumulative. The target is affected only by the highest damage level applied.

18.21 AAA Suppression Levels

Suppressed AAA concentrations are marked with a counter equal to the suppression level and add penalty modifiers to their rolls on the AAA Damage Table. Each level of suppression reduces the parenthesized AAA modifier on the AAA table by 1 (toward 0). A concentration may only have one Suppression marker. If a suppressed concentration takes another suppression result, add the value of the new suppression result to the existing suppression level, but never above level 3.

Suppressed AAA concentrations roll a die in each Admin Phase. On a roll of 8 or greater, reduce the suppression level by one. If already at level one, remove the suppression marker.

18.22 Radar Suppression

Suppressed SAMs, EWRs, and Radar-Equipped AAA are marked with a Radar Suppressed marker and must turn (or keep) their radars off during the turn the suppression occurs plus 1d10 turns after. If already marked with a Radar Shutdown marker when suppressed, replace it with a Radar Suppressed marker.

Units marked with a Radar Suppressed marker may not turn their radars on, attack, move, or (for EWR units) attempt detection. After the required number of turns, replace the Radar Suppressed marker with a Radar Shutdown marker [17.53] in the Admin Phase. The SAM, EWR, or Radar-Equipped AAA may now roll in the Admin phase to remove the Radar Shutdown marker normally (including the Admin Phase where the Shutdown marker was placed).

If a suppressed SAM, EWR, or Radar-Equipped AAA is suppressed again (even in the same turn), roll 1d10 and add that number of turns to the suppression length.

Example: *During Turn 4 of a scenario, a WP SA-12 takes a Radar Suppressed result from an ARM attack. The NATO player rolls 1d10 and gets a "1." The WP player flips the SA-12 over to its Off side and places a Radar Suppressed marker on it. At the end of the following turn (Turn 5, or one turn after the turn*

the suppression occurred due to the die roll of "1") in the Admin Phase the WP player removes the Radar Suppressed marker and replaces it with a Radar Shutdown marker, then rolls to remove the Radar Shutdown marker, getting a "2." This roll is less than the "5" needed to remove the Shutdown Marker per [17.53], so it stays in place and the WP player can try to remove it again in Turn 6 during the Admin Phase.

18.23 Bridge Spans

Bridges have a number of spans listed. Each span is a separate part of the bridge target. When attacking bridge targets, assign attacks to spans. More than one attack may be assigned to each span. Assess damage on each span separately. Victory conditions are assessed on the number of spans affected.

18.24 Organic AAA

A SAM or Army Ground Unit organic Light or Small Arms AAA concentration receives the same damage result as the SAM or Army Ground Unit itself. See [14.71] and [14.72].

19.0 Electronic Countermeasures

Electronic countermeasures (termed "jamming") affect Radar-Equipped AAA, SAMs, and EWRs.

19.1 Jamming Strengths

There are two types of jamming: Standoff Jamming and Defensive Jamming. Each generates a jamming strength value applied at different times. In general, jamming strengths are applied to acquisition and combat die rolls as modifiers.

Standoff Jamming [19.3] strengths are cumulative. Total all applicable Standoff Jamming affecting a SAM, Radar-Equipped AAA, or EWR at the moment of the detection, acquisition, or attack attempt. Round fractions to the nearest whole value (.5 results round up).

Defensive jamming strength (i.e., the jammer value of the targeted flight) is unitary and tracked separately, applying to a particular flight in certain conditions, and not in others.

19.2 Defensive Jammers

Flights may carry defensive jammers, as noted on the ADC aircraft entries. Defensive jammers have a defensive jamming strength as shown in the "jam" column. The jamming strength is applied as a modifier to Radar-Equipped AAA attacks, SAM acquisition, and SAM Defense against the flight. The strength value applies regardless of the number of aircraft in the flight. Defensive jammers are one of two types, a noise jammer or deception jammer. This is shown on the ADCs by an "n" or "d" after the jamming strength, respectively.

19.21 Loss of Defensive Jamming

A flight's Defensive Jamming is temporarily lost in certain instances:

a) Whenever a flight turns more than its free turn allowance in a hex in a Movement Phase. The jamming loss occurs immediately after the flight has turned and lasts until the flight expends its next MP.

b) While the flight is marked with a Maneuver marker.

c) The flight declares Anti-Radar Tactics [15.26] that turn.

A flight that loses jamming has a defensive jamming strength of zero. It temporarily has no defensive jamming capability. However, it may still benefit from Standoff Jamming [19.3]. Defensive Jamming is regained when the loss conditions no longer apply.

19.22 SAM Burn-through

Against SAM units only (not Radar-Equipped AAA), a flight with a noise jammer loses its defensive jamming strength if it is within burn-through range of the SAM. The burn-through range is 0-4 hexes against large aircraft and 0-2 hexes against all other air units. SAM Burn-through never applies to flights with deception jammers.

19.3 Standoff and Spot Jamming

A scenario may allocate either player a number of jamming flights. For flights tasked with Standoff Jamming, the player must decide whether to have the flights enter the map or keep them off-map.

Flights tasked with Escort Jamming must enter the map and move in accordance with the Escort Jamming task restrictions [8.341].

Each jamming flight (Standoff Jamming or Escort Jamming) has an associated Standoff Jamming marker. Standoff Jamming markers are placed on the map with their arrows pointed toward a hex corner or hexside and define the flight's jamming arc. This jamming arc goes out in a 60° arc in the direction indicated by the arrow. Enemy radars (EWRs, Radar AAA, and SAMs) inside this 60° jamming arc will be jammed to varying degrees based on range and the radar's angle to the jammer. Radars outside this jamming arc are not affected by the jammer.

Illustration: *Standoff Jamming markers radiating jammer arcs toward a hex corner and hex side.*

Some jamming flights may also place Spot Jamming markers [19.34]. Spot jamming markers are placed on specific ground units.

19.31 Standoff Jamming Strength

Each Standoff Jamming marker has a standoff jamming strength. Standoff jamming strength affects EWR Detection attempts, Radar-Equipped AAA attacks, SAM acquisition attempts, and

SAM attacks made by units in the jammer arc. It does not affect attacks or detection attempts by units outside this arc.

Standoff jamming strengths vary with range as listed on the ADC. To determine the standoff jamming strength, count the range from the jamming marker to the EWR, Radar-Equipped AAA, or SAM unit. Multiply the strength by the number of undamaged aircraft in the jamming flight.

At the moment of an EWR detection attempt, Radar-Equipped AAA attack, SAM acquisition attempt, or SAM attack, the attacking player should define a 60° arc on the map, projected by the firing/acquiring/detecting unit. The target's hex must be in this 60° arc. The projected arc must totally encompass the target's hex. The target cannot be in a hex partially covered by the arc. However, if the target flight is in the same hex as the EWR, Radar-Equipped AAA, or SAM unit, the attacking player may orient this arc in any direction. If Standoff Jamming markers are also in the projected arc (including half hexes), their jamming affects the radar at full strength, otherwise they affect it at half strength.

Illustration: *SAM L attempts to acquire flight A. The standoff jammer is not in the radar's arc (shaded) so affects it at half strength. If the SAM tries to acquire flight B, the standoff jammer is in the arc and so contributes its full strength.*

Total the strength of all Standoff Jamming markers that can affect the radar and then round fractions to the nearest whole value (.5 results round up).

Important: The total standoff jamming strength applying to any one EWR detection attempt, Radar-Equipped AAA attack, or SAM acquisition/attack may never be more than 6. It may never be more than 3 on a Patriot or SA-12 SAM.

Example: *A WP SA-4 is attempting SAM acquisition on a NATO flight. NATO has two flights with Standoff Jamming markers on them, an EF-111A and an EC-130, at ranges of fifteen and twenty-five hexes from the SA-4, respectively. At these ranges, an EF-111A has a jamming strength of 3 and the EC-130 has a jamming strength of 2. The WP player declares a 60° arc from the SA-4 that encompasses the target flight. This arc includes the EF-111A Standoff Jamming marker, but not the EC-130's. The total standoff jamming strength for this SAM acquisition attempt is 4 (the full 3 from the EF-111A and 1 from the EC-130, with the EC-130's strength reduced by ½ because its Standoff Jamming marker is not in the SA-4s declared arc for the acquisition attempt).*

19.32 On-Map Standoff Jamming

Flights tasked with Standoff Jamming or Escort Jamming (only) may place Standoff Jamming markers. Aircraft tasked with SEAD, even if otherwise capable according to the ADCs, may not place Standoff Jamming or Spot Jamming markers.

The Standoff Jamming marker is placed on the jamming flight's counter in the Jamming Phase and in most cases can be pointed in any direction (see ADCs for limits for some aircraft). The direction of the arrow on the marker defines the Standoff Jamming arc [19.3]. The marker moves with the flight. Do not change the direction the marker is pointed as the flight moves. Standoff Jamming markers may not be placed on a flight during the Jamming Phase that is Disordered or Aborted, or is marked with a Maneuver, SAM Avoid, or BVR Avoid marker.

Illustration: *A Standoff Jamming marker is placed on a jamming flight in the Jamming Phase, pointing abeam. In the Movement Phase the flight moves three hexes but the jamming marker does not change its orientation.*

If the jamming flight is on or moves into a hexside, place the marker in one of the hexes on either side of the flight.

Flights must not be Disordered and must be at Medium or higher altitude (Exception: Helicopters [25.0] may standoff jam at Low) to place Standoff Jamming markers. Also, any flight with a Damaged or Crippled aircraft or helicopter may not place a Standoff Jamming marker.

Remove a flight's Standoff Jamming marker under any of the following circumstances:

a) The flight voluntarily turns [6.32] during movement.

b) The flight dives to a lower altitude.

c) The flight conducts SAM avoidance [15.33] or Anti-Radar Tactics [15.26].

d) The flight is marked with a Disordered, Abort, Maneuver, SAM Avoid, or BVR Avoid marker.

e) The flight takes a Damaged/Crippled/Shot Down combat result.

In all cases, the flight may have a Standoff Jamming marker placed on it in the following Jamming Phase if it meets the conditions for doing so.

19.33 Off-Map Standoff Jamming

If a Standoff Jamming flight is off-map, the flight does not enter the map. Instead, each Standoff Jamming marker may be placed on the east (WP) or west (NATO) map edge in the first Jamming Phase of the scenario. If the entire map is not in play for

a scenario, Standoff Jamming markers may instead be placed on the playing area edge (again, east for WP, west for NATO).

In subsequent Jamming Phases, each Standoff Jamming marker may be moved one hex along the map/playing area edge, and/or have its facing changed up to 60°.

19.34 Spot Jamming

Some flights with standoff jamming capability also have spot jamming capability (see ADCs). In the Jamming Phase, flights with spot jamming capability that are tasked with either Standoff Jamming or Escort Jamming may also place Spot Jamming markers on EWR, SAM or Radar-Equipped AAA units with their radars on in the flight's standoff jamming arc and within the flight's maximum standoff jamming range (see ADCs). No more than one Spot Jamming marker may be placed on any one EWR, SAM, or Radar-Equipped AAA.

A flight's standoff jamming strength against EWR, SAM, or Radar-Equipped AAA with one of its Spot Jamming markers is double the normal standoff jamming strength at that range (calculate the strength in the same manner as in [19.31], including any out of jamming arc effects, then double it, rounding up).

If the flight's Standoff Jamming marker is removed for any reason [19.32], also remove all that flight's Spot Jamming markers. If a unit with a Spot Jamming marker on it turns its radar off, remove the Spot Jamming marker. Also remove all Spot Jamming markers in the Admin Phase. Spot Jamming does not prevent the jamming flight's standoff jamming from affecting other radars.

Example: *Continuing the example from above, if the EF-111A also placed a Spot Jamming marker on the SA-4, the total standoff jamming strength would theoretically be 7, consisting of 6 from the EF-111A (normally 3 at fifteen hexes, doubled to 6 due to the Spot Jamming marker) and the additional 1 from the EC-130. However, this is reduced to 6 due to the limit on total standoff jamming strength that can apply [19.31].*

Design Note: *The term "Spot Jamming" represents more than just the traditional meaning of focusing a noise jammer on a specific transmitter. In the late 1980s there were dozens of jamming techniques with many variations of each. So here, the term should be thought of more broadly as "focused jammer attention on a particular radar or system."*

19.35 Early Warning Jamming

During the Raid Planning Phase [31.5], players may choose to allocate any flights tasked with Standoff Jamming to Early Warning Jamming instead. Doing so will provide modifiers to the initial Early Warning Phase [31.7] roll and a chance each turn to temporarily reduce the enemy's Detection Level [10.11].

Flights used for Early Warning Jamming may not be used for Standoff Jamming during the scenario, either on-map or off-map. They do not enter play in counter form for any reason.

Each Jamming Phase roll one die for each aircraft in each flight assigned to Early Warning Jamming. For each roll of 6 or more, reduce the enemy's Detection Level one level for the remainder of that game turn.

19.4 Chaff Corridors

A chaff corridor exists in a hex at a specified altitude band (the corridor should have an altitude marker next to it to note the band). Chaff corridors affect Detection [10.2], Tracking [10.3], Radar-Equipped AAA attacks [14.5]/[14.6], and SAM Acquisition [15.3].

Flights receive chaff corridor benefits (see Player Aid Cards) if they occupy a hex of the corridor at the corridor's designated altitude. Chaff affects both sides equally. There is no "friendly" chaff that only affects one side.

19.41 Chaff Laying

Flights tasked with Escort Jamming, Standoff Jamming, or Chaff Laying [8.2], and laden with Chaff ordnance [17.68], may create chaff corridors. In addition, some scenarios may provide chaff corridors set up at the start of play. Non-Disordered flights with chaff ordnance/dispensers may place twenty hexes of chaff regardless of the number of aircraft in the flight.

Declare the laying of a chaff corridor at any point during the flight's movement. Place an Unbloomed Chaff marker in the hex and note the altitude band (also place an Unbloomed Chaff marker in the last hex of the flight's movement where it laid chaff). The chaff is placed in the same altitude band as the chaff-laying flight. Chaff may only be placed at Medium, High, or Very High altitude bands.

After declaring that chaff laying has commenced, the flight places chaff in each hex it enters thereafter. Chaff placed on a hexside is considered to affect both hexes that share the hexside. From this point on, if the flight is marked with a BVR Avoid or SAM Avoid marker or is forced to turn / change altitude for any reason (i.e., SAM avoidance [15.33] or Scatter [13.2]), it must stop laying chaff for that Movement Phase. It may commence laying chaff again the following Movement Phase.

Unbloomed Chaff markers have no effect on play. The markers stay on their unbloomed side until the Admin Phase of the turn two turns after they are placed. At that point, they are flipped to their Chaff Corridor marker side and have full effect. Chaff Corridor markers are removed from the map twenty-five game turns after laying (or on Turn 25 if laid prior to the game).

Example: *A WP MiG-21bis flight is tasked with Chaff Laying. On Turn 3 of the scenario, it lays chaff, placing two Unbloomed Chaff markers (one in its starting hex, and one in its last hex entered that Movement Phase). Those two markers will "bloom" to their Chaff Corridor side in the Admin Phase of Turn 5.*

19.42 Pre-Game Chaff Laying

Some scenarios will allow players to place bloomed chaff corridors in designated areas of the playing area during scenario setup. Each of these corridors may be up to twenty hexes in length with no more than one 30° turn. Their placement must conform with all the requirements of a corridor placed during a scenario [19.41].

19.5 Advanced Jamming Rules

19.51 Burn-Through Limits

At the limits of burn-through range [19.22] (normally two or four hexes) the SAM must roll one die to claim burn-through benefits. On a 1-5 the target retains Defensive Jamming; on a 6-10 the radar burns-through and the target's jamming is lost as normal.

19.52 Dummy Jamming

Dummy flights may "dummy jam" and use a jamming modifier as if they had defensive jammers. Use a value of 2n or 3d for NATO and WP dummies. Dummies may not use Standoff or Spot Jamming.

20. Fuel and Recovery

Because high-speed flight consumes large amounts of fuel, flights are permitted a limited number of turns at Dash throttle.

20.1 Fuel Allowance

Flights have a limited number of game turns they are allowed to spend at Dash throttle or engage in Standard air-to-air combat, equal to the Fuel point value on the ADC. Flights may exceed this allowance during a scenario at the cost of a penalty to their chance of safe recovery.

If the flight travels at Dash throttle in a game turn or engages in Standard air-to-air combat, note the use of one point of Fuel on the flight log in the Fuel Phase. Note that flights may use more than one point of Fuel in a game turn if they move at Dash throttle and engage in Standard air-to-air combat.

20.2 Recovery Rolls

At the end of a scenario, all aircraft on a side must be recovered. Those that do not recover safely count as destroyed for Victory Point [32.1] purposes.

Aircraft in a flight that lands at a friendly open airfield during a scenario automatically recover safely.

Aircraft in a flight that exits the east (WP) or west (NATO) map edge or scenario playing area edge during a scenario, or end the scenario on the map, automatically recover safely and do not need to roll for Recovery unless:

a) The flight's Fuel point allowance has been exceeded.

b) The flight exits the north or south edge of the map or scenario playing area on enemy side of the Front.

c) The flight has Damaged or Crippled aircraft.

If condition a) or b) apply, roll to check for Recovery for all aircraft in the flight. If only condition c) applies, roll only for Damaged or Crippled aircraft in the flight. This roll takes place in the Fuel Phase of the turn the flight exits during a scenario, or in the Recovery Phase if it ends the scenario on the map.

Roll two dice for each aircraft (not flight). If the roll is 2 or greater, the aircraft recovers safely, otherwise the aircraft is lost. See the Recovery Table on Player Aid Card 3 for modifiers.

For CSAR purposes, the fate of the crew of an aircraft that fails to recover depends on where it ended the scenario. If the aircraft's flight landed at a friendly airfield, exited the map during the scenario, or ended the scenario on the map on the friendly side of the Front [29.0], the crew is automatically rescued [26.11]. If the aircraft's flight ended the scenario on the map on the enemy side of the Front, roll a die. On a 5 or higher the crew is rescued. On a 4 or less the crew is captured. Roll for each crew member separately.

21. Random Events

In the Random Events Phase of each game turn (except the first turn), roll two dice and look up the resulting event on the Scenario Random Events Table on Player Aid Card 2. Follow the instructions there. There may be no more than one random event per game turn. If an event does not apply or cannot be implemented, ignore it, and do not roll again.

22. Weather

Weather effects in the game include clear, cloud, mist, haze, and good contrast conditions. Weather conditions are listed in the scenario instructions. Note that different conditions can exist at different altitude bands (i.e., Haze at Deck, Clear at Low/Med/High).

22.1 Line of Sight

Many game functions rely on there being an unblocked line of sight (LOS) from one unit to another.

To determine LOS, draw an imaginary line from the center of the unit's hex (or hexside) to the other unit. Treat ground units/targets as being on the Deck for the purposes of this rule. LOS is blocked under any of the following conditions:

a) One or more hexes of dense cloud lie along the line and the cloud layer is between the unit and the target's altitude.

b) Any of the intervening hexes contain a broken cloud layer or mist and the range is greater than two hexes.

c) Both units are on the Deck and the line passes through any portion of a Mountain hex.

If the LOS is blocked, then no visual detection [10.21] is possible; no SAM location rolls [15.13] are allowed; no IR SAM [15.44] or EO Tracking attacks [15.54] are allowed; and no visual bombing attacks are allowed [17.3]. Flights rolling to engage in air-to-air combat without LOS must use the Night/No LOS row of the Engagement Table [11.22].

22.2 Rolling for Weather

In the Weather Phase [31.1], roll one die to determine the weather. Roll on the Good or Poor column corresponding to the weather listed in the scenario. Apply the rolled weather to the scenario.

22.3 Haze

If Haze is in effect, a haze layer extends from the Deck up to the highest altitude band indicated. Flights are in haze if they are flying at these altitude bands.

Haze affects engagement [11.2], visual detection [10.21], and visual bombing, LGB, EOGM, and EOGB attacks [17.0].

22.4 Clouds

Clouds are a common occurrence in Germany, even in the summer.

22.41 Cloud Layers

A cloud layer exists between two altitude bands. The altitude bands on either side of the layer define it.

A cloud layer covers the entire map (Exception: weather fronts [22.42]). Cloud layers are listed as dense or broken cloud and have different effects on LOS [22.1].

22.42 Weather Fronts

SSRs may specify weather fronts for cloud. A weather front is a row of contiguous hexes from one map edge to another. Weather Front markers are placed on each map edge to define the front. SSR will define which side of the weather front the cloud layer exists in. Cloud exists in all hexes along the weather front and the indicated area north, south, east, or west of the line. All other hexes on the map are treated as clear.

22.43 Breaks

The Weather Table (Player Aid Card 3) may indicate cloud breaks. Players roll to see who places each cloud break: 1-5 WP, 6-10 NATO. The player determined by the roll places the Break marker in any cloud hexes on the map in the Weather Phase [31.1]. Break markers are placed in hexes containing cloud layers. No Break marker may be placed closer than two hexes from any other Break marker. A Break marker projects an area clear of cloud in the hex containing the marker and two hexes in each direction.

22.5 Mist

If Mist (basically "fog") conditions are in effect, a mist layer exists on the Deck across all land hexes. Flights on the Deck are in the mist. The rules for ground collisions [23.22] apply to flights in mist, both day and night. No moon conditions apply. Line of sight to units in mist is blocked beyond two hex range.

Mist affects engagement [11.2], visual detection [10.21], and visual bombing, LGB, EOGM, and EOGB attacks [17.0]. AAA (all types) always apply the No LOS modifiers in mist conditions.

22.6 Good Contrast Conditions

Good contrast conditions result in a positive modifier to EOGM and EOGB attacks.

23.0 Night

Night conditions apply where specified by the scenario. Night limits the ability of units to fly and fight. For any scenario where Night rules are in effect, ignore and reroll any flights generated by the Order of Battle Tables that do not have Night or Limited Night capability listed on the ADC.

23.1 Night Scenarios

23.11 Moon Phase

The scenario should specify the moon phase: Full Moon or No Moon. For scenarios taking place from 15–20 May and 5 June–15 June, moon conditions are Full. For scenarios between 21 May–4 June, moon conditions are No Moon.

In addition, regardless of the scenario's moon phase any flight beneath a cloud layer or in mist at night is also considered to be operating in No Moon conditions.

23.12 Visual Detection

All NATO flights may make visual detection attempts at night, but only at a reduced range of two hexes. Only WP flights with IRST sensors may make visual detection attempts at night, but only in their forward arc at a range of four hexes or less.

23.13 Visual Identification

Flights may be Visually Identified [10.4] at night under certain conditions. However, do not reveal full visual ID information [4.22] to an opponent. Only reveal the type of aircraft.

23.2 Night Navigation

Only aircraft designated on the ADCs as having night (Night in capabilities column) or limited night navigation capability (Night (Ltd) in the capabilities column) may fly at night.

Aircraft with full night navigation and attack capability may conduct any assigned task [8.2] at night, in any weather/moon conditions. Aircraft with limited night capability may be assigned the CAP or Close Escort task in any moon/weather conditions but may be assigned other tasks at night only if the weather/moon condition is clear/full moon.

23.21 Turning Limits

Regardless of speed, the maximum turn value [6.32] of flights at night is 60° (or 30° at speed 9+).

23.22 Ground Collisions

A flight not taking off [9.13], landing [9.14], or equipped with Terrain Following Radar (see ADCs) on the Deck at night (or in mist [22.5] in day) must roll two dice for each aircraft in the flight for the first Deck altitude hex entered via movement, SAM avoidance, or Scatter in the Movement Phase. On a final roll of 3 or less the aircraft crashes (DRMs: -2 night, -1 no moon, -1 rough hex). Do not roll for Bailout [26.1]. The crew is automatically KIA.

23.3 Combat

23.31 Air-to-Air Combat

Night combat modifiers apply at night. No maneuver differential modifiers are applied to air-to-air combats.

23.32 AAA

AAA barrages always apply No LOS modifiers at night.

23.33 Bombing

In Night conditions, Blind Bombing profiles [17.3] are not restricted. Visual bombing profiles require a Line of Sight [22.1] to the target throughout the Bomb Run [17.2], and, in addition to normal rules for each profile [17.3], are further limited as follows:

a) **Dive Bombing Profile [17.31].** May only be used if Full Moon conditions apply at Deck in the target hex (i.e., target hex may not be below a dense cloud layer). Apply night modifier.

b) **Level Bombing Profile [17.32].** May only be used if Full Moon conditions apply at Deck in the target hex. Flight must be at Deck or Low Altitude. Apply night modifier.

c) **LGB Level Profile [17.35].** No additional restrictions. Apply night modifier (NA for flights with FLIR).

d) **LGB Toss Profile [17.36].** No additional restrictions. Apply night modifier (NA for flights with FLIR).

e) **EOGM Profile [17.37].** May only be used by NATO flights loaded with IR-Guided EOGM. Apply night modifier. See ADC notes for eligible aircraft.

f) **EOGB Profile [17.38].** May only be used by NATO flights loaded with IR-Guided EOGB. Apply night modifier. See ADC notes for eligible aircraft.

g) **Strafing Profile [17.39].** May only be used if Full Moon conditions apply at Deck in the target hex. Apply night modifier.

23.34 Recon

In Night conditions, normal Recon Runs may only be conducted at Deck or Low altitude, and flights may not use Side-Looking Cameras [24.11]. They may use Synthetic Aperture Radars [24.2].

23.35 SAM Attacks

EO Tracking [15.54] attacks are not allowed at night.

24.0 Recon Missions

Recon flights are used to gather Bomb Damage Assessment (BDA) information. In campaign scenarios, BDA is a prerequisite for rolling for damage in the Campaign BDA Phase.

24.1 Recon Runs

To gather BDA a recon-capable flight must complete a Recon Run covering the Raid's target hex(es). Such a Recon may take place no sooner than two game turns after the last attack on the target or the Recon is an automatic failure.

Recon Runs are conducted as Bomb Runs [17.2], with the following differences. The flight starts its Recon Run at an Initial Point (IP), which must be two hexes from the target and at Deck, Low, or Medium altitude; if haze or mist conditions exist over the target, the Recon Run is limited to Deck altitude. The flight must have line of sight to the target (Exception: Synthetic Aperture Radar [24.2]). The flight then moves directly into the target hex without turning or changing altitude.

During a Recon Run, if a flight is marked with a BVR Avoid or SAM Avoid marker or is forced to turn / change altitude for any reason (i.e., SAM Avoidance [15.33] or Scatter [13.2]), the Recon Run is canceled. If this occurs, the flight may temporarily depart from its flight path [8.31] and move as necessary to conduct another Recon Run on the target. After completion of the run, or if the player decides to skip the target, the flight must return to its flight path.

As soon as the flight has exited the target hex, the Recon Run is complete. If the Recon flight successfully recovers one or more Recon aircraft, the task is successful and BDA has been obtained for the target hex(es) reconned by that flight, otherwise it fails.

24.11 Side-Looking Cameras

Players may use offset target hexes for Recon missions. This allows the player to plot Recon mission waypoints without overflying the target hex but instead flying within a certain range of the target following the same restrictions as a normal photo run. All other Recon Run [24.1] rules apply.

If the Recon aircraft is at Low altitude, it may plot an offset target hex one hex away from the target. If at Medium altitude it may plot an offset target hex three hexes away. Offset target hexes may not be used at Deck altitude.

In all cases, when the aircraft enters the offset target hex, the target hex for the Recon Run must be in the forward beam or rear beam of the Recon flight.

24.2 Synthetic Aperture Radars

Some aircraft (see ADC) may use Synthetic Aperture Radars (SAR) to conduct Side-Looking Recon Runs [24.11] of targets despite cloud, haze, or mist conditions that would normally block line of sight or require the Recon aircraft to drop to Deck altitude (haze or mist). All other conditions for Side-Looking Recon Runs [24.11] must be met.

Players may conduct SAR Recon Runs only at Medium altitude.

24.3 Multiple Recon Targets

A Recon flight [8.2] may make Recon Runs (of any type) on up to four different target hexes. Each target hex requires a separate Recon Run.

25.0 Helicopters

Helicopters perform CSAR, Transport, and Escort Jamming tasks. Helicopters flights comprise one to four helicopters, each with a crew of three. In general, helicopters are treated like regular aircraft flights, but with important exceptions.

25.1 Helicopter Movement

Do not plot flight paths for helicopters. Helicopters may move freely. Helicopters have a Combat throttle speed of one MP and may not use Dash throttle. They may freely turn any amount prior to and after their MP expenditure. Helicopters may fly at a speed of 0, in which case they are treated as if they spent one MP during their Movement Phase. At speed 0, they may only climb/dive/land and/or turn; they may not leave their hex. They only fly at Deck or Low altitude bands. They have full Night capability [23.2] and are considered to have Terrain Following Radar [23.22] for all purposes. They may not enter Formations [7.0].

Helicopters at Deck altitude may land in any hex by expending all of their MPs for the Movement Phase. Landed helicopters do not move except to take off. While landed, a helicopter is treated as an unready flight [9.12] and is Target Profile D if attacked in air-to-ground combat.

Helicopter flights may take off/land in any hex on the friendly side of the Front. Take off/landing on the enemy side of the Front is restricted to the target hexes of Transport or CSAR-tasked helicopters.

Unlike regular aircraft, two airborne helicopter flights may intentionally stack [6.4]. Any number of helicopter flights may stack if landed. Do not track Fuel for helicopters.

25.2 Helicopter Combat

Helicopters do not Scatter, take Morale Checks [13.1], become Disordered [13.11], or have Maneuver [6.35], BVR Avoid [6.36], or SAM Avoid [6.37] markers placed on them.

Helicopters may be attacked in air-to-air combat. All helicopters have a maneuver rating of 2 and an Aggression Value of 0 that cannot change. If engaged in Standard air-to-air combat, they must attempt to disengage [11.41]. They have no weapons, RWR, or Defensive Jamming.

Helicopters are attacked normally by AAA concentrations, Radar AAA, and Mobile AAA. When at Deck altitude, they may only be acquired and attacked by SAM units specified on the SAM Data Table. At Low altitude they may be acquired and attacked by any SAM. Helicopters have Poor SAM Defense. They may not perform Anti-Radar Tactics [15.26].

A Damaged helicopter may continue its mission without adverse effect. A Crippled result on a helicopter is treated as a Shot Down result. If a helicopter is Shot Down, do not roll for Bailout [26.1] or place Parachute markers. All crew members are considered rescued on the friendly side of the Front and captured if on the enemy side of the Front. However, helicopter crew members do not count for VP. The helicopter itself does count as an enemy aircraft for VP purposes.

Helicopters recover [20.2] by landing in any friendly open airfield or hex on the friendly side of the Front.

25.3 Helicopter Detection

At the start of the Track Phase [10.3], all detected helicopter flights at Deck altitude become undetected, regardless of the terrain they occupy.

26.0 CSAR

The CSAR rules model Combat Search and Rescue missions. Players must agree whether to use the simple [26.2] or detailed [26.3] CSAR rules.

Players using the simple CSAR rules use only rules sections [26.1] and [26.2]. Players using the detailed CSAR rules use all rules sections except for [26.2].

26.1 Bailouts

If an aircraft is Shot Down [12.23], roll a die for each crew member. On a roll of 4 or less the crew member fails to survive. On a 5 or more the crew member bails out and a Parachute marker is placed on the map. Place the marker in the same hex as the flight of the lost aircraft. If the flight is on a hexside when lost, place the marker in either hex (owning player's choice).

If the bailout roll is a 10, the crew member flies some distance before bailing out. Roll one die and move the marker that number of hexes away from the flight equal to the roll (the owning player chooses the specific hex).

The final hex occupied by the Parachute marker is the hex the crew lands in. It takes a number of game turns before the parachuting crew lands in the hex. Bailouts from Deck altitude land the same turn. Bailouts from Low altitude take two turns. Bailouts from Medium, High, or Very High altitude take ten turns. After the required number of turns, flip the marker to the Crew side in the Admin Phase. Once landed, Crew markers never move and are removed from the map only via rescue or capture.

26.11 Automatic Rescue/Capture

If the Crew marker lands on the friendly side of the Front [29.0], rescue by friendly forces is automatic.

If the Crew marker lands on the enemy side of the Front [29.0], and is in an Urban, Road, or airfield hex, or a hex occupied by an enemy ground/AAA/SAM unit, it is immediately captured and the marker is removed from play.

26.2 Simple CSAR Rules

If the crew is not automatically rescued or captured, and simple CSAR rules are in effect, roll one die. Modify by -2 if the crew is on the enemy side of the Front [29.0] and is adjacent to an Urban or Road hex, or enemy ground/AAA/SAM unit. Modify by +2 if Night conditions [23.0] are in effect.

For NATO crews, if the modified roll is 7 or greater, the crew member has been rescued by NATO CSAR units. Otherwise, WP forces have captured the crew member.

For WP crews, if the modified roll is 8 or greater, the crew member has been rescued by WP CSAR units. Otherwise, NATO forces have captured the crew member.

26.3 Detailed CSAR Rules

Detailed CSAR rules are only used to rescue crew that are on the enemy side of the Front [29.0]. In the Admin Phase that a Crew marker lands, the player may roll to trigger a CSAR mission. Roll one die. On a roll of 6 or more the mission is triggered. Modify the roll by +3 if night conditions [23.0] are in effect. If a mission fails to trigger, the crew is automatically captured, and the marker is removed from play. A triggered mission may be refused by a player for any reason (e.g., the mission stands little chance of success).

26.4 CSAR Missions

If a CSAR mission is triggered [26.3], see Order of Battle Tables E (NATO) or K (WP) for mission details. CSAR missions use the Crew marker as their target hex. No more than two CSAR missions per side, per scenario, may be triggered.

CSAR and Rescue Support flights may move freely and ignore any scenario Flight Restrictions or Zone Limits.

26.41 CSAR Setup

At the start of the fifth turn after a CSAR mission is triggered (e.g., the CSAR mission is triggered in the Admin Phase of Turn 3, so the CSAR mission is set up at the start of Turn 8), place the CSAR mission units in any hex three or more hexes behind the Front [29.0], on the friendly side. This setup hex is the ingress hex for the mission. CSAR flight setup may be delayed by the controlling player to a future turn if desired.

The egress hex for Rescue Support flights may be any friendly airfield, or an east (WP) or west (NATO) edge hex. Helicopters in the mission may land in any hex on the friendly side of the Front and automatically recover safely.

26.42 Rescue CAP

Two flights, belonging to the Raid to which the Shot Down aircraft was assigned, may elect to act as Rescue Cap. Such flights must have at least one operational air-to-air weapon or some remaining ordnance. They treat the Crew marker as their target hex. Rescue CAP flights have their task changed to Rescue Support (and are thus relieved from having to follow the flight path [8.31] if a Bombing or Recon-tasked flight).

26.43 Helicopter Pickup

To pick up the crew member, a helicopter must land in the Crew marker's hex and roll in the Admin Phase. Roll one die. The crew member is picked up on a 4 or more. If the crew member is not picked up, the helicopter may try again the next game turn.

27.0 Army Ground Units

27.1 Army Ground Unit Types

There are six different types of Army Ground Units in the game. Armor and Mech units represent "front line" combat forces. HQs, Artillery, Supply, and Missile units represent combat support and rear area troops. All Army Ground Units have some kind of organic AAA [14.71,14.72] and may also have organic Mobile AAA [14.73]. Anti-air capabilities vary by nationality and unit type, as shown on the Ground Unit Organic AAA Table [31.21] on Player Aid Card 3.

Some units may have inherent Mobile AAA (Gepard, Vulcan, or 2K22) [14.73]. For those units, use the side of the counter with the white circle to show when the organic Mobile AAA has its radar on. If the ground unit's organic Gepard/Vulcan/2K22 is destroyed [18.2], suppressed [18.22], or has its radar off, flip the ground unit to the side without the white circle.

27.2 Army Ground Units as Targets

Armor and Mech units are Target Profile B. Artillery units are Target Profile C. All other ground units (HQs, Supply, and Missiles) are Target Profile D.

28.0 Airfields

Both sides have airfields on the map, each rated from Class 1 to 5. See rule [9.0] for airfield operations during a scenario.

28.1 NATO Airfields

All NATO airfields on the NATO side of the Front [29.0] and in the scenario play area are open unless stated otherwise. Unless otherwise noted, all NATO airfields have inherent Light AAA. Airfields on the list marked with a * are temporary highway strip airfields. See Appendix B for NATO Airfield information.

28.2 WP Airfields

All WP airfields on the WP side of the Front [29.0] and in the scenario play area are open unless stated otherwise. Unless otherwise noted, all WP Class 1 or 2 airfields have inherent Light AAA and all Class 3+ airfields have inherent Medium AAA. Airfields on the list marked with a * are temporary highway strip airfields. See Appendix B for WP Airfield information.

28.3 Captured NATO Airfields

As the Front [29.0] moves forward, certain NATO airfields will end up on the WP side of the Front, depending on the date. Once "behind" the WP Front, these airfields may be used by the WP player as if they were WP airfields. They retain their inherent Light AAA concentrations. They are not, however, considered to be in East Germany for any purpose.

29.0 The Front

The "Front" is a continuous line of hexes running from the north to the south edge of the map or playing area (if not using the entire map in a scenario). It represents the main line of contact between the opposing armies. Even though the action taking place in *Red Storm* covers a fairly short time frame, the front line of the fighting will move depending on the date of the scenario. Each scenario defines the trace of the front line for the purposes of setup, flight restrictions, recovery rolls, detection modifiers, etc. In general, the NATO side of the Front includes the line of the Front itself and all hexes west/south of the Front. The WP side consists of all hexes east/north of the Front.

30.0 Scenario Conditions

Each scenario provides the information required for set up and play. The information in the scenario is as follows:

Background. Overall situation for the scenario.

Targets. The specified side(s) roll and read the target(s) from the lists. Most scenarios will have multiple targets that must be attacked. The table lists the hex the target is in and the Target Profile.

Date. The date of the scenario, important in determining the location of the Front, Army Ground Unit locations, and other background factors.

Time of Day. Whether this is a day or night scenario, including the time (using the 24-hour clock) that the scenario begins.

Detection Level. The initial Detection Levels [10.11] for the NATO and WP players.

Weather. The column on the Weather Table to be used [22.2].

Map. The portion of the map in play (the play area).

The Front. The hex trace of the Front [29.0] for various purposes.

Closed Airfields. Any airfields that are closed [9.11] and the status of their printed AAA.

Inherent AAA/IR SAM Coverage. Some scenarios have a zone of hexes around the Front where enemy flights at Low or Deck altitude are automatically attacked once during their Movement Phase by an inherent Gepard (NATO) or 2K22 (WP) Mobile AAA attack. The scenario specifies if such a zone exists, and on which side of the Front the zone is in effect. Conduct Inherent AAA/IR SAM attacks as specified in [14.75].

ISR. The side, or sides, indicated will roll on the ISR Table [31.3] during the ISR Phase.

SEAD. The side, or sides, indicated will roll once or twice on the SEAD Table [31.6] during the SEAD Phase.

Early Warning. The side, or sides, indicated will roll on the Early Warning Table [31.7] during the Early Warning Phase.

NATO Air Defense Zone. The NATO air defense zone, or zones, in play, used to determine QRA and CAP flight compositions.

NATO/WP Flight Restrictions. Some scenarios have flight restrictions, limiting specific actions (and in some cases, mandating actions) by the designated flights. They may apply to one or both sides.

NATO/WP Zone Limits. Some scenarios have zone limits on one or both sides, with the zone defined in terms of a hex column or distance from the Front. For the side noted, flights may not voluntarily move into the specified zone. If they do so involuntarily (i.e., a Scatter or SAM avoidance result), the flight must move out of the zone as quickly as possible. In addition, while in the restricted zone the flight may not initiate combat of any kind.

Setup Order. The order of setup for the scenario.

NATO Order of Battle. The forces available, grouped into air units, Army Ground Units, and air defense units. It also lists the pilot training levels [31.53] for the NATO forces.

WP Order of Battle. The WP Order of Battle lists the same information for the WP player.

Special Scenario Rules. Any SSRs that apply.

Victory Conditions. Any changes or alterations to the standard victory conditions [32.2] appear here.

31.0 Scenario Setup

Before a scenario begins, players follow the Scenario Setup Sequence [3.1] to determine scenario conditions, generate flights, lay out ground defenses, plan Raids, and set up units that start on the map. The sequence is also listed on Player Aid Card 4.

31.1 Weather Phase

The scenario will either have a pre-set weather condition or instruct players to roll on the Weather Table (see Player Aid Card 3). If rolling on the Weather Table, players roll 1d10 and read the result under "Good" or "Poor" weather depending on the scenario. Players should then use the weather condition markers (Broken Clouds, etc.) to show the weather on the map, while also taking careful note of how the clouds or other conditions, such as haze or mist, might affect their ordnance selection [16.0] and bombing attack profiles [17.3]. If there are any cloud breaks [22.43], players roll to determine who will place them and then place them on the map.

31.2 Ground Planning Phase

The scenario will specify which player sets up first. The first player chooses, if allowed in the scenario, an Air Defense Status. The player then determines map locations for SAMs, dummy SAMs, dummy radars, AAA concentrations, Radar-Equipped AAA, Early Warning Radars, and Army Ground Units. Record these units on log sheets. The second player then does the same. Some ground units will set up on the map at scenario start and others will remain hidden until the owning player activates them during the scenario.

31.21 AAA Setup

Scenario-provided or purchased AAA concentrations may be placed in any land hex on the friendly side of the Front [29.0]. No more than one concentration may be set up in a hex. AAA concentrations may not be placed in Rough or Mountain terrain hexes without a Road (Exception: Light concentrations may be placed).

The WP player may also use scenario-provided AAA points to upgrade printed inherent AAA concentrations at friendly airfields [14.22].

Radar AAA (Fire Cans) [14.5] must set up in the same hexes as AAA concentrations [14.41, 14.42]. One to three may set up in a hex, depending on the AAA concentration intensity: Light (1), Medium (2), Heavy (3). The results from the ISR Table [31.3] will determine how many Radar AAA must set up located. Each may set up with its radar on or off.

Mobile AAA [14.6] may set up in any land hex on the friendly side of the Front. No more than one per hex. Each may set up with its radar on or off.

Printed AAA, even if upgraded, is always set up located. All other AAA set up hidden unless required to be revealed by results from the ISR Table [31.3].

All ground units have some organic AAA, but the quantity and quality varies by unit type. In addition, when setting up ground units, the player must roll to see if some units receive additional AAA capability. When setting up ground units, consult the Ground Unit Organic AAA Table. For each ground unit, note the type of inherent barrage each unit has (Light or Small Arms) and then roll one die to see if the unit has an organic 2K22 (WP) or Gepard/Vulcan (NATO). Scenarios may limit the number of units with organic 2K22, Gepard, or Vulcan. Keep this information secret from the other player. Each organic Mobile AAA may start a scenario with its radar on or off.

Example: *The NATO player is allocated a US Army mechanized ground unit (one Mech unit from 11th ACR). Consulting the Ground Unit Organic AAA Table, the NATO player sees that as a Mech unit, it has an organic Small Arms AAA in its hex. One die must be rolled to see if that mechanized unit also has an organic Vulcan Mobile AAA for this scenario. A roll of "2" indicates that 1 Mech/11 ACR has Vulcan capability for this scenario, which must be noted. The NATO player decides to set it up with the Vulcan's radar off. When this inherent Vulcan unit turns its radar on, the player will flip the Mech counter to the side with the white "Radar On" circle.*

31.22 SAM Setup

SAM units are set up as indicated in the scenario. Unless otherwise specified in the scenario, SAMs may set up in any land hex on the friendly side of the Front [29.0]. No more than one SAM may be set up in a hex. SAMs may stack with Army Ground Units. SAMs may only set up in Mountain hexes that have a Road or a friendly airfield. (Exception: IR SAMs may set up in any Mountain hex).

If either player is allowed to adjust SAMs based on the scenario Air Defense Status, add or remove SAMs as indicated. SAMs removed must be of the type indicated but may be from any group of SAMs (i.e., from SAMs of that type required to set up located or ones allowed to set up hidden) in the scenario. Any SAMs added must set up within two hexes of an allowed setup hex for another SAM of the same type in the scenario.

Some SAMs are required to set up within a certain number of hexes of an Army formation (usually a regiment or division), even if the Army Ground Units themselves aren't actually set up. Players should reference the cited Army formation list of locations in Appendix C. In other cases, SAMs must set up a given distance from the Front, a hex, a specific ground unit, or other map reference point.

Unless specified as setting up located, SAMs set up hidden. Results from the ISR Table [31.3] may reveal hidden SAMs in the Ground Deployment Phase.

31.23 EWR Setup

EWR units [10.25] are set up as indicated in the scenario. Unless otherwise specified in the scenario, EWR units may be placed in any land hex on the friendly side of the Front [29.0] but no closer than ten hexes to any hex of the Front. EWR units may only set up in Mountain hexes that have a Road or are adjacent to a Road. No more than one EWR may be set up in a hex.

Unless otherwise specified, EWR units set up located.

31.24 Army Ground Unit Setup

The location of both NATO and WP Army Ground Units will vary by the date of the scenario. Unless otherwise designated in the scenario, use the locations in Appendix C for any Army Ground Units provided in the scenario. All Army Ground Units set up on the map. They are never set up hidden. For each Army Ground Unit, roll for possible organic Mobile AAA [31.21].

31.3 ISR Phase

All non-printed AAA and SAM units set up hidden unless required to be set up located by the scenario or ISR table results.

One or both players roll on the ISR Table, depending on the scenario. To use the table, roll two dice, check for possible modifiers, and read the result. The result will determine the "ISR Condition" (Exceptional, Average, or Poor) and how many of a side's hidden, non-IR SAMs, Radar AAA (Fire Cans), and non-printed AAA concentrations set up located/on the map during the Ground Deployment Phase [31.4].

If a side does not roll on the ISR Table in a scenario, the ISR Condition is automatically considered to be Average for the purposes of enemy SAM, Radar AAA (Fire Can), and AAA setup.

All results on the ISR Table round up, so after multiplying the designated percentage against the total number of the given type of unit in the scenario, round any fractions left to the next higher whole number.

31.31 AAA

The ISR Table [31.3] result will specify how many Radar AAA (Fire Cans) and non-printed AAA concentrations set up on the map, with the remainder setting up hidden. All Mobile AAA (Vulcan, Gepard, and 2K22) [14.6] set up hidden regardless of the ISR Table result. Printed AAA is not considered for ISR table results, even if it has been upgraded with AAA points.

Example: *The WP player has three printed AAA (one of which has been upgraded with AAA points), six regular (non-printed) printed AAA concentrations, six Radar AAA (Fire Cans), and three Mobile AAA (2K22). During the Ground Planning Phase, the WP player notes the locations of all these AAA units on the log. In the ISR Phase, the NATO player rolls on the ISR Table, getting an Exceptional result, so the WP player must set up 40% (rounded up) of all WP Radar AAA on the map (6 Fire Cans x .4 = 2.4, rounded up to 3) and 25% (6 x .25 = 1.5, rounded up to 2) of all non-printed WP AAA concentrations on the map. The remaining three WP Radar AAA (Fire Cans) and four non-printed WP AAA concentrations set up hidden. All three WP Mobile AAA (2K22), and any WP Army Ground Unit organic Mobile AAA set up hidden. All printed WP AAA sets up located, even if upgraded.*

31.32 SAMs

The ISR Table results determine how many real (non-dummy), non-IR SAMs set up located. The remaining real, non-IR SAMs are set up hidden. Regardless of the ISR Table result, all IR SAMs [15.44] set up hidden, all dummy radars [15.15] set up hidden, and all dummy SAMs [15.14] set up located.

Example: *A scenario gives the WP player twenty-six SAMs consisting of 2 x SA-12, 4 x SA-4, 8 x SA-11, 4 x SA-2, and 8 x SA-13. Of these, the 4 x SA-2s are specified in the scenario as setting up located. The WP player also receives one dummy Radar and two dummy SAMs. The NATO ISR Table result is Average, so 35% of of the hidden non-IR SAMs must be set up located, along with the 4 x SA-2s specified as setting up located in the scenario. Removing the 8 x SA-13 IR SAMs and 4 x SA-2 SAMs from the count, the WP player has fourteen non-IR SAMs eligible to set up hidden (the 2 x SA-12, the 4 x SA-4, and the 8 x SA-11). Per the ISR Table result, 35% of these must instead set up located. The calculation is: 14 x .35 = 4.89, which rounds up to 5. So, the 4 x SA-2s and five more hidden non-IR SAMs (chosen from the SA-12s, SA-4s, and SA-11s) must set up located. The remaining nine non-IR SAMs, and all eight SA-13 IR SAMs, set up hidden. The two dummy SAMs also set up located. The dummy Radar sets up hidden. In the same scenario, the WP player does not roll on the ISR Table, so the ISR condition for NATO is automatically Average. The NATO player has six SAMs, none of which are IR SAMs. Three set up located (6 x .35 = 2.1, rounded up to 3) and the other three set up hidden.*

31.4 Ground Deployment Phase

During this phase, players physically place ground units of all types (SAMs, AAA Concentrations, Radar AAA, Mobile AAA, and Army Ground Units) on the map, depending on the type of unit and the results of the ISR Table. Hidden units are not placed during this phase; their location should be noted on the applicable log sheet. Both players should take note of the other side's deployments.

31.5 Raid Planning Phase

As specified in the scenario, one or both players generate Raid targets. Both players generate their flights using the units specified in the scenario or the Order of Battle tables. If either player is allowed to adjust air units based on the scenario Air Defense Status, then (before generating any CAP flights) add or subtract the indicated number of CAP flights from the scenario order of battle. Both players determine their target(s), ingress/egress hexes, determine ordnance loads [16.0], plan attack profiles [17.3], and plot the flight path [8.31] for their Raid(s). Log sheets for aircraft are filled out. Both players may plot scenario-designated Orbit and Rally points. All of this information is kept secret from the other player.

31.51 Raid Targets

Follow the instructions in the scenario to determine targets for each Raid. Keep this information secret from the other player.

31.52 Order of Battle Tables

In this phase, players generate their aircraft flights for the scenario, following the instructions in the scenario (see "NATO Order of Battle" or "WP Order of Battle" in each scenario). Consult the Order of Battle Tables in Appendix A. Each OOB Table shows one or more tasks (CAP, Bombing, SEAD, Recon, etc. [8.2]). The player generates specific flights for each task. Each task lists the flights for that mission, the number of aircraft in each flight, and their tasking, as follows:

Number of Flights x {number of aircraft per flight} Aircraft Type, Tasking

If an aircraft type is listed in the description, the flight(s) use that aircraft type. If no specific aircraft is listed, just a task [in square brackets], the player must determine the aircraft type using the aircraft tables.

In addition to the OOB Tables, scenarios may list variant orders of battle for entire Raids or missions within the Raids.

Players also use the OOB Tables to determine available ordnance (Bombs, LGB, ARM, etc.) for each flight. It is usually better to wait to select ordnance until players plot the Raid flight path [8.31] and plan attack profiles [17.3] since different ordnance and weather will limit what players will want their flights to carry.

The counter mix is a limit, so reroll as necessary to conform to the available flight counters.

31.53 Flight Quality Generation

The scenario will list pilot training levels for the forces on each side: Trained, Regular, Veteran, or Ace. When filling out the flight details on the log sheet, roll two dice for each flight on the Flight Quality Table, referencing the flight's pilot training level to determine the Aggression Value. Note this value on the flight log.

Optional Rule: Do not roll a flight's Aggression Value until the first time the value is needed for air-to-air combat or a Morale Check roll.

31.54 Raid/Task Planning

After determining their flights and available ordnance, players conduct detailed Raid/Task Planning [8.0]. All flight information is noted on each flight's log sheet. Raid paths [8.31], targets, and initial points for Bomb Runs [17.2] are noted on each player's Raid planning map.

31.6 SEAD Phase

The scenario will designate which player, if any, rolls on the pregame SEAD Table. The SEAD Table may give the player a number of pre-game SEAD attacks for use against located enemy SAM, EWR, AAA concentrations, or Fire Can units. The results of this table represent preparatory artillery, missile, attack helicopter, or special operations attacks on enemy SAM, radar, or AAA locations. Players must pre-designate all SEAD attacks before resolving any of them. A player may use multiple attacks against the same target. All targets must be within twenty hexes of the Front [29.0]. An attack on a SAM or EWR only affects the targeted SAM or EWR. An attack on a Radar AAA affects both the Radar AAA and its associated AAA Concentration with the results shown. If a target takes multiple radar suppression results, add the total number of turns suppressed together. If an AAA concentration takes multiple suppression results, add the suppression levels together (max AAA suppression level is still 3).

Example: *A SEAD attack roll on a SA-12 is a "7." The attacking player rolls 1d10 and adds 5 to determine the number of turns the SA-12 is marked Radar Suppressed [18.22]. The SA-12 will be suppressed until the Admin Phase of Turn 12. In a separate attack, the NATO player targets a WP Fire Can Radar AAA and rolls a "5." The Fire Can will be suppressed 1d10 turns and its associated in-hex AAA concentration is marked Suppress 1. The NATO player makes a final SEAD attack on a Medium AAA concentration, rolling a "9." The Medium AAA concentration is marked with a Suppress 3 marker [18.21].*

Any SAMs destroyed in the SEAD phase count for scenario victory points [32.1]. In scenarios where players are instructed to "roll twice" on the SEAD table, go through the entire process two times: roll, add modifiers, and resolve that number of SEAD attacks. Then, go through the entire sequence a second time.

31.7 Early Warning Phase

The scenarios will note whether either (or both) player rolls for Early Warning to see how much information must be revealed by the enemy player about their flights and Raids.

Roll two dice and add the indicated modifiers on the Early Warning Table. The result will set the Early Warning Level (Good, Average, Minimal, or No Warning). Follow the resulting instructions regarding flight setup, the Raid information to be given to the other player, and the detection status of flights.

If there is no Early Warning Level for a side, that side's flights setting up on map or entering during play at Medium or higher are detected, and those at Low or Deck are undetected.

31.8 Air Deployment Phase

In the Air Deployment Phase, the first player sets up flights that start on the map and flights entering the map on the first game turn near their ingress hexes. The second player then does the same. Both players may set up scenario-designated dummy flights on the map or wait to place them until later in the scenario.

Unless otherwise specified in the scenario, flights tasked with CAP, SEAD, Standoff Jamming, Chaff Laying, or Fast FAC may set up on the map within two hexes of a friendly Orbit Point. QRA flights set up at their airfields in Ready status or in the air within two hexes of their airfield if allowed by the Early Warning Table. All other flights must enter from the playing area edge on or after the turn specified. Flights that are part of a Raid must enter within two hexes of their ingress hex. Other flights may enter anywhere on the friendly playing area edge. If no entry turn is listed, all flights may enter on/after Turn 1.

Detection states of flights are set according to the Early Warning Level. If there is no Early Warning Level for a side, flights at Medium or higher are detected and flights at Low or Deck are undetected.

31.9 Radar Phase

In the Radar Phase, the player(s) may switch on any Radar-Equipped AAA, EWR, or SAM radar as desired. If a hidden SAM or dummy radar switches its radar on, place a SAM Warning marker on the map [15.12]. Inactive AAA concentrations may be activated in this phase [14.3].

32.0 Victory

32.1 Victory Points

At the end of a scenario, both the WP and NATO total their victory points. Unless modified by Scenario Special Rule, WP and NATO score victory points as follows:

VP	Objective
2	No successful BDA of enemy Deep Strike Raid target. NA to other Raid types.
12	Raid target Totally Destroyed.
9	Raid target Heavily Damaged.
6	Raid target Slightly Damaged.
4	WP VP for each NATO aircraft or helicopter Shot Down or Crashed.
3	NATO VP for each WP aircraft or helicopter Shot Down or Crashed.
1	Enemy cruise missile Shot Down before attacking its target.
2	Enemy aircraft or helicopter recovers Crippled.
1	Enemy aircraft or helicopter recovers Damaged.
1	Enemy crew member killed or captured. No points for helicopter crews.
1	Enemy SAM or EWR unit Heavily Damaged.
2	Enemy SAM or EWR unit Totally Destroyed.

Aircraft and crew that are lost as a result of recovery rolls [20.2] count toward VP.

32.11 Multiple Sub-Targets

Where there are multiple sub-targets in a single hex (such as an airfield [9.17] or SAM site [15.16]) specified in a scenario, total the damage VPs for each sub-target and then divide by the total number of sub-targets and roundup to determine the VPs for the target.

Example: *The NATO airfield at Rhein-Main has four sub-targets specified in the scenario. In the Raid, the WP player inflicts the following damage: destroyed runway (12 VP), slightly Damaged tower (6 VP), and heavily Damaged hangars (9 VP). The aircraft revetments are undamaged. The total VPs for the airfield are 7: (12 + 6 + 9 + 0 = 27/4 = 6.75, round to 7).*

32.12 Bridge Targets

If the target is a bridge, target damage victory points are based on the most Damaged span [18.23]. For each other span in the bridge add half the VPs (rounded up) for the damage scored against it. Players may use bridge markers to show the location of bridge targets.

32.2 Victory Levels

Scenario Special Rules specify the victory conditions. A scenario will state whether the WP or NATO Victory Level Table is used when comparing VP totals and determining the outcome. When using the WP Victory Level Table, the victory total is obtained by subtracting the NATO VP total from the WP VP total. When using the NATO Victory Level Table, subtract the WP VP total from the NATO VP total. In both cases, the result can be a negative value. The victory total determines the victory level on the appropriate table as follows:

WP Offensive Scenario	
VPs	**Victory Levels**
30+	Decisive Victory.
20-29	Victory.
10-19	Inconclusive Operation (Draw).
0-9	Defeat.
< 0	Significant Defeat.

Design Note: *The WP cannot afford a long war. They have to press each mission to the max to try to achieve a decisive breakthrough in less than a month of fighting. As a result, a scenario "win" requires destroying ground targets and doing significant damage to NATO's ability to contest the air.*

NATO Offensive Scenario	
VPs	**Victory Levels**
20+	Decisive Victory.
10-19	Victory.
5-9	Inconclusive Operation (Draw).
0-4	Defeat.
< 0	Significant Defeat.

Design Note: *NATO wants to keep fighting in the air as long as possible, while preventing a breakthrough on the ground that might lead to conventional defeat or the need to use nuclear weapons. As a result, to "win" a scenario, NATO needs to focus on getting aircraft back in one piece so they stay in the fight.*

33.0 Solitaire Rules

While *Red Storm* is best played with two or more players, with relatively minor changes it also makes an excellent solitaire game. These rules offer players two choices: modifications to the rules to smooth "limited" solo play and a more fulsome solitaire experience using a series of charts and tables that form a "bot" to play against using "full" solo rules. Limited solo play will work with any of the scenarios in the game. The full solitaire game requires specially designed solitaire scenarios that set scenario conditions but also allow for variation in the scenarios each time they are played.

33.1 Limited Solitaire Rules

The limited solitaire rules allow players to play both sides of a scenario by "switching roles" back and forth. They remove the numerous fog-of-war and concealment aspects of the base rules. They also provide an excellent way to learn the game on one's own, since almost all of the game works exactly the same. In general, a player should "do what makes sense" for each side.

33.11 Rules Not Used in Limited Solitaire Play

The following rules are not used by either side when playing with Limited Solitaire Play (LSP) rules: Generic Flight Counters [4.11], Dummies [4.12], Hidden AAA [14.3, 14.52, 14.62], Dummy SAMs [15.14], Dummy Radars [15.15], Hidden SAMs [15.11], SAM Warning Markers [15.12].

33.12 Scenario Setup Sequence

- **Weather Phase:** No Change.
- **Ground Planning Phase:** Do not use dummy SAMs or dummy Radars if provided.
- **ISR Phase:** This phase is skipped.
- **Ground Deployment Phase:** Place all ground units (Army Ground Units, AAA, and SAMs) on the map for both sides. No units are kept hidden. All AAA and SAMs set up located [15.11].
- **Raid Planning Phase:** No Change.
- **SEAD Phase:** No Change. Select targets that make the most sense for each side.
- **Early Warning Phase:** No Change.
- **Air Deployment Phase:** No Generic Flight Markers [4.11] or Dummies [4.12] are used.
- **Radar Phase:** All SAM and Radar AAA radars start switched on.

33.13 Sequence of Play During Scenario

No changes. Players should do "what is best" for both sides at all times.

33.14 Completing the Scenario

No changes.

33.2 Full Solitaire Rules

The Full Solitaire Play (FSP) rules transform the game substantially. Although game mechanics operate the same, actions for the "bot" are randomized by use of specific priorities when the bot makes decisions, referencing various tables to determine actions for bot flights, SAMs, and AAA units.

33.21 Rules Not Used in Full Solitaire Play

The following rules are not used by the human player with FSP rules: Generic Flight Counters [4.11], Dummies [4.12], Hidden AAA [14.3] [14.52] [14.62], Hidden SAMs [15.11], Dummy SAMs [15.14], Dummy Radars [15.15], SAM Warning Markers [15.12].

33.22 Scenario Setup Sequence

In general, the human player follows the normal Scenario Setup Sequence, with the following exceptions/changes:

- **Weather Phase:** Human player places any Cloud Breaks.
- **Ground Planning Phase:** The human player sets up all their side's ground units on the map, located. For the bot side, follow scenario setup instructions. Bot SAM Warning markers are used to represent possible SAM units. Scenarios will specify if they are set up Radar On or Off. Inactive Light AAA counters are used to represent possible AAA units. For both sides, place all units on the map now (do not wait for Ground Deployment Phase).
- **ISR Phase:** If allowed in the scenario, the human player rolls on the Bot SAM/AAA ISR Table on Player Aid Card 5 (do not use the normal ISR Table). The result will be a number of SAM Warning and Inactive AAA counters the human player may check for activation.
  - Select up to these numbers of bot SAM Warning markers (only those in the Divisional and Corps/Army SAM Zones may be selected) and Inactive AAA counters and check them for SAM or AAA Activation via the respective Activation Tables. The human player must designate all attempts in advance. Any one SAM Warning or Inactive Light AAA may only be checked for activation once. Place any real SAMs or AAA generated on the map, located, and remove the SAM Warning/Inactive AAA marker. AAA is active, Fire Cans and SAM radars are on.
  - If a SAM Warning or Inactive AAA checked for activation does not generate a real SAM or AAA, leave it in place.
- **Ground Deployment Phase:** Skip this phase.
- **Raid Planning Phase:** No Change. Human player only.
- **SEAD Phase:** If allowed in the scenario, the human player conducts attacks on real, located bot SAM and AAA units.
- **Early Warning Phase:** No Change.
- **Air Deployment Phase:** No Generic Flight Markers [4.11] or Dummies [4.12] are used by the human player. For the bot, use generic flight markers for all at-start flights.
- **Radar Phase:** All bot SAM Warning, real SAM, EWR, and real Radar AAA radars start on.

33.23 Sequence of Play During Scenario

The human player conducts all phases normally. The bot conducts actions as instructed on the Full Solo Rules Sequence of Play on Player Aid Card 5.

33.24 Completing the Scenario

Follow the normal procedure as outlined in [3.4].

33.3 Bot Flight Rules

All bot flights start as generic flights and are potentially activated as real flights under certain conditions specified by the Flight Activation Table. Bot flights, both generic and real, conduct actions (including engagements) as directed by the Flight Actions Table on Player Aid Card 5. Generic WP Bot flights use USSR MiG-21bis Combat and Dash throttle ratings. Generic NATO Bot flights use US F-4E Combat and Dash throttle ratings.

33.4 Bot SAM Rules

No SAMs are set up located, unless directed by the scenario. Only SAM Warning markers are set up on the map. SAM Warning markers are checked for activation per the SAM Activation Table. Once activated, SAMs behave in accordance with the SAM Actions Table. The SAM Activation Table has modifiers based on the number of real SAMs (including IR SAMs) already in play. Players should keep a side note of the number.

When multiple SAMs are checked for activation at the same time, start with the SAMs closest to the triggering human player flight, followed by the next closest, etc. If there are ties, randomly select the SAM to check for activation. Resolve all SAM activation checks prior to any attacks on the triggering flight.

When a SAM activates, follow scenario instructions to determine the type. Place a SAM of that type under the SAM Warning marker that was checked for activation (Exception: if an IR SAM is activated, remove the SAM Warning and place the IR SAM in located status). The SAM will now operate normally. However, even though the human player now knows what type of SAM it is, the bot SAM is not considered located [15.11] until successfully located by the human player during the SAM Location Phase. When located, remove the SAM Warning marker.

Bot SAMs with Phased Array Radars [15.45] set their fixed radar arcs upon activation, with the arc set to encompass as many enemy flights as possible.

33.5 Bot AAA Rules

No bot AAA set up located. Only inactive AAA counters are set up on the map. Use Light AAA concentrations. Inactive AAA are checked for activation per the AAA Activation Table. Once placed on-map, AAA follows the AAA Actions Table. The AAA Activation Table has modifiers based on the number of real AAA (concentrations, Radar AAA, Mobile AAA) already in play. Players should keep a side note of the number.

34.0 Campaign Games

A campaign is a series of Raid scenarios with outcomes and decisions in one scenario carrying over to the following scenarios.

34.1 Campaign Game Concepts

Campaign Type. The campaign will be listed as one of two types: Bombing or Recon.

Days. A campaign is divided into a number of game days. To complete a game day the players must play a number of Raids.

Target List. The campaign target list shows all the targets eligible to be attacked or reconned in the campaign.

Offensive/Defensive Player. Each campaign will designate one side as the "offensive" player, with the other side being the "defensive" player. In general, the offensive player will be conducting Bombing or Recon Raids, with the defensive player opposing them with ground and air units. Both sides must carry out various administrative tasks between campaign days.

34.2 Campaign Scenarios

The information in a campaign scenario is as follows:

Target List. The campaign target list shows all the targets eligible to be attacked or reconned in the campaign. It also lists the target locations and profiles. Finally, the target list shows the Campaign Victory Points (CVP) for damaging, destroying, or reconnoitering each target.

Background, Dates, Detection Level, Map, Closed Airfields, Front, Inherent AAA/IR, ISR, SEAD, EW, Air Defense Zone, Zone Limits, Setup Order. This information is the same as in scenarios. Note that this information applies to all Raids in the campaign.

Campaign Length. The number of days in the campaign. The campaign ends once all days have been played.

Weather. The weather for a campaign is listed as good or poor. This status applies to all Raids in the campaign. At the start of each day, roll on the appropriate column of the Weather Table. The result will be the weather for all Raids conducted on that day of the campaign.

Order of Battle. The number and type of Aircraft Availability Points (AAP), SAMs, dummy SAMs, dummy Radars, and AAA the defensive player has available. It also lists the squadrons, number, and type of aircraft available to the offensive player.

34.3 Days and Raid Slots

The Day is an administrative division in the campaign. Players will play a number of Raids in a day. At the end of the day they tend to administration and then plan for the next day's Raids.

There are three Raid "slots" in a single campaign day: Morning (06:00-11:00), Afternoon (13:00-18:00), and Night (21:00-24:00). Thus, up to three Raids are possible in a single day. Campaigns will specify how many Raids per day are allowed.

34.31 Raid Planning

The offensive player will fully plan all the Raids, including all the normal details [31.5], for a given campaign day during the first Raid Planning Phase of the first Raid of the day. See [34.32].

Design Note: *This is a bit of a change from campaign planning in Downtown and Elusive Victory where raids were planned "blind" before players had any information on enemy defenses. This change gives the offensive player at least some idea of where enemy SAM/AAA are located, and a more detailed look at the weather.*

34.32 Raid Execution

Raids are planned and played exactly as scenarios except with the following changes:

- **Weather Phase.** Weather is determined at the start of each campaign day, not each Raid. Any weather changes that occurred due to a random event in the previous Raid are ignored in subsequent Raids that campaign day. For a second or third Raid on the same campaign day, remove any cloud breaks from the previous Raid that day and place them again using the normal procedure in the Weather Phase.
- **Ground Planning Phase.** Changes in defensive player ground setup are restricted [34.42, 34.43].
- **ISR Phase.** For a second or third Raid on the same campaign day, skip the ISR Phase.
- **Ground Deployment Phase.** Normal.
- **Raid Planning Phase.** For the first Raid of a campaign day, the offensive player plans all raids for that day, including targets, routes, aircraft loads, and other details normally attended to in the Raid Planning Phase [31.5]. When planning a Raid the player secretly chooses Raid targets from the target list. Players may choose targets already attacked or reconned earlier in the campaign. The offensive player must also select specific aircraft from among the various squadrons' Combat Ready aircraft for each Raid. For a second or third Raid on the same campaign day, skip the Raid Planning Phase.
- **SEAD Phase.** Normal, except that for a second or third Raid on the same campaign day, the ISR condition for purposes of the SEAD Table is "Average" regardless of the condition for the first Raid of that day.
- **Early Warning Phase.** Normal.
- **Air Deployment Phase.** Normal.
- **Radar Phase.** Normal.
- **Bomb Damage Assessment Phase.** Target damage is not rolled at the end of the Raid. Instead, damage assessment is deferred to the Campaign BDA Phase [34.33]. Leave Attack Success value markers on Raid targets.

34.33 End of Raid Administration

After each Raid, complete the following phases, in order:

- **Recovery Phase.** Conduct normally.
- **Raid VP Phase.** Players note Campaign VP gained for lost aircraft/aircrew, and SAM/EWR damaged or destroyed.

- **AAP Phase.** The defending player adjusts the stock of Aircraft Availability Points based on any damage or losses taken during the Raid [34.41].
- **SAM Damage Phase.** All non-Mobile SAMs and AAA remain in place. SAM Warning and SAM Damage markers remain in place. Remove all Mobile SAMs and Mobile AAA from the map [34.43]. Remove all AAA Suppression, SAM No Ammo, Radar Suppressed, and Radar Shutdown markers [34.44].
- **SAM Ammo Phase.** Roll for each SAM that expended any ammo to see if it is replenished [34.46].
- **Offensive Player Raid Notification Phase.** The offensive player notifies the defensive player if there will be another Raid that same campaign day, and if it is a daytime or night Raid. If there is another Raid for that day, proceed to Raid Execution [34.32] for the next Raid. If not, proceed to the End of Day Administration [34.34] sequence.

34.34 End of Day Administration

After all a day's Raids have been played and resolved, special end-of-day administration phases are conducted in order, as follows:

- **Campaign BDA Phase.** In a Bombing campaign, the offensive player rolls for damage on all Raid targets marked with Attack Success markers that have been photo-reconnoitered for BDA. Place a Slight, Heavy, or Destroyed marker as appropriate. Those targets that have not been photo-reconnoitered for BDA that day leave the attack success markers in place. In a Recon campaign, the offensive player marks all targets successfully photo-reconnoitered with a Recon Success.
- **Campaign Random Event.** Roll for a campaign random event [34.6].
- **Refit and Redeployment Phase.** The defensive player may receive replacements for damaged or destroyed ground units [34.44]. Some ground units may be relocated to other hexes [34.47]. After all replacement and relocation is complete, all SAM and AAA units are hidden. The offensive player performs aircraft maintenance for assigned aircraft [34.51], purchases replacement aircraft [34.53], and updates precision munitions stocks [34.54].
- **New Day.** A new campaign day begins.

34.4 Defensive Player Campaign Rules

The defensive player will have a limited set of ground units (SAMs, AAA, etc.) in a campaign, as well as a limited number of Aircraft Availability Points used to buy CAP and QRA flight for each Raid. Both inventories must be managed between Raids and campaign days.

34.41 Defensive Player Air Units

In a campaign scenario, the defensive player is given a fixed pool of Aircraft Availability Points (AAP) with which to buy flights in the Raid Planning Phase of each Raid. This AAP pool must last for the entire campaign.

The defensive player may never spend more than 33% of the original pool total on any single Raid. When flights and aircraft are purchased, points from the pool are expended. Flights purchased for one Raid do not "carry over" to subsequent Raids during the campaign.

In addition, each time an aircraft ends a Raid Damaged, Crippled, or Shot Down, the AAP purchase value of the aircraft is subtracted from the AAP pool.

Any flights received via a QRA Random Event are not counted against the defensive player's AAP. They are, in effect, "free" flights for that scenario. However, any Damaged, Crippled, or Shot Down result on aircraft in such a QRA flight is subtracted from the AAP pool as if they were purchased flights.

34.42 Defensive Player Ground Units

The defensive player plots and sets up ground units on the first Raid of the first day of the campaign. After that point, the ability to alter the deployment of ground units is limited. The defensive player may not alter the setup from Raid to Raid, except as allowed by [34.43] and [34.47].

34.43 SAMs and AAA

At the end of each Raid, all located non-Mobile SAMs [15.52], Fire Cans, and active AAA concentrations remain located in place. AAA concentrations may switch to inactive status. Hidden non-Mobile SAMs, Fire Cans, and AAA concentrations remain hidden in place. SAM Warning markers remain in place.

At the end of each Raid, all undamaged Mobile SAMs and Mobile AAA, even if located, are removed from the map and may be set up hidden again in in any eligible location the subsequent Raid's Ground Planning Phase. Damaged Mobile SAMs and Mobile AAA are removed from the map and placed to one side. In the Refit and Redeployment Phase, the defensive player may roll to see if they are replaced [34.44].

Example: *A campaign provides the defending NATO player with six Chaparral Mobile SAMs and four Gepard Mobile AAA units. In the first Raid of a campaign day, two of the Chaparral SAMs and one of the Gepard Mobile AAAs suffer damage. At the end of the Raid, the two damaged Chaparrals and the Damaged Gepard are placed to one side. The WP player announces a Raid in the afternoon of the same campaign day. For that second Raid of the day, the NATO player will only have four Chaparrals and three Gepards available for setup. No Raid is announced for the final raid "slot" of the day, so after the second Raid, in the subsequent Refit and Redeployment Phase, the NATO player rolls to try to replace the damaged Chaparrals and Gepards.*

34.44 Ground Unit Damage and Destruction

At the end of a Raid, all AAA Suppression, Radar Suppression, and Radar Shutdown markers are removed. However, damage to or destruction of SAMs, dummy SAMs, dummy Radars, Fire Cans, and Mobile AAA units persists to subsequent Raids in the same day.

At the end of a campaign day, in the Refit and Redeployment Phase, all damaged or destroyed SAMs, dummy SAMs, dummy Radars, Fire Cans, EWR, and Mobile AAA may be replaced with new ground units of the same type. See the Ground Unit

Replacement Table on Player Aid Card 3. All replacement SAMs have a full ammo load. Remove any unit that rolls a "No Replacement" result from the defensive player's available ground units for the duration of the campaign.

Damage to all other ground targets, such as Army Ground Units or bridge spans, persists from Raid to Raid and day to day in a campaign. They are never repaired and retain any Damage/Recon markers.

34.45 Runway Damage

Airfields with runway damage must be repaired first before that airfield may open again. In the Refit and Redeployment Phase, the defensive player rolls roll to see if any runway damage is repaired. See Runway Repair Table on Player Aid Card 3. If a runway's damage is not repaired, the airfield remains closed for the next campaign day. Some campaign scenarios may restrict the ability of players to repair runways.

34.46 SAM Ammo

At the end of each Raid, the defensive player rolls for any undamaged SAM without a full load of SAM shots. See SAM Ammo Table on Player Aid Card 3.

34.47 Defensive Player Redeployment

In the Refit and Redeployment Phase between campaign days, the defensive player may change the setup location of all SAMs, dummy SAMs, dummy Radars, and non-printed AAA. Printed AAA concentrations may never be redeployed, although points used to upgrade printed concentrations may be.

The redeployed units set up in any eligible location for their unit type. Replacement units received as a result of damage or destruction also set up in any eligible location. They do not have to set up in the hex of the Damaged/destroyed unit they replaced.

After all redeployment is complete, all SAMs and non-printed AAA become hidden.

34.5 Offensive Player Campaign Rules

The offensive player in a campaign will have a limited number of squadrons with various types of aircraft. The status of aircraft must be managed during the campaign.

34.51 Aircraft Maintenance

For a given campaign day, each aircraft in a squadron will either be Combat Ready or Down. Only Combat Ready aircraft may be part of a Raid. Down aircraft may not be used that day. Any aircraft that recovers Damaged or Crippled is automatically Down until repaired during the Refit and Redeployment Phase between campaign days.

The campaign scenario will provide a maintenance rating for each squadron. In the Refit and Redeployment Phase, the offensive player must use this rating to roll for each aircraft in the squadron to determine its status for the next day. In general, an aircraft that is Damaged or Crippled has a lower chance of being available the next day. Conversely, an aircraft that did not fly at all has a better chance of being Combat Ready. Aircraft that are Damaged or Crippled remain so until they pass a Maintenance Status roll. Aircraft that are Combat Ready at the start of a given campaign day and do not fly in any Raid are automatically Combat Ready at the start of the next campaign day.

Optional Rule: For a more realistic and variable start to a campaign, players can agree to have the offensive player secretly make Maintenance Status rolls for each aircraft before the start of the campaign. Doing so simulates the likely wear and tear on the squadrons in the time period before the campaign takes place.

34.52 Aircraft Management

Each day, the offensive player must plan all offensive Raids for that day. In addition to target selection, aircraft loads, route planning, and other normal planning issues, the player must also allocate specific aircraft from among available Combat Ready aircraft to each Raid.

To do so, the player must "build" flights of the appropriate size (one to four aircraft) for the given Raid task. All aircraft in a flight must come from the same squadron. During a Raid, keep track of individual aircraft that are Shot Down, Damaged, or Crippled. Aircraft may fly in multiple Raids per day. However, an individual aircraft may not fly in more than two Raids per day.

Between Raids on a day (for example, between morning and afternoon Raids), the player may replace Shot Down, Damaged, or Crippled aircraft in flights that were planned to fly in a later Raid with other Combat Ready aircraft from the same squadron. If a player does not have sufficient aircraft to fill out a given flight planned to participate in a Raid for that day, that flight is removed from the Raid.

34.53 Aircraft Replacements

The campaign scenario will provide an inventory of replacement aircraft the offensive player may draw from to replace Damaged, Crippled, or Shot Down aircraft. In general, drawing aircraft from this replacement pool will cost the offensive player CVP.

In the Refit and Replacement Phase, after rolling for aircraft maintenance, the offensive player may add aircraft of the appropriate type from the replacement pool for squadrons to use in the next campaign day. In doing so, the player may not exceed the maximum number of aircraft allowed in the squadron but may "swap out" a Damaged or Crippled aircraft for a replacement aircraft if necessary.

34.54 Precision Weapons

The campaign scenario will provide a number of PGM shots [16.14] of various types for each squadron. In the Refit and Replacement Phase, the offensive player deducts any weapons expended during that day's Raids from the stock numbers for each PGM shot type. In campaigns where PGM stocks may be replenished, roll to see how many new PGMs are received.

34.6 Campaign Random Events

Each Campaign Random Event Phase roll two dice and read the results from the Campaign Random Events Table. Apply the result (if any).

34.7 Campaign Victory

After all the campaign days have been played out, the campaign ends.

34.71 Campaign Victory Points

The offensive player scores Campaign Victory Points as follows:

CVPs	Objective Achieved
+?	**Target Damaged or Destroyed.** Campaign target Damaged or Destroyed. The CVP value is listed as x/y/z, corresponding to Slight/Heavy/Total Destruction.
2	**Enemy Aircraft.** Each enemy aircraft Shot Down or Crashed.
1	**Crews Lost.** Each enemy crew member KIA or captured.
1	**SAM/EWR Damaged.** Enemy SAM/EWR Heavily Damaged.
2	**SAM/EWR Destroyed.** Enemy SAM/EWR Destroyed. Only 1VP if SAM was Damaged in earlier Raid.
–X	**Replacement Aircraft.** Negative VP penalty for using aircraft from the replacement pools.

The defensive player scores Campaign Victory Points as follows:

CVPs	Objective Achieved
2	**No BDA.** For each campaign target attacked for which there is no successful BDA.
2	**Enemy Fighter Aircraft.** Each enemy aircraft Shot Down or Crashed when tasked with CAP or Close Escort.
3	**Enemy Bomber Aircraft.** Each enemy aircraft Shot Down or Crashed when tasked with SEAD, Bombing, Recon, Standoff/Escort Jamming, or Rescue Support.
1	**Crews Lost.** Each enemy crew member KIA or captured.

34.72 Campaign Victory Levels

The victory total is obtained by subtracting the defensive player's CVP from the offensive player's CVP to determine the final Campaign Victory Point total. Each campaign will provide different Victory Levels depending on the final Campaign Victory Point total.

Rules Index

The primary rule for each term is listed in Bold.

[Bomb Runs: 17.2] [Profiles (Dive, Level, Radar, Toss, LGB Level, LGB Toss, EOGM, EOGB): 17.3] [Resolving: 17.4] [ARMs (HARM, Shrike, Kh-25, Kh-58, Kh-28, AS.37): 17.5] [Special Munitions (CBU, Rockets, Anti-Runway, MW-1, JP233, KMGU, Nukes): 17.6] [by Cruise Missiles: 17.7] [vs Helicopters: 25.1]

Altitude: 6.13 [Bands defined (Deck, Low, Med, High, Very High): 1.4] [ADC data: 2.81] [Dummy generation: 4.13] [Splitting Flights: 4.14] [Movement points based on: 6.2] [Climb: 6.31] [Dive: 6.31] [Turn: 6.32] [Zoom Climb: 6.32] [Mountain limit: 6.34] [Stacking: 6.4] [Plotting: 8.51] [during Takeoff/Landing: 9.13, 9.14] [Lookdown: 10.23] [Visual ID: 10.4] [Air-to-Air Combat limits: 11.2] [Scatter: 13.2] [effect on range vs SAMs: 15.42] [Attack Profile limits: 17.3] [Special Munition limits: 17.6] [Cruise Missile limits: 17.7] [Standoff Jamming limits: 19.32] [Chaff: 19.4] [Ground Collisions at Deck: 23.22] [Recon limits: 24] [Helicopter limits: 25] [Bailouts: 26.1]

Ammo Depletion: 11.34 [ADC data: 2.81] [Abort requirements: 8.4] [Multiple Attacks: 11.51] [Post-Combat: 13] [after Strafing: 16.13]

Anti-Radar Missiles (ARM): 17.5 [ADC data: 2.81] [vs unlocated SAMs: 15.11] [vs Dummy Radars: 15.15] [vs SAM radars: 15.2] [as PGMs: 16.11] [Ordnance Availability: 16.16] [Flight Speed limits: 16.23] [Attack Column: 17.41]

Anti-Radar SAMs: 15.53

Anti-Radar Tactics: 15.26 [Admin Phase removal: 3.2] [as Movement Action: 6.31] [Air-to-Air Combat limits: 11.211, 11.212] [Post-Combat removal: 13] [Air-to-Ground Attack limits: 17.1] [Loss of Jamming: 19.21, 19.32] [during Chaff Laying: 19.41]

Army Ground Units: 27.0 [Types: 27.1] [as Targets: 27.2] [Ground Planning Phase: 31.2] [Setup: 31.24] [Campaign Damage: 34.44]

Bailouts: 26.1 [Post-Combat: 13] [after Ground Collision: 23.22] [Helicopter crews: 25.2]

BDA (Bomb Damage Assessment): 3.4 [Damage Rolls: 18.1] [Recon Missions: 24] [VP: 32.1] [Campaign BDA: 34.34, 34.71]

Blind Bombing Attacks: 17.3 [Radar: 17.33] [Toss: 17.34] [ARM Launch: 17.52] [Cruise Missile attacks: 17.7] [use at Night: 23.33]

Bombs: 16.12 [ADC data: 2.81] [Mixed Loadouts: 16.15] [Ordnance Availability: 16.16] [Laden: 16.2] [Jettison: 16.21] [Flight Speed Limits: 16.23] [Target limits: 17.12]

Bombing: 17.0 [Bombing Task: 8.2] [Flight Path limits: 8.31] [AAA Mods: 14.42, 14.54, 14.64] [SAM Attack Mod: 15.41] [Task Limits: 17.11] [Ordnance Limits: 17.12] [Bomb Runs: 17.2] [Attack Profiles: 17.3] [Resolution: 17.4] [Damage Rolls: 18.1] [Weather limits: 22] [Night: 23]

Bomb Runs: 17.2 [Sequence during movement: 3.3] [AAA Mods: 14.42, 14.54, 14.64] [SAM Attack Mod: 15.41] [Profile types: 17.3] [Resolving attacks: 17.4] [with ARMs: 17.5] [with Special Munitions: 17.6] [by Cruise Missiles: 17.7]

Bombsight: 2.81 [LGB Toss Profile limit: 17.36]

Bot Behavior: 33.2 [Scenario setup: 33.22] [Scenario phases: 33.23] [Bot Flights: 33.3] [Bot SAMs: 33.4] [Bot AAA: 33.5] [General: Player Aid 5]

Broken Cloud Layer: 22.41 [Line of Sight: 22.1]

Burn-Through: 19.22 [Range vs High Altitude: 15.42] [vs Spot Jamming: 19.34] [Limits at max burn-through range: 19.51]

BVR Avoid: 6.36 [Removal during movement: 6.31] [NA vs Defensive Wheel: 7.12] [Placement post-combat: 13] [During Bomb Runs: 17.2] [During Laser Designation: 17.69] [NA to Cruise Missiles: 17.75] [Loss of Standoff Jamming: 19.32] [During Chaff Laying: 19.41] [During Recon Run: 24.1] [NA to Helicopters: 25.2]

BVR Combat: 11.0 [vs/by Defensive Wheel: 7.12] [Lookdown limit: 10.23] [Combat Values: 11.13] [Engagement: 11.2] [Prerequisites: 11.212] [Rules of Engagement: 11.26] [Maneuver: 11.31] [Soviet Doctrine limits: 11.32] [Depletion: 11.34] [F-15s: 11.44] [Post-Combat steps: 13, 13.1] [Bot flights: Player Aid 5]

Campaign Games: 34.0 [Concepts: 34.1] [Scenarios: 34.2] [Days/Raid Slots: 34.3] [Raid Planning: 34.31] [Raid Execution: 34.32, 34.33] [End of Day Admin: 34.34] [Defensive Player Actions: 34.41-34.47] [Offensive Player Actions: 34.51-34.54] [Campaign Random Events: 34.6] [VP: 34.71]

CAP: [Task limits: 8.2] [Multirole Aircraft: 8.37] [Refuel/Rearm: 91.6] [Night limits: 23.2] [Rescue CAP: 26.42] [Raid Planning: 31.5] [Air Deployment Phase: 31.8]

CBU: [Types, Profiles, Strengths vs Targets: 17.61] [Flight Speed limit: 16.23] [vs AAA: 17.62]

Clean Values: 2.81 [Visual ID info: 4.22] [Movement points: 6.2] [Maneuver Values: 11.25] [Carrying Ordnance: 16.2] [Laser Designation Flights: 17.69]

Clear Weather: see Weather

Climb: 6.31 [Zoom Climb: 6.33] [Large Aircraft limits: 6.40] [Prior to combat mod: 11.42] [Slash Attack limit: 11.52] [Anti-Radar Tactics limit: 15.26] [Bombing Profile limits: 17.3] [Helicopters: 25.1]

Close Escort: 8.343 [Night limits: 23.2]

Combat Throttle: 6.21 [ADC Data: 2.81] [Zoom Climb limit: 6.33] [Defensive Wheels: 7.12] [Landing: 9.14] [Strafing: 17.39]

Crews: 26.0 [ADC Data: 2.81] [Admin Phase actions: 3.2] [Ground Damage: 18.2] [Recovery: 20.2] [Ground Collisions: 23.22] [Helicopters: 25] [Bailouts: 26.1] [Auto Rescue/Capture: 26.11] [CSAR Pickup: 26.43] [VP: 32.1] [Campaign VP: 34.71]

Crippled Aircraft: 12.22 [Splitting Flight: 4.14] [Dash throttle NA: 6.22] [Visual ID info: 4.22] [Task limits: 8.2] [Refuel/Rearm NA: 9.16] [Air-to-Air limits: 11.211, 11.212] [Damage Allocation: 12.1] [Jettison required: 16.21] [Cruise Missiles: 17.75] [Standoff Jamming limits: 19.32] [Recovery mod: 20.2] [Helicopters: 25.2] [VP: 32.1] [Campaign Maintenance: 34.51] [Campaign Replacements: 34.53]

CSAR: 26.0 [Task limits: 8.2] [Recovery: 20.2] [Simple CSAR: 26.2] [Detailed CSAR: 26.3]

Damage Allocation: 12.1

Damaged Aircraft: 2.81 [Dummies: 4.12] [Log Sheets: 4.21] [Visual ID info: 4.22] [Task limits: 8.2] [Flights on ground: 9.12] [Refuel/Rearm NA: 9.16] [Air-to-Air Combat limits: 11.211, 11.212, 11.31] [Morale Checks: 13.1] [Jettison Required: 16.21] [Jamming limits: 19.31, 19.32] [Recovery: 20.2] [Helicopters: 25.2] [VP: 32.1] [Campaign Maintenance: 34.51] [Campaign VP: 34.71]

Dash Throttle: 6.22 [ADC Data: 2.81] [Slash Attacks: 11.52] [Crippled Aircraft NA: 12.22] [Fuel Allowance: 20.1]

Days: 34.1 [Days and Raid Slots: 34.31] [End of Day Admin: 34.34]

Deception Jammer: 19.2 [Burn-Through NA: 19.22]

Deck Altitude: 6.13 [ADC Data: 2.81] [Mountains: 6.34] [Takeoff: 9.13] [Landing: 9.14] [Lookdown: 10.23] [Track Phase: 10.3] [Slash Attacks NA: 11.52] [Scatter: 13.2] [AAA Deconfliction: 14.74] [Inherent AAA: 14.75] [Auto Small Arms at Deck: 14.76] [Terrain Masking: 15.25] [Bombing Profile limits: 17.3] [ARM ranges: 17.5] [Special Munitions limits: 17.6] [Cruise Missiles: 17.72, 17.73] [Line of Sight: 22.1] [Haze: 22.3] [Mist: 22.5] [Ground Collisions: 23.22] [Night Bombing: 23.33] [Night Recon: 23.34] [Recon Runs: 24.1, 24.2] [Bailouts: 26.1] [Air Deployment: 31.8]

Defending Flight: 11.2 [Engagement Results: 11.24] [Surprise/Disadvantage: 11.25] [Combat: 11.3] [Disengagement: 11.41] [Multiple Attacks: 11.51] [Post-Combat: 13] [Morale Checks: 13.1] [SAM Attacks: 15.32]

Defensive Jamming: 19.2 [ADC Data: 2.81] [Detected Flight info: 10.24] [vs Anti-Radar SAMs: 15.53] [Loss: 19.21] [Burn-Through: 19.22]

Defensive Player: 34.1 [Campaign Rules: 34.4] [Air Units: 34.41] [Ground Units: 34.42]

Defensive Wheel: 7.1 [BVR limits: 11.212] [Surprise: 11.25] [Maneuver: 11.31] [BVR Avoid NA: 13] [Scatter NA: 13.2]

Dense Cloud Layer: 22.41 [Line of Sight: 22.1] [Moon Phase: 23.11] [Night Bombing: 23.33]

Depletion: See Ammo Depletion

Detection: 10.0 [Dummies: 4.12] [Detection Levels: 10.11] [Visual: 10.21] [Radar Search: 10.22] [Track Phase: 10.3] [Engagement: 10.2] [Post-Combat: 13.3] [Shutdown Detection NA: 17.53] [Suppressed Detection NA: 18.22] [Jamming: 19.1, 19.31] [Early Warning Jamming: 19.35] [Chaff Corridors: 19.4] [Line of Sight: 22.1] [Haze: 22.3] [Mist: 22.5] [at Night: 23.12] [Helicopters: 25.3] [Early Warning Phase: 31.7]

Detection Level: 10.11

Disadvantage: 11.25 [Engagement Results: 11.24] [Defensive Wheels: 7.12, 11.43]

Disengagement: 11.41

Disordered: 13.11 [Admin Phase: 3.2] [Defensive Wheels NA: 7.11] [Flight Path Navigation: 8.32] [Rally Points: 8.35] [After Landing: 9.14] [Visual Detection attempt NA: 10.21] [Radar Search attempt NA: 10.22] [Air-to-Air limits: 11.211, 11.212] [Maneuver: 11.31] [Multiple Attacks: 11.51] [Post-Combat: 13] [Air-to-Ground NA: 17.1] [Laser Designate NA: 17.69] [Standoff Jamming NA: 13.32] [Chaff NA: 19.41] [Helicopters NA: 25.2]

Dive: 6.31 [Turning: 6.32] [Anti-Radar Tactics: 15.26] [SAM Avoid: 15.33] [Attack Profile limits: 17.3] [Loss of Standoff Jamming: 19.32] [Helicopters: 25.1]

Dive Bombing: 17.31 [AAA Barrage: 14.4] [Rocket Pods: 17.63] [by AS-6: 17.71] [by AGM-69: 17.73] [Night limits: 23.33]

Dummy Flight: 4.12 [Generation: 4.13] [Initiative Chit flight count: 5.2] [Defensive Wheels: 7.11] [Removal when detected: 10.2] [vs SAMs: 15.27] [Dummy Jamming: 19.52] [Air Deployment Phase: 31.8] [Solitaire use NA: 33.11, 33.21]

Dummy Radar: 15.15 [ARM attacks: 17.5] [Ground Planning Phase: 31.2] [SAM Setup: 31.32] [Radar Phase: 31.9] [Solitaire use NA: 33.11, 33.21] [Campaign Damage: 34.44] [Defensive Redeployment: 34.47]

Dummy SAM: 15.14 [Ground Planning Phase: 31.2] [SAM Setup: 31.32] [Solitaire use NA: 33.11, 33.21] [Campaign Damage: 34.44] [Defensive Redeployment: 34.47]

Early Warning: 31.7 [Air Deployment: 31.8] [Early Warning Jamming: 19.35] [Scenario Conditions: 30]

Early Warning Jamming: 19.35

Early Warning Radars: 10.25 [Ground Unit: 2.32] [Organic Light AAA: 14.72] [ARMs: 17.5] [Radar Shutdowns: 17.53] [CBU, Rockets, MW-1B: 17.6] [Damage Rolls: 18.1] [Radar Suppression: 18.22] [Jamming: 19.1, 19.31, 19.34] [Scenario Setup: 31.23] [SEAD Phase: 31.6] [Radar Phase: 31.9] [VP: 32.1] [Campaign VP: 34.71]

Egress Hex: 8.1 [Flight Path: 8.31] [CSAR Setup: 26.41] [Raid Planning: 31.5]

EOGB: 17.38 [PGMs: 16.14] [Mixed Loadouts: 16.15] [Availability: 16.16, OOB Tables] [Flight Speed limit: 16.23] [Attack Column: 17.41] [Haze: 22.3] [Mist: 22.5] [Good Contrast: 22.6] [Night limits: 23.33]

EOGM: 17.37 [PGMs: 16.14] [Mixed Loadouts: 16.15] [Availability: 16.16, OOB Tables] [Flight Speed limit: 16.23] [Attack Column: 17.41] [Haze 22.3] [Mist: 22.5] [Good Contrast: 22.6] [Night limits: 23.33]

Fire Can: 14.5 [Deployment: 14.51] [Radar Status: 14.52] [Attacks: 14.53] [as Targets: 14.55] [vs ARMs: 17.5] [Shutdowns: 17.53] [Defensive Jamming: 19.2] [Burn-Through NA: 19.22] [Standoff Jamming: 19.31] [AAA Setup: 31.21] [ISR Phase: 31.3] [SEAD Phase: 31.6] [Campaign: 34.43]

Flights: 4.1 [ADC Data: 2.81] [Generics: 4.11] [Dummies: 4.12] [Splitting: 4.14] [Log Sheets: 4.2] [Arcs: 4.3] [Count for Chit Pool: 5.22] [Raid Planning and Generation: 31.5, 31.52, 31.53] [Air Deployment Phase: 31.8] [Bot Flights: 33.3, Player Aid 5]

Flight Path: 8.31 [Navigation: 8.32] [Near Target Hex: 8.33] [Abort: 8.4] [Plotting Altitude: 8.51] [Bomb Runs: 17.2] [Recon Runs: 24.1] [NA to Helicopters: 25.1] [Rescue CAP: 26.42] [Raid Planning Phase: 31.5]

Flight Quality: 31.53

Free Turn: 6.32 [NA after Air-to-Ground Attack: 17.2] [Loss of Defensive Jamming: 19.21]

Fuel: 20.1 [ADC Data: 2.81] [Fuel Phase: 3.2] [Splitting Flights: 4.14] [Refuel/Rearm: 9.16] [Post-Combat: 13] [Recovery: 20.2] [NA to Helicopters: 25.1]

Full Acquisition: 15.23 [vs Dummies: 15.27] [Resolving SAM Attacks: 15.32]

Generic Flights: 4.11

Ground Units: 2.32 [Arcs: 4.3] [Visual ID: 10.4] [Damage: 18.2] [Organic AAA: 14.71, 14.72] [Organic Mobile AAA: 14.73] [Spot Jamming: 19.3] [Line of Sight: 22.1] [Ground Planning Phase: 31.2] [Setup: 31.21, 31.22, 31.23, 31.24] [in Campaign: 34.42]

Gun: 11.11 [ADC Data: 2.81] [Combat Values: 11.13] [Rear Gun limits: 11.45] [Strafing: 17.39, 17.41]

Haze: 23.3 [Engagement: 11.23] [EOGM Limits: 17.37] [EOGB Profile: 17.38] [Recon Runs: 24.1] [SARs: 24.2]

Helicopters: 25.0 [Mountains: 6.34] [Tasks: 8.2] [Airfields: 9.11] [Standoff Jamming: 19.32] [CSAR Setup: 26.41]

Hemispheres: 4.3 [Engagement Mod: 11.23] [Slash Attacks: 11.52] [Shutdowns: 17.53] [Laser Designation: 17.69] [Diagram: Player Aid 3]

Hex/Hexsides: 2.21 [Scale: 1.4] [Terrain Types: 2.22] [Movement: 6.1, 6.11, 6.12, 6.32] [Stacking: 6.4]

High Altitude: 6.13 [ADC Data: 2.81] [Large Aircraft: 6.40] [High Altitude Targets: 15.42] [Attack Profile limits: 17.3] [ARMs: 17.5] [Special Munitions limits: 17.6] [Cruise Missiles: 17.7] [Chaff: 19.4] [Recon Runs: 24.1, 24.2] [Bailouts: 26.1] [Air Deployment: 31.8]

Highway: 2.22 [Highway Strip Airfields: 28]

Ingress Hex: 8.31 [Admin Phase: 3.2] [Navigation: 8.32] [CSAR Setup: 26.41] [Raid Planning: 31.5] [Air Deployment Phase: 31.8]

Initial Point (IP): 17.2 [Attack Profiles limits: 17.3] [ARM Launches: 17.52] [Cruise Missiles: 17.7] [Recon Runs: 24.1]

Initiative: 5.0 [Chits: 2.33] [Chit Pool: 5.1] [Drawing Chits: 5.2] [Defensive Wheels: 7.11]

IRM: 1.3 [ADC Data: 2.81] [Weapon Class: 11.11] [BVR Prerequisites: 11.212]

Jamming: 19.0 [ADC Data: 2.81] [Jamming Phase: 3.2] [Jamming Tasks: 8.2] [Detected Flight info: 10.24] [Phased Array Radars: 15.45] [Anti-Radar SAMs: 15.53] [Defensive Jammers: 19.2] [Loss of Jamming: 19.21] [Burn-Through: 19.22] [Standoff Strength: 19.31] [Standoff Jamming: 19.32, 19.33] [Spot Jamming: 19.34] [Early Warning Jamming: 19.35] [Burn-Through limits: 19.51] [Dummy Jamming: 19.52] [Helicopters: 25] [Air Deployment Phase: 31.8] [Bot Jamming Phase: 33.23]

Jettison: 16.21 [Task limits: 8.2] [Multirole Aircraft: 8.37] [Standard Air-to-Air Combat: 11.25] [Damaged Aircraft: 12.21] [Crippled Aircraft: 12.22] [Post Combat: 13] [Morale Check Results: 13.1] [SAM Avoid: 15.33] [Shrikes: 17.55] [Nuke Attacks: 17.67]

Laden: 16.2 [ADC Data: 2.81] [Visual ID info: 4.22] [Movement Points: 6.2] [Zoom Climbs NA: 6.33] [Flight Speed limits: 16.23]

Landing: 9.14 [Combat Throttle: 6.21] [Maneuver limits: 9.15] [Helicopters: 25.1]

Level Bombing Profile: 17.32.

Line of Sight: 22.1 [Visual Detection: 10.21] [Visual ID: 10.4] [BVR Prerequisites: 11.212] [Engagement Roll: 11.22] [SAM Location: 15.13] [EO Tracking: 15.54] [Visual Bombing Profiles: 17.3] [Laser Designation: 17.69] [Mist: 22.5] [Night Bombing: 23.33] [Recon Runs: 24.1] [SARs: 24.2]

LOAL: 15.51

Lofted ARM: 17.52 [Ranges: 17.54-17.57, Player Aid 2]

Log Sheets: [Flights: 4.2] [AAA: 14] [SAMs: 15] [Ground Deployment Phase: 31.4] [Raid Planning: 31.5]

Lookdown: 10.23 [ADC Data: 2.81] [Radar Search limit: 10.22] [BVR Combat Prerequisites: 11.212]

Low Altitude: 6.13 [ADC Data: 2.81] [Movement Points: 6.2] [Large Aircraft Climbing: 6.40] [Lookdown: 10.23] [Track Phase: 10.3] [Visual ID: 10.4] [Inherent AAA Zones: 14.75] [Safe Passage Corridors: 15.43] [Attack Profile limits: 17.3] [ARMs: 17.52, 17.54-17.59] [Special Munition limits: 17.6] [Laser Designation: 17.69] [Night Bombing: 23.33] [Night Recon: 23.34] [Recon Runs: 24.1] [Helicopters: 25.1] [Bailouts: 26.1] [Air Deployment: 31.8]

Maneuver Marker: 6.35 [NA to Defensive Wheel: 7.12] [NA to Disengaging Flights: 11.41] [NA to Slash Attacking Flights: 11.52] [Post-Combat: 13] [NA to Cruise Missiles: 17.75] [Loss of Jamming: 19.21]

Maneuver Table: 11.31 [Defensive Wheels: 11.43] [Multiple Attacks: 11.51] [Cruise Missiles: 17.75]

Maneuver Rating: 2.81 [Zoom Climb penalty: 6.33] [Takeoff/Landing: 9.15] [Climb penalty: 11.42] [Helicopters: 25.2]

Maximum Turn: 6.32 [Flight Paths: 8.31] [Cruise Missiles: 17.7] [Night limit: 23.21]

Medium Altitude: 6.13 [ADC Data: 2.81] [Movement Points: 6.2] [Large Aircraft Climbing: 6.40] [Safe Passage Corridors: 15.43] [Attack Profile limits: 17.3] [ARMs: 17.52, 17.54-17.59] [Special Munition limits: 17.6] [Laser Designation: 17.69] [BQM-74C: 17.74] [Standoff Jamming: 19.32] [Chaff: 19.41] [Night Bombing: 23.33] [Recon Runs: 24.1, 24.11] [SAR: 24.2] [Bailouts: 26.1] [Air Deployment: 31.8]

Mist: 22.5 [Engagement: 11.23] [EOGM Limits: 17.37] [EOGB Limits: 17.38] [Laser Designation: 17.69] [Line of Sight: 22.1] [Moon Phase: 23.11] [Ground Collisions: 23.22] [Photo Recon Runs: 24.1] [SARs: 24.2]

Moon: 23.11 [Mist: 22.5] [Navigation: 23.2] [Ground Collision Mod: 23.22] [Night Bombing: 23.33]

Morale: 13.1 [Splitting Flights: 4.14] [Multiple Attacks: 11.51] [Post Combat: 13] [ARM Morale Check: 17.53] [Helicopters: 25.2]

Movement: 6.1-6.40 [Movement Phase: 3.2] [Movement Sequence: 3.3] [Defensive Wheel: 7] [Takeoff: 9.13] [Landing: 9.14] [Air-to-Air Combat: 11] [Scatter: 13.2] [AAA: 14] [SAM Attacks: 15] [Jettison: 16.21] [Air-to-Ground Combat: 17] [Ground Collisions: 23.22] [Helicopters: 25.1]

Multiple Attacks: 11.51

Night: 23.0 [Turning limits: 6.32] [Visual Detect: 10.21] [Visual ID: 10.4] [Engagement: 11.2] [EO Tracking: 15.54] [Line of Sight: 22.1] [Mist: 22.5] [Moon Phase: 23.11] [Navigation: 23.2] [Ground Collisions: 23.22] [Air-to-Air Combat: 23.31] [Night Bombing: 23.33] [Night Recon: 23.34] [Helicopters: 25.1] [CSAR: 26.2, 26.3] [Campaign Raids: 34.3]

Noise Jammer: 19.2 [Burn-Through: 19.22]

No Moon: 23.11

Orbit Point: 8.36 [Raid Planning Phase: 31.5] [Air Deployment Phase: 31.8]

Order of Battle: 2.6 [Ordnance Availability: 16.16] [Night: 23] [CSAR: 26.4] [Scenario Info: 30] [Raid Planning Phase: 31.5] [Order of Battle Tables: 31.25] [Campaign Scenarios: 34.2]

Ordnance: 16.0 [ADC Data: 2.81] [Splitting Flights: 4.14] [Movement Points: 6.2] [Flight Abort: 8.4] [Mixed Loadouts: 16.15] [Ordnance Availability: 16.16] [Laden Status: 16.2] [Jettison: 16.21] [Speed Limits: 16.23] [Target Restrictions: 17.12] [Chaff: 19.41] [Order of Battle Tables: 31.52]

Organic AAA: 14.7 [Organic Small Arms: 14.71] [Organic Light AAA: 14.72] [Organic Mobile AAA: 14.73] [SAM Units: 15.16] [Ground Damage: 18.24] [Army Ground Units: 27.1, Player Aid 3]

PGM: 16.14 [Availability: 16.16] [Jettison: 16.21] [Attack Column: 17.41] [Attack Roll: 17.42] [Campaign PGMs: 34.54]

Parachute Marker: 26.1 [Helicopters: 25.2]

Partial Acquisition: 15.23 [vs Dummies: 15.27] [Resolving SAM Attacks: 15.32] [Anti-Radar SAMs: 15.53]

Planning Map: 2.7 [Flight Path: 8.31] [Navigation: 8.32] [Raid/Task Planning: 31.54]

Poor SAM Defense: 15.32 [Anti-Radar Tactics NA: 15.26] [Helicopters: 25.2]

Preemptive ARM Launch: 17.60

Pressing Attack: 17.31 [AS-6 Kingfish: 17.71]

QRA: 1.3 [Scenario Conditions: 30] [Early Warning Phase: 31.7] [Air Deployment Phase: 31.8] [Defensive Player Campaign Rules: 34.4]

Quick Acquisition: 15.22

Radar: [Radar Search: 10.22] [Lookdown: 10.23] [Early Warning Radars: 10.25] [Radar Homing Missiles: 11.11] [Radar AAA: 14.5] [Mobile AAA: 14.6] [Dummy Radars: 15.15] [SAM Radars: 15.2] [Anti-Radar Tactics: 15.26] [Phased Array Radar SAMs: 15.45] [Anti-Radar SAMs: 15.53] [Radar Bombing Profile: 17.33] [Anti-Radiation Missiles: 17.5] [Radar Shutdowns: 17.53] [Radar Suppression: 18.22] [Synthetic Aperture Radars: 24.2] [Radar Phase: 31.9]

Radar Shutdowns: 17.53

Radar Bombing: 17.33

Raid: 1.3 [Raid/Task Planning: 8] [Multiple Raids: 8.344] [Raid Target attack restrictions: 17.11, 17.12] [Raid Target Recon: 24] [Raid Planning Phase: 31.5] [Raid Target VP: 32] [Campaign Raids: 34.41-34.34]

Rally Point: 8.35 [Disordered State recovery: 13.11] [Raid Planning Phase: 31.5]

Random Events: 21.0 [Solitaire: 33.23] [Campaign Random Event: 34.6]

Ready Flight: 9.12 [Rearm and Refuel: 9.16]

Recon: 24.0 [Recon Task: 8.2] [Flight Path: 8.31] [Plotting Altitude: 8.51] [Recon Campaign: 34.1-34.2] [Campaign BDA Phase: 34.34]

Recovery: 20.0 [Rally Point bonus: 8.35] [Recovery from Disordered: 13.11] [Recovery Rolls: 20.2]

Rescue: 26.0 [Rescue Support Task: 8.2] [Simple CSAR Rules: 26.2] [Detailed CSAR Rules: 26.3] [Rescue CAP: 26.42]

Revetted Flight: 9.12

RHM: 11.11 [Air-to-Air Loadout: 11.12]

River Hex: 2.22 [Rally Point: 8.35]

Rockets: 17.63 [Flight Speed Limits: 16.23]

Rough Hex: 2.22 [Track Phase: 10.3] [Terrain Masking: 15.25] [Ground Collisions: 23.22] [AAA Setup limit: 31.21]

Rules of Engagement: 11.26

Runway: 9.1 [Takeoff: 9.13] [Landing: 9.14] [Airfield Sub-Targets: 9.17] [Anti-Runway Bombs: 17.64]

RWR: 1.3 [ADC Data: 2.81] [SAM Location: 15.13] [Anti-Radar Tactics: 15.26] [Helicopters: 25.2]

Safe Passage Corridors: 15.43 [SAM Deconfliction: 15.31]

SAMs: 15.0 [SAM Tables: Player Aid 2] [SOP: 3.2-3.3] [SAM Avoid Markers: 6.37] [Task Limits on Attacking: 8.2] [Visual ID: 10.4] [Damage Allocation: 12.1] [Post-Combat: 13] [Morale Checks: 13.1] [Organic SAM Light AAA: 14.72] [Deployment: 15.1] [States: 15.11] [Warning: 15.12] [Location: 15.13] [Dummy SAMs: 15.14] [as Targets: 15.16] [Acquisition: 15.21-15.4] [Terrain Masking: 15.25] [Anti-Radar Tactics: 15.26] [SAM Attacks: 15.3] [SAM Avoid: 15.33] [Ammo: 15.34] [High Altitude Targets: 15.42] [IR SAMs: 15:44] [Phased Arrays: 15.45] [LOAL: 15.51] [Mobile SAMs: 15.52] [Anti-Radar SAMs: 15.53] [EO Tracking: 15.45] [as ARM Targets: 17.5] [Radar Shutdowns: 17.53] [Damage Rolls: 18.1] [Radar Suppression: 18.22] [Defensive Jammers: 19.2] [Burn-Through: 19.22] [Standoff Jamming: 19.31] [Burn-Through Limits: 19.51] [Night EO Tracking NA: 23.35] [vs Helicopters: 25.2] [SAM Setup: 31.22] [ISR Phase: 31.32] [SEAD Phase: 31.6] [Radar Phase: 31.9] [VPs: 32.1] [Limited Solitaire Rules: 33.1] [Full

Solitaire Rules: 33.2] [Bot SAM Rules: 33.4, Player Aid 5] [in Campaigns: 34.33, 34.34, 34.43, 34.46]

Scale: 1.4 [in Design Notes: 35]

Scatter: 13.2 [Hexsides: 6.12] [Mountain Terrain: 6.34] [Stacking: 6.4] [NA to Defensive Wheel: 7.12] [NA to Disengaging: 11.41] [NA to Slash Attacker: 11.52] [AAA Attacks: 14.4, 14.53, 14.63] [Bomb Runs: 17.2] [NA to Cruise Missiles: 17.5] [Ground Collisions: 23.22] [NA to Helicopters: 25.2]

Scenarios: [Conditions: 30] [Setup: 31] [Sequence of Play: 3] [Night: 23.1] [Victory: 32] [Solitaire Setup: 33.12, 33.22] [Campaign Scenarios: 34.2]

SEAD: 1.3 [SEAD Task: 8.2] [Multirole Aircraft: 8.37] [Mixed Loadouts: 16.15] [Task Restrictions: 17.11] [On-Map Standoff Jamming: 19.32] [Scenario Conditions: 30] [SEAD Phase: 31.6] [in Campaign Scenarios: 34.32]

Setup: 31.0 [AAA: 31.21] [SAM: 31.22] [EWR: 31.23] [Army Ground Units: 31.24] [Solitaire: 33.12, 33.22] [Campaign Limits: 34.42] [Campaign Redeployment: 34.47]

Shot Down: 12.23 [Aircraft Boxes: 4.21] [Damage Allocation: 12.1] [Post-Combat: 13] [Ordnance: 16.22] [Nukes: 16.67] [Cruise Missiles: 17.75] [Ground Damage: 18.2] [Loss of Jamming: 19.32] [Helicopters: 25.2] [Bailouts: 26.1] [VPs: 32.1] [AAP: 34.41] [Aircraft Management: 34.52] [Campaign VP: 34.71]

Shots (Air-to-Air): 11.33 [Ammo Depletion: 11.34] [Disengagement: 11.41] [Multiple Attacks: 11.51]

Shots (Air-to-Ground): 16.14 [Mixed Loadouts: 16.15] [Jettison: 16.21] [Air-to-Ground Attacks: 17.1, 17.2, 17.4] [ARMs: 17.5] [Cruise Missiles: 17.7]

Shots (SAMs): 15.2 [Resolving SAM Attacks: 15.32] [SAM Ammo: 15.34] [IR SAMs: 15.44] [LOAL: 15.51] [EO Tracking: 15.54]

Slash Attack: 11.52 [Maneuver NA: 6.35] [Scatter NA: 13.2]

Slight Damage: 18.2 [Effects: Player Aid 3] [Target VP: 32.1] [Multiple Sub-Targets: 32.11] [Campaign BDA: 34.34] [Campaign VP: 34.71]

Small Arms AAA: 14.0 [Organic Small Arms AAA: 14.71] [Automatic Small Arms AAA: 14.76] [Organic AAA Damage: 18.24]

Soviet Doctrine: 11.32

Speed: 6.2 [Sequence of Play: 3.3] [Turning: 6.32] [Takeoff: 9.13] [Landing: 9.14] [Safe Passage Corridors: 15.43] [Ordnance Speed Limits: 16.23] [Toss Bombing: 17.34] [LGB Toss: 17.36] [Cruise Missiles: 17.7] [Helicopters: 25.1]

Splitting Flights: 4.14

Stacking: 6.4 [Hexsides: 6.12]

Standoff Jamming: 19.0 [Tasks: 8.2, 8.342] [Anti-Radar SAMs: 15.53] [Strength: 19.1, 19.31] [On-Map: 19.32] [Off-Map: 19.33] [Spot Jamming: 19.34]

Strafing: 17.39 [Ammo use: 16.13] [Ordnance Attack Restrictions: 17.12] [Attack Column: 17.41] [Night Limits: 23.33]

Success Value: 18.2 [Effect on Airfield Operations: 9.11]

Suppression (AAA): 18.2 [Admin Phase Recovery: 3.2] [Effect on Air-to-Ground Mod: 14.42] [Ground Attacks: 17.62] [Levels: 18.21] [SEAD Phase: 31.6] [Campaigns: 34.33, 34.44]

Suppression (Radar): 18.22 [Admin Phase Recovery: 3.2] [SEAD Phase: 31.6] [Campaigns: 34.33, 34.44]

Surprise: 11.24 [NA to Defensive Wheels: 7.12] [Slash Attacks: 11.52] [Cruise Missiles: 17.75]

Takeoff: 9.13 [Maneuver Restriction: 9.15] [Helicopters: 25.1]

Target Profile: 17.13 [Flights on Ground: 9.12] [AAA Concentrations: 14.21] [Fire Can: 14.55] [Mobile AAA: 14.65] [SAMs: Player Aid 2] [Helicopters: 25.1] [Army Ground Units: 27.2]

Tasks: 8.2 [Flight Paths: 8.31] [Escort Jamming: 8.341] [Standoff Jamming: 8.342] [Close Escort: 8.343] [Multirole Aircraft: 8.37] [Refuel and Rearm: 9.16] [Mixed Loadouts: 16.15] [Ground Attack Restrictions: 17.11] [Chaff: 17.68] [Laser Designation: 17.69] [Night: 23.2] [Helicopters: 25] [Rescue CAP: 26.42] [Order of Battle Tables: 31.52]

Terrain Masking: 15.25

Time of Day: 30.0

Toss Bombing Profile: 17.34

Total Destruction: 18.2 [VPs: 32.1]

Track Phase: 10.3 [Sequence of Play: 3.2] [GLCM/AS-15: 17.72] [Helicopters: 25.3].

Turning: 6.3 [Facing: 6.11] [Night Limits: 23.21] [Helicopters: 25.1] [Bomb Runs: 17.2] [Recon Runs: 24.1]

Undetected Flight: 10.1 [Dummy Generation: 4.13] [Flights on Ground: 9.1] [Takeoff: 9.13] [Track Phase: 10.3] [Visual ID: 10.4] [Post-Combat: 13.3] [AAA: 14.4] [Acquisition: 15.23] [Radar Shutdowns: 17.53] [Cruise Missiles: 17.7] [Helicopters: 25.3] [Early Warning Phase: 31.7] [Air Deployment Phase: 31.8]

Unready Flights: 9.12 [Landing: 9.13] [Landing: 9.14] [Helicopters on Ground: 25.1]

Urban Hex: 2.22 [Rally Point: 8.35] [Automatic Rescue/Capture: 26.11] [Simple CSAR: 26.2]

Victory: 32.0 [Victory Phase: 3.4] [Scenario Conditions: 30] [Campaign Victory: 34.7]

Visual Bombing Attack: 17.3 [Dive Bombing: 17.31] [Level Bombing: 17.32] [LGB Level: 17.35] [LGB Toss: 17.36] [EOGM: 17.37] [EOGB: 17.38] [Strafing: 17.39] [Line of Sight: 22.1] [Haze: 22.3] [Mist: 22.5] [Night Bombing: 23.33]

Visual Detection: 10.21 [Line of Sight: 22.1] [Haze: 22.3] [Mist: 22.5] [Night: 23.12]

Visual Identification: 10.4 [Visual ID Info: 4.22] [Air-to-Air Combat: 11.3] [Inherent AAA/Automatic Small Arms Exceptions: 14.75, 14.76] [Night: 23.13]

Waypoint: 8.31 [Navigation: 8.32] [GCLM/AS-15: 17.72] [BQM-74C: 17.74] [Side Looking Cameras 24.11]

Weather: 22.0 [Sequence of Play: 3.1] [Rolling for Weather: 22.2] [Clouds: 22.4] [Weather Fronts: 22.42] [Breaks: 22.43]

[Night Navigation: 23.2] [Scenario Conditions: 30] [Weather Phase: 31.1] [Solitaire: 33.12, 33.22] [Campaign Scenarios: 34.2] [Campaign Raid Execution: 34.32] [End of Day Admin: 34.34].

Zoom Climb: 6.33 [Admin Phase Removal: 3.2] [Large Aircraft NA: 6.40] [Engagement: 11.24] [Climbing Before Combat: 11.42] [Post-Combat: 13]

Credits

Lead Design Downtown System: Lee Brimmicombe-Wood

Lead Design *Red Storm*: Douglas Bush

Art Director: Mark Simonitch

Box Art & Package Design: Antonis Karidis

Production Coordination: Tony Curtis

Producers: Gene Billingsley, Tony Curtis, Rodger MacGowan, Andy Lewis and Mark Simonitch

Map: Mark Simonitch and Douglas Bush

Counters: Mark Simonitch, Douglas Bush, and Dariusz Buraczewski

Manuals & Player Aid Cards: Charlie Kibler

Proofreading: Kai Jensen

Playtesters: Chris Baer, Mitchell Land, Ralph Shelton, Steven Paul, Pablo Garcia, Terry Simo, Max Wunderlich, and Jack Barnette.

Research and Advice: Terry Simo, Przemysław Mantay, Peter Grining, Chris Anthony, Rusty Bittle, Jimmie Seeley, Robert Schoolfield, Jesse Escobedo, Morten Lund, Sanders Peeters, Kenneth Katz, John Rainey, Joe Czarnecki, and Gabriel Garcia.

GMT Games, LLC
P.O. Box 1308, Hanford, CA 93232-1308
www.GMTGames.com