

PLAYER AIDS

AIRWAR: F-86 CHECK FLIGHT

Or How to Avoid a One-Point Landing

by Gregory John

To say that *AirWar* is complex is to indulge in the high wit of understatement. Of course, once grasped the game mechanics seem natural and necessary and as easy as falling off a, uh, ... well, as easy as *falling*. The problem comes in breaking through the rules barrier and getting a sense of how all the intricacies of the mechanics add up to the best manual simulation of flight published to date. So, listen to the Instructor Pilot and learn to fly. —RAS

Air War is a fascinating, broad-faceted game that, by its sheer bulk, may daunt the beginner. Yet when a step-by-step approach is adopted, *Air War* is less than the monster it appears at first glance to be. The first thing a player should do is read pages three through fifteen of the rules thoroughly. Having done that, we have provided a "check ride" for him to see how an aircraft actually flies in *Air War*.

CHECKING OUT IN THE F-86

Why the F-86?

Basically, the F-86 Performance Chart is simple enough to learn quickly, while at the same time offering familiarity with performance charts you will use later on.

Briefing

Having made the changes necessary from the errata (see page 11 of this issue) to correct for any errors, this section will talk you through the various tables on the Aircraft Performance chart. *The Basic Information Table* gives a range of data which aid in setting up the game markers as well as acting as a reference during flight for items such as deceleration, energy adding, and so on. On the Turn Mode Table, when you cross reference the Movement Allowance with the altitude, a number will be yielded. That number corresponds to a turn mode (e.g., 2 = 25°, 3 = 20°, etc.). After a while, when you get to know the turn modes and the performance of the plane, you will use this table less and less because you will remember what you need.

Next to the Turn Mode Table is the *Acceleration Table*. This table will yield the number of boxes that the Acceleration

Marker will move, per turn, on the Acceleration Progress Track of the Aircraft and Missile Control Display.

Note that, when you move all of these markers around and along their various tracks, what you are really doing is manually setting all the instruments which would normally move themselves in an actual aircraft. In fact, both the Turn Mode Table and the Acceleration Table relate only indirectly to the movement of the airplane counter on the hex grid. Both the *Dive Table* and the *Climb Table* (when properly cross indexed) show actual hexes moved and allowance gained or lost.

Similarly, both the *Roll Table* and the *Flight Parameters* are criteria oriented tables which dictate the limitations of your plane in doing certain maneuvers which involve more than just diving or climbing.

Take out the *Aircraft and Missile Control Display* and place the appropriate markers where they belong: Movement Allowance, Throttle, and all the others, according to the rules, in their respective tracks, all set at zero.

Now place *three* (3) of the hex maps end to end so that "N" points to "S" on the map adjacent. As you look at this arrangement, on your right should be the "S" of the right-hand map, and on your left should be the "N" of the left hand map (see below).

Place F-86 counter number 1 on hex 1617, map one, facing north.

There are no rules in *Air War* which cover the function of take off procedures. However the throttle, acceleration and movement procedures are so well coordinated in the game design that it is possible to simulate these functions with a little imagination. The Sequence of Play is printed on the back of the Game Charts and Tables booklet. Keep this available, because we will refer to it on and off, and all movement will be executed according to the sequence outlined.

So, there you are, sitting on the runway, waiting for clearance, with the clear blue stretching forever (we know this to be true because there are no cloud markers on the map). Now, gradually ease the throttle for-

ward. Do this by referring to the Acceleration Table. Noting that there is no provision for a throttle setting when you are sitting on the ground, we are going to arbitrarily assume that, with a throttle setting of 0 and an altitude of the same, you may accelerate a full 10 points along the Acceleration Progress Track.

Recall that you are in the Acceleration/Deceleration by Power Segment when you move that marker, and that you complete the phase by moving the throttle to the box that says "1" with the small 120 under it. What immediately happens to the Movement Allowance Marker when you move the throttle up one? Correct. The Movement Allowance Marker moves automatically.

Now we look to Segment 2, the *Flight Attitude Decision*. In this segment you are going to decide whether you will climb, dive, or roll. You cannot climb with a Movement Allowance/Throttle Setting of 1. Check your *Climb Table* to find out why. Similarly, you can do nothing in Segment 4, because you have no energy yet. End of Game-Turn One. With your aircraft not moving any hexes (you are not airborne yet).

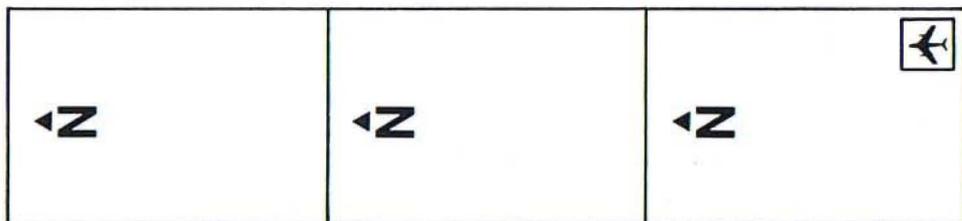
In Game-Turns Two and Three you will move the acceleration marker four boxes per turn, and the engines will rev while you sit tight. Make sure you understand the order in which these things occur. Know when the creeping acceleration from Case 8.44 occurs, and when the Deceleration through Inducing Drag counters it.

Now it is Game-Turn Four. Push the Acceleration Marker up four boxes, through box numbers 9, 0, 1, and 2. So, now you have a throttle setting of two, and the Movement Allowance increases by one automatically. The Movement Allowance marker joins the Throttle Setting marker in box two. Now let 'er rip. Ignore the Acceleration/Deceleration Segment, and go directly to Segment 5. Move the aircraft counter forward two hexes to hex 1615. End of Turn Four, and your F-86 is rolling down the runway. The whole process has taken about ten seconds of actual time and moved the aircraft about 500 feet. Check the distances against Case 2.4.

In the beginning of Game-Turn Five, the segments we are going through will be numbered according to the back cover of the Charts and Tables booklets. Read through the sequence of play until the various steps are committed to memory. Begin Turn Five. In this Game-Turn you will gain a little altitude, so, by the numbers:

Game-Turn Five

1. Accelerate four boxes (to box six on the Acceleration Progress Indicator).



2. Place the Altitude Marker in Climb I, wings level. Look through Section 10.0, and find out that you have to consult the Climb Table to know what is happening to your ship. After cross referencing your Throttle Setting (or Movement Allowance, whichever is higher) with your altitude grouping (since you are at zero altitude, you are in the LO group) you find that you move your Aircraft Altitude Marker one box along the "ones" section of the Altitude Gauge. You also know that your Movement Allowance is reduced to 1, as the table indicates. Move the Movement Allowance marker to 1 on its gauge on the display. The minute you moved that Movement Allowance marker, you passed into Segment 3. This is so because you accelerated/decelerated by means other than power, namely by climbing.

4. Skip, because you never pick up energy by climbing.

5. Move the aircraft counter one hex forward. This is why the sequence is so important. If you had moved that counter out of sequence, you might have moved forward two hexes instead of one. Do not fool around with the Sequence of Play, as it governs the game's accuracy rigidly. Furthermore, if you lose track of the sequence, then many procedures (e.g., missile launch) will become confusing. End of Game-Turn Five.

Game-Turn Six.

1. Accelerate four boxes right? *Wrong!* Case 8.38 specifically forbids most aircraft to accelerate by power when climbing. Therefore, at the outset of this turn, you are faced with a decision. You may either gain altitude, or level off and gain speed. Since this is not a scramble, the decision is not even pressing. *For instructional purposes only*, move the Attitude Setting into level flight, the throttle and Movement Allowance to 4. In other words, we are saying for the purposes of this article, that you leveled long enough to build your power and movement up; in excess of 4 Game-Turns. The Aircraft Acceleration Marker is still in Box 6 and the Altitude Marker is still in Box 1 on their respective gauges. Let us begin Turn Six anew, whilst our F-86 counter is moving through hex 1614.

1. Accelerate, and since the marker enters zero, move both the Throttle Setting and Movement Allowance marker to Box 5.

2. Place the Flight Attitude Marker in the Climb I Box, check the Climb Table, and note that you climb 1 level (move the Altitude marker to Box 2) and your Movement Allowance marker is reduced to 4. (Segment 3).

4. Skip.

5. Move the aircraft 4 hexes forward, into hex 1610. The heading is still north. Note how gradual your climb rate is (end Turn Six) and compare it with the steeper rate in the upcoming Game-Turn.

Game-Turn Seven.

1. No Acceleration. You know why.

2. Place the Attitude marker into the Climb II box, and refer to the Climb Table. Note that the Type II Climb is unshaded in order to provide visual clarity. Now the F-86 is climbing 2 levels instead of 1, so the Altitude marker is moved up 2 boxes to setting 4 (about 1000 feet).

3. Reduce the Movement Allowance to 3 because the increase in climb causes a loss of speed, and this is reflected in that way.

4. Skip.

5. Move the F-86 three hexes forward, into hex 1607. End Game-Turn 7.

Review

Now, look for a moment at what you have done. In Turns 6 and 7 you progressed in Segments through a fluid motion. I stress this because, when playing a game in turns, on a hex map, it is easy to forget that all the manipulation you just did went on all at once, reflecting continuous motion. Graphically, Game-Turns Six and Seven look like the figure below.

All of this activity happened in only five seconds; you flew the plane, it reacted, and the instrument panel varied as it was supposed to.

For Instructional Purposes Only, move the Altitude marker to Box 6. All other factors, including the Attitude marker in Climb II, will remain the same for Game-Turn Eight.

Game-Turn Eight.

1. Skip; no acceleration is possible.

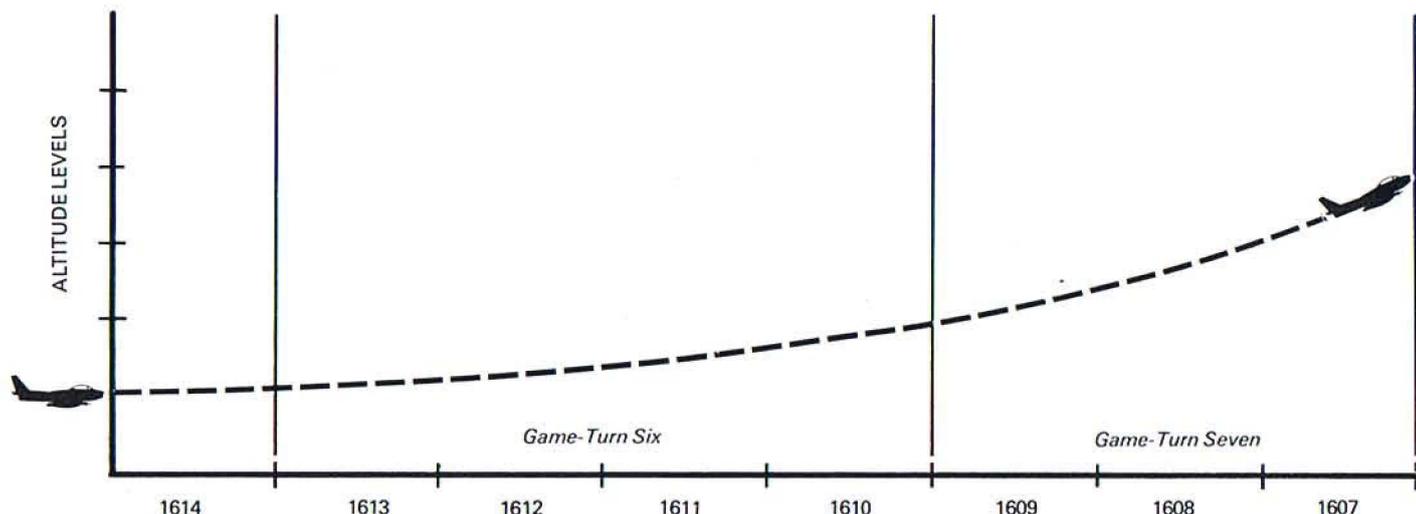
2. Move the Attitude marker into the Pull-Through Box, noting that the Type III Climb was skipped because an F-86 cannot execute the Type III Climb. Note also that there are no provisions on the Climb Table for a Pull-Through. Basically the plane is going almost straight up (but not quite), and the Pull-Through is really a type of maneuver. Go to Case 11.1, and read. **Note:** we are assuming for purposes of this article that the ship was in the Type II climb for the required number of Game-Turns before entering the Pull-Through. Note that, because a Pull-Through is a maneuver, you will have to ignore the sequence of movement for the duration of the Game-Turn, as Section 11.0 indicates. Therefore execute the Maneuver as follows: Move the Altitude from nine levels to ten levels. Move the "tens" altitude marker up to the ten box. You are now at 2500 feet. Be aware of the fact that your climb of one level was *1 less* than you would have gone in the Type II Climb, as required by the Pull-Through rules. Chop the throttle by 7 boxes (or points). This is required in your first turn in a Pull-Through by Case 11.12. You know the cutback is 7 because you looked on the Aircraft Information Table on the Performance Chart. The Acceleration marker winds down to Box 9, and in so doing forces the throttle setting down *one* to Box 4 (480 knots). The Movement Allowance, at 3, automatically drops to 2 because of the throttle. you can drop it between zero and 2, according to the Pull-Through rules.

Move the F-86 counter two hexes forward (to 1605). End Game-Turn Eight. (I hope you have been moving a Game-Turn marker as instructed in the rules.)

Game-Turn Nine.

Here we are in a Pull-Through. You can leave it by either returning to a Type II climb, or executing a maneuver, in this case a wingover. We will do the wingover. Note that as the F-86 is starting its Movement Phase in a Pull-Through *but* will not be continuing in a Pull-Through, it is not subject to Case 11.17 limitations.

Once again, since we are performing a maneuver, the Movement Phase Sequence



goes out the window, and we have to follow the rules. Refer to Case 11.31.

Turn the F-86's counter six hex-points (180°) so that it is facing south, but remains in the same hex. Roll the Flight Attitude marker 4 points. You are now inverted. Reduce the Movement Allowance by 1 (it is now in Box 1 of the track). Place the Flight Inverted Attitude marker in the level flight box. Note that you were not told to climb any levels, nor did you pay a penalty for the 4 points rolled. You gained no altitude because you "went over the top" and are now level, and you didn't really roll at all. What happened was that, in reversing direction and going over the top, your attitude changed naturally without any rolling. The system is simply telling you to roll so that you can relate the attitude change. In reality, what you did during Game-Turns 8 and 9 looks like this:



Note how that attitude change took place, and that you are now flying level and inverted.

By now it should be clear that, with familiarity, moving around all those counters and markers becomes easier. End Game-Turn Nine.

Game-Turn Ten.

You are now flying level.

1. Accelerate 4 points, move the throttle and Movement Allowance to Boxes 5 and 2 respectively.

2. You could roll 4 points here to right yourself. But if you do, according to the Roll Table it will cost you a Movement Point. That's Movement *Point*, not Movement *Allowance*. There are no markers for keeping track of Movement Points; it's like expending Movement points for entering rough terrain in a land game. I suggest that you wait to execute your roll in Segment 5. The rules tell you that you can roll at any time in the Movement Phase of the Game-Turn.

3. Creeping acceleration; Movement Allowance to 3.

4. Skip.

5. Important because you will need this technique when we come to turning: Put one hand on the F-86 counter, and one hand on the Flight Attitude marker. Move the aircraft one hex and say out loud, "one." Roll 4 points and say out loud "two." Move one more hex forward and say "three." When the number you are saying equals the number of your Movement Allowance, then you have

gone as far as you can in the turn. You will find that if you follow this procedure when rolling, or accumulating Turning Points (coming up soon) it makes it easier to grasp what you are doing. End Game-Turn Ten.

Note that there is considerable separation between the Throttle Setting and the Movement Allowance. If you were to engage in another maneuver, you would lose even more airspeed and end up Departing Controlled Flight.

Over the next few Game-Turns, we will study turning, which has the biggest potential for confusion. So, double check the settings on your display to make sure they are right, and that will help keep you from getting lost:

Throttle Setting = 5
Movement Allowance = 3
Energy Points = 0
Altitude Level = 10 (2,500 feet)
Attitude = level
Turning Indicator = 0

So now that the lesson of keeping the airspeed up has been learned:

Game-Turn Eleven.

1. You cannot accelerate in order to move your throttle, because you are at maximum throttle now.

2. Stay level.

3. Creeping acceleration; Movement Allowance goes to Box 4.

4. Skip.

5. Move the aircraft 4 hexes forward to hex 1611.

6. Skip. End Game-Turn Eleven.

Game-Turn Twelve.

1. Skip.

2. Roll 1 point to the right. Your right wing should be dipped and the tail pointing toward the "C" in the Climb 1 box. *Don't* move into the climb box! Just tilt the wings and keep in the level box!

4. Skip.

5. Take note of the Turning Indicator on the Aircraft and Missile Control Chart. Each box represents five turn points (degrees). This will be important, and you will see why shortly. All turning takes place during the Movement Segment, and the physical act of turning costs Movement Points. Therefore, when you get around to moving the aircraft, do so with one hand as you use the other to work the Turning Indicator Marker. Count out loud, because it will be very easy to lose track of how many Movement Points you still possess while making a turn. Read Section 9.0 up to Case 9.4. You are not making a Maximum Performance Turn (i.e., your banked wings are not pointing *straight up and down*). Case 9.55 indicates that you will suffer a penalty on the Turn Mode Table, but by the same token, if you were banked vertical (i.e., wings straight up and down) you would lose 1 level of altitude (Case 9.54) and 2 Movement Points (see Case 9.55 and the penalty on the Flight Parameters of the Performance Chart). The bank you are in now (called a 45°) forces you to add *one* to the Turn Mode stated on the Turn Mode Table of the Performance Chart (see Chart 9.29).

The Turn Mode of 2 thus becomes 3. In other words, instead of being able to turn 25° upon entering a hex, you can turn only 20°. These degrees, all part of a 360° circle which is theoretically drawn around your F-86, divide neatly into 12 units of 30°. There are six sides, *and* six points to a hex. Every time the Turn Indicator marker passes through 30°, the plane physically has turned from a hex side to a hex point, or from a hex point to a hex side. In other words, the nose of the plane has passed through 30° of that circle. This is the basis of logic behind the twelve-point, 30° turning system. The system is really a mite simpler than it initially looks.

By the middle of Game-Turn Twelve, you have gone through segments 1, 2, 3, 4, and are ready to make your turn. The turn is *not* a Maximum Turning Mode, so there will be no speed or altitude loss under Case 9.54.

• Move the aircraft counter with your left hand to hex 1612, and count "one."

• Since 20 Turn Points equals 4 boxes, move the Turn marker four boxes to the right (the direction of your bank) and count "two."

• Move the aircraft another hex forward no turning (to hex 1613) and count "three" aloud. Since you have equalled your Movement Allowance, end Game-Turn Twelve.

Game-Turn Thirteen.

1. Skip.

2. Skip (we are going to continue the same turn).

3. Creeping Acceleration; move the Movement Allowance to 4.

4. Skip.

5. The rules say that you must enter a hex before accumulating Turn Points. You already entered hex 1613 last Game-Turn, so you may accumulate those Points now. Advance the marker 4 boxes (noting that "reset" and zero count as one *box*). As soon as that marker crosses into "Face and Reset" physically turn the aircraft to the right so that its new heading is south-southwest. In other words, it is no longer pointing to a hex *side*, but rather a hex *point*. The Turning Indicator, when all that is through, is now in the 10° box. Count "one" because you shot a Movement Point making this turn.

• Move forward to hex 1614, heading still south-southwest, and count "two."

• Move the turn indicator 4 boxes (i.e., 15, 20, 25, reset-0), physically turn the aircraft counter to the right, facing southwest, and count "three."

• Move forward one hex, into 1515, and count "four." End of Game-Turn Thirteen.

Game-Turn Fourteen.

1. Skip.

2. Skip.

3. Creeping Acceleration, make the Movement Allowance 5, along with the throttle.

4. Skip.

5. You are still turning.

• Move the Turn Indicator marker 4 boxes and count "one."

• Move the aircraft forward into hex 1415 and count "two."

Air War [continued from page 10]

• Move the Turn Indicator 4 boxes to 10°, physically turn the aircraft to the next hex point (i.e., heading west) and count "three."

• Move the aircraft into hex 1316 and count "four."

• Move the Turning Indicator 4 boxes to 0°, physically turn the aircraft to the next hexside (i.e., heading northwest) and count "five." End of Game-Turn Fourteen.

Game-Turn Fifteen.

1. *Acceleration/Deceleration by Power Segment:* To show how it works, we are now going to Decelerate by Power. "Unwind" the Acceleration Progress marker the maximum 7 boxes (this information is given on the Basic Aircraft Information Table). This causes the marker to move backward through zero, so take the Throttle Setting and Movement Allowance markers and move them back to 4.

2. *Flight Attitude Decision Segment:* No change. The F-86 will remain in level flight.

3. *Acceleration or Deceleration Segments:* We are not going to accelerate or decelerate other than by power.

4. *Expenditure of Energy Points Segment:* Not applicable, as we have no Energy Points.

In the Movement Segment, we are going to demonstrate a maximum-G "hard" turn, one that uses the aircraft's best turn rate.

Case 9.51 shows us that an aircraft can only turn at its optimum printed Turn Mode (which is 2 for an F-86 at LO altitude with a Movement Allowance of 4) if its wings are rolled at 90°. As the F-86 is already rolled one point to the right, it is only necessary to roll it another point (which, so far, costs no Movement Points) to bring it to a 90° angle. The F-86 now can start to turn at maximum rate.

• Move the aircraft forward into hex 1215 and count "one."

• Move the Turn Indicator marker 5 boxes (25 Turning Points) to the right as the F-86 is accumulating Turning Points at a Turn Mode of 2. Count "two."

• Move the aircraft forward into hex 1115 and count "three."

• Move the Turning Indicator marker another 5 boxes (25 Turning Points) to the right. This means it moves through zero, so the F-86 is now facing north-northwest and has 20 Turn Points accumulated (it gained a

total of 50 Turn Points that turn, 30 of which were accounted for in turning the F-86 one hex-point, and 20 are still accumulated on the Turn Indicator).

Having done this, the F-86 now must pay the costs under rule 9.54 for having made such a sharp turn. Its Altitude is reduced by one level, so its Altitude is adjusted down to read 9 instead of 10 levels on the Altitude track of the Aircraft and Missile Control Display. Also subject to Case 9.54, the Movement Allowance marker is now reduced to 2 because the F-86 Flight Parameters Chart dictates that it will lose 2 Movement Points whenever it turns at Maximum rate. Note that these can be compensated for before the F-86 has to move again by Creeping Acceleration and, in some circumstances, Acceleration by Power.

In these fifteen turns, we have seen how an F-86 has accelerated, climbed, performed a Wingover, and turned. This is just a view of the many potential moves for an aircraft in *Air War*. The only limit to what an aircraft can do is how the player/pilot can use its strengths and weaknesses to emerge victorious in air combat.

[continued from page 13]

Map Arrangement:

A north B

Egyptian

Aircraft types: two MiG-15bis

Movement Allowance: 5

Throttle Setting: 5

Energy Points: #1 4; #2 2

Wings: level

Dive/Climb: Type I Dive

Missiles: none

Hexes: #1 A0914; #2 B0112

Altitude: #1 56; #2 62

Heading: W

Israeli

Aircraft types: two Ouragons

Movement Allowance: 3

Throttle Setting: 3

Energy Points: 0

Acceleration Points: 0

Wings: level

Dive/Climb: Level Flight

Missiles: none

Hexes: #1 A0213; #2 A0211

Altitude: 52

Heading: W

Optional Rules:

Sun Direction: E

Game Length: 15 Game-Turns

Victory Conditions:

The player to destroy more aircraft wins. If no aircraft are destroyed, the Egyptian player wins if he has fired his cannon at Israeli aircraft at least three times. Any other circumstances are a draw.

[30.24] The Last Fagot, MiG Alley
1700, 22 July, 1953

General Situation: Lt. Sam Young led three Sabres of the 51st Fighter Wing into MiG Alley on a high offensive patrol. They spotted a flight of MiG-15's ahead, apparently also on patrol. Lt. Young dived in with his flight and blew away one of the MiG's. It was the last time the MiG-15 and F-86 were to clash in the skies over Korea.

Map Arrangement:

A north B
C D

U.S.A.F.

Aircraft types: three F-86E's

Movement Allowance: 4

Throttle Setting: 4

Energy Points: 0

Acceleration Points: 0

Wings: level

Dive/Climb: Level Flight

Missiles: none

Hexes: #1 D0305; #2 D0107; #3 D0507

Altitude: #1 140; #2 139; #3 141

Heading: N

Chinese

Aircraft types: four MiG-15bis's

Movement Allowance: 4

Throttle Setting: 4

Energy Points: 0

Acceleration Points: 0

Wings: level

Dive/Climb: Level Flight

Missiles: none

Hexes: #1 B0411; #2 B0512; #3 B0314; #4 A1114

Altitude: 130

Heading: E

Optional Rules:

Sun Direction: NW

Pilot Capability: One of the MiG pilots (#4) is a Novice.

Special Rules:

At the start of the scenario, the F-86's are in visual contact with the MiG's, but the MiG's are not in visual contact with the F-86's and must obtain contact through normal visual search. Only MiG #1 may search. Until the MiG's spot the Sabres, they must fly straight ahead and in level flight.

Game Length: 20 Game-Turns

Victory Conditions:

The U.S.A.F. player must shoot down one more aircraft than he loses himself to win. If no aircraft are lost or if the Chinese shoot down an amount equal to or greater than the number they lose, the Chinese player wins.

A Few Final Notes

[10.5] *Correction:* Third Paragraph, fourth line: "one Movement Point" should be "No Movement Points." Fifth Paragraph, fifth line: "two different kinds" should read "one kind."

[21.23] *Addition:* If a Turkey attempts the following maneuvers: a Wingover, Immelmann, Lateral Rudder Roll, Vertical Break, or Barrel Roll, he must roll two dice, with a Probability number of 7 of immediately departing controlled flight. If a Novice attempts a Vertical Break or Lateral Rudder Roll, he has a Probability number of 3 of immediately departing controlled flight.

[21.24] A Novice has the Turn Mode of his aircraft increase by one (e.g., a Turn Mode of 3 is treated as a Turn Mode of 4). A Turkey has his Turn Mode increased by two. Novices also have all Game-Turns expressed in the Flight Parameters table increased by one Game-Turn. Turkeys have them increased by two Game-Turns.

Aircraft and Missile Control Charts: *Clarification:* All speeds are in Knots calibrated Air Speed.