

## ***A & A GAME ENGINEERING PRODUCT SUPPORT***

Product Support sheets come in the following types:

- Clarifications – these are more general clarifications about game play in response to questions from players.
- Corrections and Amendments – these include corrections to errors in game data, typing errors, and mistakes in game play that have come to light. These may come in two alternatives:
  - applicable to the most recent edition.
  - applicable to previous editions. These items will all have been incorporated into the latest edition on sale.
- New Rules – These rules will have been developed in response to requests from players. They may also have been developed from House Rules (see below).
- House Rules and player suggestions. House rules that are tested and work well may be incorporated into the basic rules if the author(s) approve.

The content of the sheets follows the same order as the rules in the book and the first sheet shows a summary of these sections and indicates those that are affected by the current sheet.

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# ***SCRAMBLE***

## **RULES CLARIFICATIONS UP TO AND INCLUDING**

### **EDITION 3.0**

**DATE: 25 MAY 2003**

**UPDATED 29 DECEMBER 2004**

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#### 1. INTRODUCTION.

⇒ 1.1 – Base Sizes

#### 2. MEN AND MACHINES

⇒ 2.2 – Skill Rolls

#### 3. SETTING UP A GAME AND DEPLOYMENT

#### 4. FLIGHT FUNDAMENTALS

⇒ 4.3 – Tailing

⇒ 4.6 – Turning

⇒ 4.8 & 4.11 – Climbing and Diving

⇒ 4.12 – Diving Half Loop (clarification)

#### 5. SHOOTING

⇒ 5.5 – Aircrew Shooting

⇒ 5.11 – Gun Damage

⇒ 5.14 – Shooting between different height bands

⇒ 5.14 – Using Air to Air rockets

#### 6. ATTACKING A SURFACE TARGET

⇒ 6.3 – Using Air to Ground Rockets

#### 7. BIBLIOGRAPHY

#### 8. GROUND DEFENCES AGAINST AIR ATTACK

#### 9. NIGHT ACTIONS

#### 10. OPTIONAL RULES

#### 11. SETTING UP A TYPICAL GAME

#### 12. AIRCRAFT DATA AND THEATRES OF USE

⇒ Relative Acceleration

⇒ General Remarks on DVs

⇒ Gun Fits

#### APPENDIX A - A TASTER SCENARIO

#### APPENDIX B - AIR COMBAT FOR THE BEGINNER

#### APPENDIX C - TABLE OF AIRCRAFT WEAPONS

#### APPENDIX D – DESIGNERS’ NOTES

#### FIGHTER RECORD CARDS

#### BOMBER RECORD CARDS

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### ***Base Sizes (1.1)***

Remember that if you are using smaller scale aircraft then the game uses a different unit of measurement (either cm or half inch). As the base sizes also define the arcs of fire you should be wary about making significant changes to their size.

One of the authors has recently converted from 1/300 to 1/600 scale aircraft and will be experimenting using standard sized bases and units of measurement.

### ***Skill Rolls (2.1)***

From the 3<sup>rd</sup> Edition of the rules the use of a Variable Pilot Skill roll as standard was adopted for all tests that dealt with the movement of aircraft. This took into account the use not only of Pilot Skill but also of the inherent ability of the aircraft to perform aerobatic manoeuvres, which was defined as the AB Modifier for the aircraft.

The AB Modifier is calculated in the same way as the modifier shown in the current edition of the rules (ST-MVR) though it is done at the initial calculation level and might vary slightly due to rounding. A data table of all the AB modifiers for loaded and empty aircraft is available on the internet to download.

The VPSR is used for all tests which had a test between relative MVR and ST in the rules, so for example you must always do a VPSR for a Climbing Half Loop, not just if the MVR / ST relationship means one is necessary. There is a list of activities covered by the above. This list serves as a reminder what activity happens and in what order as well as the effects of the roll where appropriate. You will not be attempting all of these effects at the same time.

- Tight Turn.
- Zoom Climb.
- Climbing and Diving ½ Loop.
- Power and Vertical Dive.
- Avoiding Collision.

The 3rd edition maintains a simple PSR test, as an option, similar to the current system.

### ***Tailing (4.3)***

When tailing you must be in base to base contact with the target. You move when it moves and the target can only shake you off by being faster or more manoeuvrable, by having a better climb or dive rate.

### ***Tailing and Tight Turns (4.3 & 4.6)***

There is always one bit that gets overlooked. If you are tailing an aircraft and it attempts a tight turn and fails, it will plummet earthwards as per the rules. If the altitude lost is greater than the Vertical Dive of the aircraft, then a VPSR is required and additional altitude will be lost, after which the pilot pulls the aircraft out of the dive (unless the altitude lost once again exceeds the dive rate...). (This rule applies equally to other VPSR tests).

Now, you could attempt as tailing plane to follow it, because it has only turned 30 degrees. There is now a question of how fast can you dive. If your dive rate is less than the dive rate of the target you can follow it, but you will have to take a VPSR if you have gone into the Power or Vertical Dive Bands of your aircraft. You cannot voluntarily dive faster than your maximum Dive Rate.

The Dive Rates used can either be the simplified bands of 1 to 8, or the actual rates from the aircraft data tables.

*A new rule was added from edition 3.1 to take account of this (4.15 – Altitude Loss following a failed VPSR).*

### ***Turning (4.6)***

When you turn you can turn an angle less than the template.

### ***Climbing and Diving (4.8 & 4.11)***

You cannot climb and dive in the same movement action (it would be pointless). More importantly if you climb this turn and add some units to your climb track, as long as you fly level you keep these units until the next time you climb, and again to the climb track. HOWEVER if you were to dive at any time, you lose all accumulated climb and the track is reset to 0.

### ***Diving Half Loop (4.12)***

When making a diving half loop the rules say that the dive is limited to 4 ALT. This value should be replaced by the Steep Dive value if using the Variable Dive Rates, and this should also be combined with the Pilot Skill Roll being modified by the Aerobatic Modifier.

### ***Aircrew Shooting (5.5)***

You cannot shoot if doing any other action (such as aiming bombs). Also, if you fire rockets in a turn you cannot use guns. Normally the only case where more than one set of guns can be fired is by the Pilot using fixed forward firing guns, usually a cannon and machine gun mix. There are other cases where a gun mount carried mixed weapons such as tail guns on B29s.

### ***Damaging the Target (5.11)***

It has been suggested that the damage from a 20mm cannon is too low. Regarding gun damage, the rate of fire of the gun is factored into the damage. The damage is for a burst, and 20mm cannon fired slower than rifle and 50 calibres.

### ***Shooting between different Height Bands (5.14)***

We have had a few questions about this. For game balance an aircraft shoots at the altitude where it is located after its movement. While we appreciate that all the aircraft are moving simultaneously in real life, there need to be checks and balances in the game. Initiative will allow you to "follow" your opponent through its movement and shoot again. This is also what "Tailing" is for.

### ***Using Air to Air Rockets (5.14 ~ 4.13 in editions prior to 3.0)***

The combined attack modifiers for Rockets are -2 (for rockets) and -3 (Weapon Modifier) for a total of -5. This is not really clear from the wording of the rules. It is not necessary to fly straight to make the attack. It would be a problem in game terms to remember which aircraft did what earlier in the turn.

Also shooting any of the Rockets, Mortars and other missiles means that guns cannot be fired by the pilot in the same turn.

The ranges for air to air rockets are shown in the tables in the body of the text.

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### ***Using Air to Ground Rockets (6.3 ~ 5.3 in editions prior to 3<sup>rd</sup>)***

The combined attack modifiers for Rockets are -2 (for rockets) and -3 (Weapon Modifier) for a total of -5. This is not really clear from the wording of the rules. It is not necessary to fly straight to make the attack. It would be a problem in game terms to remember which aircraft did what earlier in the turn.

Also shooting any of the Rockets, Mortars and other missiles means that guns cannot be fired by the pilot in the same turn.

The ranges for air to ground rockets are shown in the tables in the body of the text.

### ***Comments on Aircraft Data***

*Many of these remarks are also incorporated into the rules from Edition 3.0.*

#### ***Relative Acceleration***

In response to questions it is broadly correct in saying that acceleration, braking, dive rates are different for different aircraft. We have chosen to simplify the game play as much as possible without losing the essential flavour of air combat, by using only the most important features of the aircraft's performance. Remember also that historically the single most important factor was the pilot's skill. If you were to use acceleration and braking you might also want to use roll rate, zoom climb rate, change of speed and turn rate with altitude and temperature etc. etc. and end with a game that is unplayable. The other problem for us writers would be that very little data is available for these features for all the aircraft used.

#### ***General Remarks on comparative DVs***

We have been asked about the relative DVs of different marks of aircraft of the same type, which are usually most noticeable in earlier aircraft. For instance the DV of the Me 109E is better than the later Me 109F. This is down to the fact that the DV is based on the power to weight ratios. The 109E weight in action, when taking into account pilot and fuel is ca 1000 lbs lighter than the 109F. The HP of the two aircraft are very similar (25hp difference). In the end, there may also be some difference due to the rounding of the final number.

DVs tend to go up quite a bit in the late war as engines get extremely powerful while weights may not have increased that much.

#### ***Gun fits***

Gun fits, etc, all depend on the source book you use to get the original data. We cross referenced a number of sources, some of which proved less than reliable and clearly copied errors from earlier publications. We in the end adopted a line of using one source as the basis as far as possible, but cross checked these with more recently published books to check consistency.

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### ***General Notes on the Game Values***

When preparing for the Second Edition we reviewed the method of calculating the DV and MV figures, which are both dependent on aircraft weights. In the First Edition, the weights for the aircraft in the air were derived from the listed loaded weights in our sources. These could be expressed as "loaded", "take-off", and "maximum", none of which were clearly defined by the authors concerned. When we started to compare the resulting game values closely some grotesque anomalies came to light, all resulting from working backwards from an inconsistent basis.

We therefore sat back and analysed some of the numbers for the entire database and discovered some interesting relationships between loaded and empty weights, which also appeared to vary consistently in a linear fashion for one-, two-, three- and four-engined aircraft.

This led us to work out the airborne weights from a reliable constant value (the empty weight of the aircraft). By allowing for a constant to calculate the weight of fuel and ammunition, with a linear adjustment depending on the number of engines, plus allowing a weight factor for each member of the crew, we managed to create a much more reliable set of figures for the Clean DV and MV. Of course, when you load bombs and other payload items these add to the airborne weight and you now get a consistent Loaded DV and MV, which will be worse for the aircraft in game terms (in most cases).

We would mention that we considered taking the actual fuel weights carried by aircraft as part of the calculation. Unfortunately, the reference sources we used were not very helpful because most did not show the amount of fuel carried, and only referred to the endurance of an aircraft, which was no help in this case.

Part of the review also took into account the fact that by the time the battle is happening, none of the aircraft will be carrying its original fuel load anyway, so the previous calculation using the "loaded" weights was potentially flawed.

When revising these calculations we took a number of benchmark aircraft and tried to ensure that these did not vary wildly from the values in the First Edition. In most cases we have succeeded, and are pleased to say, without bending our own rules.

There is also an issue with unusual aircraft types. By this I mean Gliders, Jets and Rocket planes.

In the case of Gliders, a rule we defined originally has been maintained in this edition, and that is that the DV of a Glider is its Current Listed Game Airspeed.

For Jets, our original calculation provided a reasonable DV and MV, but with the revised weights we adjusted a constant in the calculation, and have achieved an acceptable result that reflects the capabilities of these aircraft.

Rocket Aircraft such as the Me 163 are a specific special case. These aircraft types used their speed to gain altitude after which they usually glided into the attack, as described in the aircraft data. This was because the speed at which the craft was moving was too high to allow the pilot to aim his weapons. He could try to re-ignite the rocket if he was lucky, and we allow for that in the rules.

Cargo Planes are now represented in the lists in laden and unladen condition.

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