Dog-Fighting Rules for GURPS 4th ED

Introduction

First off, this system was designed for use with WW2-era aircrafts but could easily be used in post-war or modern times with a few adjustments. GURPS is a great game for simulating combat between vehicles but I often found it quite cumbersome to play out fast-paced dogfights, so I decided to create my own system using the existing GURPS rules. The real purpose of this system is **not** to simulate completely realistic dogfights but rather to give the GM a way of conducting fast-paced fights without the need to compute things as range and altitude. The rules are split-up into 5 different steps; *Position, Spotting, Initiative, Manoeuvring* and *Shooting*.

Position

First of all the GM must decide where the aircrafts actually are relative to each other.
This will make it easier to play-out the other steps of the dogfight.
There are several ways of doing this; he may simply decide that an interception mission starts-out with the players (and friendly NPC's) are moving towards the enemy at a lower altitude (with the enemy either moving away or towards the players).

Another way is to let the dice decide exactly where the opposite sides are. Roll on table 1 first to decide the altitude of the enemy planes, and then roll on table 2 to see in which direction the enemy planes are moving. The position of the players is important to remember since it might give them bonuses or penalties later.

Table 1

Roll 3d6	Enemy Position
1-2	Below the Players
3-4	Level with Players
5-6	Above the Players

Table 2

Roll 1d6	Player Position
1-3	Moving away
4-6	Moving towards

Spotting

"Bandits 12 o'clock high!"

Before a dogfight can begin, the combatants must spot each other. In most cases they do, but sometimes only one of the pilots spots the other one. If any of the pilots have access to ground (or ship)-based radar they have a huge advantage over the enemy.

To start; each Pilot involved in the dogfight must roll against their Perception modified by any bonuses or penalties listed below. The winner of the roll gets Initiative and may proceed to *Maneuvering*, if both sides succeed; move on to *Initiative*.

Modifiers for Perception Roll (All modifiers are cumulative)

- **Cockpit Visibility (+/- Depending of Aircraft)**
  Some aircrafts are equipped with cockpits with good or bad visibility. The P-51D Mustang is an example of good visibility, while almost all bombers would count for bad visibility.

- **Ground Based Radar (+3)**
  If your side has ground based Radar directing you to the target you will have a +3 bonus on your Perception roll.

- **Weather (Varies)**
  Bad weather will often make it hard to spot other aircrafts, the worse the weather – the worse the penalty. *Use the rules for Vision on p. W154*. If you don't have this book at hand use the penalties in *GURPS Basic Set: Campaigns*.

- **Camouflage (Quick Contest)**
  Some planes were camouflaged using paint. For example; some fighters had their belly camouflaged blue so they were harder to spot against the sky.

- **Wingman (Second Roll)**
  If you are flying with a wingman; you may also roll for him whenever you failed your roll.

- **Sun in your back (-3)**
  If you are approaching with the sun in your back you will be much harder to see. Attaining this position requires a successful roll against the Pilot skill. Of course, this also goes for your enemy. If you have the sun in your back – the enemy will get the penalty.

- **Higher Altitude (+2/-2)**
  If you (or the enemy) is at a higher altitude than the enemy; you will have an advantage. Again, this also goes for your enemy. If you are at higher altitude you will get the bonus and the enemy the penalty.

Initiative

If both sides spotted each other; combat may begin as soon as both have rolled for initiative.

This is treated as "Partial Surprise" in **GURPS Basic Set: Campaigns p. 393**. But ignore the rules for Mental Stunning; if one side gets the initiative the order does not change until the other side has disengaged (see Maneuvering).

The winner off the roll is (and from here on called) the Attacker.
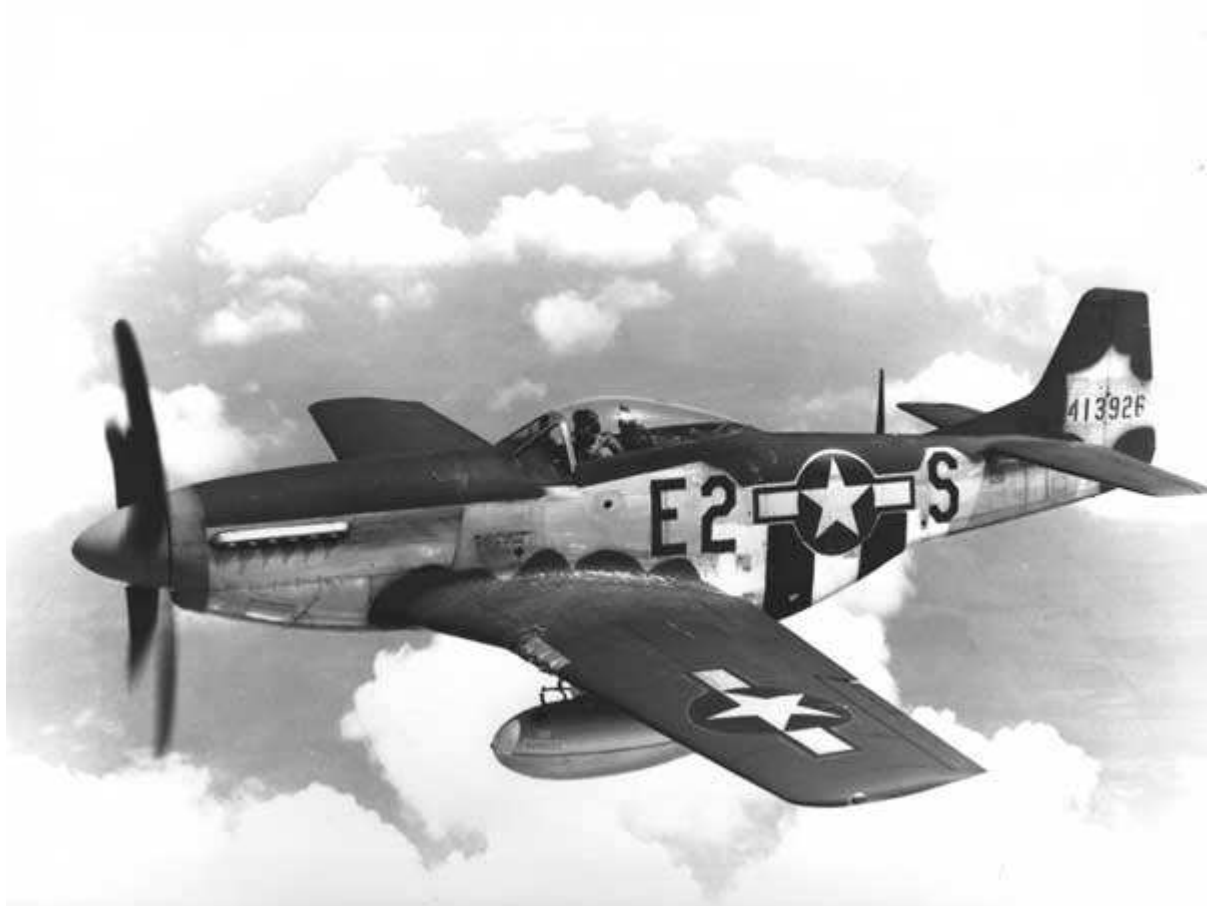
Maneuvering

Once Initiative has been settled combat can begin. Before any pilot can start shooting he must line up his aircraft for a shot, in dog fighting this commonly mean getting behind your opponent. Since both pilots are trying to achieve this, the aircrafts turn around each other until one of them gets the upper hand. For simplicities sake each dogfight starts at a range of 500 yards, but this may be increased to any range that the GM sees fit.

Tactics

First of all, each pilot rolls against their Tactics (Air-to-Air) skill. A success means that the pilot get half the degree of success (round down) as a bonus on his Pilot roll, a failure works the same but with a penalty (round up) instead of a bonus. It's up to the GM to decide the details of a critical success or failure.

Piloting

Next, the pilots roll a quick contest of Pilot skills with any modifiers (see below). If both succeed with their rolls the Attacker subtracts half of the Defenders degree of success from his own degree of success and decreases the range. If the Attacker fails and the Defender succeed, the Defender adds half of the Attacker's degree of failure as a bonus to his own degree of success, and increases the range instead. If the Attacker succeeds and the Defender fails, the Attacker instead adds half of the Defenders degree of failure as a bonus to his degree of success. If there is a tie or both fails nothing happens this turn.

Degree of Success/Failure	Range Decrease/Increase
0	50
1	100
2	150
4	200
5-6	300
7-9+	500

Thus if the Attacker did a good roll he will decrease the range to the Defender and increase his chances of shooting him down. If the Defender did a good roll on the other hand this can mean two things; he instead increases the range between them, or he will break off from the dogfight.

If the range exceeds the starting range (decided by the GM) both combatants must make a new roll on initiative. Therefore if the Defender rolls good enough; he might get the upper hand!

Modifiers for Pilot Roll

- **Aircrafts Handling Rating**
  Add or subtract the Hnd rating of the Aircraft on any Pilot roll

- **Aircrafts Speed**
  Add or subtract 1 for each 2 aAccel faster/slower than the target.

Example 1: Both Succeeds

The Attacker rolls against his Tactics skill (12) and gets 10, meaning that he has a +2 bonus on his Pilot roll. Next the Defender rolls against his Tactics skill (11) and gets an 8 meaning a bonus of +3 on his Pilot roll. The Attacker roll against his Pilot skill (12+2=14) and gets 9 which is a degree of 5. The Defender rolls against Pilot skill (11+3=14) and gets 10 which is a degree of 4. Next the Attacker subtracts the Defender's degree of success from his own getting a final modifier of 1. Checking the table for range he has reduced the range by 100 yards.

Example 2: Attacker Fails

The Attacker rolls against his Pilot skill and fails with a degree of -4. The Defender rolls and succeeds by +3. This means that the Defender adds half the Attacker's degree of failure (+2) to his degree of success. This means that the Defender increases the range between them by 300 yards.

Example 3: Defender Fails

The Attacker rolls against his Pilot skill and succeeds with a degree of +2. The Defender rolls against his Pilot skill and fails with a degree of -2. This means that the Attacker adds half of the Defender's degree of failure (+1) to his degree of success. The result of this is that the Attacker decreases the range between them with 150 yards.

If the range to the target is reduced to 0; treat this as 20 yards in range (this is because most fighters have a SM of +5 which offsets the penalties for range). Once Maneuvering is done, go to the next step.

Shooting

When the Attacker thinks he is within good range to the target, he may start shooting.
Shooting is handled just like any ranged combat but with a few changes.
Usually fighter aircrafts didn't carry a lot of ammunition. This and the fact that a few bullets were enough to cause serious damage meant that most pilots just fired bursts (while inexperienced pilots "sprayed and prayed"). To handle this fact it's up to each player to decide whenever they fire at full or half RoF.

When shooting begins follow the four steps on **p.548 in GURPS Basic Set: Campaigns**.
When deciding speed always use the aSpeed (maximum speed) of the target. The target may Dodge as usual.

Since you have to spend a whole turn to aim this is virtually impossible to do since when your shooting is over you start maneuvering again. You can handle this in different ways; either treat the Aim maneuver as a free action or always include the bonus for any sights every time you fire. However the shooter may still choose to attack a specific part of the target aircraft.

Since automatic weapons are involved in the fighting the GM may choose to use the Random Hit Locations. He may also opt to use the rules below to randomize damage on different components of the aircraft which is hit.

Random Damage

If the attack hit the aircraft: roll 1d6 and consult the table below. If the aircraft is hit in the body all results are possible (weapon damage is only possible if there are weapons in the body). If a wing is hit re-roll results of 4, 5 and 6.

Roll 1d6	Resulting Damage
1	Damage to Control Surfaces
2	Fuel Leak
3	Weapon Damage
4	Radio Damage
5	Instrument Damage
6	Oil Leak

Damage to Control Surface
Flaps, ailerons, rudders or elevators are hit. If this happens reduce the Handling Rating of the aircraft by 1. This is cumulative and may bring the Handling Rating to a negative value!

Fuel Leak
Fuel lines are hit and you may only stay in the fight for another 2d6 rounds before you have to return to base.

Weapon Damage
If the component takes more than HP/5 in damage; one weapon ceases to function. This can happen as many times as you have weapons.

Radio Damage
Bullets hits in the cockpit and trashes you radio! You are no longer capable of communicating with other aircrafts or your ground controller.

Instrument Damage
One or more of vital cockpit instruments are hit and you get a -1 to all Pilot rolls. This is also cumulative but to a maximum of -5.

Oil Leak
Oil is leaking from the engine and there is a risk of engine overheating. You can effectively diminish this risk by decreasing your throttle. In game terms this means that you halve your aAccel rating and aSpeed (rounded down). If you choose to keep on going on full throttle; roll against the aircrafts HT each maneuvering round with a penalty of -1 per 2 rounds of maneuvering since this damage occurred. On a failure the engine stalls, on a critical failure the engine starts burning!

Optional Rules

Extended Maneuvering

During Maneuvering there are a few maneuvers that you can do to either increase your Dodge or chances of hitting the target.

Barrel Roll
The Barrel Roll is a dangerous maneuver to perform but if it succeeds you force the Attacker to overshoot you and you may get the initiative. Handle this as normal Maneuvering but both pilots take a penalty equal to -6. If you succeed and with the roll the Attacker gets your degree of success as a penalty to his Gunner skill, however if the Attacker also succeeds he offsets the penalty by half his degree of success (round down).

If you get a critical success the Attacker overshoots you by yards equal to his Speed minus half of your Speed (round to nearest). If this happens you roll for new initiative. If you get the Initiative in the ensuing Maneuvering the Defender (ex Attacker) is at the same range from you as he overshot.

Wing Over
The Wing Over is another hard maneuver that can turn the fight in your favor. The idea is to climb and turn around so that you face the enemy.

Hazards

Any failed Piloting roll follows the rules on *p.466 in GURPS Basic Set: Campaigns*.

G-forces

During maneuvering pilots are under almost constant stain from G-forces. During each maneuvering phase all pilots involved in the dogfight rolls against HT. Follow the rules for Acceleration on *p.434 in GURPS Basic Set: Campaigns* but halve the FP loss.